

Demographic and dwelling forecasts for Wellington region

April 2021



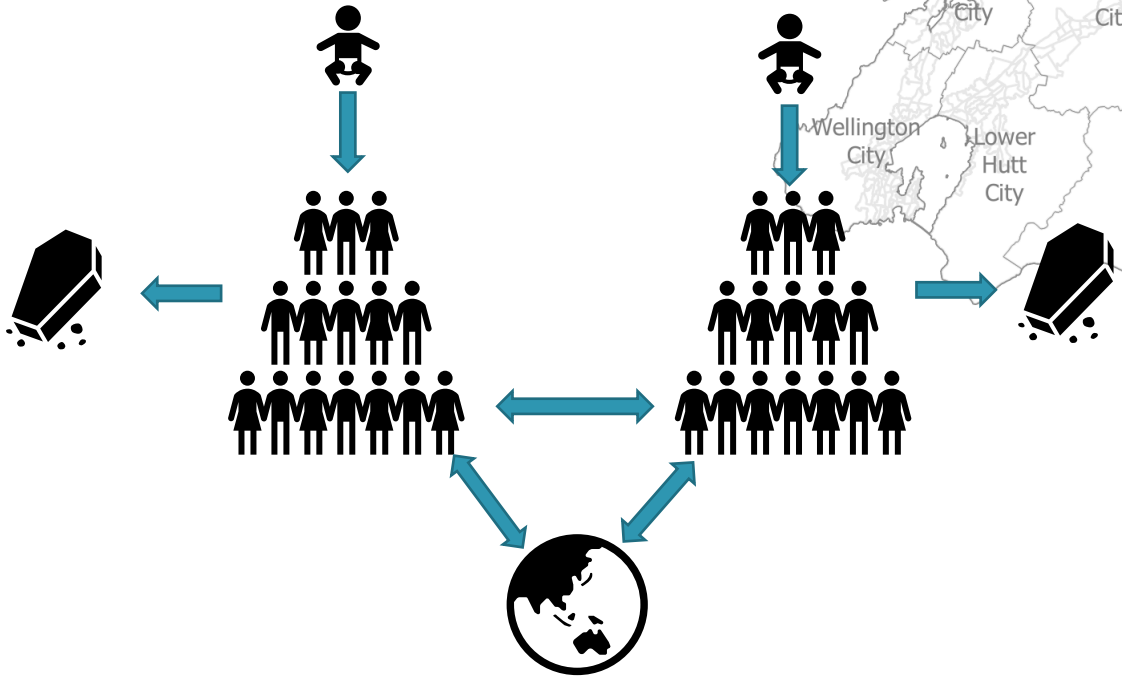
SENSE PARTNERS

DATA LOGIC ACTION

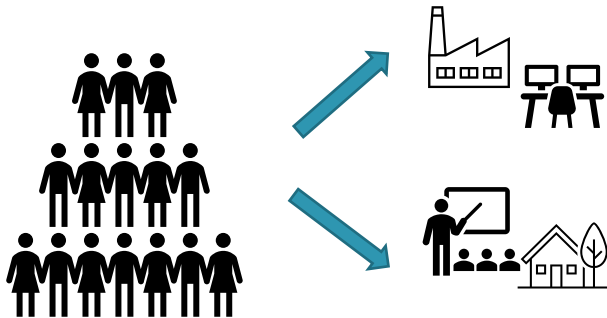
Scope



A. People



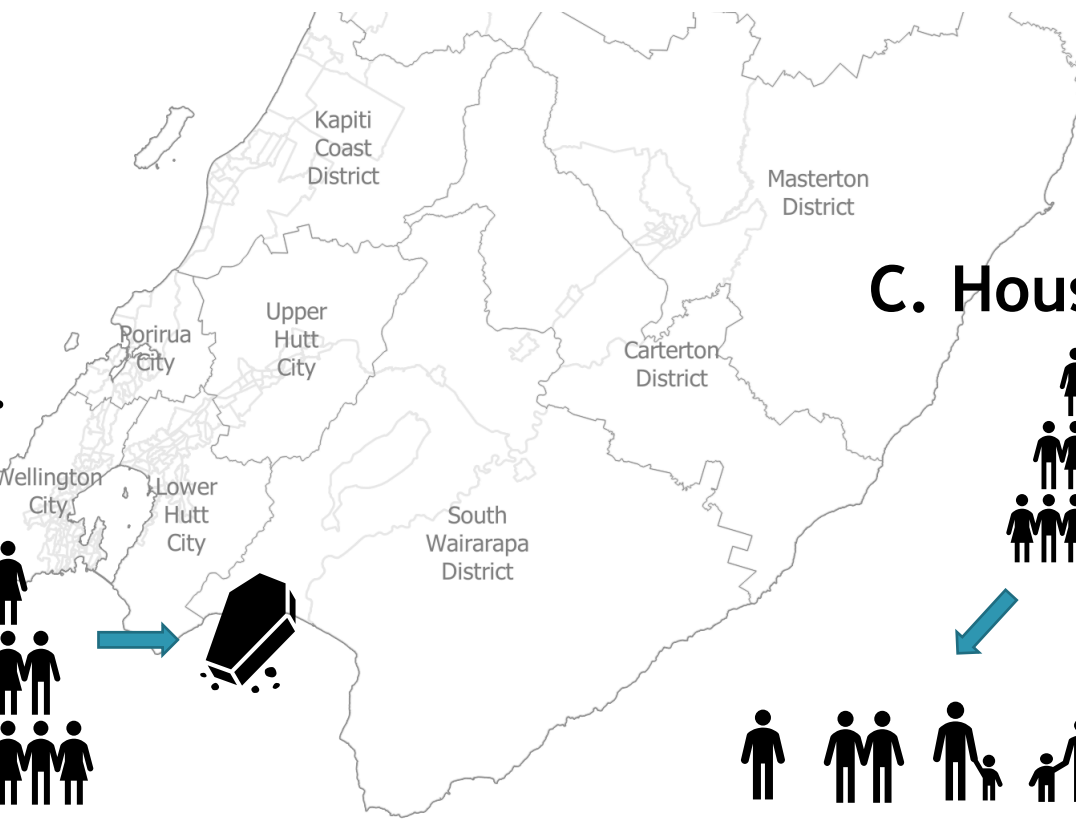
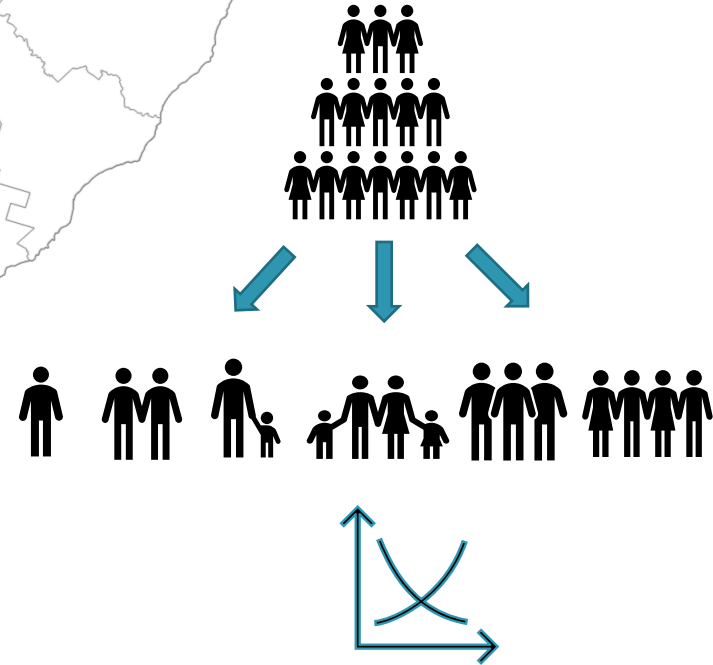
B. Work



D. Housing



C. Households





Approach

- The focus of our method is to use persistent and predictable structural and compositional characteristics of populations and economies to extrapolate future trends. The methods place a premium on respecting adding-up constraints (e.g. domestic migration must sum to zero) and consistency between forecasts. For this reason the model is a national model, with district details.
- The forecasts should be interpreted as potentials. There are a number of things the forecasts do not account for, including future national or local policy changes, which can affect actual population and economic growth.
- To capture uncertainty around trends we conduct monte-carlo simulation, where inputs are varied randomly and repeatedly (500 times) to produce distributions over future values, rather than point estimates. This approach also helps to emphasise the considerable uncertainty that exists about the future and the extent to which this uncertainty grows the further out we look.
- The forecasts are based on 4 component models, as summarised in the slide on scope. The modelling proceeds in a linear fashion through each of the models.
- The data used to create these projections is data available as at 30 January 2021. Data has been sourced from: mainly publicly available StatsNZ data (Infoshare, NZ.Stat, datafinder.stats.govt.nz); a few custom data requests from Stats NZ; some demographic data kindly supplied by Kim Dunstan at StatsNZ; the UN; the Australian Bureau of Statistics; and district councils in the Greater Wellington Region.

National population projections

Summary and comparison with Stats NZ projections

Comparison with Statistics New Zealand's national projections



Median population growth higher in Sense Partners projections

Year	Sense		StatsNZ	
	Population (millions)	Annual growth (average)	Population (millions)	Annual growth (average)
2003	4.03	1.3%	4.03	1.3%
2008	4.26	1.1%	4.26	1.1%
2013	4.44	0.8%	4.44	0.8%
2018	4.84	1.7%	4.84	1.7%
2023	5.18	1.4%	5.22	1.5%
2028	5.56	1.4%	5.46	0.9%
2033	5.90	1.2%	5.68	0.8%
2038	6.20	1.0%	5.88	0.7%
2043	6.48	0.9%	6.06	0.6%
2048	6.77	0.9%	6.22	0.5%

Stats NZ projects growth to slow substantially in next 20 years

Next 20 years		
Percentile	Sense	StatsNZ
5	0.4%	0.4%
10	0.5%	0.6%
25	0.8%	0.8%
50	1.2%	1.0%
75	1.7%	1.2%
90	2.1%	1.4%
95	2.2%	1.5%
Last 20 years		
Mean		1.3%
Std deviation		0.4%

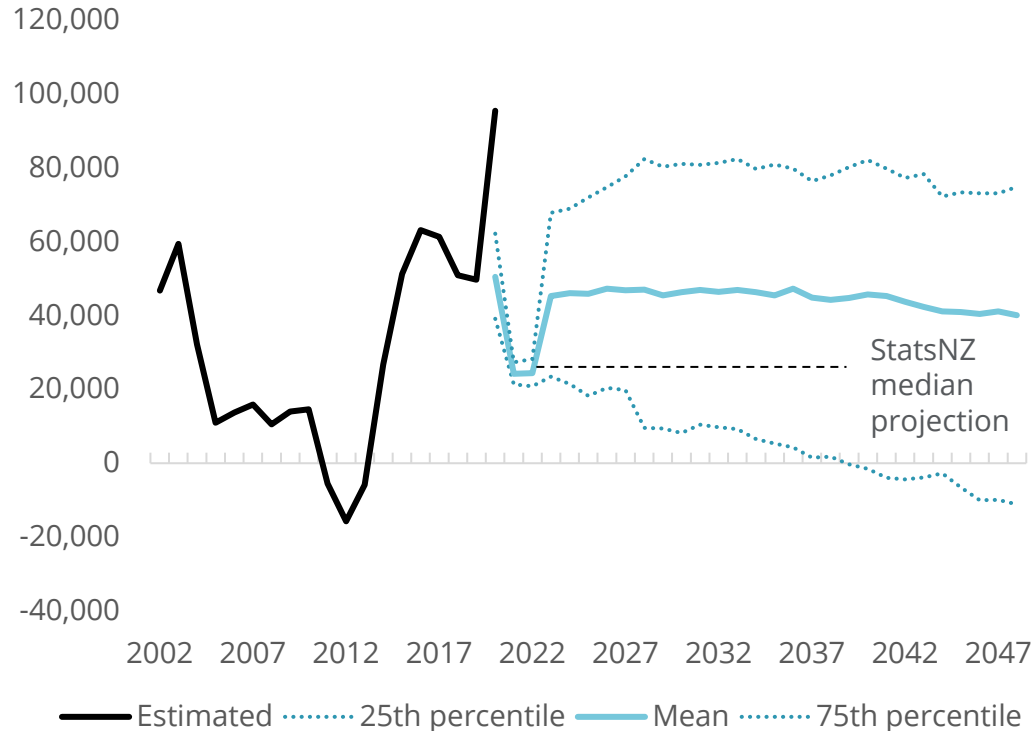
Key difference in projections is net migration.

- Sense projections include 0.7% increase in population per year, on average, due to net migration
- by comparison Stats New Zealand's projections include 0.1% growth per year due to net migration
- historically, net migration caused a 0.7% increase in the population each year on average between 1991 and 2018, based on cumulative net migration since 1991 as a proportion of the 1991 population averaged over 27 years.

Migration outlook is the key difference between Sense and Stats NZ projections



Annual net migration into NZ



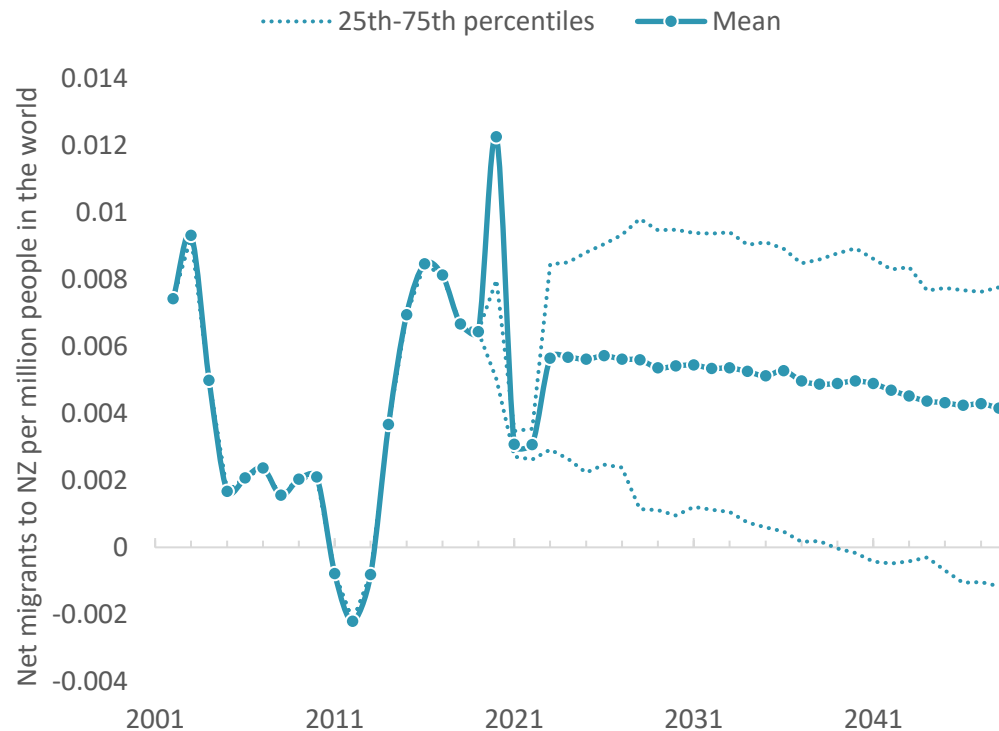
Our assumptions and methods

- We assume that border closures mean net migration falls to around 20,000 people per year during June years 2021 and 2022, based on observed changes in arrivals and departures in the year to December 2020.
- Statistical models of trends in arrivals and departures, accounting for e.g. trends by countries of origin and destination and expectations for economic conditions in New Zealand and Australia.
- Our statistical models are used to predict where we think trends will go after 2022. Normally, our models would be most useful for predicting migration over a 2-5 year horizon. This is not currently the case, for obvious COVID-related reasons.
- We have not included the recent peak in net migration in our modelling (the number for March 2020), as the most recent estimates are uncertain and subject to revision.

Rates of net inward migration to decline relative to recent highs, but remain strong



Projected NZ net migration rate, relative to world population



- We consider that the outlook for continued strong inward migration is positive, long-term, because of
 - rising world population growth
 - rising global income growth, especially in developing countries
 - people in Australia who are unable to access consumer
- Long term emigration rates will decline a little due to the age composition of the New Zealand population (older people less likely to emigrate).
- We see Australian policy with respect to New Zealander's access to social support weighing more heavily on net migration to Australia than it has in the past, mainly due to the ageing of the New Zealand population and of New Zealanders currently living in Australia.
- We assume that
 - New Zealand's absorptive capacity is maintained by adequate infrastructure investment
 - New Zealand remains at least as attractive as it has been relative to other locations
 - but that policy will be adapted such that immigration falls from recent highs.

Regional projections

Summary for Greater Wellington Region and component districts

Strong population growth expected for the Wellington region over the next 30 years



Population					
Year	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
2003	452,320	452,320	452,320	452,320	452,320
2008	471,740	471,740	471,740	471,740	471,740
2013	486,720	486,720	486,720	486,720	486,720
2018	526,009	526,009	526,009	526,009	526,009
2023	563,112	568,105	571,914	575,376	579,162
2028	581,987	603,526	619,328	635,047	653,776
2033	594,188	630,146	661,017	698,399	737,398
2038	597,719	648,000	699,075	756,276	825,762
2043	591,473	658,570	735,923	808,367	916,449
2048	577,430	664,312	768,004	861,451	1,001,016

5 yearly average growth rates					
Year	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
2003					
2008	0.8%	0.8%	0.8%	0.8%	0.8%
2013	0.6%	0.6%	0.6%	0.6%	0.6%
2018	1.6%	1.6%	1.6%	1.6%	1.6%
2023	1.4%	1.6%	1.7%	1.8%	1.9%
2028	0.7%	1.2%	1.6%	2.0%	2.5%
2033	0.4%	0.9%	1.3%	1.9%	2.4%
2038	0.1%	0.6%	1.1%	1.6%	2.3%
2043	-0.2%	0.3%	1.0%	1.3%	2.1%
2048	-0.5%	0.2%	0.9%	1.3%	1.8%

- Population growth is expected to be high by historical standards
 - For the next 10 years growth will be above the rates of growth experienced in the past 10 years
 - Longer run, growth is expected to moderate with lower birth rates and lower rates of immigration
 - However population growth over the next 30 years is expected to be substantially higher than the prior 30 years.
- There is considerable uncertainty around these projections, especially long-term
 - Our projections show a 50% probability of annual population growth rates between 1.4% and 1.9% over the next 10 years (i.e. the range of growth rates between the 25th percentile and the 75th percentiles)
 - Our projections show a 50% probability of annual population growth rates between 0.8% and 1.7% over the next 30 years.

Components of population change, Wellington region 2019-2029



Components of projected mean population change¹

Area	Wellington region ² NZ	
2019 population	532,485	4,978,449
Net natural change	0.7%	0.6%
Births	1.4%	1.5%
Deaths	-0.8%	-0.9%
Net migration change	1.1%	0.8%
Net domestic change	0.7%	0.0%
In-migration	4.8%	0.0%
Out-migration	-4.1%	0.0%
Net international change	0.4%	0.8%
Immigration	2.3%	2.5%
Emigration	-1.8%	-1.7%
2029 population	627,851	5,684,920
10 year change	95,366	706,471
10 year growth	1.7%	1.3%
Prior 10 years growth	1.0%	1.3%
Growth vs NZ	1.24	1.00

- Population growth in the Wellington region is expected to exceed population growth for New Zealand
- This represents an increase in population growth for the Wellington region
 - 1.7% on average from 2019 to 2029 compared to
 - 1.3% growth from 2009 to 2029
- The main driver of population growth in the Wellington region is expected to be domestic migration, contributing 1.1% growth per year on average
- International migration into the Wellington region is expected to be lower than the national average: 0.4% net gain per year on average compared to 0.8% for New Zealand overall. However this is an increase on trends of the past. Over the past three decades net international migration in Wellington has averaged one quarter of the national number.
- The natural rate of population increase is expected to be roughly similar in Wellington as for New Zealand overall.

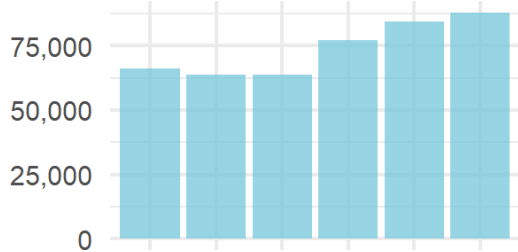
1. Overall growth at the mean does not align with growth at the median.

2. In these forecasts Wellington region differs slightly from the standard geographic definition. It excludes the small portion of the region that is in the Tararua District.

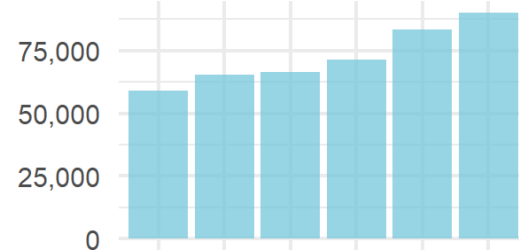
Wellington region, population by age group



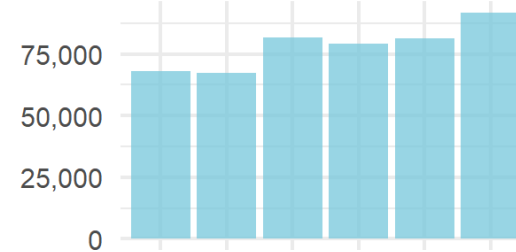
0-9



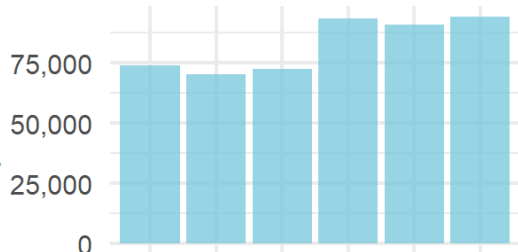
10-19



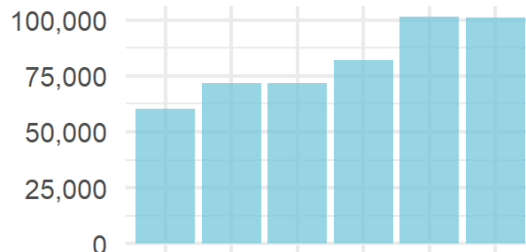
20-29



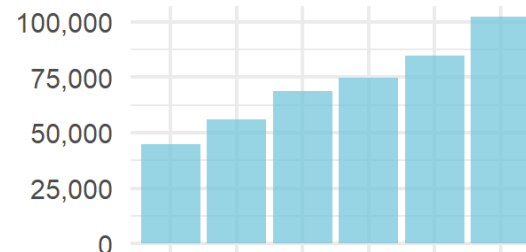
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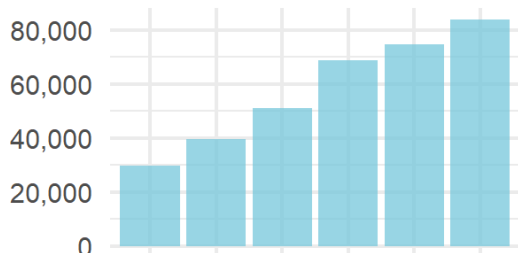
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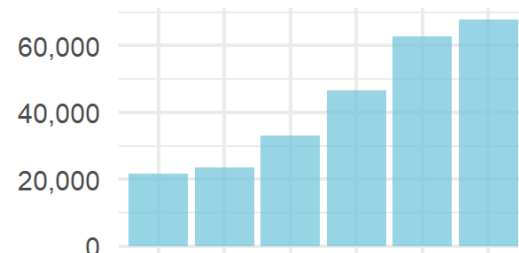
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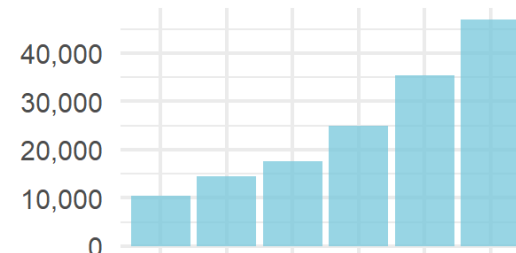
60-69



70-79



80+



- Rates of population growth are highest at ages 50 and over – a continuation of a long term trend.
- The share of the population aged over 70 is expected to rise from 10% to 15% over the next 30 years.
- Fastest rates of growth are in the 80 and over (80+) age group.
- The lowest rates of population growth are for people in their 20s – a consequence of the projected decline in immigration relative to recent highs.
- This implies there will be substantially fewer young workers and tertiary students as a share of the population.

1998 2008 2018 2028 2038 2048

1998 2008 2018 2028 2038 2048

1998 2008 2018 2028 2038 2048

Year

Median population projection

Households in the Wellington region



Population share by living arrangement or household type

(50th percentile projection)

Year	One parent	Two parent	Multi-family	Couple	Multi-person	Alone	Non-private residence
2006	11.3%	45.8%	4.8%	21.7%	5.4%	9.0%	2.0%
2013	10.7%	44.1%	5.8%	22.5%	5.3%	9.6%	2.1%
2018	10.4%	42.9%	6.0%	23.3%	5.5%	9.9%	2.1%
2023	10.3%	42.5%	6.0%	23.9%	5.1%	10.2%	2.0%
2028	10.2%	42.4%	6.0%	24.0%	4.8%	10.6%	2.1%
2033	10.2%	42.3%	6.0%	24.0%	4.6%	10.9%	2.1%
2038	10.2%	42.0%	5.9%	24.1%	4.4%	11.3%	2.2%
2043	10.1%	41.4%	5.9%	24.3%	4.4%	11.5%	2.3%
2048	10.1%	40.9%	5.9%	24.6%	4.5%	11.7%	2.3%

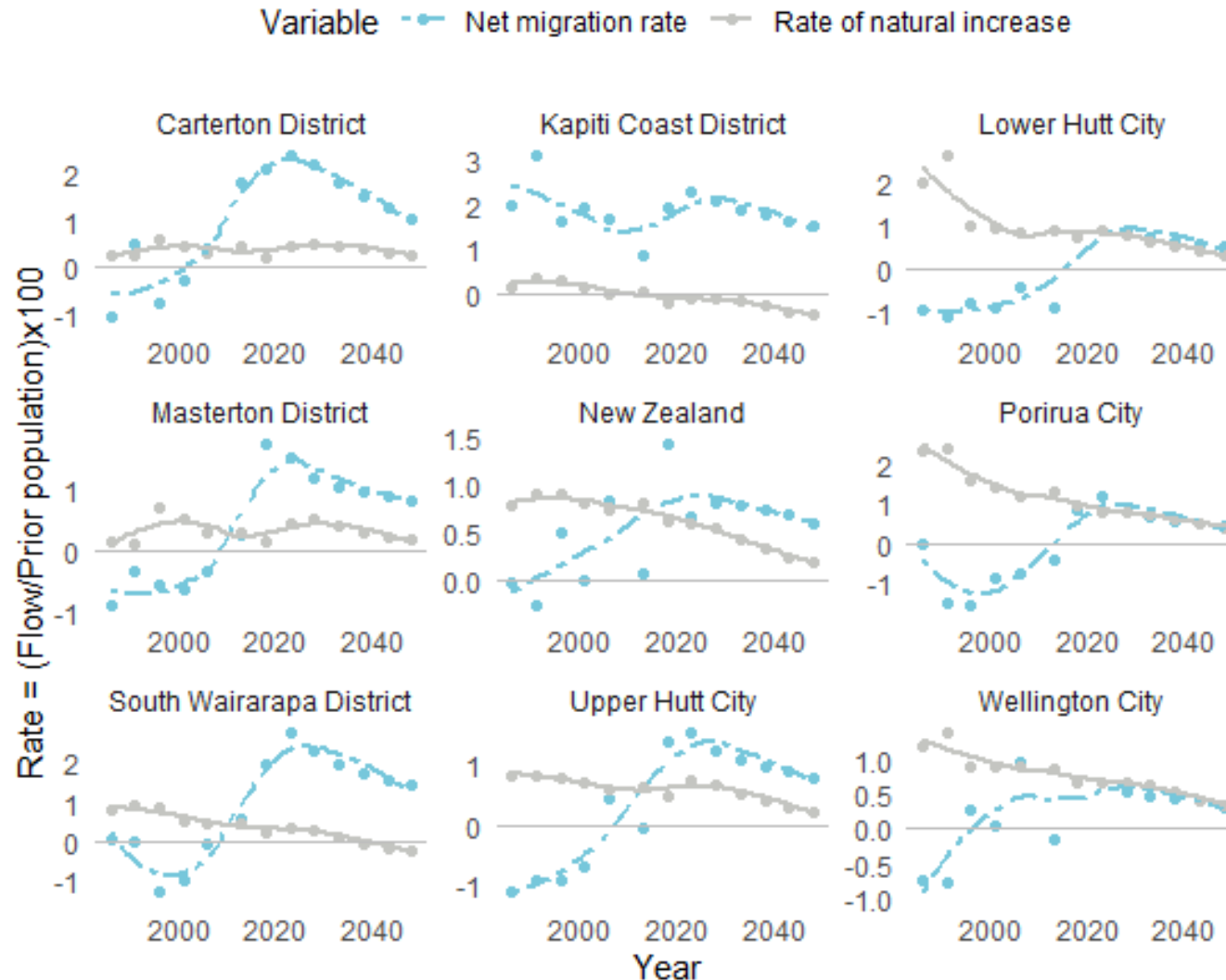
Rate of growth in number of households by household type

(50th percentile projection, annual averages)

Year	One parent	Two parent	Multi-family	Couple	Multi-person	Alone	Total
2006							
2013	0.1%	0.2%	3.6%	1.2%	0.2%	1.5%	0.9%
2018	1.4%	1.4%	2.9%	2.3%	1.8%	2.2%	1.9%
2023	1.7%	1.7%	2.0%	2.3%	0.3%	2.4%	2.0%
2028	1.6%	1.8%	1.7%	1.7%	0.3%	2.3%	1.8%
2033	1.4%	1.3%	1.4%	1.4%	0.5%	2.0%	1.5%
2038	1.1%	0.9%	1.1%	1.2%	0.4%	1.7%	1.2%
2043	1.0%	0.7%	1.0%	1.2%	1.2%	1.4%	1.1%
2048	0.8%	0.6%	0.9%	1.1%	1.0%	1.2%	1.0%

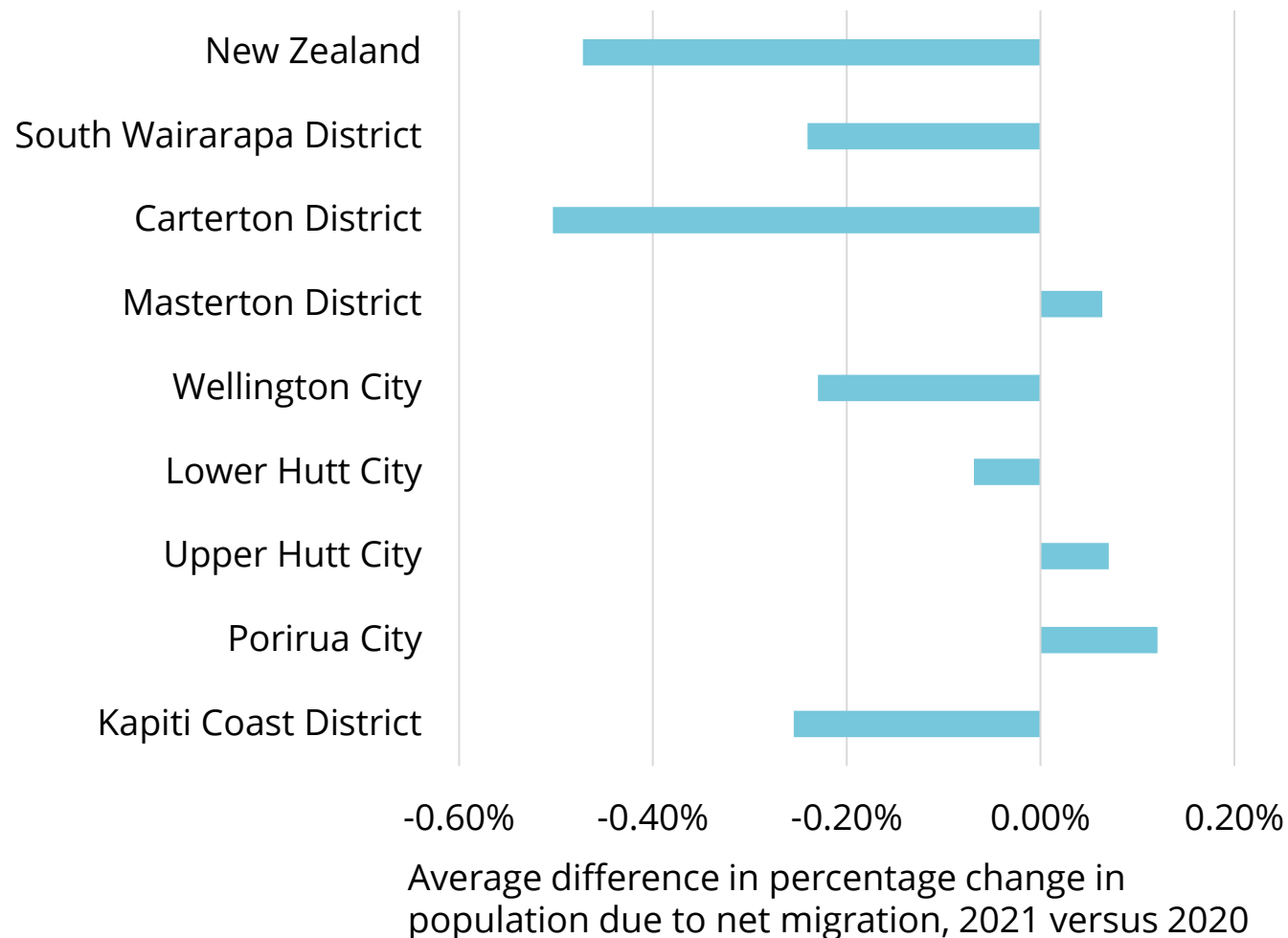
- Growth in households broadly reflects the age composition of the population, with increasing numbers of people living in smaller households or in non-private residences – living arrangements that have a relatively high proportion of older people.
- A key assumption is there will be sufficient housing available to accommodate growth in household numbers, given historical patterns of household formation. If this assumption proves wrong, we expect slower growth in household numbers overall and increased growth in multi-family households (e.g. sole parents and couples co-habiting) and multi-person households e.g. “flattening”).

Long-run trends driving population growth



- Natural rates of population change (births minus deaths) have been declining for many years and will continue to decline.
- The past decade has seen a significant increase in migration in most districts – this is expected to continue.
- Our projections are highly sensitive to the assumption of persistently positive net inward migration. This is the key driver of projected population growth.
- The data for the plots at left incorporate:
 - Stats NZ census data on population changes from 1981 to 2018 with
 - 5 yearly projections of the drivers of population change from 2023 to 2048
 - We represent both sets of data as percentage contributions to population growth.

Effect of border closure on rates of population change due to net migration



- Projected population growth for 2021 and 2022 is impacted by border closures.
- The impacts of border closures vary across New Zealand. In the short term:
 - Populations in Districts with high rates of international outflows experience a small increase in population growth rates from border closure
 - Populations in Districts with high rates of international inflows experience a reasonably substantial reduction in population growth rates.
- We assume that the long run effect of border closure is the population is permanently smaller than it otherwise would have been, that is:
 - We assume, the rebound in international migration flows, after borders open, does not include any exceptionally large increases in emigration from pent-up migration demand.

Components of population change, by district in Wellington region 2019-2029



Components of projected mean population change¹

Area	Kapiti	Porirua	Upper Hutt	Lower Hutt	Wellington	Masterton	Carterton	Wairarapa	Region	NZ
2019 population	55,988	59,804	46,150	109,780	213,078	26,886	9,688	11,111	532,485	4,978,449
Net natural change	-0.1%	0.9%	0.8%	0.9%	0.7%	0.5%	0.6%	0.4%	0.7%	0.6%
Births	1.2%	1.6%	1.6%	1.7%	1.2%	1.7%	1.8%	1.4%	1.4%	1.5%
Deaths	-1.4%	-0.7%	-0.9%	-0.8%	-0.5%	-1.2%	-1.3%	-1.1%	-0.8%	-0.9%
Net migration change	2.4%	1.1%	1.5%	0.9%	0.6%	1.4%	2.6%	2.9%	1.1%	0.8%
Net domestic change	2.0%	1.0%	1.4%	0.5%	-0.1%	1.4%	2.1%	2.7%	0.7%	0.0%
In-migration	5.2%	6.2%	5.1%	4.5%	4.2%	6.2%	5.3%	6.0%	4.8%	0.0%
Out-migration	-3.3%	-5.2%	-3.7%	-4.0%	-4.3%	-4.8%	-3.3%	-3.3%	-4.1%	0.0%
Net international change	0.4%	0.0%	0.1%	0.4%	0.7%	0.0%	0.5%	0.2%	0.4%	0.8%
Immigration	1.6%	1.6%	1.2%	1.9%	3.3%	1.0%	1.2%	1.2%	2.3%	2.5%
Emigration	-1.1%	-1.5%	-1.1%	-1.5%	-2.7%	-1.0%	-0.7%	-1.1%	-1.8%	-1.7%
2029 population	68,802	71,402	56,641	129,986	241,343	32,219	12,740	14,718	627,851	5,684,920
10 year change	12,814	11,598	10,491	20,206	28,265	5,333	3,052	3,607	95,366	706,471
10 year growth	2.1%	1.8%	2.1%	1.7%	1.3%	1.8%	2.8%	2.9%	1.7%	1.3%
Prior 10 years growth	1.2%	1.4%	1.2%	0.7%	0.9%	1.3%	2.2%	1.6%	1.0%	1.3%
Growth vs Region	1.25	1.08	1.25	1.03	0.75	1.10	1.67	1.72	1.00	0.80
Growth vs NZ	1.56	1.34	1.55	1.28	0.94	1.37	2.08	2.13	1.24	1.00

¹ Overall growth at the mean does not align with growth at the median. Means are provided here because they allow for consistent comparisons of the contributions across the components of population change.

Components of population change, by district in Wellington region 2019-2044



Components of projected mean population change¹

Area	Kapiti	Porirua	Upper Hutt	Lower Hutt	Wellington	Masterton	Carterton	Wairarapa	Region	NZ
2019 population	55,988	59,804	46,150	109,780	213,078	26,886	9,688	11,111	532,485	4,978,449
Net natural change	-0.3%	0.8%	0.6%	0.7%	0.7%	0.4%	0.6%	0.1%	0.6%	0.5%
Births	1.4%	1.8%	1.7%	1.7%	1.3%	1.9%	2.3%	1.6%	1.5%	1.6%
Deaths	-1.7%	-0.9%	-1.1%	-1.0%	-0.7%	-1.4%	-1.7%	-1.5%	-1.0%	-1.1%
Net migration change	2.4%	0.9%	1.4%	0.9%	0.6%	1.3%	2.4%	2.7%	1.0%	0.9%
Net domestic change	2.0%	1.0%	1.4%	0.5%	-0.1%	1.4%	1.9%	2.7%	0.7%	0.0%
In-migration	5.7%	6.6%	5.5%	4.8%	4.4%	6.8%	5.9%	6.7%	5.2%	0.0%
Out-migration	-3.7%	-5.6%	-4.1%	-4.3%	-4.5%	-5.4%	-4.0%	-3.9%	-4.5%	0.0%
Net international change	0.4%	-0.1%	0.0%	0.4%	0.7%	0.0%	0.5%	0.0%	0.4%	0.9%
Immigration	1.8%	1.8%	1.4%	2.2%	3.9%	1.2%	1.4%	1.5%	2.7%	2.9%
Emigration	-1.5%	-1.9%	-1.4%	-1.8%	-3.2%	-1.3%	-1.0%	-1.5%	-2.3%	-2.1%
2044 population	85,293	85,331	69,302	153,754	277,714	38,875	16,830	18,940	746,038	6,654,524
25 year change	29,305	25,527	23,152	43,974	64,636	11,989	7,142	7,829	213,553	1,676,075
25 year growth	1.7%	1.4%	1.6%	1.4%	1.1%	1.5%	2.2%	2.2%	1.4%	1.2%
Prior 23 years growth ²	1.5%	0.9%	0.9%	0.5%	1.2%	0.6%	1.5%	0.8%	1.0%	1.4%
Growth vs Region	1.25	1.08	1.25	1.03	0.75	1.10	1.67	1.72	1.00	0.80
Growth vs NZ	1.56	1.34	1.55	1.28	0.94	1.37	2.08	2.13	1.24	1.00

1. Overall growth at the mean does not align with growth at the median. Means are provided here because they allow for consistent comparisons of the contributions across the components of population change.

2. Growth in estimated resident population between 1996 and 2019.

People employed in the Wellington region



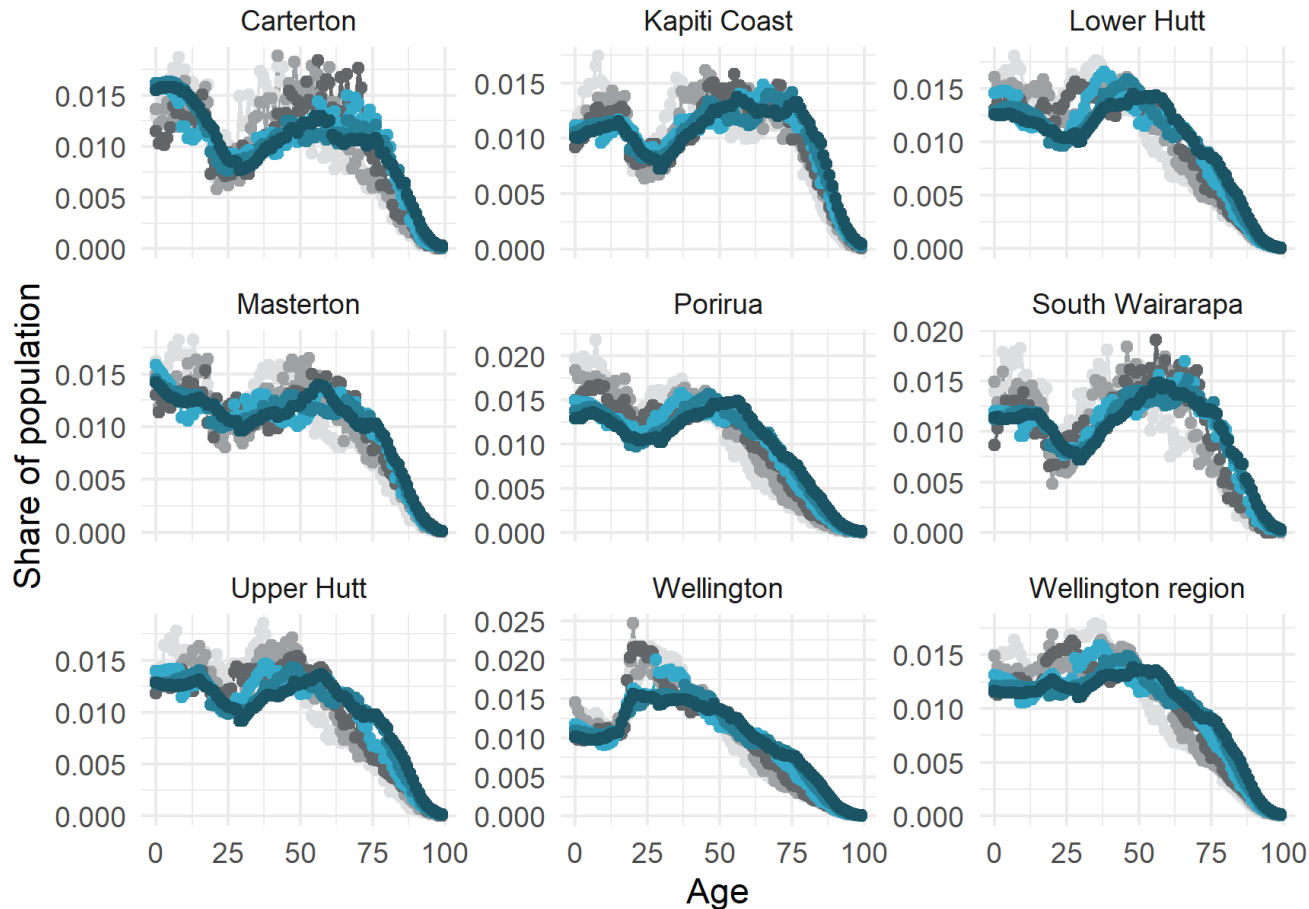
- District employment and unemployment is a function of:
 - forecast labour force and labour force participation
 - average national age-specific unemployment rates.
- Average national age-specific unemployment rates are driven by
 - national unemployment rates and;
 - the relative rate of unemployment by age in a district (from census data), relative to the national average (see e.g. chart at right).
- The intent of this approach is to capture long term structural differences in age-specific employment rates by district, while incorporating national level trends.
- Structural differences in age-specific employment rates are quite pronounced – reflecting a natural ‘sorting’ across districts:
 - Young people with good job prospects or educational opportunities tend to leave some districts and at reasonably high rates
 - This causes high rates of unemployment for young people remaining in those districts while other districts have lower unemployment rates since those with good job prospects flow into the region.

Average annual growth in number of employed people

	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
2019					
2023	0.5%	0.9%	1.1%	1.4%	1.7%
2028	0.7%	1.3%	1.7%	2.1%	2.6%
2033	0.0%	0.5%	1.0%	1.7%	2.3%
2038	-0.2%	0.3%	1.0%	1.5%	2.2%
2043	-0.4%	0.3%	1.0%	1.3%	2.2%
2048	-0.5%	0.1%	0.9%	1.2%	1.9%

- On average the ageing of the population means employment growth is slower than population growth. Even though our projections include an increase in labour force participation rates amongst older people and especially older females.
- Employment is also projected to be negatively impacted over the next 2-3 years due to the effects of COVID-19 and border closures, though it rebounds after 2023.

Variations in age-profiles across the region



- Populations are ageing in all districts, but differences in age profiles observed in the past are expected to persist
 - Wellington City has a relatively high share of the population aged 18-25
 - The more rural the district the fewer people aged 18-25
 - Kapiti Coast and South Wairarapa have larger shares of their population aged over 55 compared with other districts.
- Year
- 1998
 - 2008
 - 2018
 - 2028
 - 2038
 - 2048

Projected population growth rates, comparison with Stats NZ projections



Annual average population growth

Area	Historical	Stats NZ medium projections			Sense median projections		
	1998-2018	2018-2028	2028-2038	2038-2048	2018-2028	2028-2038	2038-2048
Kapiti Coast	1.5%	0.8%	0.4%	0.2%	2.1%	1.5%	1.2%
Porirua	1.0%	1.0%	0.5%	0.4%	1.8%	1.2%	0.9%
Upper Hutt	0.9%	1.0%	0.4%	0.3%	2.1%	1.4%	1.1%
Lower Hutt	0.4%	0.7%	0.3%	0.1%	1.7%	1.2%	0.9%
Wellington	1.2%	0.7%	0.5%	0.4%	1.2%	1.0%	0.8%
Masterton	0.6%	0.8%	0.3%	0.1%	1.8%	1.4%	1.1%
Carterton	1.6%	0.9%	0.3%	0.1%	2.7%	2.1%	1.4%
South Wairarapa	1.0%	0.9%	0.3%	0.0%	2.8%	1.9%	1.3%
Total	1.0%	0.8%	0.4%	0.3%	1.6%	1.2%	0.9%

- Our projections for population growth are substantially higher than Stats NZ's projections released on 31 March 2021.
- The substantial difference between these two sets of projections is due to differing views on migration. Our median projections include positive net migration rates of similar magnitude to trends observed in the past 5-10 years. Stats NZ is projecting a substantial decline in net migration.

Projected demand for housing

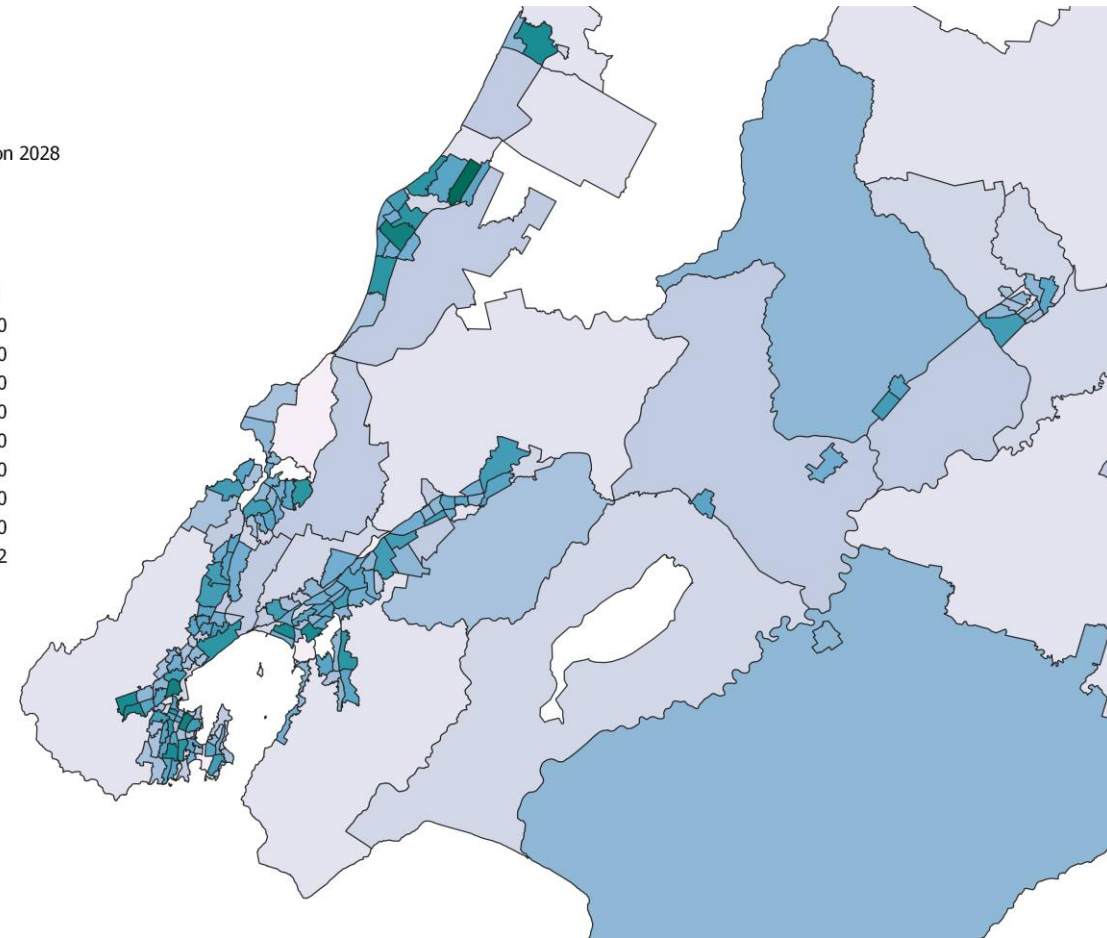
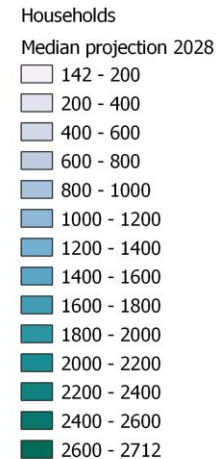
Summary for Greater Wellington Region and component districts

Projected demand for housing



Approach to constructing projections:

1. Statistical model predicts demand for houses within a district by local area (SA2) by household type and dwelling type, accounting for:
 - estimated cost of travel to employment
 - population density
 - location of similar households
2. Predicted housing demand is compared against existing stock and high-level estimates of housing development capacity:
 - based on the 2019 Housing and Business Development Capacity Assessments
 - councils' high-level assessments of the implications of recent and future policy and plan changes including initial assessments of the implications of government requirements to intensify in certain areas¹
 - existing land zones and housing densities.
3. Excess demand, due to capacity constraints, is reallocated based on an "optimisation model" which accounts for:
 - land values (the lower the better)
 - excess development capacity (the more the better)
 - vacancies (the more the better)
4. We assume a long-run average minimum level of vacancies of:
 - 5% in typical residential areas
 - 20% in areas with high numbers of holiday homes.



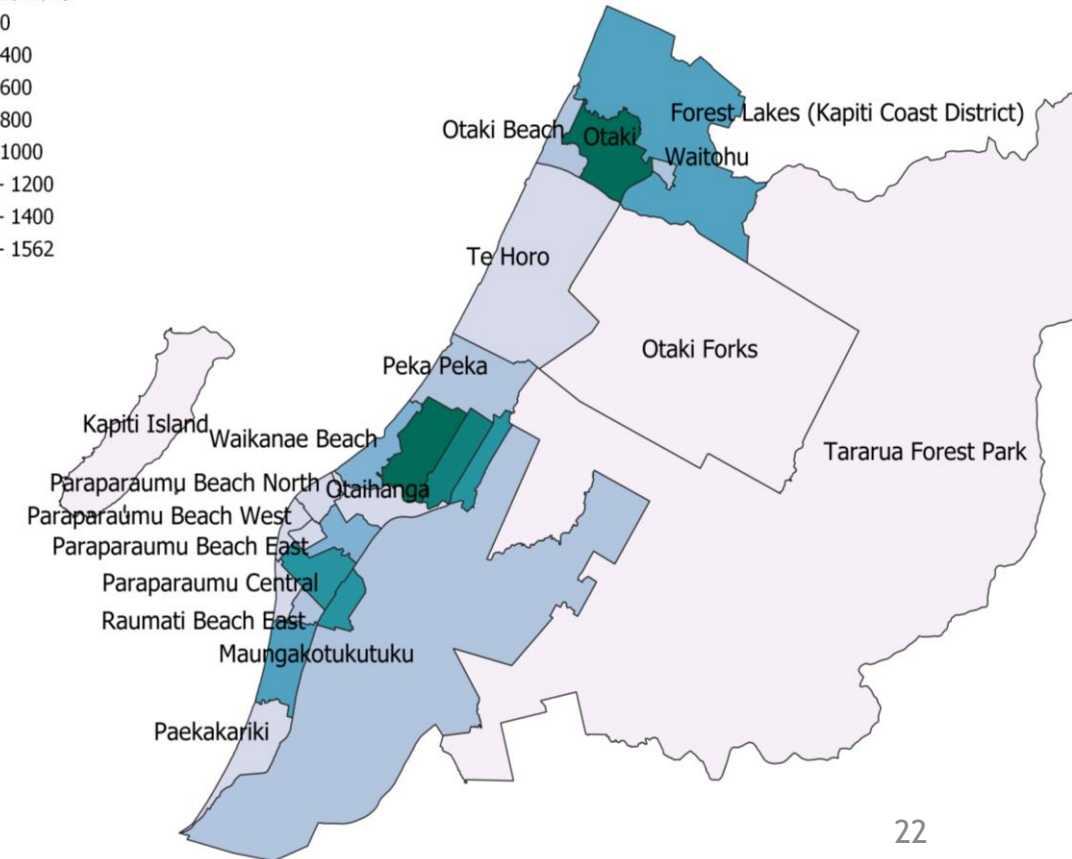
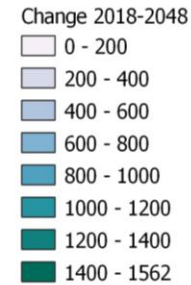
Projected population location in Kapiti Coast



Count of households, median projection, ranked by change from 2018 to 2048

Area	2018	2023	2028	2033	2038	2043	2048
Otaki	1,549	1,817	2,083	2,345	2,606	2,858	3,111
Waikanae Park	1,007	1,268	1,527	1,787	2,044	2,296	2,548
Waikanae East	1,063	1,321	1,448	1,582	1,833	2,084	2,303
Paraparaumu East	869	1,128	1,373	1,480	1,578	1,829	2,081
Waikanae West	2,208	2,475	2,709	2,929	3,095	3,286	3,420
Paraparaumu Central	1,873	2,136	2,340	2,575	2,720	2,930	3,044
Raumati South	1,548	1,727	1,888	2,031	2,156	2,265	2,360
Forest Lakes (Kapiti Coast District)	279	341	458	712	963	1,027	1,079
Peka Peka	269	327	367	625	801	849	933
Paraparaumu North	1,603	1,722	1,896	2,042	2,129	2,168	2,221
Waikanae Beach	1,538	1,647	1,810	1,916	1,974	2,065	2,145
Otaki Beach	835	918	1,026	1,120	1,195	1,261	1,333
Raumati Beach East	1,039	1,120	1,237	1,336	1,422	1,464	1,516
Maungakotukutuku	532	596	684	782	830	902	952
Raumati Beach West	1,268	1,324	1,476	1,509	1,555	1,606	1,669
Paraparaumu Beach West	1,128	1,163	1,261	1,303	1,347	1,403	1,468
Te Horo	644	684	787	836	878	924	972
Paraparaumu Beach East	1,229	1,267	1,393	1,411	1,442	1,486	1,536
Otaihanga	329	384	431	482	525	572	620
Paraparaumu Beach North	1,614	1,642	1,698	1,730	1,762	1,803	1,855
Waitohu	431	442	463	487	518	556	597
Otaki Forks	324	340	371	397	416	436	457
Paekakariki	775	787	803	822	841	857	873

Growth in Kapiti is expected to be concentrated in Otaki and Waikanae where greenfield development is possible. Expect development in and around Paraparaumu central. Infill development in beach areas is much more constrained. Some beach areas, eg Waikanae Beach, have high rates of vacancies due to holiday homes and can, in principle, accommodate substantial increases in residents without housing development.



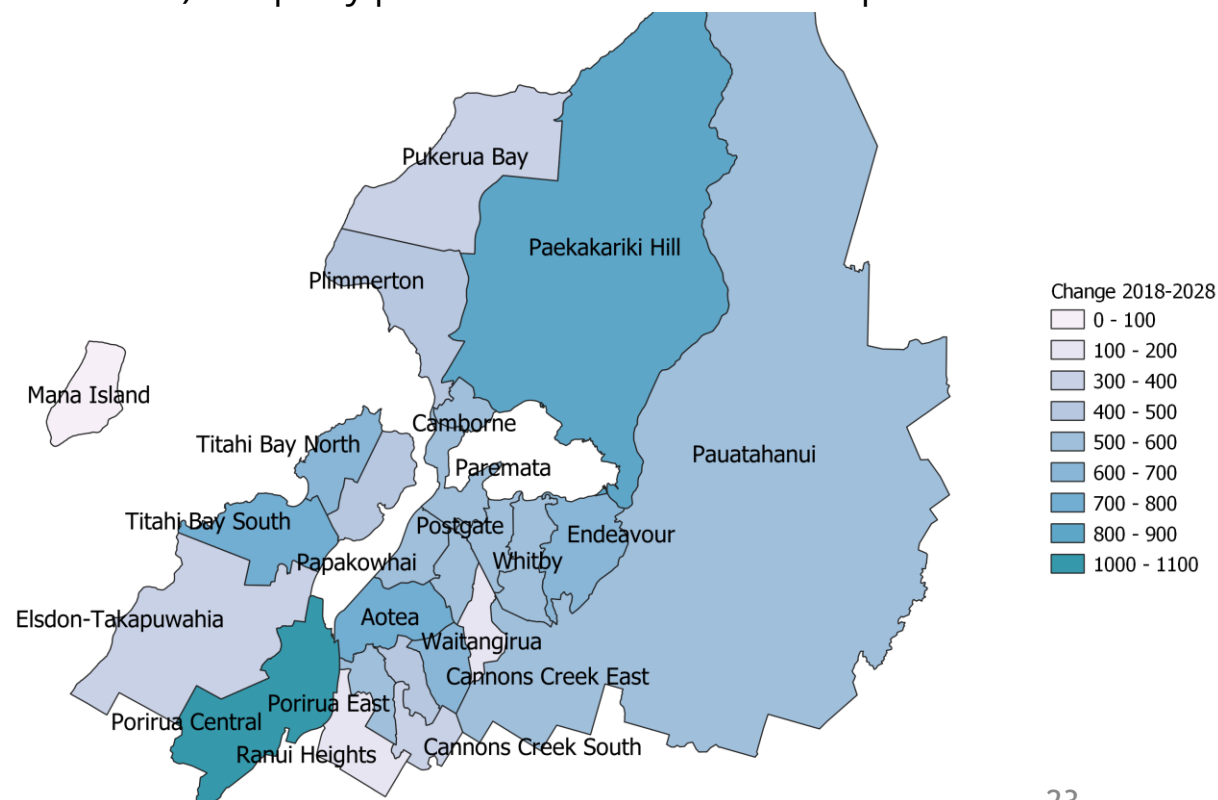
Projected population location in Porirua



Count of households, median projection, ranked by change from 2018 to 2048

Area	2018	2023	2028	2033	2038	2043	2048
Porirua Central	31	634	691	803	889	976	1,055
Paekakariki Hill	155	172	193	470	723	921	958
Aotea	1,236	1,482	1,627	1,749	1,844	1,926	1,996
Titahi Bay South	1,465	1,594	1,754	1,896	2,005	2,104	2,192
Endeavour	1,713	1,807	1,991	2,131	2,237	2,323	2,404
Titahi Bay North	1,131	1,272	1,404	1,515	1,608	1,707	1,798
Cannons Creek East	1,069	1,250	1,422	1,521	1,596	1,661	1,719
Camborne	839	940	1,054	1,157	1,255	1,348	1,437
Paremata	1,121	1,250	1,374	1,479	1,566	1,642	1,719
Postgate	1,057	1,086	1,245	1,349	1,457	1,555	1,650
Pauatahanui	360	387	641	684	742	796	924
Ascot Park	939	1,003	1,130	1,219	1,314	1,400	1,477
Papakowhai	879	910	1,042	1,134	1,221	1,307	1,390
Porirua East	776	849	950	1,039	1,118	1,201	1,279
Whitby	1,221	1,271	1,406	1,511	1,592	1,657	1,724
Onepoto	721	808	896	979	1,060	1,132	1,201
Cannons Creek North	1,049	1,134	1,235	1,324	1,371	1,413	1,463
Plimmerton	973	1,012	1,121	1,213	1,287	1,334	1,387
Pukerua Bay	815	862	948	1,022	1,078	1,129	1,176
Cannons Creek South	468	495	574	630	692	752	807
Elsdon-Takapuwhia	801	824	901	969	1,023	1,068	1,107
Waitangirua	1,204	1,294	1,296	1,298	1,300	1,332	1,384
Ranui Heights	532	591	596	599	602	646	693

Porirua has substantial capacity for both infill and substantial greenfield development (e.g. 3,000 houses in Paekakariki Hill). This makes projecting population location highly sensitive to how we weight factors such as observed preference for density or living close to employment centres against land values. This projection is based on assuming location (e.g. closer to town) is equally preferred to low cost development.



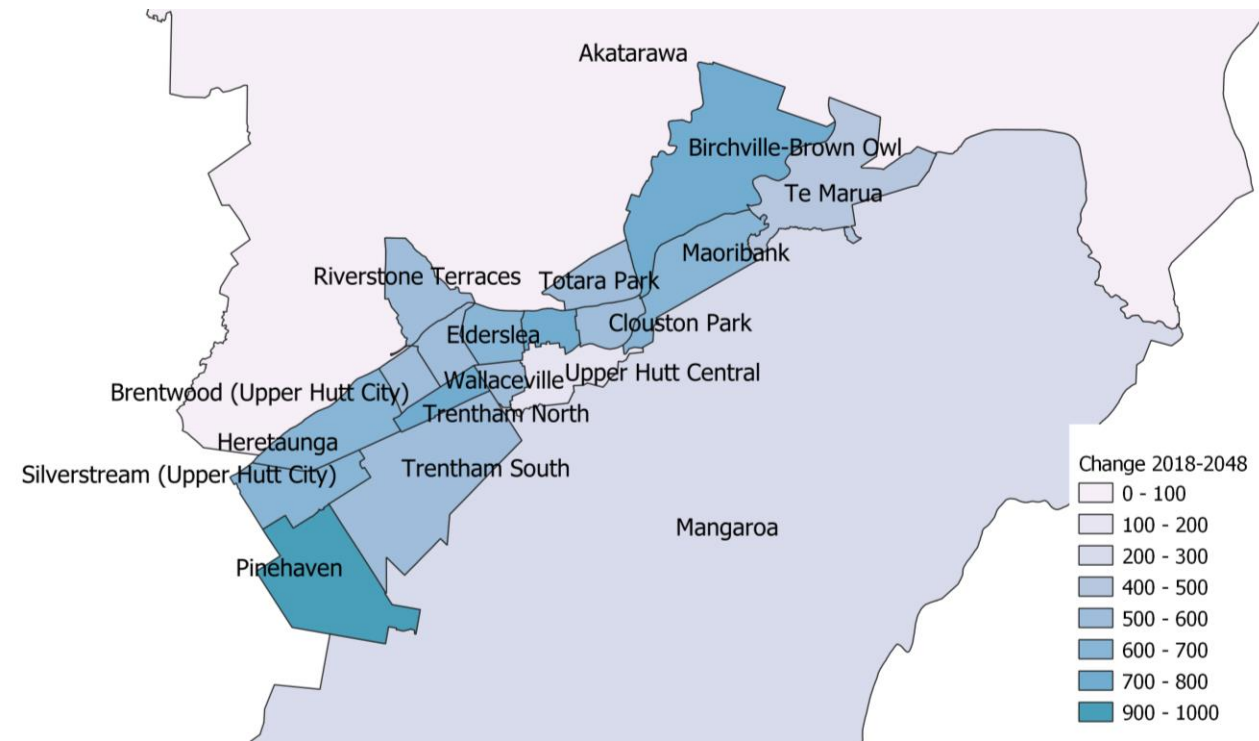
Projected population location in Upper Hutt



Count of households, median projection, ranked by change from 2018 to 2048

Area	2018	2023	2028	2033	2038	2043	2048
Pinehaven	785	818	1,056	1,177	1,395	1,647	1,712
Birchville-Brown Owl	1,415	1,614	1,759	1,900	2,020	2,123	2,213
Ebdentown	1,171	1,349	1,481	1,608	1,722	1,826	1,920
Trentham North	1,349	1,507	1,652	1,788	1,905	2,005	2,090
Maoribank	1,241	1,423	1,542	1,648	1,746	1,839	1,919
Heretaunga	1,032	1,157	1,277	1,394	1,504	1,613	1,707
Silverstream (Upper Hutt City)	1,409	1,515	1,652	1,779	1,884	1,978	2,062
Elderslea	1,368	1,453	1,594	1,720	1,828	1,928	2,016
Trentham South	499	647	718	817	915	1,007	1,093
Riverstone Terraces	645	731	796	863	921	984	1,236
Poets Block	986	1,067	1,184	1,290	1,390	1,487	1,575
Clouston Park	961	1,060	1,168	1,270	1,366	1,460	1,546
Totara Park	1,163	1,196	1,348	1,455	1,553	1,648	1,723
Wallaceville	1,101	1,258	1,376	1,491	1,589	1,620	1,648
Brentwood (Upper Hutt City)	856	946	1,043	1,135	1,223	1,307	1,386
Te Marua	388	425	475	631	668	749	798
Mangaroa	758	781	850	911	949	989	1,027
Upper Hutt Central	227	248	286	313	345	375	406
Akatarawa	256	264	274	284	292	304	315

Development in Upper Hutt is expected to be spread along several areas along the main transport corridor for the region.

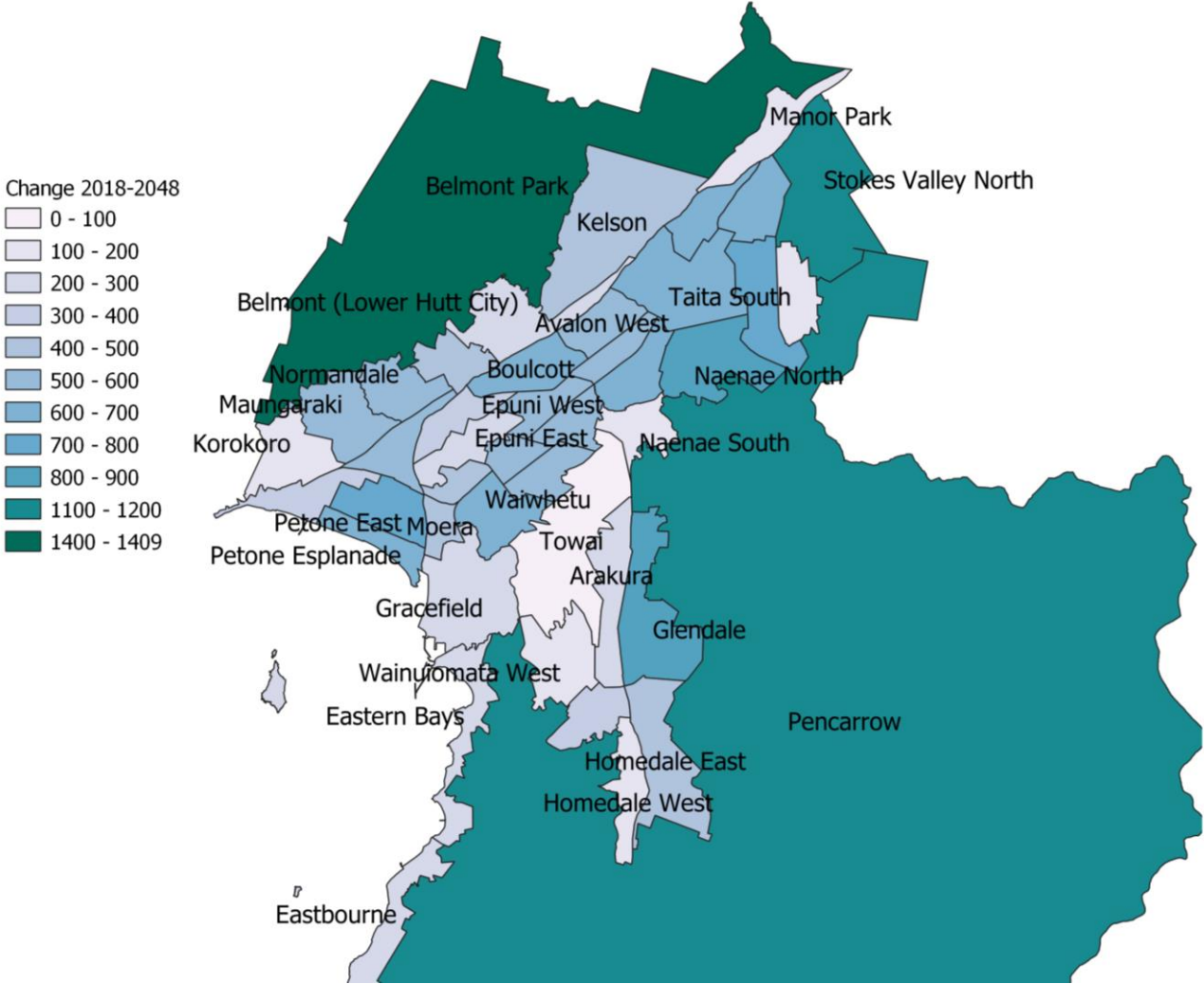


Projected population location in Lower Hutt



Count of households, median projection, top 20 areas ranked by change from 2018 to 2048

Area	2018	2023	2028	2033	2038	2043	2048
Belmont Park	115	270	522	773	1,023	1,273	1,524
Stokes Valley North	1,332	1,427	1,636	1,889	2,142	2,394	2,518
Pencarrow	254	267	350	601	854	1,107	1,358
Glendale	1,395	1,645	1,898	2,090	2,122	2,163	2,213
Naenae North	952	1,198	1,298	1,391	1,616	1,682	1,768
Delaney	919	1,015	1,225	1,484	1,599	1,645	1,699
Petone East	1,757	1,837	2,017	2,166	2,291	2,407	2,509
Naenae Central	1,300	1,503	1,632	1,749	1,840	1,925	2,000
Boulcott	1,048	1,159	1,285	1,398	1,507	1,613	1,715
Waiwhetu	1,782	1,911	2,074	2,222	2,339	2,395	2,445
Taita South	1,135	1,315	1,425	1,524	1,601	1,724	1,789
Petone Esplanade	1,164	1,262	1,380	1,492	1,590	1,689	1,785
Taita North	1,052	1,209	1,312	1,426	1,524	1,622	1,672
Stokes Valley Central	786	829	1,036	1,185	1,243	1,330	1,405
Epuni West	1,321	1,438	1,565	1,678	1,765	1,842	1,915
Maungaraki	1,571	1,647	1,794	1,913	2,002	2,087	2,164
Waterloo West	954	1,027	1,148	1,251	1,354	1,450	1,539
Avalon West	1,174	1,237	1,367	1,466	1,557	1,644	1,730
Waterloo East	1,303	1,396	1,519	1,622	1,703	1,776	1,849
Avalon East	1,051	1,108	1,227	1,325	1,412	1,500	1,588



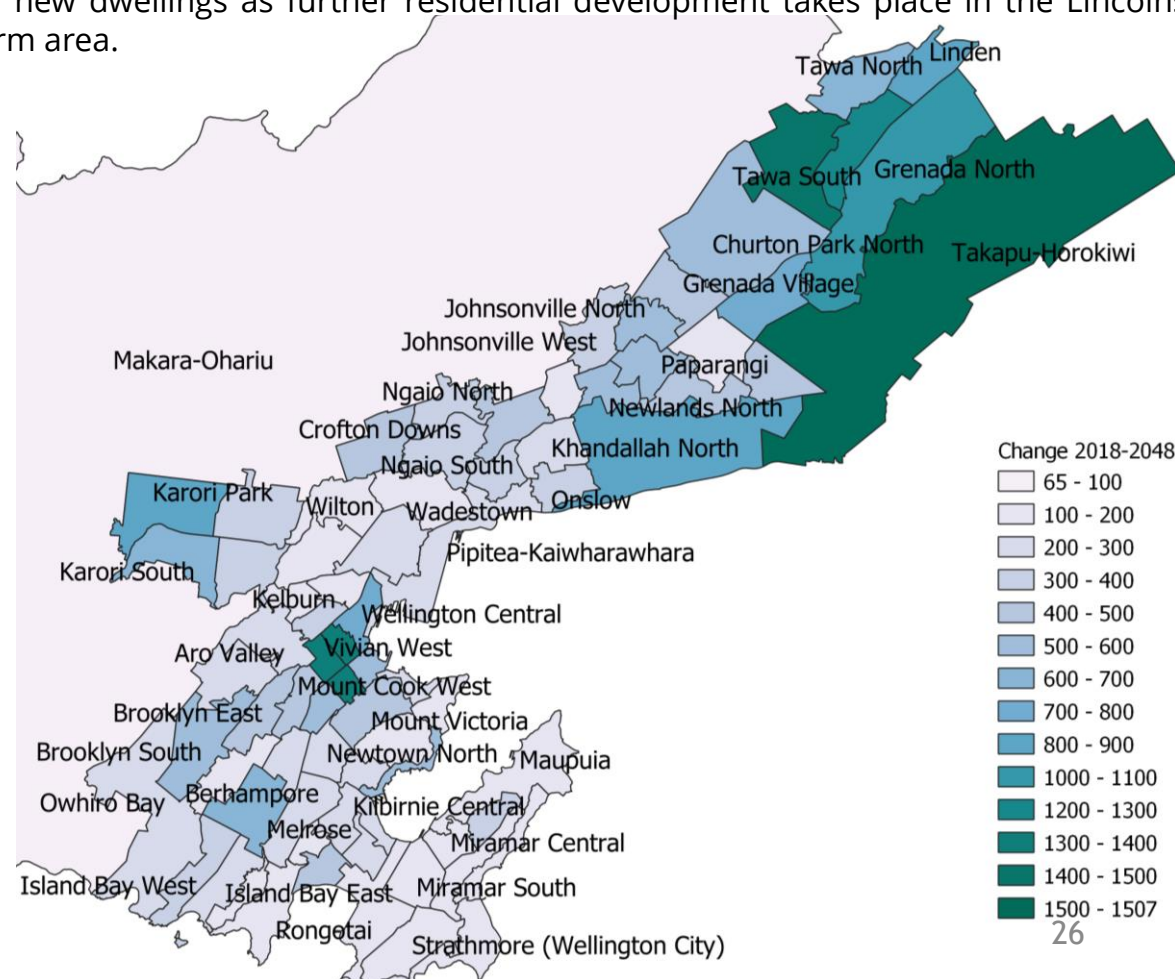
Projected population location in Wellington



Count of households, median projection, top 20 areas ranked by change from 2018 to 2048

Area	2018	2023	2028	2033	2038	2043	2048
Takapu-Horokiwi	102	355	607	858	1,108	1,358	1,609
Tawa South	1,179	1,420	1,623	1,874	2,124	2,375	2,626
Vivian West	1,456	1,718	1,974	2,228	2,479	2,730	2,833
Vivian East	1,245	1,462	1,715	1,965	2,217	2,467	2,597
Dixon Street	1,740	2,008	2,271	2,527	2,784	3,009	3,056
Tawa Central	1,112	1,263	1,465	1,716	1,857	2,109	2,360
Grenada North	787	934	1,135	1,386	1,637	1,770	1,825
Linden	1,242	1,315	1,516	1,768	2,018	2,061	2,097
Karori Park	1,805	1,979	2,180	2,313	2,373	2,422	2,638
Newlands South	1,491	1,580	1,782	2,034	2,092	2,288	2,322
Grenada Village	602	718	919	1,169	1,314	1,352	1,389
Wellington Central	1,390	1,438	1,587	1,712	1,849	1,994	2,131
Tawa North	1,141	1,288	1,490	1,716	1,746	1,789	1,839
Berhampore	1,698	1,961	2,083	2,183	2,259	2,320	2,359
Karori South	1,661	1,914	2,076	2,166	2,226	2,271	2,304
Evans Bay	461	715	762	838	892	977	1,049
Mount Cook East	920	1,042	1,115	1,195	1,286	1,393	1,497
Johnsonville South	678	821	1,031	1,074	1,133	1,197	1,254
Churton Park North	1,313	1,496	1,697	1,767	1,815	1,849	1,872
Johnsonville North	1,203	1,362	1,564	1,630	1,677	1,707	1,732

Plan changes are expected to accommodate substantial changes in residential density in the central city and in our urban areas, particularly near public transport such as in Johnsonville and Tawa. Significant dwelling growth is expected to be focused in Te Aro, Tawa, Johnsonville and Karori. Takapu Valley/Horikiwi will also be a high growth area for new dwellings as further residential development takes place in the Lincolnshire Farm area.

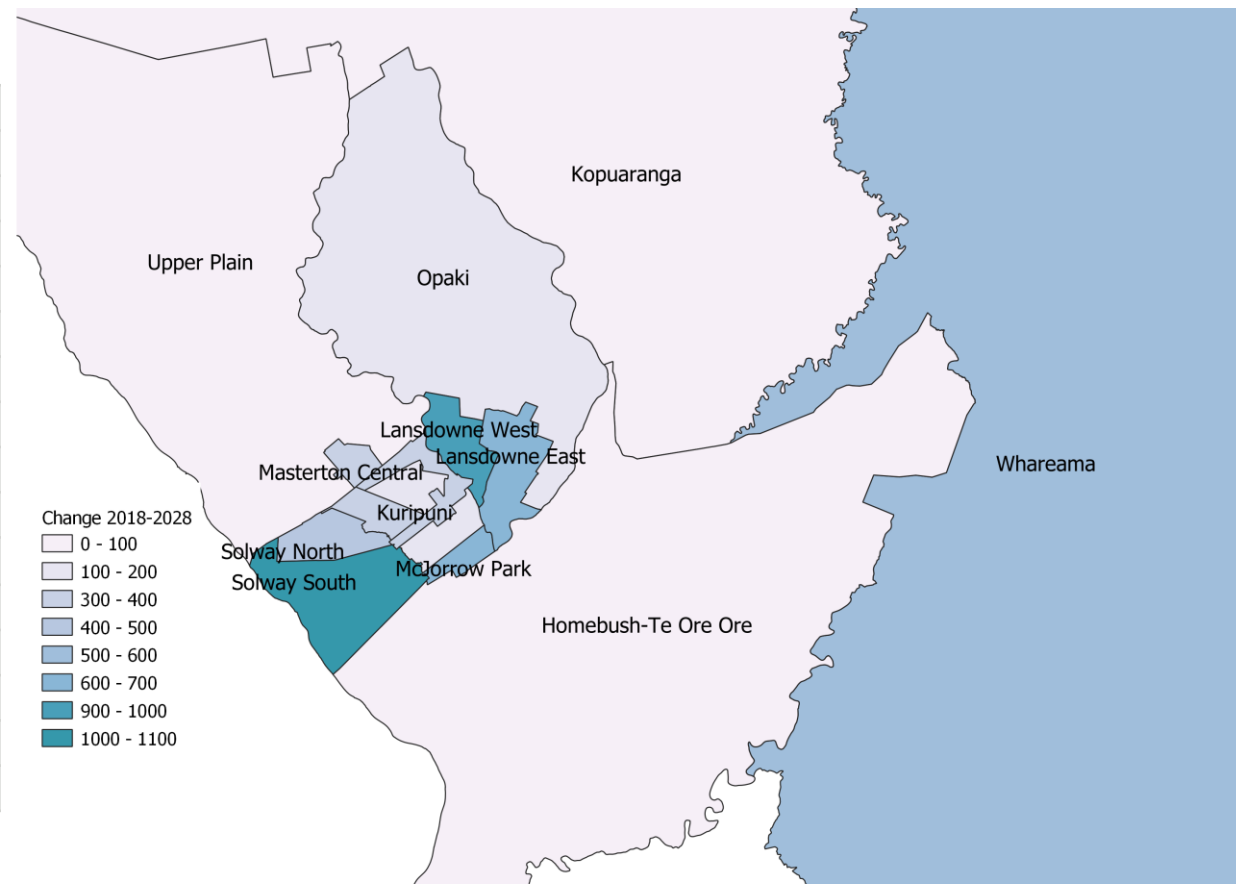


Projected population location in Masterton



Count of households, median projection, ranked by change from 2018 to 2048

Area	2018	2023	2028	2033	2038	2043	2048
Solway South	1,481	1,680	1,741	1,781	2,033	2,284	2,535
Lansdowne West	727	863	1,114	1,366	1,616	1,661	1,669
Lansdowne East	1,182	1,297	1,508	1,747	1,784	1,828	1,882
McJorror Park	601	643	849	963	1,003	1,156	1,207
Whareama	620	697	767	852	937	1,028	1,125
Solway North	1,039	1,154	1,168	1,191	1,204	1,269	1,474
Ngaumutawa	743	855	883	937	981	1,027	1,073
Masterton Central	291	319	374	429	484	543	593
Kuripuni	735	766	828	884	939	992	1,036
Opaki	491	557	577	592	612	672	687
Cameron and Soldiers Park	1,028	1,117	1,132	1,150	1,154	1,164	1,168
Douglas Park	912	996	1,008	1,022	1,024	1,023	1,023
Upper Plain	488	497	516	532	538	545	554
Kopuaranga	383	392	400	405	412	415	446
Homebush-Te Ore Ore	429	436	441	448	453	461	469



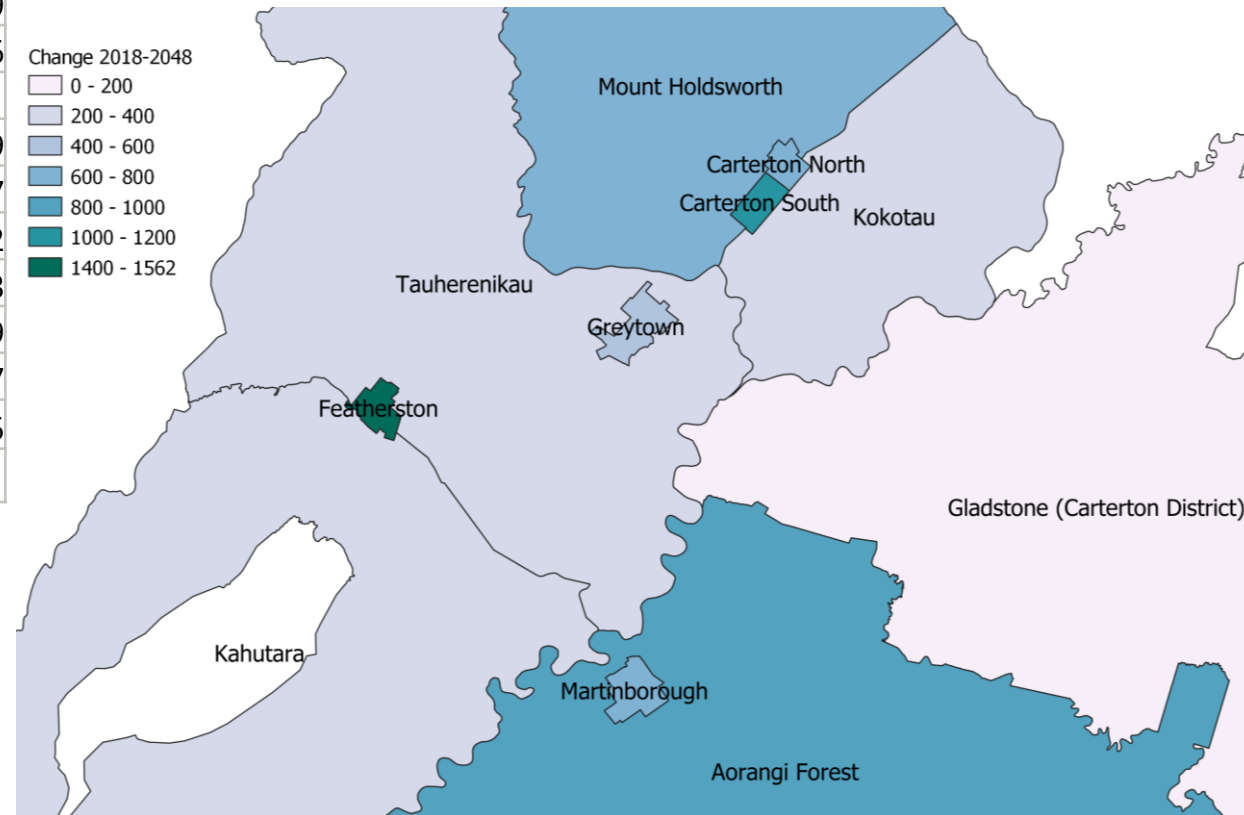
Projected population in Carterton and South Wairarapa



Count of households, median projection, ranked by change from 2018 to 2048

Area	2018	2023	2028	2033	2038	2043	2048
Featherston	1,151	1,325	1,538	1,799	2,060	2,319	2,569
Carterton South	1,351	1,527	1,702	1,746	1,996	2,246	2,496
Aorangī Forest	650	839	1,088	1,295	1,364	1,438	1,521
Martinborough	827	1,030	1,186	1,214	1,402	1,505	1,569
Mount Holdsworth	822	886	1,086	1,337	1,408	1,447	1,497
Carterton North	1,335	1,532	1,599	1,759	1,830	1,935	2,002
Greytown	1,171	1,326	1,398	1,564	1,565	1,579	1,603
Kokotau	530	583	689	709	739	779	829
Tauherenikau	569	584	685	714	752	801	857
Kahutara	424	437	465	511	549	597	655
Gladstone (Carterton District)	477	486	491	491	491	491	491

Carterton is also constrained in terms of development capacity, following a decade or more of strong population growth. Our projections assume that these constraints will be relaxed to allow long term population growth.



Our projections suggest a substantial change in population in Featherston, reflecting relative proximity to employment over the Rimutaka's and comparatively low land values. Martinborough is more constrained with respect to development capacity given much housing stock is held for leisure rather than residential use.

**For comments and
questions please contact
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