



MAKING SENSE OF
THE NUMBERS

Porirua population and housing projections

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Making sense of the numbers

For Long Term Planning purposes, Porirua City Council needs to know what its future population is likely to be and, consequently, how many additional homes will be needed in the City.

Council officials believe that, taking account of developments already underway, approved and in the pipeline, there is the potential to build between 9,000 and 10,500 additional homes in the City by 2048. The question, though, is whether there will be sufficient people living in the City to fill that additional housing stock.

BERL developed four different scenarios of Porirua’s population in 2048. Three of the scenarios were based on Statistics New Zealand or Greater Wellington Regional Council projections. The fourth scenario was based on the belief that Porirua is better placed than most other Council areas in the Wellington Region to provide housing land to provide homes for a burgeoning regional population. Implicitly, this scenario states that, if suitable homes – i.e. the right size and the right price - are built in Porirua, people will come and live in them, almost regardless of where they work.

The report concludes that the smallest Porirua City population implied by the scenarios is 72,900 in 2048. The largest population implied by the scenarios is 86,000 in 2048. The smallest population would require 5,800 additional homes, while the largest assumes 10,500 new homes would be built.

The scenarios are summarised in the table below. We believe that the fourth scenario is the most likely.

Scenario:	2018 population	2048 population	Change in population	Additional homes needed
1: Statistics NZ’s high projection for Porirua extrapolated to 2048	56,600	72,900	16,300	5,800
2: GWRC projection for Porirua	56,100	80,800	24,700	8,800
3: Porirua’s share of regional population remains 11% and regional population reaches high projection, extrapolated to 2048	56,600	74,500	17,900	6,400
4: 9,000-10,500 new homes are built and occupied in Porirua	56,600	81,800-86,000	25,200-29,400	9,000-10,500

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1 Introduction

1.1 Context

This report presents the findings of research by BERL to project the population of Porirua, and the associated need for additional homes, in 3, 10 and 30 years' time.

Analysis, by Porirua City Council officials, of developments already underway, approved and in the pipeline has indicated that there is the potential to build between 9,000 and 10,500 additional homes in the City by 2048,

Developments already underway include further housing on the Aotea block, new housing on the Kenepuru site and additional housing in Whitby.

In the medium term (3-10 years), work is scheduled to start on the recently announced Porirua East Regeneration programme; and it is likely that the Plimmerton Farms block will start to be developed. Work on both these major developments is likely to continue into the longer-term. Both these developments could add more than 2,000 new homes.

Additional new housing is also likely to come from ongoing infill housing construction and intensification around the centre of the City, developments led by Ngāti Toa and building in the rural residential zone, encouraged by the completion of the Transmission Gully highway and its link roads.

The question, however, was whether there will actually be a sufficiently large population in Porirua to fill an additional 9,000-10,500 homes.

1.2 Methodology

We looked at four different ways of projecting of Porirua's population. The first was based on using Statistics New Zealand's sub-regional population projections. The second was based on regional population projections, developed by Greater Wellington Regional Council, further broken down to the various Cities and Districts in the Region. The third was based on assuming that Porirua would maintain its share of the Greater Wellington's population and applying that share to Statistics New Zealand's projections for the Region. The fourth was based on showing how Porirua's population would change, if 9,000-10,500 additional homes were actually built.

We also took a view on how credible the various projections were, and where within a range of projections the population is most likely to be.

2 Statistics New Zealand population projections for Porirua

2.1 How population is projected

Statistics New Zealand (SNZ) 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 international 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.

High, medium and low projections

At national level, the high, medium and low population projections are based on combinations of different assumptions about the three components of change. For example, the medium projection assumes a slight decline in fertility rates, a slight increase in life expectancy and migration continuing at its long term average of about 15,000 a year.

The medium projection is regarded as the “most likely” outcome.

2.2 What the projections for Porirua show

The latest subnational population projections were released in February 2017¹, and they showed high, medium and low projections at five year intervals to 2043².

The projections for Porirua City are shown in Table 2-1. They indicate that the population of the City will be between 51,000 and 70,200 in 2043, depending on the projection chosen. The low projection implies that the City's population will fall by 2,700 by 2043, while the high projection implies that the population will increase by 16,500.

¹ Statistics New Zealand has indicated that the next projections will not be released until sometime in 2020.

² The subnational population projections currently look ahead only to 2043.

Table 2-1 Projected population for Porirua City (February 2017)

Projection	Population at 30 June							Population change 2013-2043	
	2013	2018	2023	2028	2033	2038	2043	Number	Average annual (percent)
High		57,800	60,900	63,700	66,200	68,300	70,200	16,500	0.9
Medium	53,700	56,600	58,300	59,500	60,300	60,600	60,500	6,900	0.4
Low		55,300	55,600	55,300	54,400	52,900	51,000	-2,700	-0.2

Source: Statistics New Zealand

2.3 What the projections imply about housing need

Statistics New Zealand estimate that the current average household size in Porirua is 2.9 people, and it is projected that this will fall to 2.7 by 2043.

Taking the mid-point of 2.8 people per household, implies that an additional 5,900 homes will be needed by 2043, if the high projection is correct. If the medium projection is correct, an additional 2,500 homes will be needed. If the low projection is correct, 1,000 fewer homes will be needed³.

2.4 Why BERL doubts the medium projection

We do not consider the medium (i.e. “most likely”) projection to be realistic.

It is not clear exactly what was assumed in this projection about fertility and mortality, but it is known that it was based on the assumption of zero net international migration into Porirua in the five year period from 2013 to 2018, followed by a migration loss of 1,000 people in every five year period from 2018 to 2043.

By contrast, the latest subnational population estimates from Statistics New Zealand indicate that Porirua actually gained from net migration between 2013 and 2018, although the estimated gain was just 300 people in total.

We do not believe that the City will move into a net migration loss of 1,000 people between 2018 and 2023, especially since net migration at national level is still growing at a rate of more than 60,000 people a year.

There is also some evidence that Porirua’s population growth is tracking slightly above the number implied by the February 2017 projection shown in Table 2-1. Table 2-2 suggests that the City’s population at 30 June 2018 was 200 more than the February 2017 projection, but we question whether even the recent estimate is correct.

Table 2-2 Comparison of projected and estimated Porirua population

February 2017 medium projection for 30 June 2018	56,600
October 2018 estimate for 30 June 2018	56,800

Source: Statistics New Zealand

The reason why we question the most recent population estimate is that, compared to its share of the Wellington Region’s population, Porirua has been experiencing a relatively rapid rate of new residential construction. Between 2013 and 2018, Porirua accounted for 12 percent of the new residential building consents in the Region,

³ Following Statistics New Zealand conventions, all the projections and estimates in this report are rounded to the nearest 100.

while Statistics New Zealand's population estimates imply that Porirua had only a 9 percent share of the Region's additional population. This could only have happened if many of the new homes consented in Porirua were not actually built, or if the average number of people per new home in Porirua was considerably below the average in the Region as a whole.

Based on Porirua having gained 12 percent of the Region's additional population between 2013 and 2018, we believe that the actual population of the City at the end of June 2018 was around 57,900, which is fractionally above Statistics New Zealand's high projection.

3 Regional population projections

3.1 The relevance of Regional population growth

Although Porirua City is a separate administrative entity, it is important to consider it as part of a metropolitan system, where there is considerable commuting between the different parts of the system. People are likely to live in one city or district and work in another.

In this respect, Porirua is different from other places of a similar population size, such as Whanganui, Gisborne, Timaru or Invercargill. These places cannot grow their population by providing homes for people who work elsewhere. They have to grow their economy and employment base to grow their population, but Porirua doesn't necessarily have to do this.

It is important, therefore, to consider what is likely to happen to the population of Wellington Region. In this section, we present two different projections of Wellington Region's population and show what they imply for Porirua's population and housing needs.

3.2 GWRC projections

Population projections prepared for the Greater Wellington Regional Council look ahead to 2048⁴. The projections are based on a forecasting model that:

- Uses Statistics New Zealand national population projections to the 2060s;
- Projects national economic growth;
- Allocates national output across industries and regions;
- Projects employment requirements; and
- Assumes that regional population growth will be consistent with employment growth.

The model forecasts that Wellington Region's population will grow from 513,900 in 2018, to 686,200. This represents an increase of 172,300, or 33.5 percent.

It is also noteworthy that the projections indicate that the amount of daily commuting within the region will increase by 40 percent between 2018 and 2048.

3.3 Statistics New Zealand projections

The February 2017 Statistics New Zealand population projections for Wellington Region are shown in Table 3-1. They indicate that the population of the Region will be between 492,800 and 650,300 in 2043, depending on the projection chosen. The low projection implies that the Region's population will increase by just 6,100 by 2043, while the high projection implies that the population will increase by 163,600.

Table 3-2 compares the February 2017 medium projection for the Region with the October 2018 estimate. The latter indicates that the population growth is tracking nearer the high projection shown in Table 3-1 than it is to the medium projection.

The medium projection for the Region's population was based on the assumption that there was a net migration gain of 13,600 between 2013 and 2018. It is also assumed that the gain will be just 2,100 between 2018 and

⁴ Economic and demographic trends for Wellington – Presentation to the Wellington Regional Strategy Committee, by Dave Grimmond, 27 November 2018.

2023, and that there will be a loss of 400 in each five year period to 2043. However, the latest population estimates for the Region indicate that there was a net migration gain of 20,600 between 2013 and 2018.

Table 3-1 Projected population for Wellington Region (February 2017)

Projection	Population at 30 June							Population change 2013-2043	
	2013	2018	2023	2028	2033	2038	2043	Number	Average annual (percent)
High		526,300	555,500	582,100	606,900	629,600	650,300	163,600	1.0
Medium	486,700	515,200	532,500	546,200	557,400	565,600	571,300	84,600	0.5
Low		504,000	509,200	510,000	507,500	501,700	492,800	6,100	0.0

Source: Statistics New Zealand

Table 3-2 Comparison of projected and estimated Wellington Region population

February 2017 medium projection for 30 June 2018	515,200
October 2018 estimate for 30 June 2018	521,500

Source: Statistics New Zealand

3.4 What the projections imply for Porirua’s population and housing requirements

The GWRC projections were more concerned with regional population than sub-regional population, but they include employment forecasts for each of the cities and districts and assume that there will be a stable population to employment relationship. In the case of Porirua, the projections indicate that the City’s population will grow from 56,100 in 2018, to 80,800 in 2048. This represents an increase of 24,700, or 44 percent.

Assuming an average occupancy of 2.8 people per household, an increase of 24,700 in Porirua’s population by 2048 implies the need for an additional 8,800 homes.

If Statistics New Zealand’s high projection for the Region turns out to be correct, and Porirua maintains its current 11 percent share of the Regional population, then Porirua’s population would grow to 71,500 by 2043. This represents an increase of 14,900, from Statistics New Zealand’s estimate for 2018.

Again assuming an average occupancy of 2.8 people per household, an increase of 14,900 in Porirua’s population by 2043 implies the need for an additional 5,300 homes.

4 Housing land capacity in Wellington Region

4.1 Why capacity matters

We noted in the previous section that Porirua is part of a metropolitan system, where people commonly live in one City or District and work in another, and where commuting within the region is projected to increase considerably during the next 30 years.

We believe that people will increasingly make choices about where they live based on the availability of suitable (i.e. right size and right price) housing, rather than based on where they work. It follows from this that, if Porirua is better able than other places in the Region to provide suitable housing, people will move there.

From the perspective of Porirua, being better able than other places in the Region to providing suitable housing depends on the City's housing land capacity, relative to the capacity elsewhere.

4.2 Modelling by Wellington City Council

We are aware that officials at Wellington City Council are leading the work, driven by the National Policy Statement on Urban Development Capacity, to model housing land capacity in all parts of the Region, but we understand that this work is still some way from being completed. We also understand that estimates of housing land capacity for Wellington City and Porirua City have been obtained and sent to the two Councils, but we have no knowledge of what they reveal.

4.3 BERL's viewpoint

In the absence of findings from the housing land capacity modelling work, we attempted to obtain some kind of build a complete picture, using information from the various Cities' and Districts' planning documents.

For example, we found from Lower Hutt City's District Plan and Long Term Plan that there is believed to be capacity for approximately 2,000 new homes in Wainuiomata and Kelson. However, we were advised by the Wellington City Council modellers that there is often a weak relationship between the theoretical number of homes that could be built and the practical number of homes it is possible to build. One constraint affecting both Wainuiomata and Kelson is that both suburbs have just one road in and one road out.

The Plans for the other Cities and Districts often lacked detail, and they tended not to indicate capacity on a consistent basis. It was necessary, therefore, for us to form judgements about housing land capacity in different parts of the Region based on our knowledge of their geography and existing pattern of development.

In brief, our view is that Wellington City is likely to provide homes mainly for smaller households, often in apartment buildings; and that the City will require considerable infrastructure investment to make this possible. We believe that Upper Hutt City has the potential for large scale housing development, although it is unclear how much and quickly land will become available. The Kapiti Coast District has land capacity, but its potential to support housing development may be constrained by water supply issues. The three Districts in the Wairarapa have plentiful land, but the demand for housing is likely to be limited by the fact that commuting into the main employment centres in the Region is difficult.

This reinforces our belief that, if suitable housing can be developed in Porirua, there will be no lack of demand for it from a growing Regional population.

5 Bringing the alternative projections together

5.1 Range of projections

In the previous sections, we presented what were, in effect, alternative scenarios for how the City’s population will grow in the future.

The first scenario was based on assuming that Porirua’s population will grow to the level implied by Statistics New Zealand’s high projection by 2043. This would bring the population to 70,200, which represents an increase of 13,600 people from the estimated 56,600 in 2018. With an average household size of 2.8 people, 4,900 additional homes would be needed. Extrapolating these figures on a straight line basis to 2048 implies an additional population of 16,320 and a need for 5,800 extra houses.

The second scenario was based on assuming that Porirua’s population will grow to the level implied by GWRC’s projection. This would bring the population to 80,800 by 2048, which represents an increase of 24,700 (compared to GWRC’s estimated population of 56,100). Again with an average household size of 2.8 people, an 8,800 additional homes would be needed 2048.

The third scenario 3 was based on assuming that Porirua’s share of the Region’s population will stay the same as it is now (i.e. 11.0% in 2018) and that the Region’s population will grow to the level implied by Statistics New Zealand’s high projection. This would bring the population to 71,500 by 2043, which represents 14,900 additional people, who would require 5,300 additional homes. Again extrapolating these figures on a straight line basis to 2048 implies an additional population of 17,900 and a need for 6,400 extra houses.

The fourth scenario 4 was based, firstly, on the belief that housing land capacity is more favourable in Porirua than in most of the rest of the Wellington Region; and, secondly, that people will live where homes of the right size and right price are available. The 9,000-10,500 new homes that Porirua City Council officials estimate are in developments already underway, approved and in the pipeline implies that the City’s population will grow by 25,200-29,400 by 2048. These new homes would bring the population to 81,800-86,000, compared to Statistics New Zealand’s estimate of 56,600 in 2018.

Table 5-1 Summary of Porirua population scenarios

Scenario:	2018 population	2048 population	Change in population	Additional homes needed
1: Statistics NZ’s high projection for Porirua extrapolated to 2048	56,600	72,900	16,300	5,800
2: GWRC projection for Porirua	56,100	80,800	24,700	8,800
3: Porirua’s share of regional population remains 11% and regional population reaches high projection, extrapolated to 2048	56,600	74,500	17,900	6,400
4: 9,000-10,500 new homes are built and occupied in Porirua	56,600	81,800-86,000	25,200-29,400	9,000-10,500

In summary, the smallest Porirua City population implied by the scenarios is 72,900 in 2048. The largest population implied by the scenarios is 86,000 in 2048. The smallest population would require 5,800 additional homes, while the largest assumes 10,500 new homes would be built.

5.2 3, 10 and 30 year projections

If the additional homes implied by the scenarios are built on the same annual rate over 30 years, the scenario that is associated with the smallest population increase would necessitate 580 new homes being built during the next three years and 1,900 being built during the next 10 years. Similarly, the scenario that is associated with the largest population increase would necessitate 1,050 new homes being built during the next three years and 3,500 being built during the next 10 years.

We understand that the analysis by Porirua City Council officials indicates that 600-750 new homes are likely to be built in the short term (0-3 years), a further 4,500-5,000 are likely to be built in the medium term (3-10 years) and a further 3,900-4,000 are likely to be built in the longer term (10-30 years).

In reality, neither supply nor demand is likely to grow at a steady rate, but these numbers imply that the supply of additional homes in Porirua will keep up with potential demand in the short-term. There is also likely to be a balance between supply and demand in the medium to longer term.

6 Conclusions

In conclusion, we reiterate our belief that Porirua should be viewed as part of a metropolitan system, where people commonly live in one City or District and work in another. Undoubtedly, the number of employment opportunities in the City will be important, but the City has the potential to grow its population, almost regardless of the number of jobs its economy provides. Porirua's population will grow if Wellington Region's population grows.

The scenarios presented in this report indicate that Porirua's population will grow by between 16,300 and 29,400 during the next 30 years. We also believe that the population will grow towards the higher end of this range. This is mainly because we believe that the Wellington Region's population will grow strongly and that Porirua is better placed than most of the other Cities and Districts in the Region to provide the housing land needed to build homes for a growing population.

It is necessary, however, to add two principle caveats to the conclusions. The first is that there will be no economic collapse or major geo-political event that will prompt a shift to significant net outmigration from New Zealand, leading to a similar outcome in Wellington Region and Porirua. The second is that there will be no lasting labour supply issues that would prevent the amount of house building in Porirua reaching its potential. Neither of these eventualities can be ruled out, although it will be important to plan on the basis that neither will happen.