

Population – Waimakariri 2048

Background Report on the Population in the Waimakariri District¹

Purpose

The purpose of this background report is to provide information regarding the population trends of the Waimakariri District, both at a historical level and projections moving forward out to 2048. The findings in this report form a basis for the growth directions and recommendations outlined in Waimakariri 2048 – District Development Strategy.

Background

This report has been split into two sections. Section 1 focuses on the current and historical trends of population growth in the Waimakariri District over the last twenty years (1996-2016). This section provides information on the following areas:

- Population Estimates and Census Data
- Demographic Changes
 - Age,
 - Sex and
 - Cultural
- Origin of Growth
 - Births / Deaths
 - Internal Migration
 - International Migration
- How was the growth accommodated in the District - Housing trends and locations
 - Dwelling Estimates in the District
 - Housing Size
 - Building Consents

Section 2 provides information on the future population growth for the Waimakariri District over the next thirty years (2018 -2048). This information includes the amount and demographic trends of the growth to the District. In addition to considering the ramifications of population growth to the Waimakariri District, the Council also needs to be mindful of the national and regional management of population growth and how best to achieve growth that meets the needs of the neighbouring local authorities, along with the Waimakariri District, its communities, developers and infrastructure providers. A brief commentary on these assumptions are included in the conclusion of section 2.

This document focuses on population growth and does not consider the impact of additional population growth could have on business and commercial development or the potential requirements for new community facilities or infrastructure provision in the Waimakariri District going forward. It also does not take into account any sub-regional population dynamics or specifics relating to land or development feasibility. These issues are being addressed in other documents that will inform Waimakariri 2048 or the Council's response to the National Policy Statement for Urban Development Capacity.

¹ This report was completed in June 2017 by the Waimakariri District Council. The data used in this report was the most up-to-date at the time of writing. Each data source is provided within the description of each graph or table.

Section 1: Current and Historical Trends - Population Growth in the Waimakariri District 1996-2016

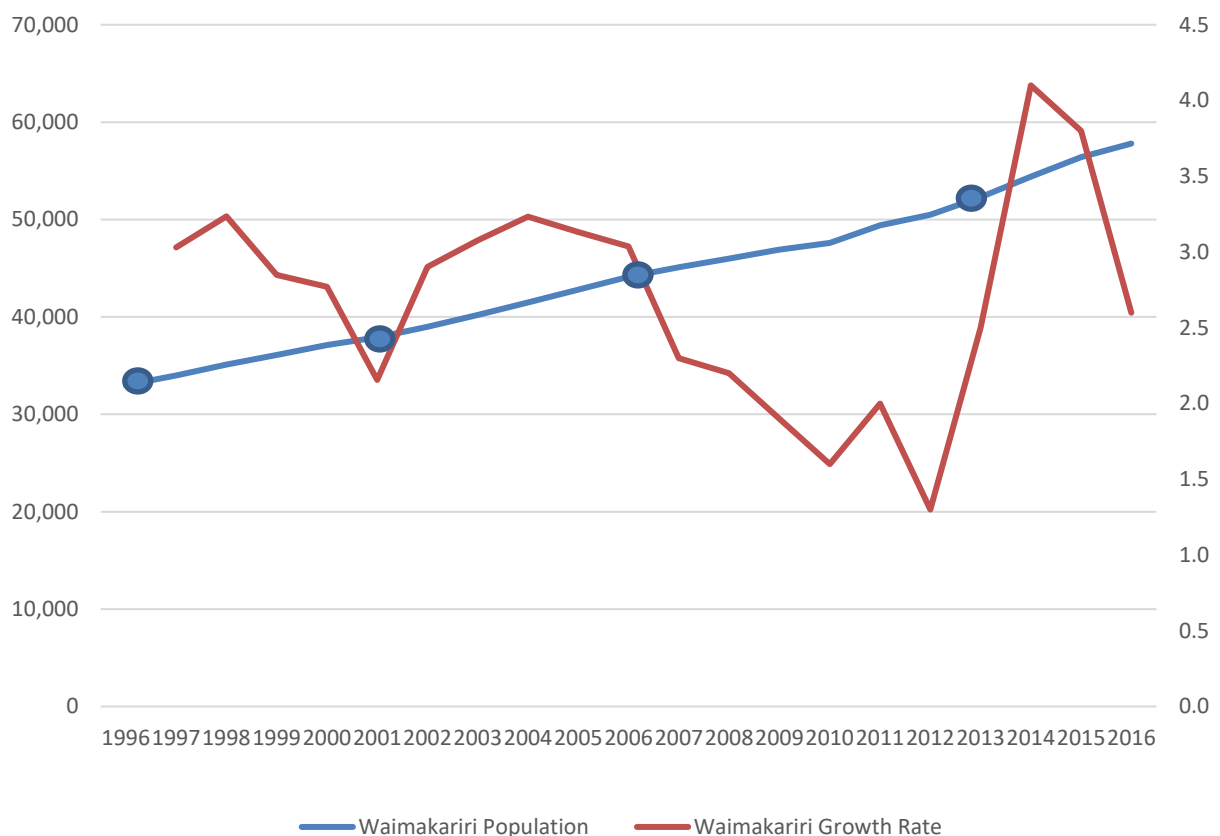
1.1 Population Estimates and Census Data

Statistics New Zealand (StatsNZ) produce population estimates on a yearly basis to inform a range of interested groups (including Local Authorities) on how the population within New Zealand is changing over time. As the actual population in New Zealand is only determined via the five yearly Census process, it is important to understand the population estimates and trends on an annual basis to help Local Authorities, business and other groups in their decision-making processes.

A number of categories are included as part of the population estimates by StatsNZ. They are:

- Overall population of New Zealand – National
- Subnational levels
 - Regional Council
 - Territorial Authority
 - Area Units
 - Ethnic groups
- Dwelling and households
- Māori population

The results from this data has informed the following graphs relating to population estimates in the Waimakariri District.



Graph 1 – Subnational Population Estimates 1996-2016 (Source: StatsNZ)

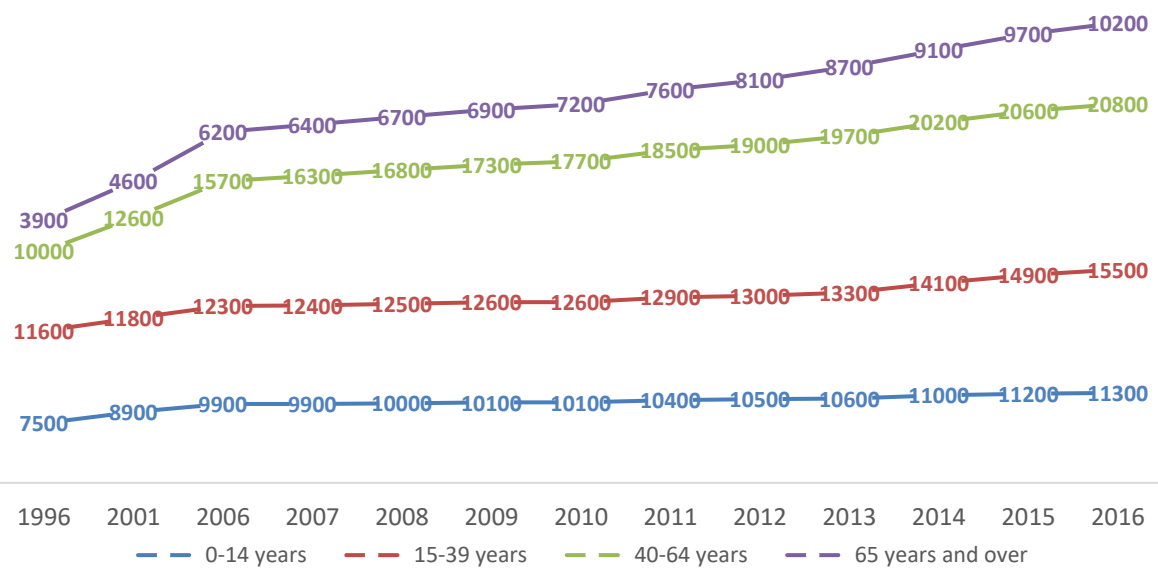
Key Points

- The graph outlines the population estimates for the Waimakariri District over the last twenty years.
- For the years 1996, 2001, 2006 and 2013, the data shown is the actual population of the district from Census data (as seen by the circled dots).
- Waimakariri has had an increasing population trend over the past twenty-year period. This has equated to a population increase of 75% from 33,000 in 1996 to 57,800 in 2016.
- Overall, the population increase has resulted in 24,800 additional people in the District.
- The population growth has resulted in an average growth rate of 2.7%. As a comparison, the overall growth rate for New Zealand for the same time was 1.2%.
- In a New Zealand context, the Waimakariri district has been one of the fastest growth districts over the past fifteen years, as identified in table 1.

Year	Rank in New Zealand (City/District) for Growth	Year	Rank in New Zealand (City/District) for Growth
2001/06	5 th Fastest	2010/11	4 th Fastest
2006/07	4 th Fastest	2011/12	7 th Fastest
2007/08	3 rd Fastest	2012/13	3 rd Fastest
2008/09	3 rd Fastest	2013/14	2 nd Fastest
2009/10	8 th Fastest	2014/15	3 rd Fastest
2010/11	4 th Fastest	2015/16	8 th Fastest

Table 1 – Population Increase and ranking for growth in New Zealand (Source: Stats NZ)

1.2 Demographic Trends

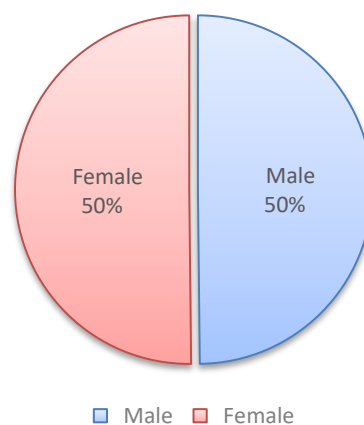


Graph 2 - Age Distribution 1996-2016 (Source: StatsNZ)

Key Points

- For the Waimakariri District, the median age is 42.7 years. For New Zealand as a whole, the median age is 37.1 years.
- 17.6 percent of people in Waimakariri District are aged 65 years and over, compared with 14.9 percent of the total New Zealand population.
- 19.5 percent of people are aged less than 15 years in Waimakariri District, compared with 19.6 percent for all of New Zealand.
- Largest increase in age distribution:
 - For 40-64 year olds - this age bracket has increased by 5.7% as a proportion since 1996. This equates to a population change in this age bracket of approximately 10,800 people.
 - For 64+ years and over - this age bracket increased by 5.8% as a proportion since 1996. This equates to a population change in this age bracket of approximately 6,300 people.

Proportion of Population by Sex

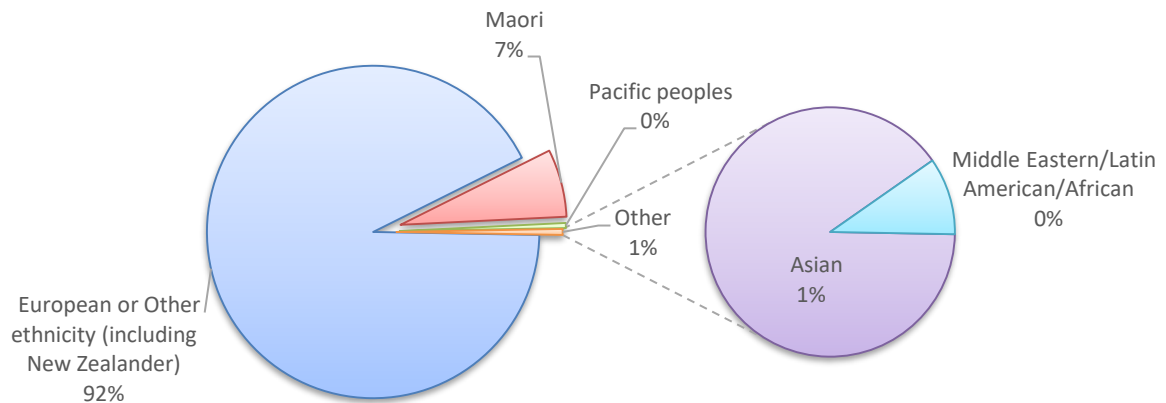


Graph 3 - Proportion of population in Waimakariri by Sex in 2016 (Source: Stats NZ)

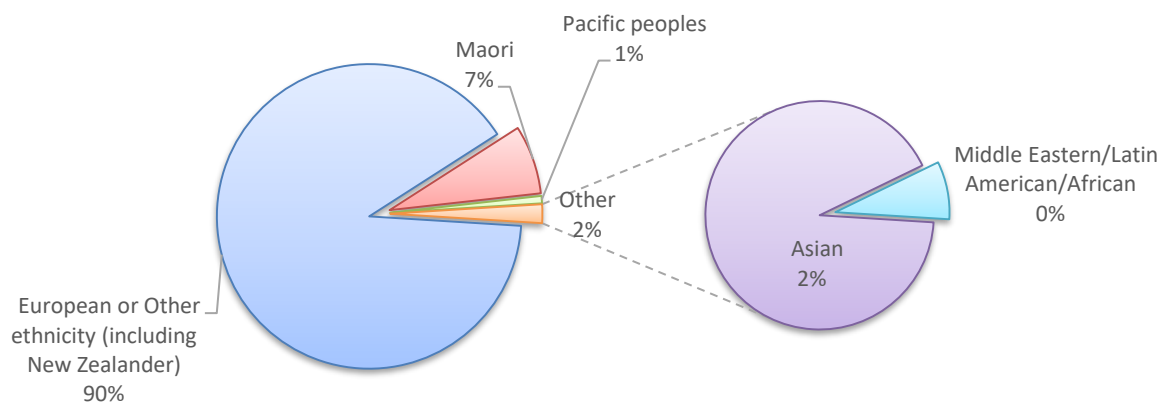
Key Point

- The proportion of population by sex has remained steady in the Waimakariri District over the last twenty years.

Proportion of Population by Cultural Background



Graph 4 - Proportion of population in Waimakariri by Cultural Background in 1996 (Source: StatsNZ)



Graph 5 - Proportion of population in Waimakariri by Cultural Background in 2013 (Source: StatsNZ)

Key Points

- The median age of Māori is 22.5 years in Waimakariri District, compared with a median of 23.9 years for all Māori in New Zealand.
- 4.9 percent of Māori in the Waimakariri District are aged 65 years and over, compared with 5.3 percent of New Zealand's Māori population.
- 35.8 percent of Māori are aged less than 15 years in the Waimakariri District, compared with 33.7 percent for all Māori in New Zealand.
- While the cultural diversity in the District has not significantly changed between 1996 to 2016, the district has seen an increase in the Asian and Pacific population.
- Asian population has increased from 200 in 1996 to 990 in 2013.
- 39.4 percent of Asians are aged 40-64 years in the Waimakariri District, compared with 28.1 percent of New Zealand's Asian population.
- 31.3 percent of Asians are aged 15-39 years in the Waimakariri District, compared with 46 percent of New Zealand's Asian population.

1.3 Origin of Growth

For cities or districts in New Zealand, three factors determine if the population has either increased or decreased. They are:

1. Natural increase (or decrease) in the existing population of the District – (via births / deaths)
2. Increase (or decrease) in internal migration of population from within NZ to the cities or districts (such as the Waimakariri)
3. Increase (or decrease) of international migration of population to cities or districts (such as the Waimakariri)

As graph 1 has shown (see page 2), the Waimakariri District has been in a period of increased growth over the last twenty years. The following graphs will provide the makeup of this growth via the three factors and identify some trends in the data.

Births / Deaths

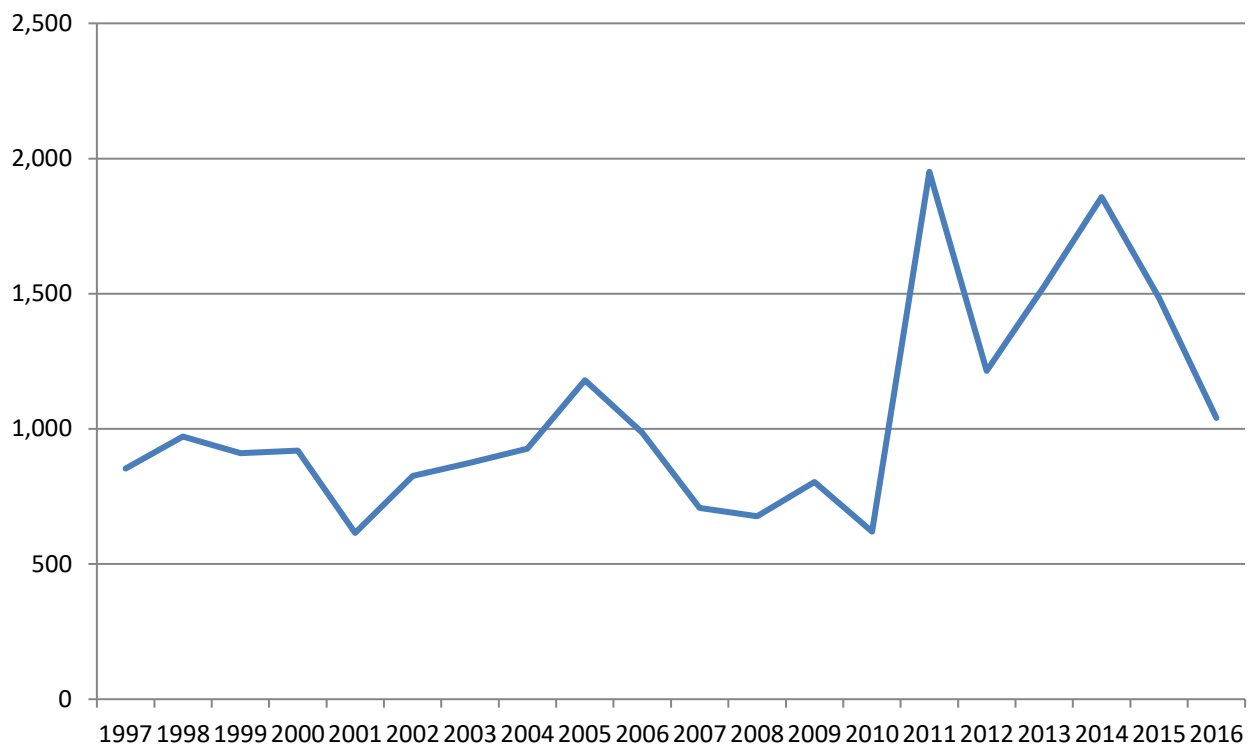


Graph 6 – Births/Deaths within the Waimakariri District 1996/2016, (Source: StatsNZ – Infoshare)

Key Points

- There have been 10,992 births recorded to the Waimakariri District over the last twenty years. This compares to 5,895 deaths for the same period.
- Therefore, the Waimakariri population has had a net natural increase of 5,097.
- While graph 6 shows the gap between births and deaths closing as a trend up until 2014, there was a sharp increase in births recorded in 2015. The seemed to be a one off occurrence with the level of births decreasing from the 2015 level in 2016.

Internal Migration (within NZ)

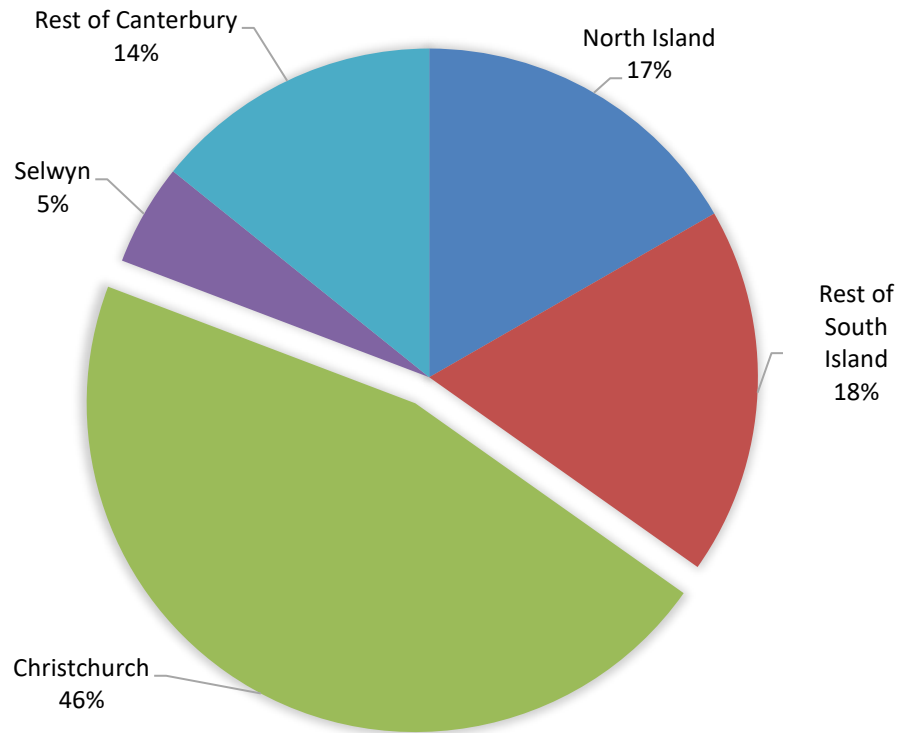


Graph 7 – Internal Migration within the Waimakariri District – (Source: Stats NZ and WDC)

Key Points

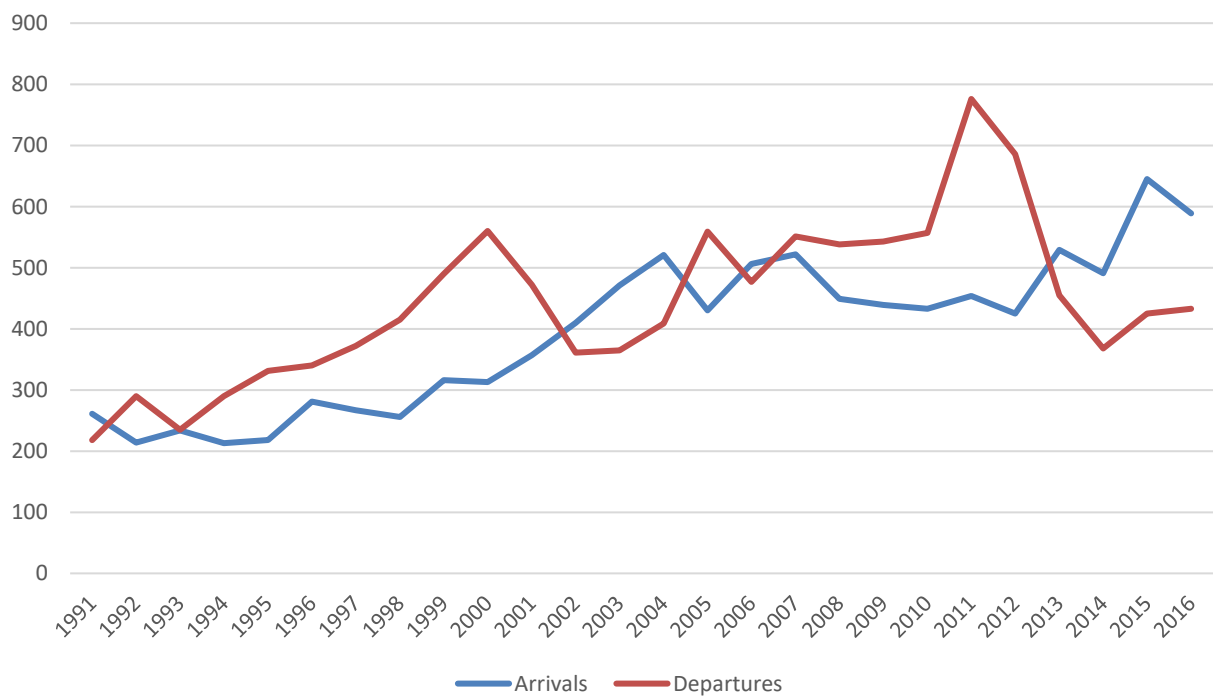
- Internal migration has been a major factor of the population growth in the Waimakariri District, with approximately 20,947 people moving into the District between 1997 and 2016.
- A significant increase in internal migration occurred from 2010 to 2014. This was a result of the impact of the Canterbury earthquakes.
- Census 2013 provided a detailed snapshot of internal migration within the District. Residents in Waimakariri provided details on where they were living in New Zealand from 2008 to 2013 before making their primary residence in the Waimakariri District².
- The following are the results from this data:
 - North Island – 1152
 - Rest of South Island – 1248
 - Christchurch – 3171
 - Selwyn - 345
 - Rest of Canterbury – 981
- Graph 8 (below) provides this data as a percentage. Overall, Christchurch has provided a sizeable proportion of the internal migration to the Waimakariri District.

² 2013 Census QuickStats about Greater Christchurch



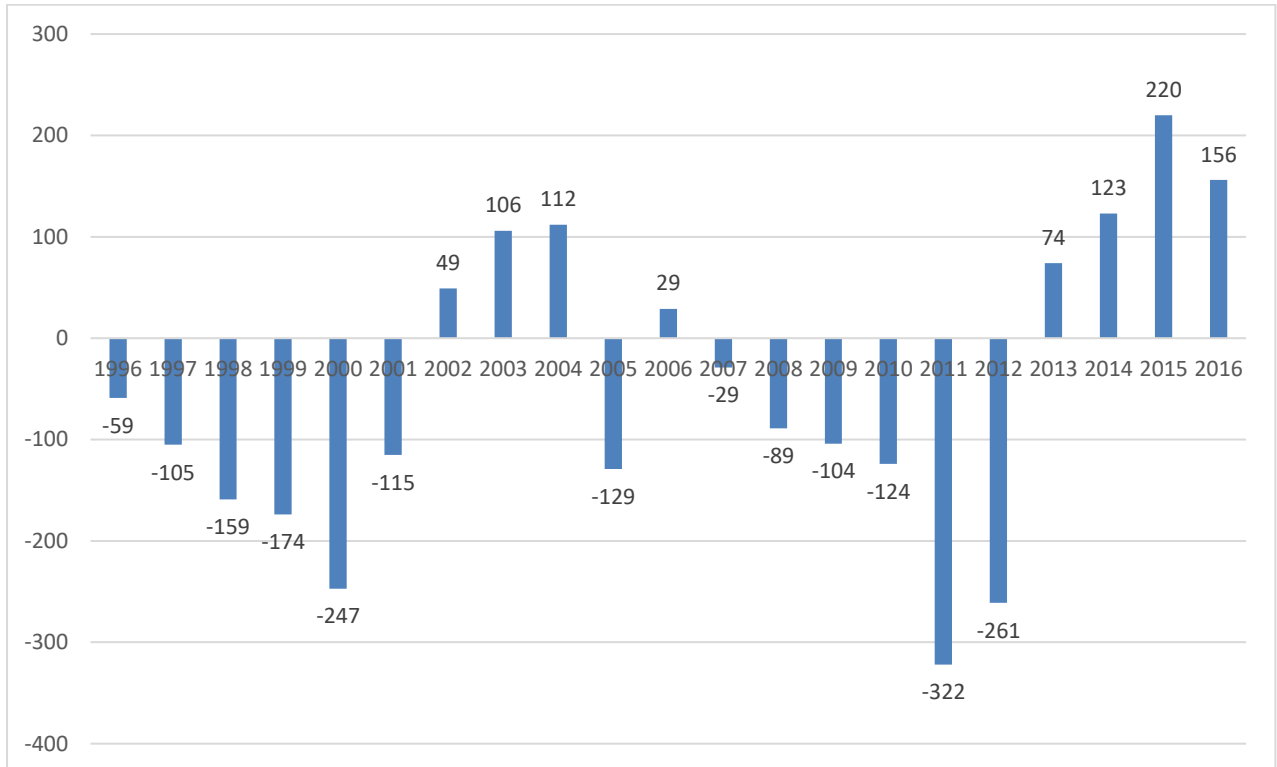
Graph 8: Internal Migration from locations within NZ to Waimakariri –at 2013 from 2008 – (Source: StatsNZ – Census 2013)

International Migration - Arrivals / Departures



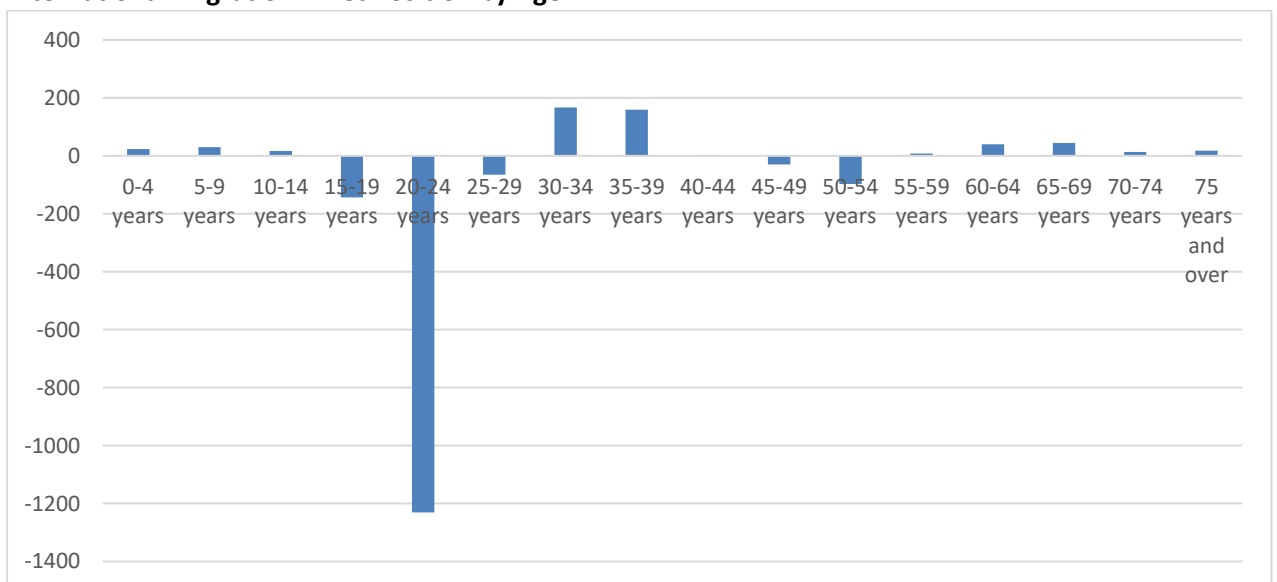
Graph 9– International Migration to Waimakariri District – 1996 – 2016 (Source: StatsNZ-Infoshare, International Travel and Migration, Permanent and long-term migration by age, sex and NZ area)

International Migration – Net Position



Graph 10 – Net International Migration to Waimakariri District – 1996 – 2016 (Source: StatsNZ Infoshare, International Travel and Migration, Permanent and long-term migration by age, sex and NZ area (Annual – Dec))

International Migration – Net Position by Age



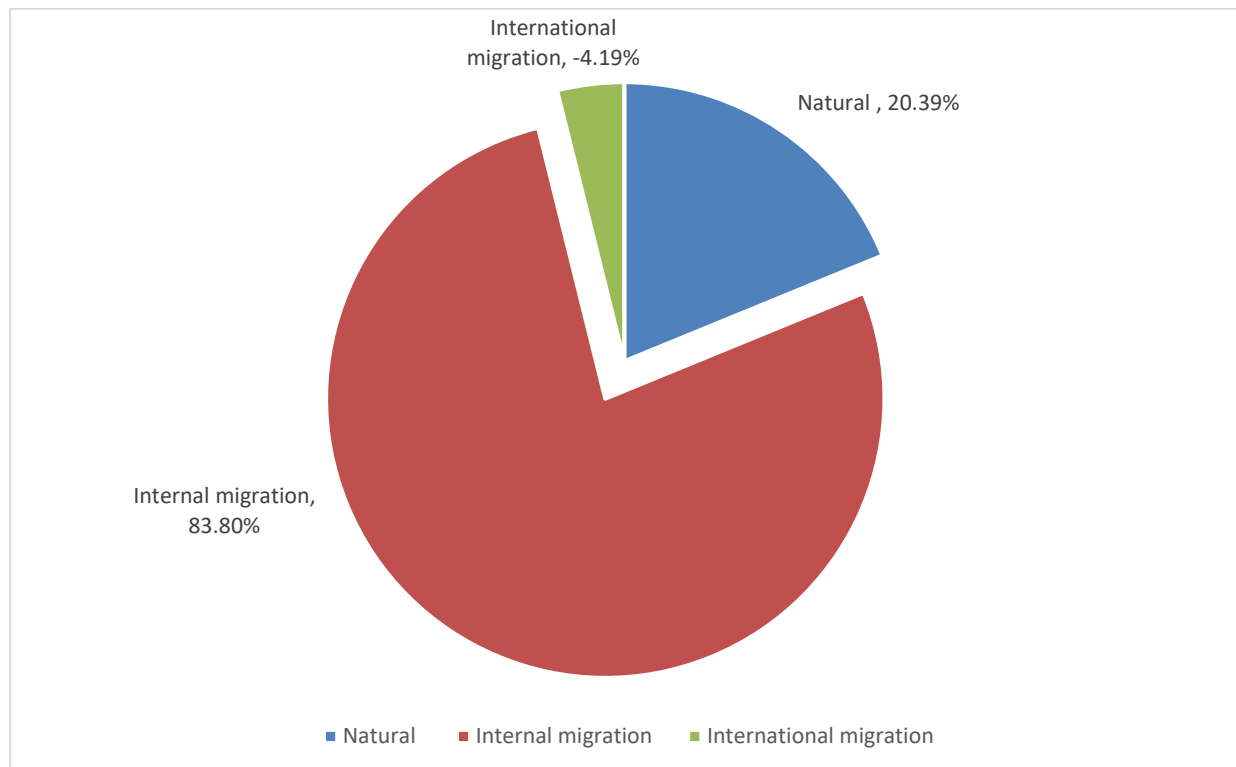
Graph 11 - Net International Migration to Waimakariri District – 1996 – 2016 (Source: StatsNZ Infoshare, International Travel and Migration, Permanent and long-term migration by age, sex and NZ area)

Key Points

- In the period 1996 to 2016, international departures exceeded arrivals resulting in a net decrease in population for international migration of approximately 1,048 people.

- In 2010 to 2012, there was a sharp increase in international departures. This is likely to be because of the Canterbury earthquakes.
- Overall, the largest contributing factor to the net decrease in international migration was from the large amount of 20-24 year olds leaving to go overseas, with approximately 1,251 people leaving the district.
- The Waimakariri District has seen a small net increase in international migration from 2013 to 2016. This links with the national trend regarding of strong positive international migration.

Overall Source of Growth in the District



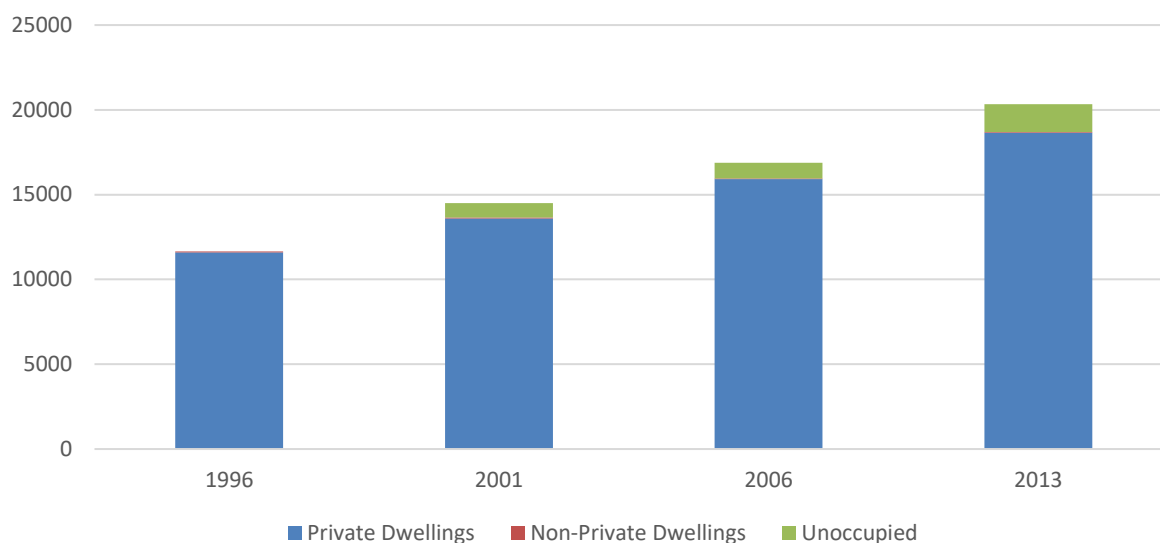
Graph 12 – Source of Growth in the District between 1996 and 2016 (Source: StatsNZ and WDC)

Key Points

- Out of the three possible sources of growth, the Waimakariri District has had growth in both natural (birth and deaths) and internal migration. International migration has been the only potential source of growth that has decreased.
- In total between 1996 – 2016:
 - Natural population increase by 5,097 people.
 - Internal migration increase by 20,947 people.
 - International migration decreased by 1,048 people.
 - Resulting in an overall population increase of 24,996.

1.3 Accommodated growth in the District - Housing trends and locations 1996 to 2016

Total number of dwellings in the District

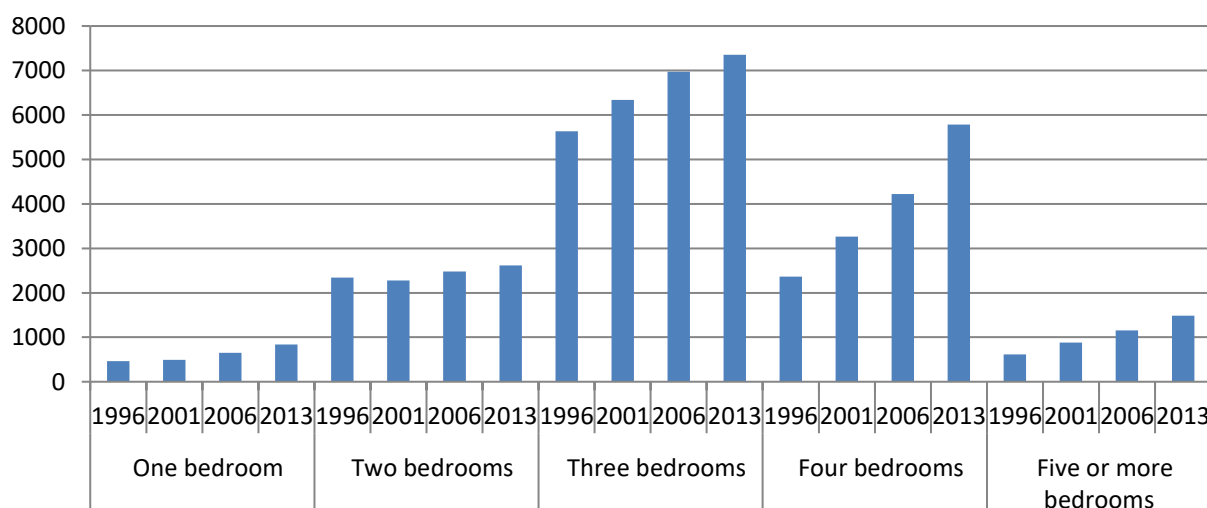


Graph 13 – Number of dwellings in Waimakariri – Census 1996, 2001, 2006, 2013.

Key Points

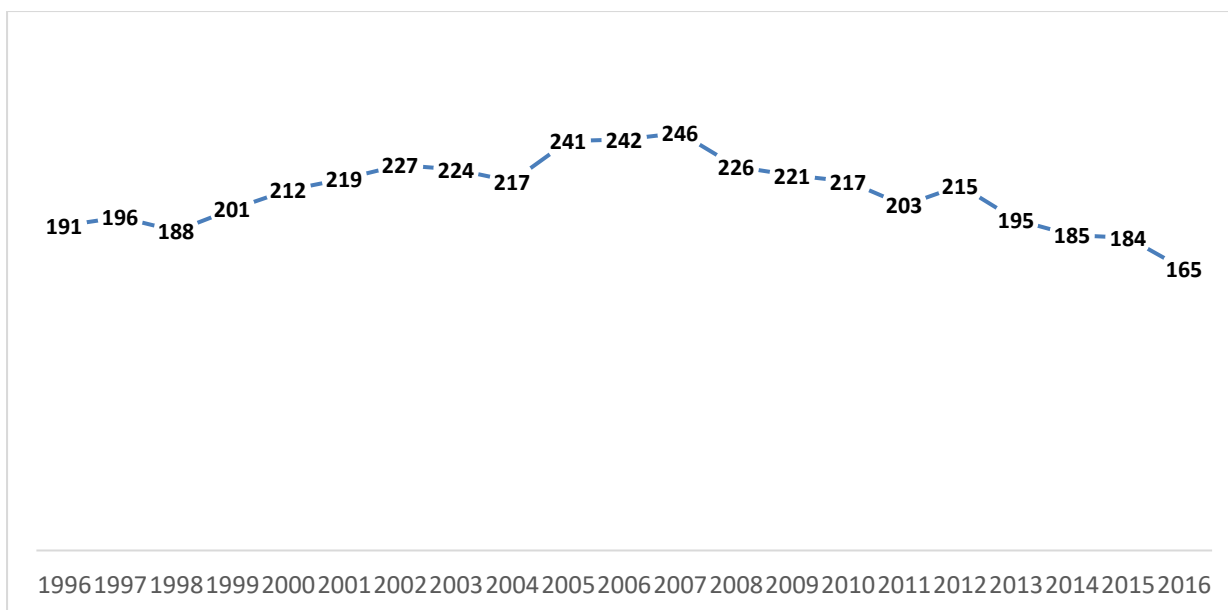
- In 2013, Waimakariri District had approximately 20,343 dwellings.
- Between 1996 to 2013, 8,691 additional dwellings were constructed in the Waimakariri District.
- On average 511 new dwellings were constructed per year in Waimakariri District.
- For 2001 and 2006, the percentage of unoccupied dwellings was 5.89% and 5.49%. In 2013, this percentage increased to 8.1%. This potential reason for this increase is likely to be the Canterbury earthquakes and the beginning of the recovery as a result of the damage caused to the housing stock in the Waimakariri District.

Dwellings by the bedroom size, average floor area



Graph 12 – Dwelling Size within the Waimakariri District – Census 1996, 2001, 2006, 2013³

³ Number of bedrooms for occupied private dwellings, 1996, 2001, 2006, and 2013 Censuses,



Graph 13 – Average Floor Area per year for Dwellings Consented

Key Points

- The most popular bedroom size for dwellings in the district is three bedrooms (with 7,350), followed by four bedrooms (with 5,781).
- The largest increase in dwelling size was four bedrooms, increasing from 2,367 to 5,781.
- There have been steady increases in one, two and five or more bedroom dwellings.
- Average Floor areas for dwellings has been decreasing from 246m² in 2007 to 165m² in 2016.

Average number of people per dwelling in the District

	1996	2001	2006	2013
Population	33,000	37,900	44,100	52,300
Dwellings ⁴	11,652	14,505	16,878	20,343
Average people per dwelling	2.83	2.61	2.61	2.57

Table 2 Average people per dwellings (Source: Stats NZ)

Note: Table 2 includes dwellings that are occupied and unoccupied at the time of the Census. StatsNZ defines unoccupied dwellings as ‘empty’ or ‘residents away’. Therefore including unoccupied dwellings could affect the accuracy of what the actual household size is. Table 3 has removed the unoccupied dwellings to outline what the actual household size was in the district on Census night 2013.

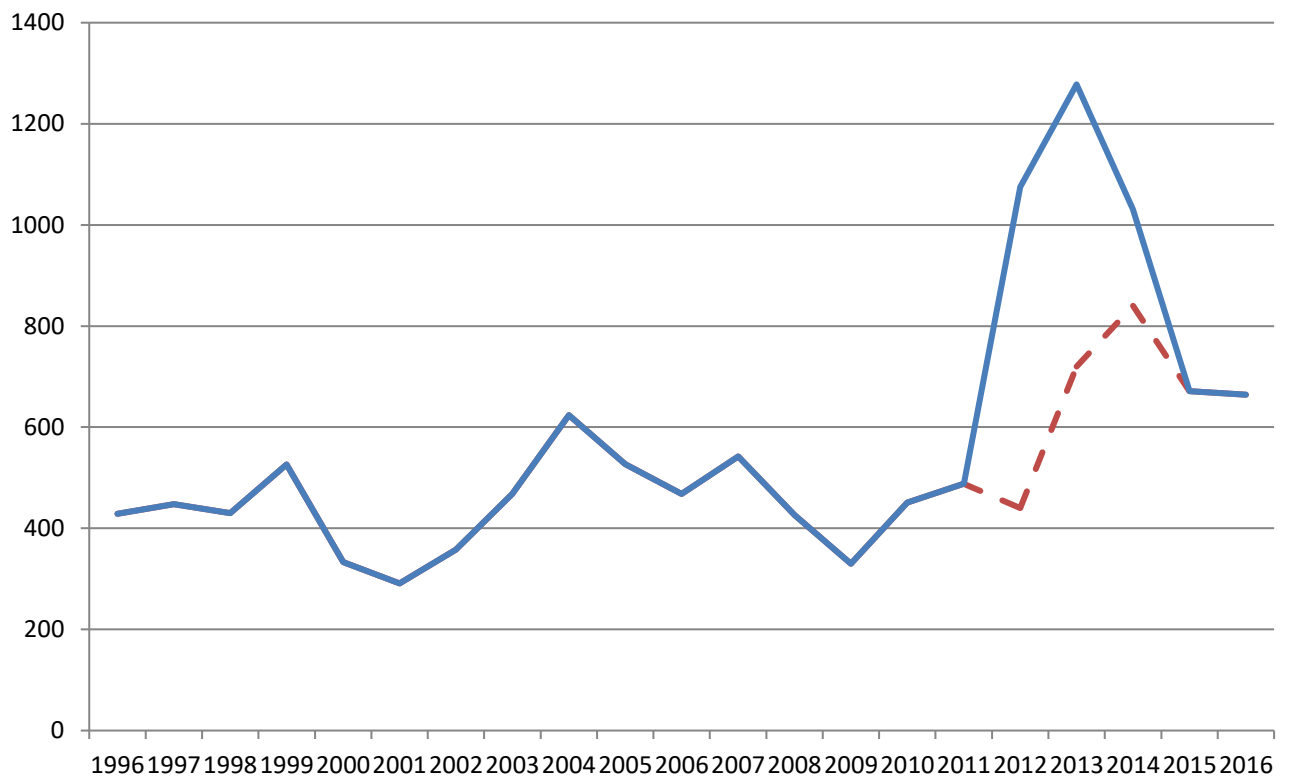
	1996	2001	2006	2013
Population	33,000	37,900	44,100	52,300
Dwellings ⁵	11,652	13,650	15,951	18,696
Average people per dwelling	2.83	2.78	2.76	2.80

Table 3 Average people per dwellings (Source: Stats NZ)

⁴ Dwellings = Private and Non Private Dwellings. Unoccupied dwellings are not included in this calculation.

⁵ Dwellings = Private and Non Private Dwellings. Unoccupied dwellings are not included in this calculation.

Building Consents Issued for Dwellings

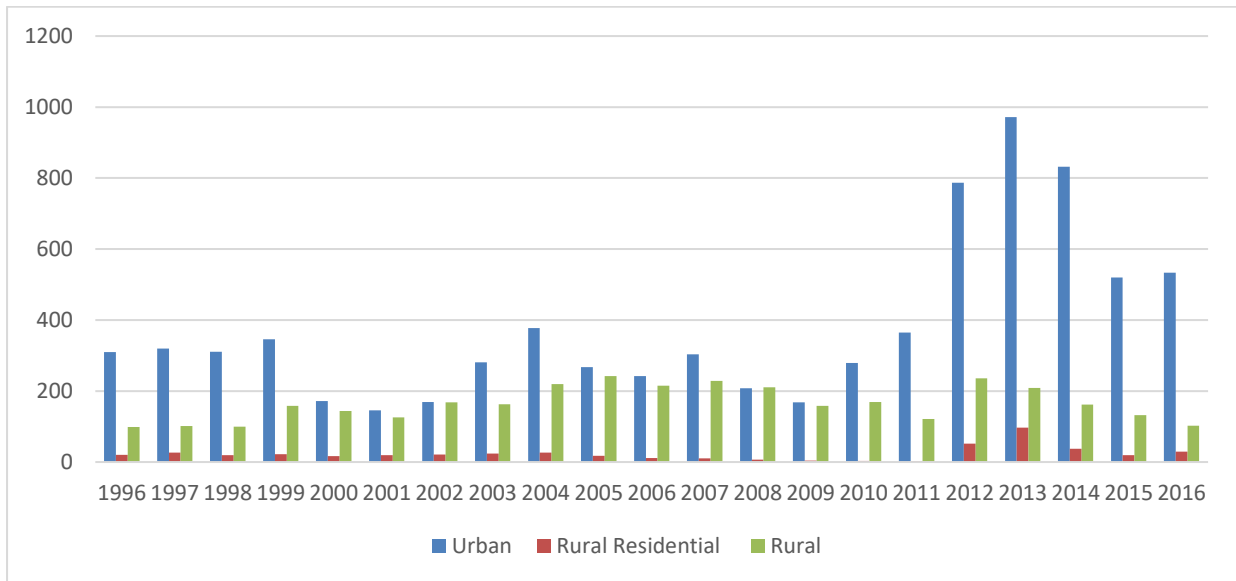


Graph 13 – Building Consents for New Dwellings in the Waimakariri District 1996-2006 (Source: StatsNZ and WDC)

Key Points

- Over the last twenty years, 11,858 new dwelling building consents have issued in the District.
- On average, 564 new dwelling building consents occur each year.
- Due to the Canterbury earthquake, between 2012 -2014, a number of building consents for new dwellings were for replacement dwellings and not 'new' dwellings. The red dotted line in graph 13 provides an estimate of what the building consent level would have been without these replacement dwelling building consents.
- Excluding the 2012-2014 data, the average new dwelling building consents reduces to 472.

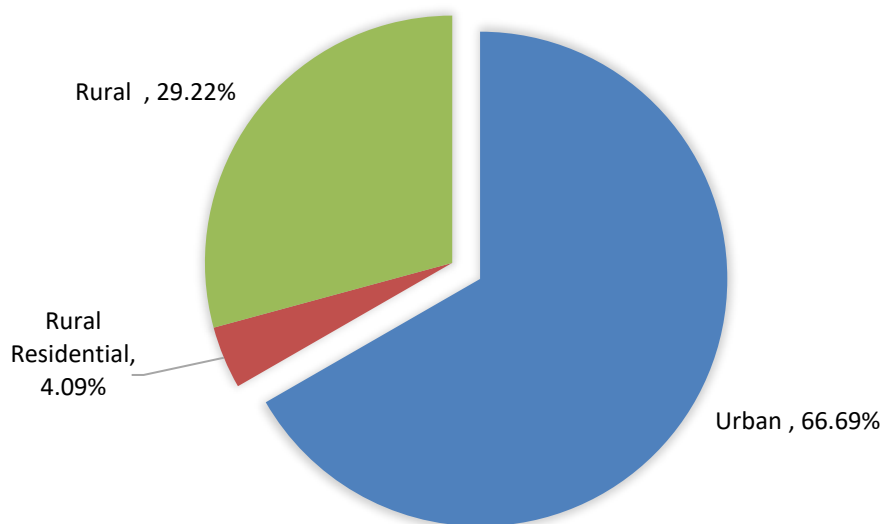
Location of Building Consents between Urban, Rural Residential and Rural areas in Waimakariri District



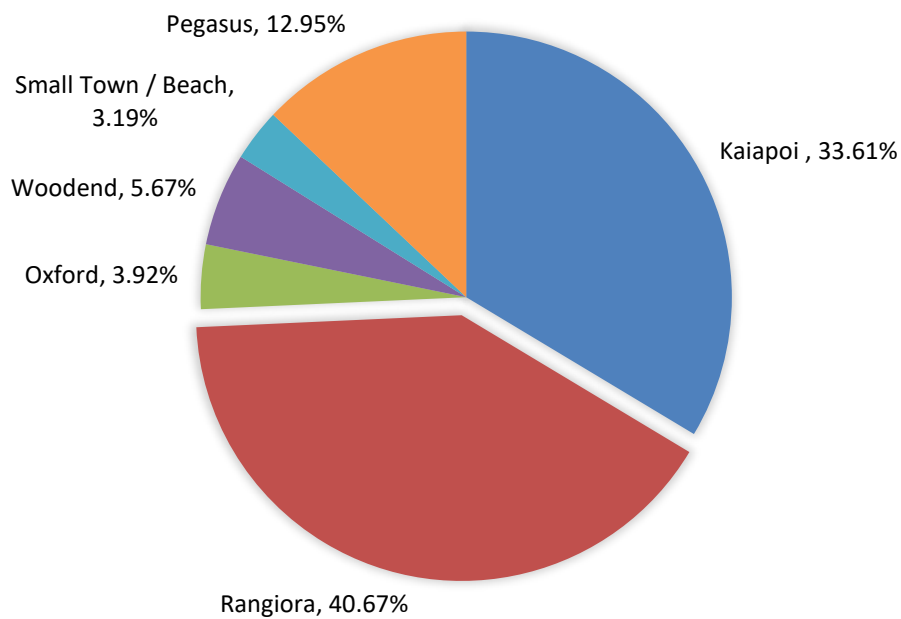
Graph 14 – Split of Building Consents – Urban and Rural Areas of Waimakariri District

Key Points

- Average breakdown between urban, rural residential and rural new dwelling building consents - 1996-2016
 - Urban – 7,908 consents with an average of 377 per year.
 - From 2012-to 2014, the large increase to the amount of building consents issued resulted from post-earthquake recovery (especially in Kaiapoi).
 - Rural Residential - 485 consents with an average of 23 per year.
 - Rural - 3,465 consents with an average of 165 per year.



Graph 15 – Proportion of New Dwelling Building Consents in Urban, Rural Residential and Rural Areas in Waimakariri District – 1996 to 2016 (Source: WDC)

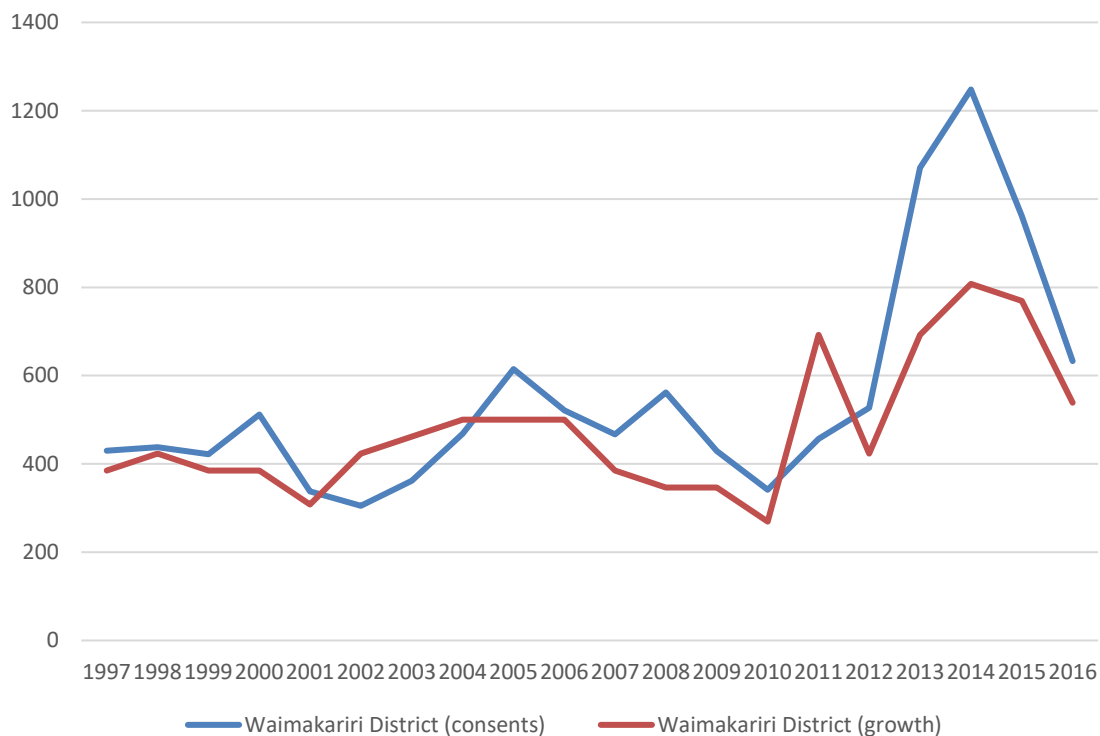


Graph 16 – Proportion of New Dwelling Building Consents in Urban Areas in Waimakariri District – 1996 to 2016 (Source: WDC)

Key Points

- Urban areas made up 67% of new dwelling building consents. Of this:
 - Rangiora had the largest proportion of consents (40.67%). This relates to the scope and scale of Rangiora as the largest urban area in this district.
 - Kaiapoi had the second largest proportion of consents (33.61%) and is seen as a desirable location for development while recovering from the Canterbury earthquakes.
 - Pegasus had the third largest proportion of consents (12.95%) as a new development within the Waimakariri District.
 - Organic development occurred in Oxford, Woodend and the smaller settlements with the District.

Building Consents compared to household growth



Graph 17 – New Dwelling Building Consents compared to household growth (Source: MBIE)

Key Points

- The amount of building consents issued could be used as a proxy for determining the level of growth in a District in any one year.
- However, while there was a significant increase in the level of building consents issued between 2012 and 2014 (as shown in the blue line), this was a direct result of rebuilding existing houses damaged by the earthquakes rather than new dwellings adding to the existing dwelling stock in the District.
- Therefore once this factor has been taken into account, the amount of building consents related solely to growth can be used (as shown in the red line)
- Average Building Consents (including earthquake recovery) per year – 555
- Average Building Consents (excluding earthquake recovery) per year - 477

2. Future Projections - Population in the Waimakariri District -2018 – 2048

2.1 Amount of projected growth and demographic changes in the District

Statistics New Zealand (StatsNZ) produce population projections every two to three years. These projections provide an opportunity to assist future planning, with information about the likely future size and structure of the population helping territorial authorities, and communities to plan for infrastructure and facilities to meet the needs of a changing population.

Stats NZ provides the following guidance on how the projections are developed.

“Population projections are derived from an assessment of historical, current, and likely future trends in births, deaths, and migration – the three components of population change. Assumptions about future fertility (births), mortality (deaths), and migration are formulated after analysis of short-term and long-term historical trends, government policy, information provided by local planners and other relevant information. Assumptions are set first at the national level and used as a constraint for the subnational assumptions (this 'top-down' approach prevents implausible projections for any area).

- **Fertility**
 - *Fertility assumptions for each area are formulated in terms of age-specific fertility rates for each time period. The rates are based on the recent number of registered births in each area. The rates are then applied to the (female) population in each area to give the number of births for each time period.*
- **Mortality**
 - *Mortality assumptions for each area are formulated in terms of male and female age-specific survival rates for each time period. The rates are based on the recent number of registered deaths in each area. The rates are then applied to the population in each area to give the number of people who survive each time period (the number of deaths is calculated indirectly).*
- **Migration**
 - *The assumed net migration level and age-sex pattern for each area is based on a consideration of observed past patterns, the capacity of the area for further growth (for areas with net inflow), whether historical outflows can be sustained (for areas with net outflow), and information available from and about local authorities relating to current and future developments which may affect population change”.*

The projections are not predictions, but an indication of likely future change given specific assumptions listed above. As the future is inherently uncertain and very challenging to predict with any precision, StatsNZ provide three growth scenarios based on three changes to the assumptions that users can utilise depending on their circumstances. They are:

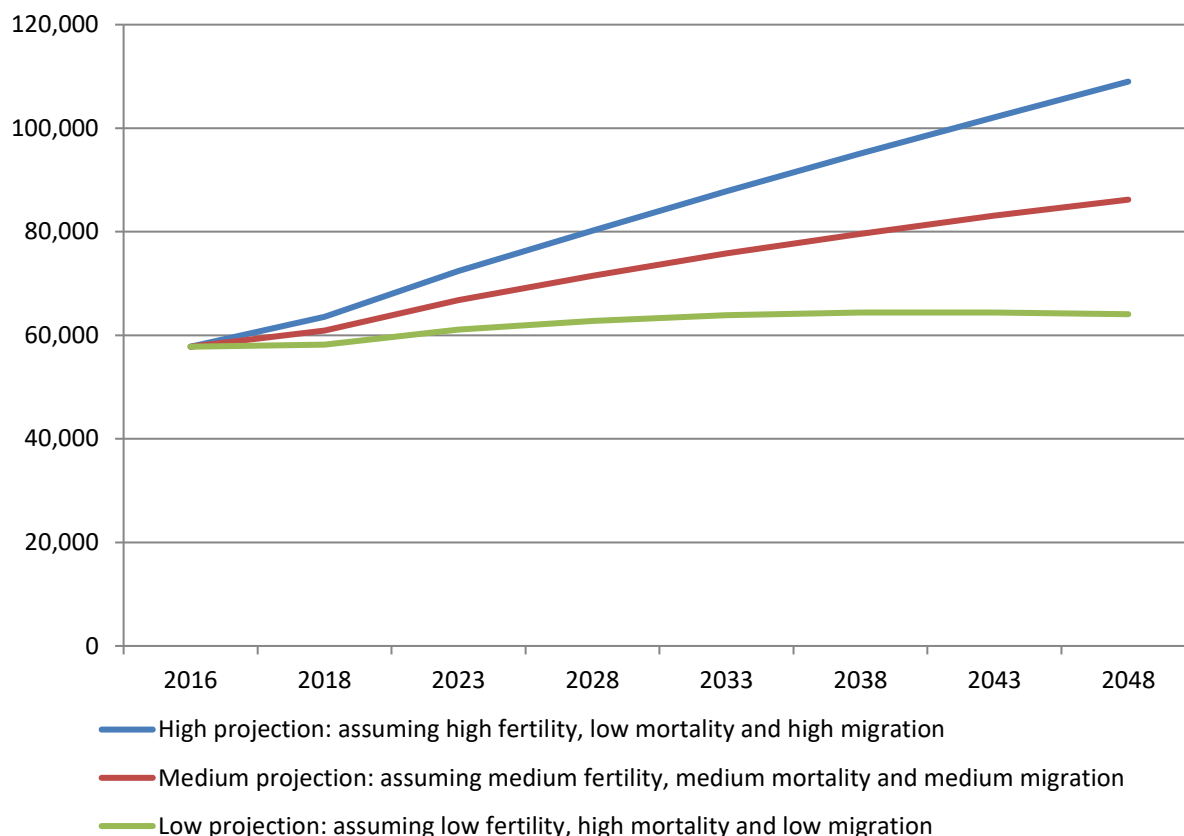
- Low Growth – Low Fertility, High Mortality, Low Migration
- Medium Growth – Medium Fertility, Medium Mortality, Medium Migration
- High Growth – High Fertility, Low Mortality, High Migration

A number of categories are included as part of the population projections by StatsNZ. They are:

- Overall population of New Zealand – National
- Subnational levels
 - Regional Council

- Territorial Authority
- Area Units
- Ethnic groups
- Family and households

Stats NZ released the latest projections for Local Authorities on 22 February 2017. The results of these projections have been summarised in graph 18.



Graph 18 - Subnational Population Projections 2016-2048 (Source: StatsNZ)

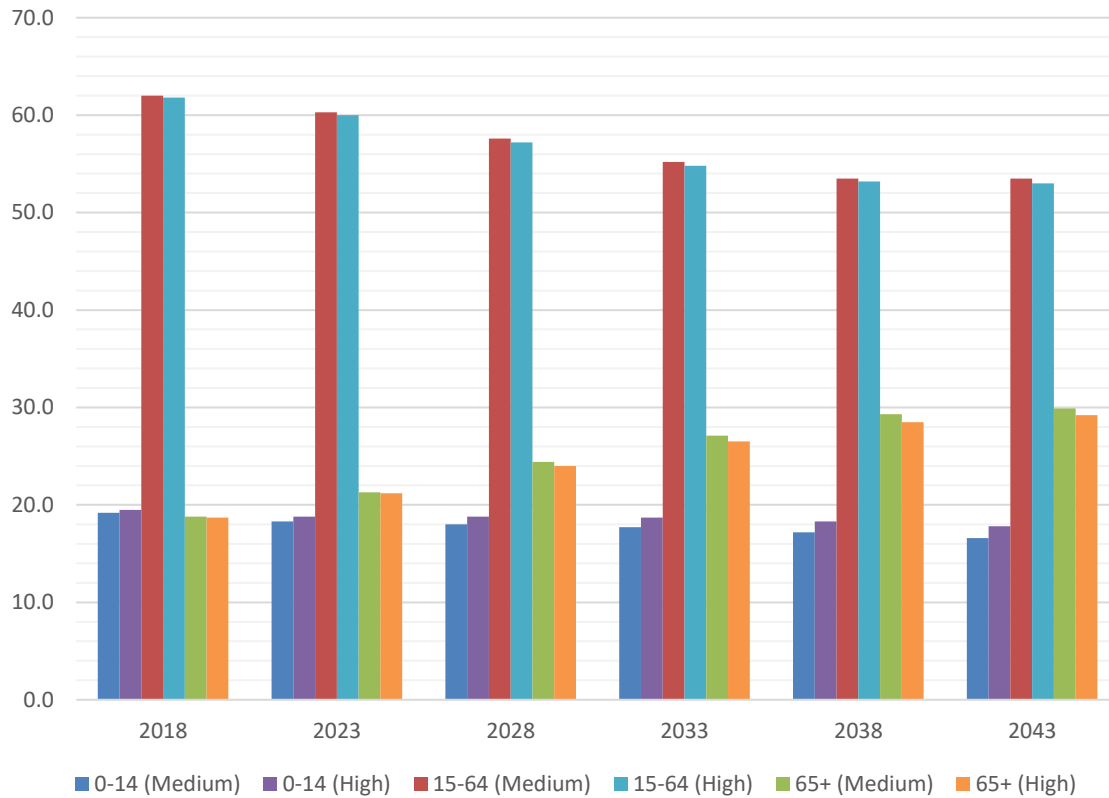
Projections	Population 2016	Population 2048	Annual Growth Rate	Additional People	Additional Households	Average New Dwellings per year
Low	57,800	64,100	0.6% ↑	6,300	2,520	79
Medium	57,800	86,200	1.4% ↑	28,400	11,360	355
High	57,800	109,000	2.1% ↑	51,200	20,480	640

Table 4: Subnational Population Projections 2016-2048 (Source: StatsNZ)

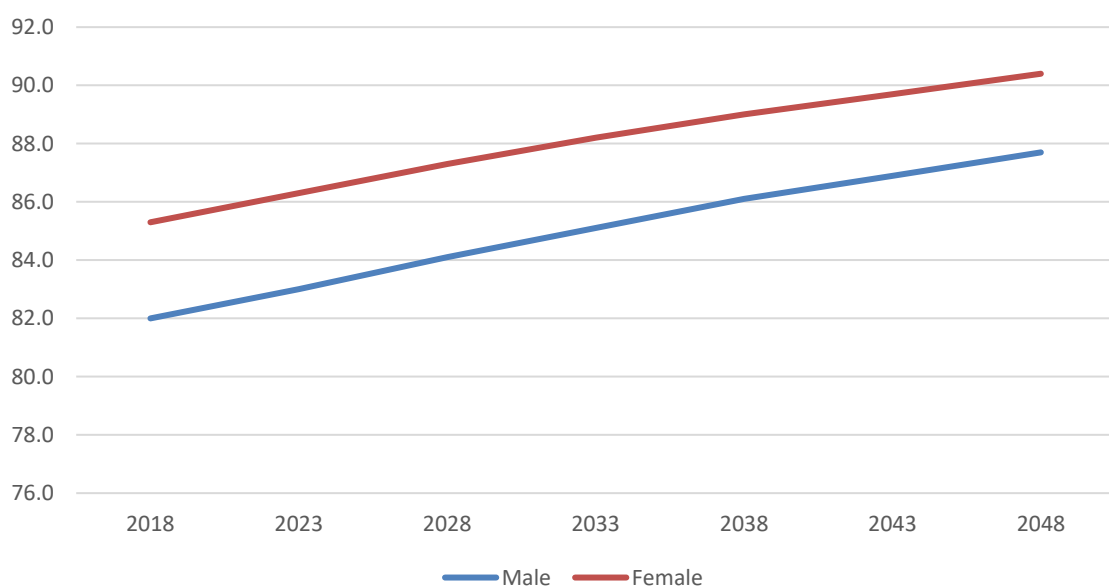
Note: StatsNZ will release data on household projections for Waimakariri District in December 2017. Therefore, it is difficult to determine what the household size could be to ascertain how many additional households will be required to meet the population growth. As a national trend, household size is predicted to decrease over time (due to changes in demographics – see Graph 19 below).

Taking into account the demographic changes in the Waimakariri District (see graph below), it has been assumed for table 4 purposes that the household size would be approximately 2.5 (down from 2.8 over a thirty year period in table 2, page 12). This figure will be confirmed in December 2017.

Demographic Changes based on the 2017 Population Projections



Graph 19 - Subnational Population Projections – Demographic Changes for the Waimakariri District 2018-2048 (Source: StatsNZ)



Graph 20 – Subnational Population Projections (Medium) – Life Expectancy for the Waimakariri District -2018-2048 (Source: StatsNZ)

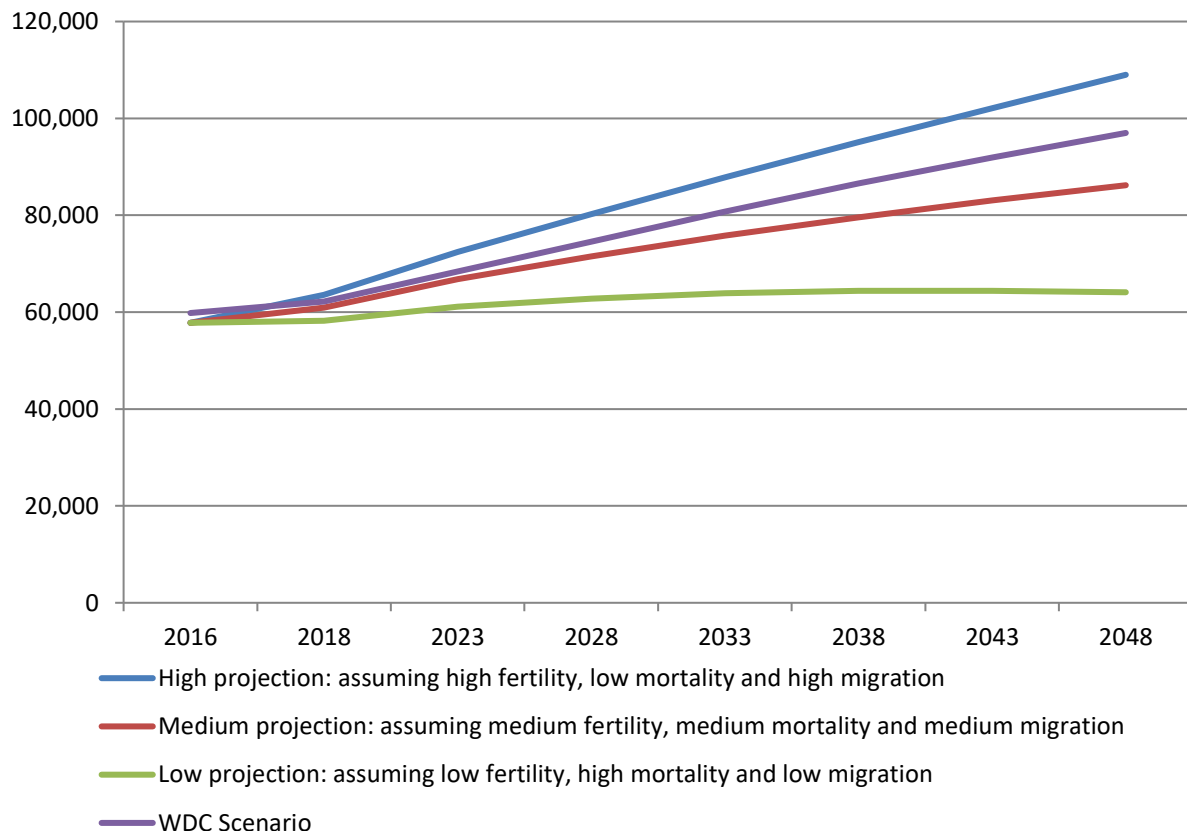
Key Points

- Under the Medium Growth Projections, for the Waimakariri District:
 - the median age increases from 42.8 years (in 2018) to 48.5 years (in 2048). An increase of 5.7 years.
 - 16.2% of people in the District are aged between 14 years and under in 2048. This equates to a population decrease of 3% as a proportion to 2048.
 - 54% of people in the District are aged between 15-64 years. This equates to a population decrease of 8% as a proportion to 2048.
 - 29.9% of people in the District are aged 65 and older in 2028. This equates to a population increase of 11.1% as a proportion to 2048
 - Life expectancy will increase by 5.7 years for men and 5.1 years for women between 2018 to 2048

Additional Growth Projection

As outlined in Graph 17 (page 15), building consent data has averaged approximately 470 per year. Comparing this historical trend against the population projections, this level of development would fall somewhere in between the medium and high projections by StatsNZ.

To understand if this historical trend was set to continue, an additional growth projection (scenario) was developed by the Waimakariri District Council. This scenario tests what could happen if the level of building consents continued at a level approximately 450, decreasing over time to 350 to reflecting the demographic trends outlined above, steady internal/international migration, and a net decrease in natural population (deaths exceeding births) which is forecast to occur between 2043 to 2048.



Graph 20- Subnational Population Projections – including WDC Scenario 2016-2048 (Source: StatsNZ, WDC)

Projections	Population 2016	Population 2048	Annual Growth Rate	Additional People	Additional Households	Average New Dwellings per year
StatsNZ - Low	57,800	64,100	0.6% ↑	6,300	2,520	79
StatsNZ - Medium	57,800	86,200	1.4% ↑	28,400	11,360	355
WDC Scenario	59,820	96,996	1.8% ↑	37,176	14,870	465
StatsNZ - High	57,800	109,000	2.1% ↑	51,200	20,480	640

Table 5: Subnational Population Projections and WDC Scenario 2016-2048 (Source: StatsNZ and WDC)

Note: WDC Scenario also provided projections at the township level. These projections are shown in table 6.

Projections	Population 2016	Population 2048	Additional People	Additional Households	Average New Dwellings per year
Rangiora	17,552	30,063	12,511	5,004	156
Kaiapoi	10,300	15,132	4,833	1,933	60
Woodend / Pegasus	5,150	12,116	6,966	2,786	87
Oxford	2,206	3,693	1,487	595	19
Small Towns and Beach Settlements	1,185	1,921	736	295	9
Rural	23,428	34,071	10,643	4,257	133
Total	59,820	96,996	37,176	14,870	465

Table 6: WDC Scenario Township Projections 2016-2048 (Source: WDC)

Key Points

- Based on historical growth patterns, a scenario in between the StatsNZ medium and high scenarios (similar to WDC Scenario), would seem to be an appropriate projection to use for growth management in the Waimakariri District.
- However, due to the uncertainty with population projections and the assumptions that StatsNZ use, it would seem to be a prudent approach to use two of the scenarios to create a low and upper bound to consider as part of the growth management and infrastructure strategies.
- To determine the two scenarios to be used in this manner, the following points need to be considered
 - As outlined in graph 12 – internal migration was 82% of the growth in the District, with Christchurch accounting for 46% of this growth. If there was a decrease in internal migration for any reason, this would have a significant impact on the level of growth Waimakariri District would experience.
 - Demographics changes in the Waimakariri District. While life expectancy is set to rise over the next thirty years, if there was a net decrease between births and deaths in the District, this would impact on the level of growth.
 - Management of growth within the Greater Christchurch area (which includes Selwyn, Waimakariri and Christchurch areas) via the Urban Development Strategy and the response to the National Policy Statement - Urban Development Capacity.

- Impact of changes in the rate of economic growth within the Waimakariri District and the wider Canterbury region.
- Other policies enacted by the New Zealand Government that could have an impact of population growth.
- Timely provision of infrastructure in the District, especially around transportation.
- The impact on international trends including potential changes to international migration and the impact this would have for growth in New Zealand and the dynamics this might have on growth in Waimakariri and New Zealand. This would need to be carefully considered.
- Because of the points raised above, it would seem to be a prudent approach to use the medium and WDC (historical trends) scenarios as the low and upper bound for population projections in the Waimakariri District.
- Regular monitoring of the data contained in this report will occur on an ongoing basis to consider if this approach should be reviewed.
- In addition, further work will be developed to refine the data included in this report. This will focus on:
 - Developing a comprehensive growth model, which would allow for scenario testing to be included. This model has been commissioned by Waimakariri District and should be completed By August 2017.
 - Further demographic study on the Waimakariri District to focus on the changes in demographics at a township level. This study will be completed by August 2017.
 - Consider how other Councils are monitoring and using population data to respond to the requirements under the National Policy Statement-Urban Development Capacity.