Whangarei District Growth Model 2021 to 2051

Contents

Overview

The Whangarei District Growth Model sets out a forecast for population change over the next 30 years. It also forecasts the change in the number of dwellings and other demographic and household trends.

This model is used to inform the 2021 – 2031 Long Term Plan and its supporting documents. It also supports planning decision making and strategic direction for the Whangarei District Growth Strategy.

This model forecasts a picture sustain growth over the 30 years. Although there is uncertainty on our short term outlook, our economy is outperforming our early estimates of the impact of COVID-19. In the medium and long term, Whangarei will continue to be a desirable location for people moving to New Zealand and from other parts of the country. This will be supported by continued investment in our infrastructure.

Indicator	2021	2031	2041	2051
Population Forecast	99,133	115,225	131,934	144,435
Dwellings Forecast	41,593	48509	55,440	61,102
Population Change (2021 -2051)	45,302			
Average Annual Percentage Population Change (2021 – 2051)	1.52%			
Dwelling Change (2021 – 2051)	19,503			
Average Annual Percentage Dwelling Change (2021 – 2051)	1.56%			

Within the District there will be places that will grow more than others. The hotspots for growth include Ruakaka, Tikipunga, Kamo, Maunu as well as Waipu and Parua Bay. These locations have seen some of the highest population increases over the past 5 years and that trend is likely to continue as they remain attractive destinations

Methodology and assumptions

Overview

The growth model uses Statistics New Zealand data sets as well as our information about consents and subdivision as well as our potential to grow through the land we zone for development. This model has been developed in collaboration with .id the population experts on behalf of Whangarei District Council.

The model was first developed in March 2020 and updated in November 2020 to be reflect Estimated Resident Population for June 2020.

COVID – 19

The impacts of COVID-19 have been considered as part of this Growth Model. Although there is a degree of uncertainty in the long term impacts, over the past year Whangarei has continued to see relatively strong population growth and economic performance compared to the rest of New Zealand.

Analysis by Infometrics (Quarterly Economic Monitor, September 2020) shows that:

Whangārei economy has seen a strong rebound in economic activity in the September quarter. Economic activity rose 3.1%pa in September, limiting the fall in year-end growth to -2.3%pa, according to provisional estimates from Infometrics.

The local economy took a sharp hit from COVID-19 but has maintained more momentum than the national economy. Strong spending activity highlights the current economic performance, with consumer spending up 11%pa in the September quarter. Part of this spending boom is catch-up from the Level 4 lockdown, but spending levels continue to sit higher, reflecting a still-upbeat local economic mood.

House prices in the District have increased by 9.2%pa as the population grows and people from outside the area look to relocate. Infometrics Local Economic Insights Dashboard highlights that local broadband usage remains higher than a year ago, reinforcing this view. However, affordability pressures remain as residential consents stay below previous levels, down 23%pa over the 12 months to September.

Builders are still likely to be busy though, with a 209%pa rise in non-residential consents in the September quarter taking annual activity up 45%pa. Consents for education buildings, warehousing, and industrial construction drove this growth.

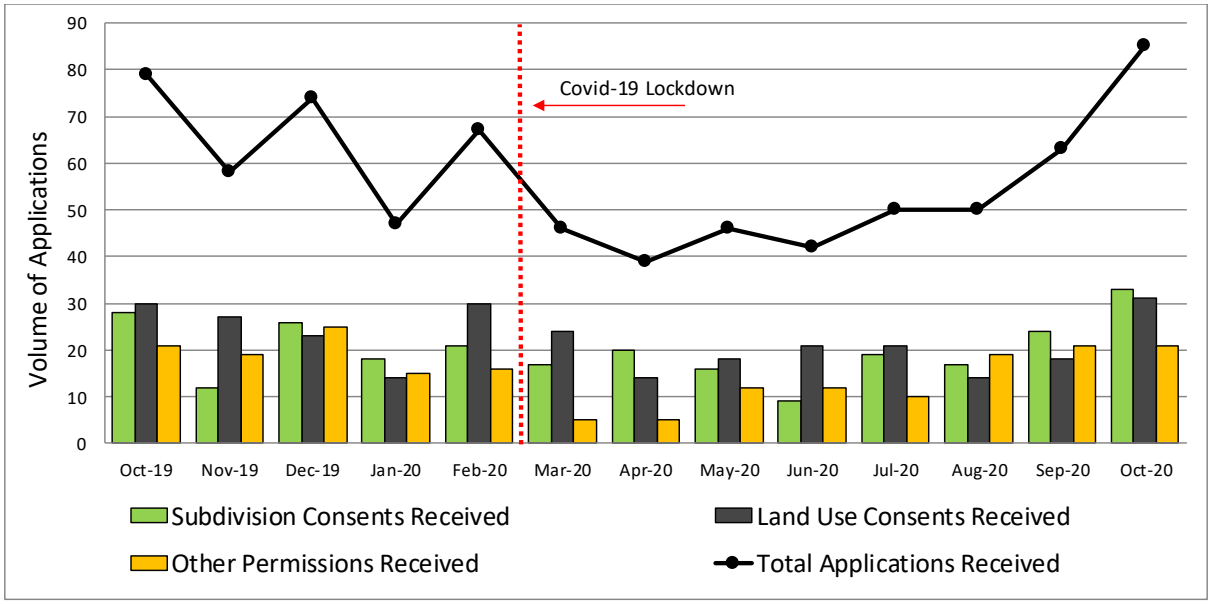
The COVID-19 shock has still dealt a hard blow to some parts of the community. In Whangārei, there are an additional 1,200 Jobseeker Support recipients in September compared to last year, a 33%pa rise. This rise is higher than the wider Northland region, but below the national average. Some key local employers have signalled job losses, which has pushed the unemployment rate higher.

Primary sector activity has provided a solid economic foundation for Whangārei. The current farmgate milk price is expected to bring in $210m into the Whangārei economy in the 2020/21 season. Meats are also holding up, with exporters needing to pivot towards at home consumption.

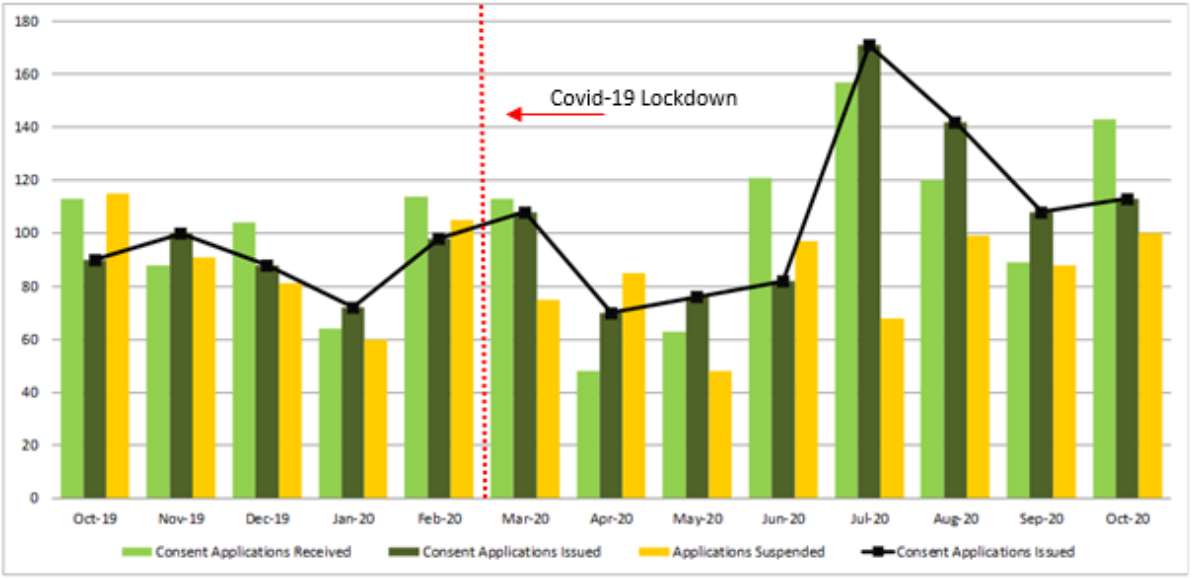
Tourism activity remains subdued in Whangārei. Although domestic tourism activity has picked up strongly post-lockdown, local tourism spending is down nearly 9%pa over the last 12 months and is likely to decline further as the loss of international tourism is felt more during summer.

For our growth model, in the short term we have assumed that Whangarei will remain an attractive destination for internal migrants, moving primarily from the Auckland Region, as well as from New Zealanders returning from overseas. This assumption appears to be supported by the strong house construction activity.

1 Resource Consent applications received by Whangarei District Council - October 2019 to October 2020



2 Building consent applications received by Whangarei District Council - October 2019 to October 2020



In the medium and longer term, the factors that make Whangarei a popular destination will continue to drive growth and will be further stimulated by key projects such as:

- Transport improvements between Northland and Auckland
- Continued expansion of port activities at NorthPort
- Investment in key economic sectors such as health services, marine industry, agriculture, and horticulture

However, it is acknowledged that there is degree of uncertainty on the longer-term impacts of COVID-19. Our response is to continue to monitor key economic and growth indicators and report these through to Council to assist in their decision making.

Factors of population change

At the small area level, the key factors of population change are the age structure of the existing population, the housing markets attracted to and away from an area and their associated demographic characteristics (fertility patterns, household types etc.) and the supply of dwellings and mix of housing stock in the area.

New Dwellings

The addition of dwellings is the major driver of population growth, providing opportunities for new households (such as young people leaving the family home and divorces) or households relocating from other areas.

Current age structure

The age structure of the local population impacts on Whangarei District Council's household types and size, the likelihood of the local population having children and to die, as well as the propensity for people to move. Age specific propensities for a population to have children or die are applied to each small area's base population. An older population will have fewer births, more deaths, while a younger population will have vice versa.

Birth rates

Birth rates are especially influential in determining the number of children in an area, with most inner urban areas having very low birth rates, compared to outer suburban or rural and regional areas. Birth rates have been changing, with a greater share of women bearing children at older ages or not at all, with overall increases in fertility rates. This can have a large impact on the future population profile.

Death rates

Death rates are influential in shaping the numbers of older people in an area's population. Death rates too have been changing with higher life expectancy at most ages, with men gaining on women's greater life chances.

Migration

Migration is one of the most important factors of population change. While births and deaths are relatively easy to predict due to reliable age specific behaviour, migration is volatile, often changing due to housing market preferences, economic opportunities and changing household circumstances. Migration patterns vary across New Zealand' and change across time, but most moves tend to be short and incremental in nature. Regional areas have larger moves due to the distances between towns and cities, where people often move for economic reasons, mainly the availability of employment or education and training opportunities.

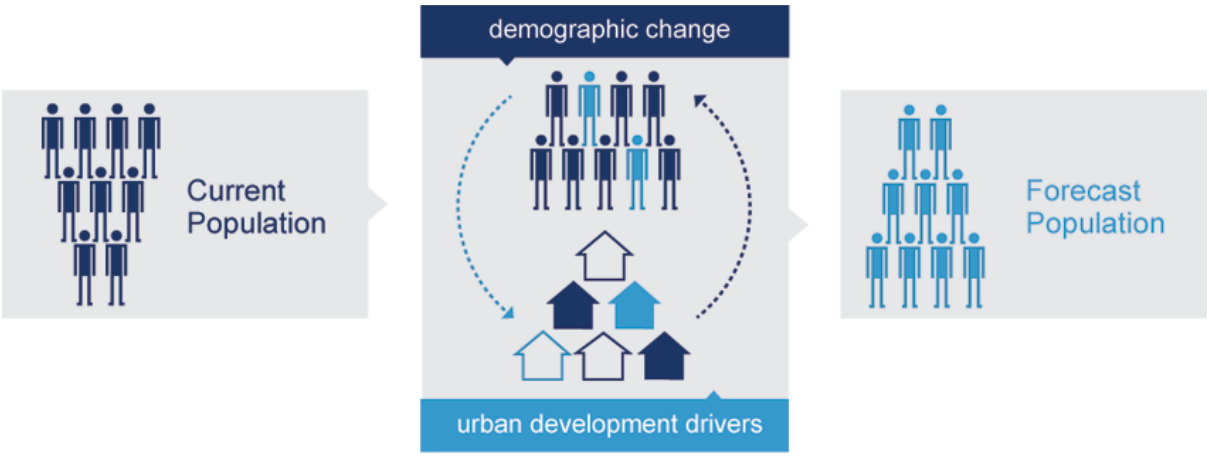
The most mobile age groups in the population are the young adults. They tend to move to attend educational institutions, seek work and express a change in lifestyle. It is for this reason that young people often move the greatest distances and sometimes move against pre-established patterns. Market research has shown that empty nesters are more likely to move to smaller accommodation if appropriate and affordable alternative housing is supplied in the local area that is accessible to established social networks.

Methodology

The diagram below describes the general approach used by .id in its population and household forecasts. An analysis of the current population and household structure often

reveals the role and function of an area and the degree to which an area may be going through some form of demographic transition.

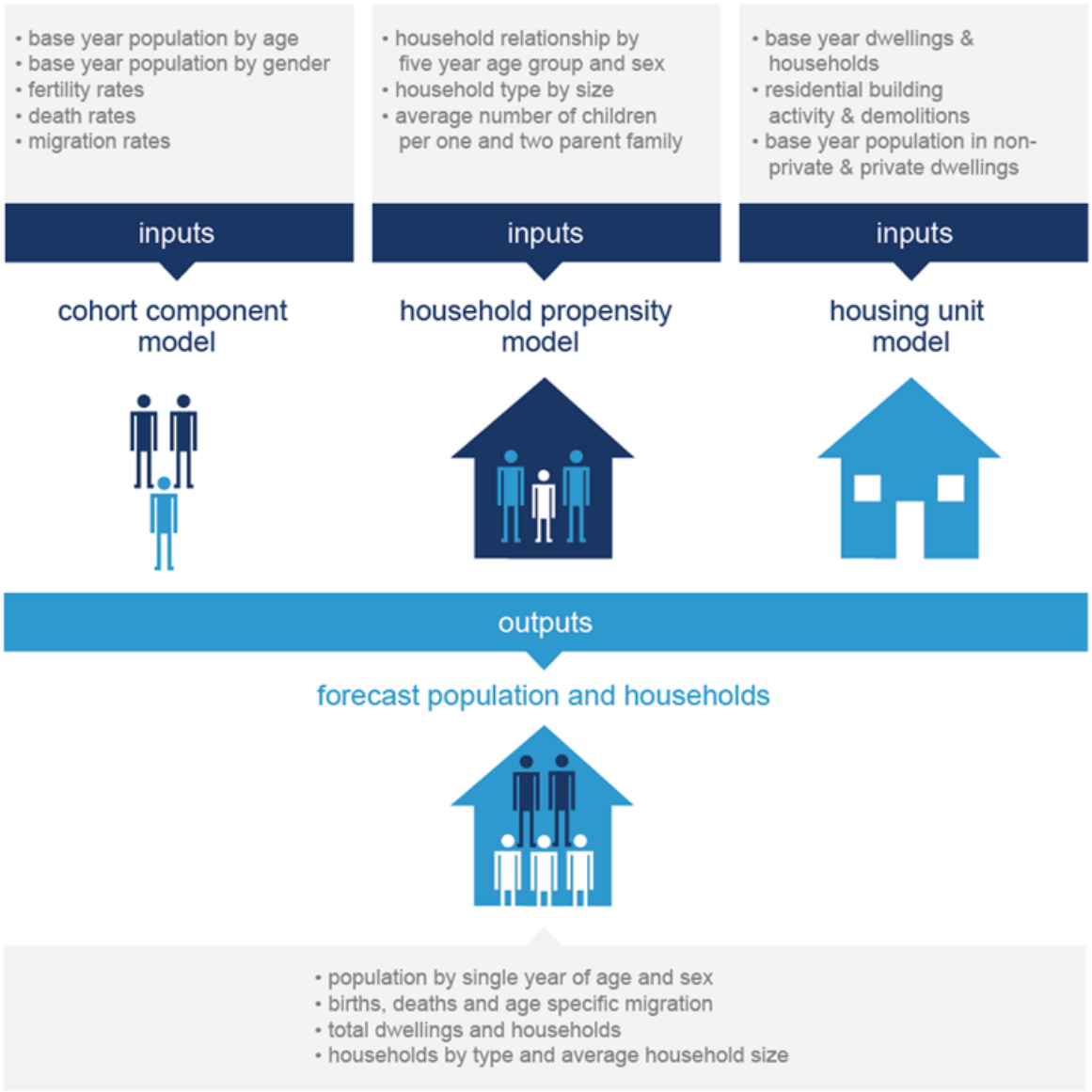
Demographic changes, such as birth, death and migration rates are applied to the base population. At the same time, scrutiny of urban development drivers is undertaken (residential development opportunities, vacancy rates etc.). The combination of varied assumptions about these inputs results in forecast population and households by type.



Modelling process

The modelling process used for producing the small-area forecasts is based on a 'bottom-up' approach, with all assumptions being derived from a local perspective. The components of the model are derived exclusively from housing and demographic assumptions. The drivers of the forecasts are predominantly based on levels of new residential development and demographic assumptions, such as in and out migration rates from the local areas. The diagram below describes the detail of the modelling process used by .id in its population and household forecasts.

The population forecasts are based on a combination of three statistical models. They include a cohort component model, a housing unit model and a household propensity model. Each of the models has a series of inputs, which when linked to the other models gives the forecast outputs. The models are further explained below.



Cohort Component Model

The cohort component model is a standard demographic model used for population forecasts. It takes a base population by single year of age and sex and makes assumptions about future levels of births, deaths, and migration, with the result being a forecast population by age and sex.

Each year the population ages by one year, with additions to population through in-migration and births. Births are derived by multiplying age specific fertility rates of women aged 15-49 by the female population in these age groups for all years during the forecast period. The population decreases are based on out-migration and deaths. Deaths are derived by multiplying age and sex specific mortality rates for all age groups for all years during the forecast period.

In and out migration is based on multiplying the population in each age group by a migration matrix. The base year population is derived from [MigYearTo] Census counts and then adjusted to an estimated resident population by small area. Each year through the forecast

period, the population is run against age-specific birth, death, and migration rates to create new population figures.

Housing Unit Model

The housing unit model is used to forecast future levels of residential development in areas and the resulting impact on the total population and the number of households. This model is critical in giving population forecasts credibility, especially in areas where there are residential development constraints and where historical migration patterns would be expected to change.

The housing unit model is based on forecasting a number of variables. These include total population living in private and non-private dwellings, the number of households and the number of dwellings. The share of housing stock that does not contain households is known as the vacancy rate. The population living in private dwellings divided by the number of households is known as the average household size.

These variables have changing relationships over time, as households undergo normal demographic processes, such as family formation and ageing. Levels of residential development, vacancy rates and average household size (see housing propensity model below) are used as the drivers of the model. Every year there is an assumption about the level of residential development activity, which adds to the stock of dwellings in an area. This stock of dwellings is multiplied by the vacancy rate, which gives the total number of vacant dwellings and the total number of occupied private dwellings (households).

Households are multiplied by the assumed average household size for the year to derive the new number of persons living in private dwellings. The average household size is derived from the household propensity model (see below).

Population in non-private dwellings is modelled separately. A non-private dwelling is a form of housing, which is communal in nature. Examples of non-private dwellings include rest homes, student accommodation, boarding houses, nursing quarters, military barracks, and prisons. In forecasting the number of persons in non-private dwellings, the population is analysed according to the different types of living arrangements. Decisions about future changes may be based on local knowledge through consultation with institutions or local government if there are a large number of people living in non-private dwellings.

Household Propensity Model

This model is used to integrate the cohort component and housing unit models to ensure consistency between the outputs of both models. The model works by assuming that the age structure of the population is an indicator of household size and type. These differences are assumed at the local area based on the household type and size from the [MigYearTo] Census.

The population is divided into household types based on five year age groups and sex. Each of these household types has an associated household size. From this relationship, all the household forming population (adults and any non-dependents) effectively represent a share of a household. Dependents in a household (children) represent no share of a household, although their departure frequently drives demand for housing in the region. Lone persons represent 1 or 100% of a household. Couples with dependents represent 50% of household. Couples without dependents represent almost 50% of a household (as they can include related adults). Lone parents represent 100% of a household. Group household members' and other household members' shares vary according to the region (20%-45%, 5 persons to 2.5 persons per household).

While for some areas, it is assumed that a greater share of the population will live in smaller households in the future, many areas will go against this trend, depending on their place within the life cycle of suburbs.

Base population estimates

The population figures used in the forecasts for 2018 are derived from estimated resident population from Statistics New Zealand. These figures are published at Territorial Area and Urban Area Level, by sex and 5-year age group and at Area Unit Level 5-year aggregated sex at 5-year age group. This allows the extrapolation of population by sex and 5-year age group to Area Units, which are then aggregated to the chosen small area, sometimes splitting Area Units if necessary.

These figures are subject to change or updating from time to time, most notably after census release (usually one to two years after the census is conducted).

November modifications to the Growth Model

Every year Statistics New Zealand release Estimated Residential Populations (ERP). The October 2020 release had an ERP for Whangarei of 98,300 people. This was higher than initially anticipated by the Growth Model which anticipated a slow rate of growth due to impacts of COVID-19.

We have included the 2020 ERP into our Growth Model to produced updated forecast for population and dwelling numbers.

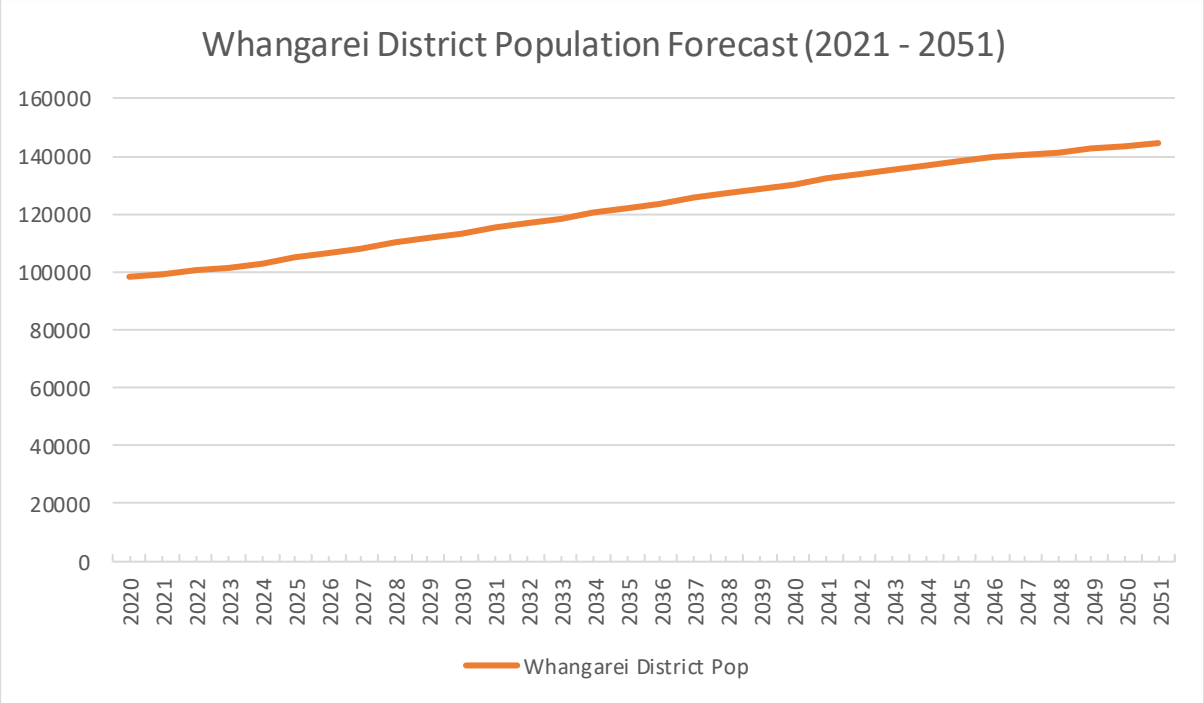
The late addition of this data means that some components of the draft LTP have not been able to factor in the amended forecast in there entirety. However, all areas that are not using the November modifications have assessed the materiality of the difference and the impacts. These are addressed specifically within those individual supporting documents.

Growth Model

This section outlines the key outputs of the Whangarei District Growth Model 2021 – 2051. This is broken down by population and number of dwellings over 30 years as well as more specific information for the LTP years (2021 – 2051).

Population Forecast

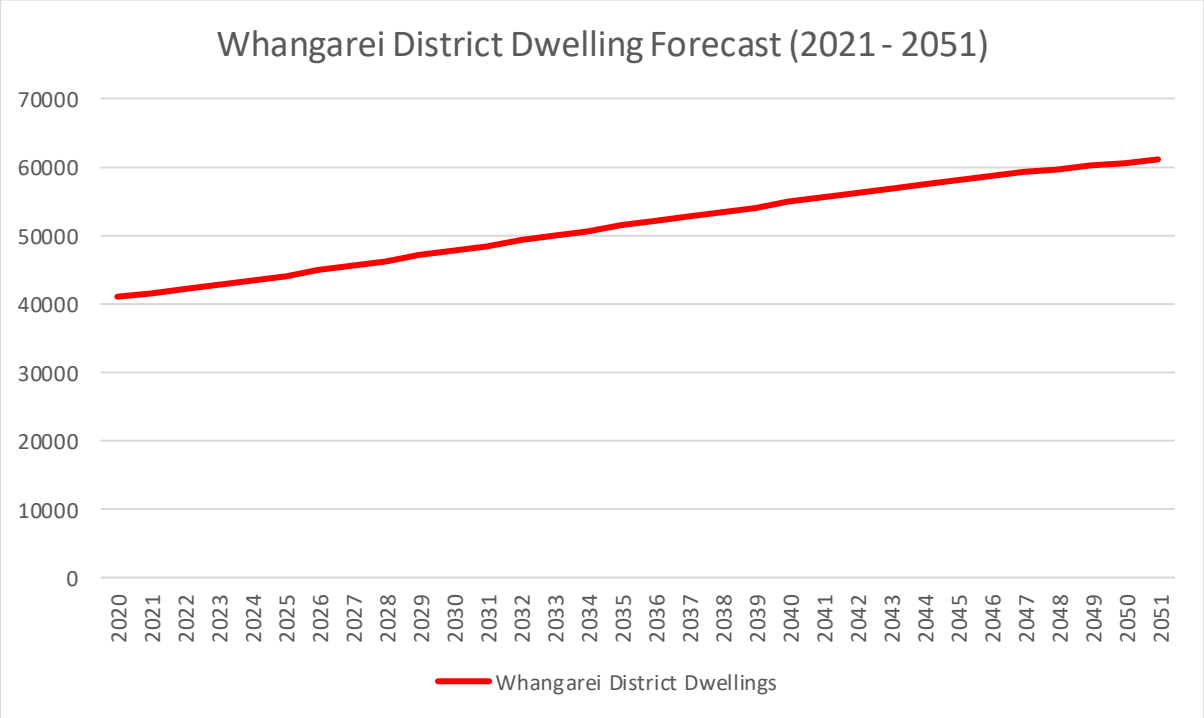
Year	Whangarei District Population Forecast	Increase	% Increase
2020	98300	-	-
2021	99133	833	0.8%
2022	100320	1187	1.2%
2023	101560	1240	1.2%
2024	103127	1567	1.5%
2025	104811	1684	1.6%
2026	106463	1652	1.6%
2027	108227	1764	1.7%
2028	109969	1742	1.6%
2029	111702	1733	1.6%
2030	113466	1764	1.6%
2031	115225	1759	1.6%
2032	116919	1694	1.5%
2033	118616	1697	1.5%
2034	120333	1717	1.4%
2035	122054	1721	1.4%
2036	123781	1727	1.4%
2037	125455	1674	1.4%
2038	127115	1660	1.3%
2039	128766	1651	1.3%
2040	130357	1591	1.2%
2041	131934	1577	1.2%
2042	133519	1585	1.2%
2043	135100	1581	1.2%
2044	136687	1587	1.2%
2045	138161	1474	1.1%
2046	139375	1214	0.9%
2047	140526	1151	0.8%
2048	141448	922	0.7%
2049	142438	990	0.7%
2050	143435	997	0.7%
2051	144435	1000	0.7%



Forecasts for Dwellings (2021 – 2051)

Year	Whangarei District Dwelling Forecast	Increase	% Change
2020	**41039**	-	-
2021	**41593**	554	1.3%
2022	**42131**	538	1.3%
2023	**42695**	564	1.3%
2024	**43374**	679	1.6%
2025	**44092**	718	1.7%
2026	**44810**	718	1.6%
2027	**45553**	743	1.7%
2028	**46291**	738	1.6%
2029	**47029**	738	1.6%
2030	**47770**	741	1.6%
2031	**48509**	739	1.5%
2032	**49223**	714	1.5%
2033	**49937**	714	1.5%
2034	**50651**	714	1.4%
2035	**51358**	707	1.4%
2036	**52065**	707	1.4%
2037	**52752**	687	1.3%
2038	**53434**	682	1.3%
2039	**54116**	682	1.3%
2040	**54778**	662	1.2%
2041	**55440**	662	1.2%
2042	**56102**	662	1.2%
2043	**56764**	662	1.2%
2044	**57426**	662	1.2%

2045	**58050**	624	1.1%
2046	**58638**	588	1.0%
2047	**59187**	549	0.9%
2048	**59660**	473	0.8%
2049	**60137**	477	0.8%
2050	**60618**	481	0.8%
2051	**61102**	484	0.8%



Forecast Long Term Plan (2021 – 2031)

The table below contains the forecast information for dwellings and population for the 10 year LTP period.

Indicator	2021	2022	2023	2024	2031
Population Forecast	99,133	100,320	101,560	103,127	115,225
Dwellings Forecast	41,593	42,131	42,695	43,374	61,102
Population Change (2021 -2031)	16,092				
Average Annual Percentage Population Change (2021 – 2031)	1.62%				
Dwelling Change (2021 – 2031)	6,916				
Average Annual Percentage Dwelling Change (2021 – 2031)	1.66%				

Forecasts for the Infrastructure Strategy (2021 – 2051)

Table 5 illustrates the figures for Estimated Resident Population, Total Dwellings and Business Floor Areas for use with Asset Management planning using the edited Statistics NZ Medium projection.

Indicator	2021	2031	2041	2051
Population Forecast	99,133	115,225	131,934	144,435
Dwellings Forecast	41,593	61,102	55,440	61,102
Population Change (2021 -2051)	45,302			
Average Annual Percentage Population Change (2021 – 2051)	1.52%			
Dwelling Change (2021 – 2051)	19,503			
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Rateable Units Projections 2021 - 2031

Below are projections for the change in rateable units over the period 2021 – 2031.

Year	Rateable Units	% Annual Change
2017	41165	-
2018	41524	0.9%
2019	42160	1.5%
2020	42569	1.0%
2021	42994	1.0%
2022	43380	0.9%
2023	43901	1.2%
2024	44427	1.3%
2025	44915	1.1%
2026	45453	1.2%
2027	45952	1.1%
2028	46503	1.2%
2029	46968	1%
2030	47484	1.1%
2031	48053	1.2%

Summary and conclusions

The growth model sets out a picture of sustained growth over the next 30 years. District population is projected to grow by an estimated 1.6% per annum over the next 10 years, reaching about 115,000 people by 2031, and 144,000 by 2051. The number of dwellings in the District is projected to increase from 41,500 homes today to over 48,000 homes by 2031, and 61,000 by 2051.