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Prepared by:
Michael P. Cameron and William Cochrane (University of Waikato)

For:
Waikato Regional Council
Private Bag 3038
Waikato Mail Centre
HAMILTON 3240

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Beat Huser Date September 2021

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Lisette Balsom Date October 2021

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THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

2018-base Population, Family and Household, and Labour Force Projections for the Waikato Region, 2018-2068

Michael P. Cameron [a,b]

William Cochrane [b,c]

[a] School of Accounting, Finance and Economics, University of Waikato

[b] National Institute of Demographic and Economic Analysis, University of Waikato

[c] School of Social Sciences, University of Waikato

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Any queries regarding this report should be addressed to:

AProf. Michael P. Cameron
School of Accounting, Finance and Economics
University of Waikato
Private Bag 3105
Hamilton 3240
E-mail: mcam@waikato.ac.nz
Phone: +64 7 858 5082.

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Executive Summary

This report outlines a set of 2018-base demographic projections of the Waikato region, and all of the territorial authorities (TAs) that are wholly or substantively contained within the region. The demographic projections include three scenarios (low; medium; and high) for each of population, family and household, and labour force, to a projection horizon of 2068.

The projections of total and age- and sex-specific populations were prepared using a newly-developed multi-regional cohort component model that covers the whole of New Zealand (except the Chatham Islands Territory), and incorporates separate components of population change for internal migration flows (based on a gravity model) and international migration flows (immigration and emigration). Family and household, and labour force, projections were then derived from the population projections, by applying assumptions about living arrangement type rates and labour force participation rates respectively.

The overall picture in the demographic projections is one of regional population growth throughout the projection period. However, that growth is projected to be much slower for most TAs than their recent experience. For the most part, that can be attributed to a 'reset' in net international migration as a result of the coronavirus pandemic and associated border closures. The coronavirus pandemic has caused a substantial shift in population trajectory for the Waikato region and its territorial authorities.

The territorial authorities are projected to have slightly different trajectories, with different mechanisms underlying their patterns of growth and decline. Thames-Coromandel and Hauraki Districts are projected to experience spill-over growth from surrounding and nearby faster-growing TAs, combined with an old and ageing population age structure. Waikato, Matamata-Piako, Waipā, and Taupō Districts are projected to experience population growth driven by internal migration along with an ageing population. Hamilton City is projected to experience strong population growth driven by internal migration along with maintaining a relatively young population age structure. Otorohanga District is projected to experience similar effects to Hamilton City, but where net international out-migration is a more substantial feature. South Waikato and Waitomo Districts are projected to experience spill-over growth from surrounding and nearby faster-growing TAs that becomes more substantial over time, combined with maintaining a relatively young population age structure.

Overall, the number of households is projected to closely follow the trajectory of the population for each territorial authority, but made up of fewer couples with children and two-parent families, and more one-parent families and one-person households. The labour force projections also closely follow the trajectory of the population for each territorial authority, but are lower due to the ageing population.

Finally, this report offers some suggestions for future improvements to the model, assumptions, and associated projections.

1. Introduction

The Waikato Regional Council (WRC) approached the University of Waikato in 2016 with a request to produce new Territorial Authority (TA) level population, family and household, and labour force projections for the Waikato region, subsequent to the release of data from the 2018 Census.[1] These projections use a newly-developed multi-regional cohort component model that covers the whole of New Zealand (except the Chatham Islands Territory), and incorporates separate components of population change for internal migration flows (based on a gravity model) and international migration flows (immigration and emigration). This represents an improvement on the previously used Whole-of-Waikato (WOW) population model, which had been used in previous 2013-base and earlier population projections developed by the University of Waikato (Cameron 2020a; 2020b; 2020c; Cameron and Cochrane, 2014a; 2015; 2016; Cameron *et al*., 2007; 2008; Jackson et al., 2014b), as well as being integrated into the Waikato Integrated Scenario Explorer (WISE) model (Waikato Regional Council, 2021; Rutledge *et al*., 2008; 2010). The WISE model is a systems-based, spatially-explicit integrated model that incorporates economic, demographic, land use, and environmental components across the entire Waikato region. The new population projections model is not incorporated directly into WISE, but remains a key input into the WISE model.

This report briefly summarises the Waikato 2018-base demographic projections for TAs in the Waikato Region. The methodology underlying the new population model is described in detail, along with the assumptions that were applied for the 2018-base projections. This model represents an improvement on previous models (e.g. Cameron and Cochrane, 2014; 2015; 2016), as it incorporates directional migration flows, and separates internal and international migration. It also incorporates improvements in the age distribution of migration. These improvements to the population model were requested subsequent to a peer review of the WOW population model (Wilson, 2015).[2] The family and household, and labour force, projections derived from the population projections follow a similar methodology as that employed in Cameron and Cochrane (2016) for the 2016-updated Waikato projections.

[1] Statistical Area 2 (SA2) level population, family and household, and labour force projections for the Waikato region are reported separately (Cameron and Cochrane, 2021).

[2] This report has also been peer reviewed (Osborne, 2021), but only in relation to the demographic projections for Hamilton City. Some updates and clarifications to the text of this report were made in response to that review. The peer review led to no changes to the underlying model or the projections.

This project continues to build on the pioneering demographic projections work by the University of Waikato (Cameron *et al*., 2007; 2008). The model has developed over time, and the methodology and assumptions that are now employed are substantially different from those adopted for official Statistics New Zealand (SNZ) projections (see Section 2.2 for details). The population model generates projections for all of the TAs in New Zealand (with the exception of Chatham Islands Territory). However, in this report we limit ourselves to reporting the results for TAs that are wholly or substantively contained within the Waikato region.

Three projection scenarios were developed for the TA-level population, family and households, and labour force: (1) a low-variant scenario; (2) a medium-variant scenario; and (3) a high-variant scenario. As discussed in Section 2.9 of the report, these three secenarios should be interpreted as individual scenarios from the many possible futures that could be realised for population, family and households, and the labour force. In sum, this project involved calculating population, family and household, and labour force projections for each TA in the Waikato region, and for the region in total, for each of the three scenarios (low, medium, and high). These projections will feed into a follow-up report on population, and family and household, projections at the SA2 statistical area level (Cameron and Cochrane, 2021). In addition, a fourth scenario was prepared for population only, which ignored the assumed impact of the coronavirus pandemic (see Section 2.7 for further details).

The projections were delayed several times due to delays in the release of necessary data from the 2018 Census of Population and Dwellings.[3] In particular, the 2018-base Estimated Resident Population data for June 2018 was only updated and made available by SNZ in October of 2020.[4] Moreover, at the time of compiling these projections, updated fertility and mortality assumptions from SNZ were not available (see Section 2.4), nor were living arrangement type rate assumptions (see Section 2.10). However, our expectation is that the lack of these assumptions does not lead to significant bias in the resulting projections, and waiting for their availability would have further delayed delivery of this report and the associated projections.

The remainder of the report is structured as follows:

- Section 2 briefly summarises the data and methodology used in preparing the projections;

[3] For example, see https://www.stats.govt.nz/news/2018-census-data-release-delayed.
[4] See https://www.stats.govt.nz/information-releases/subnational-population-estimates-at-30-june-2020.

- Section 3 presents and briefly discusses the national-level population projections, obtained by summing the TA-level projections for the entire country;
- Section 4 presents and briefly discusses the TA level demographic (population, family and household, and labour force) projections, for all (low-variant, medium-variant, and high-variant) scenarios; and
- Section 5 concludes.

2. Data and Methods

2.1 Data

The data used in the formulation of these projections were sourced from Statistics New Zealand (SNZ). This includes national and subnational data from the five-yearly Census of Population and Dwellings (1991, 1996, 2001, 2006, 2013, and 2018), SNZ national and subnational population estimates, national and subnational period life tables, national and subnational vital statistics data, the SNZ subnational demographic projections series, and the reported assumptions underlying those projections. The TA-level boundaries for the projections are consistent with boundaries at the time of the 2018 Census of Population and Dwellings.

In each case, the TA-level projections presented in this report are for the whole territorial authority. In the case of the Waikato region projections (see Section 4.12), the projections are for the whole Waikato region. The regional projections require some post-hoc calculations because of the inconsistency in boundaries between TAs and the region. Specifically, in the Waikato region projections we assume that the proportion of the TA-level population (and families and households, and labour force) that lives inside of the region (for Waitomo, Rotorua, and Taupō Districts) remains constant over time.

2.2 The Cohort Component Model

The most common methodology used to generate population projections relies on the cohort component model, which dates back at least to Whelpton (1928). This is the methodology used by SNZ, the major supplier of data on current and projected population size, growth and structure for New Zealand regions and districts. In recent years, new methodologies have been developed for population projections, such as stochastic and microsimulation approaches (see

e.g. Dharmalingam and Pool, 2006). This report adopts a new methodology for the cohort component model, improving on the methodology originally developed by Cameron et al. (2007; 2008) and used in subsequent projections (Cameron 2020a; 2020b; 2020c; Cameron and Cochrane, 2014a; 2015; 2016; Jackson et al., 2014b).

The general approach that was used in developing the population projections is as follows. The current population (base population) is first defined, and then assumptions are made about demographic changes to this population, which are then applied using the cohort component model. The cohort component model is a stock-flow model that is based on the following fundamental 'accounting identity' of population growth:

usually resident population in area *i* at the end of year *t*

= usually resident population in area *i* at the beginning of year *t*

+ births to mothers residing in area *i* during year *t*

– deaths of residents of area *i* during year *t*

+ inward migration from other regions into region *i* during year *t*

– outward migration of residents from area *i* to other regions during year *t*

+ inward migration from overseas into region *i* during year *t*

– outward migration of residents from area *i* to overseas during year *t*

Starting with a given base year usually resident population at 30 June (see Section 2.3), the usually resident population one year later is calculated using the equation above. This end-year usually resident population becomes the start-year usually resident population at 30 June for the next iteration of the model. This procedure is repeated for each year through to the end of the projection period (the projection horizon), and separately for each sex. Separate assumptions are used for each of the demographic 'drivers'. Births are derived by multiplying age-specific fertility rates by the numbers of women of childbearing age (13-49) (see Section 2.4). Deaths are derived by multiplying age- and sex-specific mortality rates by the numbers of people of each age and sex (see Section 2.4). Age- and sex-specific internal migration flows are derived by applying an age-sex-specific migration profile to total internal migration flows between pairs of TAs derived from a gravity model (Poot *et al*., 2016). Age- and sex-specific

international migration flows are derived by applying an age-sex-specific migration profile to total international migration flows (separately for immigration and emigration).

The procedure for deriving estimates of migration flows is a key departure from the method employed by SNZ, and is also the main improvement on the method previously employed in projections by the University of Waikato (e.g. Cameron and Cochrane, 2016). Another key departure from the modelling approach used by SNZ is that our model is bottom-up, rather than top-down (Willekens, 1983). A top-down approach projects the population at the national level first, using a national-level model, then projects each sub-national area either separately or as part of a multi-regional model. The sub-national projections in a top-down approach are constrained to sum to the previously determined national projection. A bottom-up approach instead projects each subnational area separately first, and derives a national projection as a sum of the subnational projections. The bottom-up approach has the advantage of more accurately reflecting differences in sub-national drivers of population change; however, the lack of an 'adding-up' constraint could lead to unrealistic national-level projections (which can be addressed through appropriate calibration of the model, as described in Section 2.8). For more on the advantages and disadvantages of top-down versus bottom-up approaches to population projections, see Cameron et al. (2021).

The remainder of this section describes the methods used for deriving each of the components used in the cohort component model, as well as the methods used to validate and calibrate the model. Finally, the methods employed in the family and household projections and labour force projections are described.

2.3 Base Populations

The base populations used for the projections were the Estimated Resident Populations (ERP) at 30 June 2018, revised by SNZ in 2020. As this ERP is only reported by SNZ in 5-year age groups, the single-year age groups necessary for the population projection model were derived by interpolating the ERP for each territorial authority using the TA-level Census Usually Resident Population (CURP) counts by single-year-of-age from the 2018 Census of Population and Dwellings. Separate interpolations were undertaken for each sex.

2.4 Fertility and Mortality Assumptions

The fertility and mortality assumptions used in the projections were initially based on the subnational 'medium' fertility and mortality assumptions used by SNZ in their 2013-base subnational population projections. These are the same fertility and mortality assumptions as used in the Waikato 2016-update demographic projections (Cameron and Cochrane, 2016). More recent SNZ assumptions (i.e. those used in their 2018-base subnational population projections) were not available at the time that these projections were developed. Moreover, having considered alternative time series for fertility and mortality, in the past the assumptions used by SNZ with respect to fertility and mortality in their subnational population projections have proven to be adequate for our purposes (see Cameron *et al*., 2007; 2008), and they remain relevant and generally unbiased even five years later. As SNZ use past fertility and mortality (survivorship) rates based on the official deaths and births statistics to develop their projections, the SNZ assumptions therefore represent an appropriate starting point.

Age-specific fertility rates by single-year-of-age (of the mother) were derived by first interpolating the five-year subnational age-specific fertility rate using the national-level age-specific fertility rate profile by single-year-of-age. The resulting profiles were then scaled to match the projected total fertility rate (from SNZ) for each territorial authority. The total fertility rate for each territorial authority was assumed to follow the SNZ projections to 2043 then remain invariant after 2043, which is similar to the approach that SNZ adopts for their national projections. Sex at birth was assumed to follow a constant pattern similar to past trends, with 105.5 males for every 100 females at birth.

However, during the calibration process (see Section 2.8), it became clear that the SNZ fertility assumptions generate far too many births at both the national and subnational levels, and resulted in a projected national population that was implausibly high. This was confirmed by comparing the number of projected births by TA for the June years 2018 to 2020, with the actual numbers reported in vital statistics data. In part, this over-projection of births arose because New Zealand has been going through a period of historic low fertility.[5] To better account for this lower-than-expected fertility, we scaled the SNZ fertility assumptions for each TA down so that they replicated the 2018-2020 total number of reported births, then applied the TA-level scaling factors to all of the future projected age-specific fertility rates. Ultimately though, although the projections are unlikely to be sensitive to our scaling of the SNZ

[5] See https://www.stats.govt.nz/news/new-zealands-birth-rate-lowest-on-record-deaths-drop-in-2020.

assumptions, a better approach for future projections may be to generate our own age-specific fertility rate projections that adequately capture current fertility trends. We leave this as an exercise for future improvements in the projections model.

In terms of mortality, age-specific survivorship rates by single-year-of-age and sex were derived by first interpolating the survivorship rates from the subnational abridged life tables for each territorial authority using the national life tables by single-year-of-age. The resulting profiles were then scaled to match the projected life expectancy at birth for each territorial authority. Life expectancy at birth for each territorial authority was assumed to follow the SNZ projections to 2043, then continue to increase in a linear fashion through until 2068. This represents a slight modification on the previous mortality assumptions, which assumed no further improvements in life expectancy after 2043 (Cameron and Cochrane, 2016).

2.5 Internal Migration Model

In a departure from previous University of Waikato population projection models, we derive the internal migration flows using a gravity model. The gravity model of migration is an empirical regularity, and recognises that the migration flow between two places (the origin *i*, and the destination *j*) depends on the 'economic mass' of the origin and destination (proxied by the population size), and the distance between them (Poot et al., 2016). Specifically, migration flows (in both directions) between larger origins and destinations, and between places that are closer together, are substantially larger (holding other factors constant) than migration flows between smaller origins and destinations, and between places that are further apart.

We first estimated the internal migration gravity model using 2013 and 2018 Census data on internal migration flows, population estimates, and inter-TA distances. We limited our analysis to two consecutive Censuses, because taking more data could lead us to under-weight more recent structural factors that affect internal migration and over-weight historical trends.

Internal migration flows data were derived from the Census question on address five years ago, combined with current address. We used those data to construct an origin-destination matrix for all people who answered the address-five-years-ago question in the 2013 Census, and

anyone for whom the same data were available for the 2018 Census.[6] Population data were the estimated usually resident population by TA at 30 June of 2013 and 2008 (the population at the start of each five-year period). Distance was the straight-line distance between the geographic centroid of each TA. Poot et al. (2016) showed that the gravity model is robust to the choice of alternative distance measures. In addition, we included dummy variables for internal migration flows between geographically contiguous (i.e. neighbouring) TAs, and between the North and South Islands.[7] Past research has shown that internal migration flows between the islands are much lower than can be explained purely by distance (Poot, 1986). To ensure the model picks up idiosyncratic differences in push and pull factors between TAs, it also includes origin and destination fixed effects.[8] This specification of gravity model has previously been successfully used for inter-regional (Cameron and Poot, 2014a; 2014b) and inter-urban (Poot et al., 2016) migration flows in New Zealand.

The resulting gravity model is shown in Table 1. Overall, the model explains around 84.9% of the variation in internal migration flows. The origin population is statistically significant and has the expected positive sign. The destination population is not statistically significant and is negative in sign; however, this is not unusual in a gravity model that also includes both origin and destination fixed effects, and it is not straightforward to interpret the coefficients on the population variables (Cameron and Poot, 2019). The distance variable is negative and highly statistically significant. The contiguity and Cook Strait dummy variables are also statistically significant and of the expected sign.

[6] The address-five-years-ago question was not asked in the 2018 Census. Instead, an address-one-year-ago question was asked, and data on address-five-years-ago were constructed by SNZ from administrative data sources, as well as data from the 2013 Census. See http://datainfoplus.stats.govt.nz/item/nz.govt.stats/58180123-b856-4fed-9b91-b006d16e43b8/13/ for further details.

[7] The dummy variable for contiguity takes a value of one for migration flows between contiguous TAs, and zero otherwise. Similarly, the dummy variable for inter-island migration flows takes a value of one for migration flows between North and South Islands, and zero otherwise.

[8] These fixed effects control for time-invariant differences in the attractiveness of the origins and destinations. For instance, the locations of natural amenities (such as beaches, lakes, or mountains), and built amenities (such as hospitals, airports, or tertiary education institutions) will largely be captured by these fixed effects. So too will persistent differences in house prices, industry structure and regional connectivity.

Table 1: Gravity model of internal migration

Variable	**Coefficient (Standard Error)**
Ln(Origin Population)	1.171*** (0.289)
Ln(Destination Population)	-0.345 (0.275)
Ln(Distance)	-1.010*** (0.016)
Cook Strait Dummy	-0.480*** (0.023)
Contiguity Dummy	0.536*** (0.038)
N	7,630
Adjusted R^2	0.8491

N.B. Origin and destination fixed effects are omitted from the table for brevity; * p<0.1; ** p<0.05; *** p<0.01.

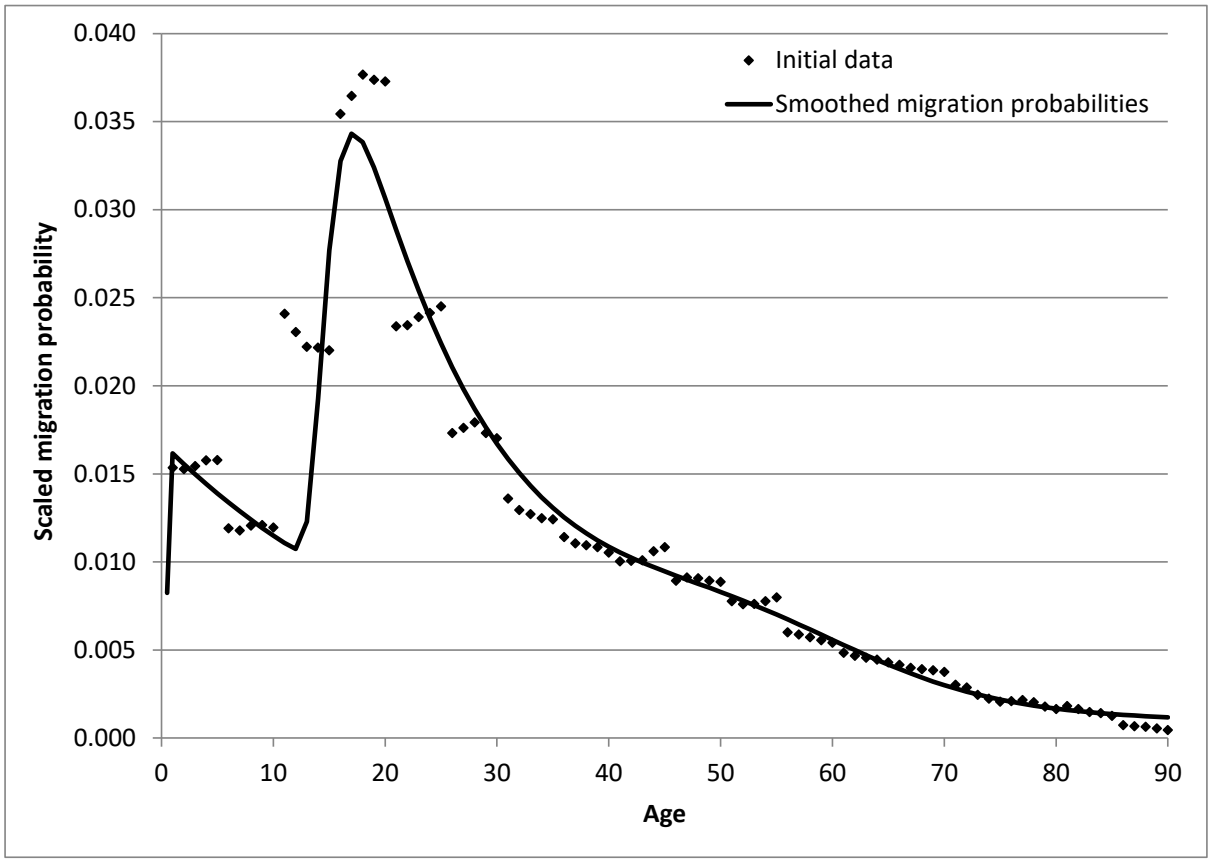
The gravity model shown in Table 1 was embedded within the population model. The projected internal migration flows depend on the populations of origin and destination at a given point in time, as well as the time-invariant distance, contiguity, and Cook Strait variables, and the fixed effects. The embedding of the gravity model within the population model represents one of the key innovations in this latest population model, and has been developed over a number of years (Cameron and Poot, 2013; 2014a; 2014b; 2016).

The gravity model provides a projection of the *total* annual internal migration flow between each pair of origin and destination TAs in each year. To convert this total into *age-sex-specific* migration flows, we first estimated a profile of the age-specific in-migration rates based on address-five-years-ago data for each TA from the 2018 Census. The age-specific migration profile for each TA was based on data for that TA as a destination, as this was expected to more accurately reflect age-specific origin-destination internal migration flows. These data were first smoothed using the model migration schedule method described by Rogers et al. (1978) and the Microsoft Excel algorithm developed by Wilson (2010). Then, a second round of smoothing was used to reduce high migration rates at older ages for some TAs. Finally, each migration profile was standardised to sum to one. Separate migration profiles were not developed by sex, due to the sparse nature of the data for many TAs. Instead, internal migration flows were assumed to be equally prevalent for each sex (in effect, each migration profile was converted to a sex-specific migration profile that was standardised to sum to 0.5). For some TAs, the migration profile algorithm could not converge to a plausible profile. In those cases, mostly occurring for TAs with small populations (and hence a small number of internal migrants), the

profile for a neighbouring TA was substituted. This process was not necessary for any TAs in the Waikato region.

An example of a resulting migration profile is shown in Figure 1, for Hamilton City. Note that there is a significant peak in migration flows to Hamilton City at young ages, followed by a tapering off at older ages. In contrast, other TAs often have a peak of in-migration at older ages, representing retirement migration flows.

Figure 1: Age-specific in-migration profile for Hamilton City



2.6 International Migration Assumptions

International migration flows represent the most challenging component of population change to project, due to the extensive uncertainty over their future trajectory. Our original intention was to model emigration based on a TA-specific partial gravity model, and immigration based on a time series model, with TA-specific immigration flows based on TA-level population

shares. This is the approach adopted by IPSS in Japan for their subnational projections.[9] However, when we tested various structural models of international migration flows (immigration and emigration), based on partial gravity models, these models either did not perform well at predicting known values of the migration flows, or generated projections of future emigration flows that were implausibly large.

We then tested various time series econometric models of international migration flows at the national level (both immigration and emigration). The best model, in terms of both in-sample and out-of-sample performance, appears to be a fairly simple ARIMA(0,1,1) model (simple exponential smoothing). This model takes a long-run average level of immigration and emigration, and 'decays' deviations from that long-run average over time, until the flows reach the average.[10] In principle the long-run average could be replaced by a time trend, but in this case the time trend would lead to implausibly large projected migration flows, especially later in the projection period. The long-run average for both immigration and emigration was taken as the average annual level over the period from 1990-2020. The optimal 'decay rate' in the error correction model for immigration was 27 percent (meaning that the difference between the projected annual immigration flow and the long-run trend reduced by 27 percent each year), while the optimal 'decay rate' in the error correction model for immigration was 31 percent.

Figure 2 illustrates the actual and projected national-level immigration flows. All scenarios are presented (see Sections 2.7 and 2.8 for further details on the different scenarios). This figure clearly shows the historically high immigration flows that New Zealand has experienced in recent years, as well as the variability in those flows. The impact of the coronavirus pandemic is evident in the substantial drop in immigration in the June 2021 year, followed by a gradual error correction back to the long-term trend level of immigration, which is 106,947 per year.[11] Figure 3 shows the corresponding data for emigration, with similar features, and a gradual error

[9] See http://www.ipss.go.jp/site-ad/index_english/population-e.html.

[10] Specifically, the econometric model is estimated in error correction format:

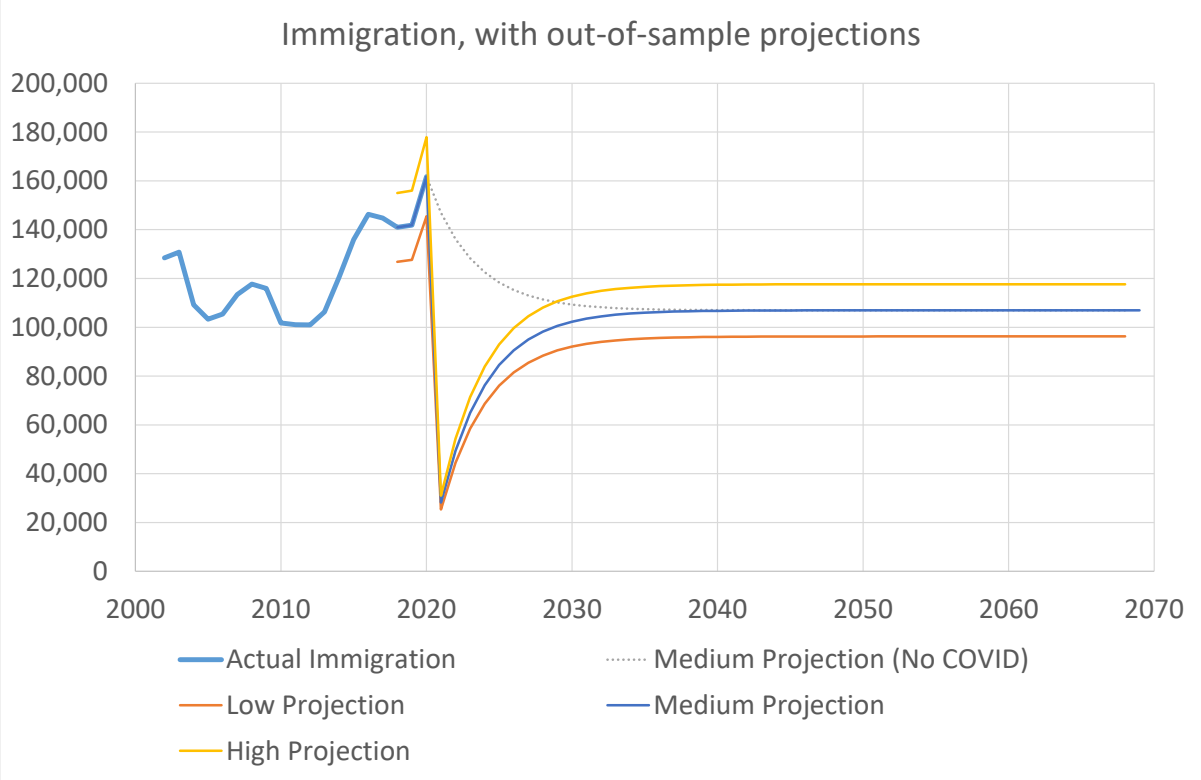
$$\left(Y_t - \hat{Y}_t\right) = \beta_0 + \beta_1\left(Y_{t-1} - \hat{Y}_{t-1}\right) + \varepsilon_t$$

Where Y_t and Y_{t-1} are the outcome variable (emigration or immigration) at times *t* and *t-1* respectively, and $\hat{Y}_t$ and $\hat{Y}_{t-1}$ are fitted values at times *t* and *t-1* respectively, estimated from a linear regression of the outcome variable on year. The coefficient β_0 is the average annual change in *Y*, i.e. $\overline{(Y_t - Y_{t-1})}$. The complement of coefficient β_1 (i.e. $(1 - \beta_1)$) is the decay rate, i.e. the rate at which deviations from long term trend reduce each year.

[11] The long-term trend level of immigration is constructed from Statistics New Zealand long-term data series (LTDS) values for 1990 to 2001 and annual arrivals data using the '12/16 rule' for 2002 to 2020. The data from the LTDS is scaled to be comparable to the more recent data, based on the ratio of LTDS to '12/16 rule' data for 2002 to 2004 (which are the only data that are comparable across the two data series).

correction back to the long-term trend level of emigration, which is 83,842 per year.[12] Figure 4 shows the data for net international migration (immigration minus emigration), where the high degree of uncertainty is clearly on display.

Figure 2: Actual and projection national-level immigration flows, 2002-2068



[12] The long-term trend level of emigration is constructed in the same way as for the long-term trend level of immigration.

Figure 3: Actual and projection national-level emigration flows, 2002-2068

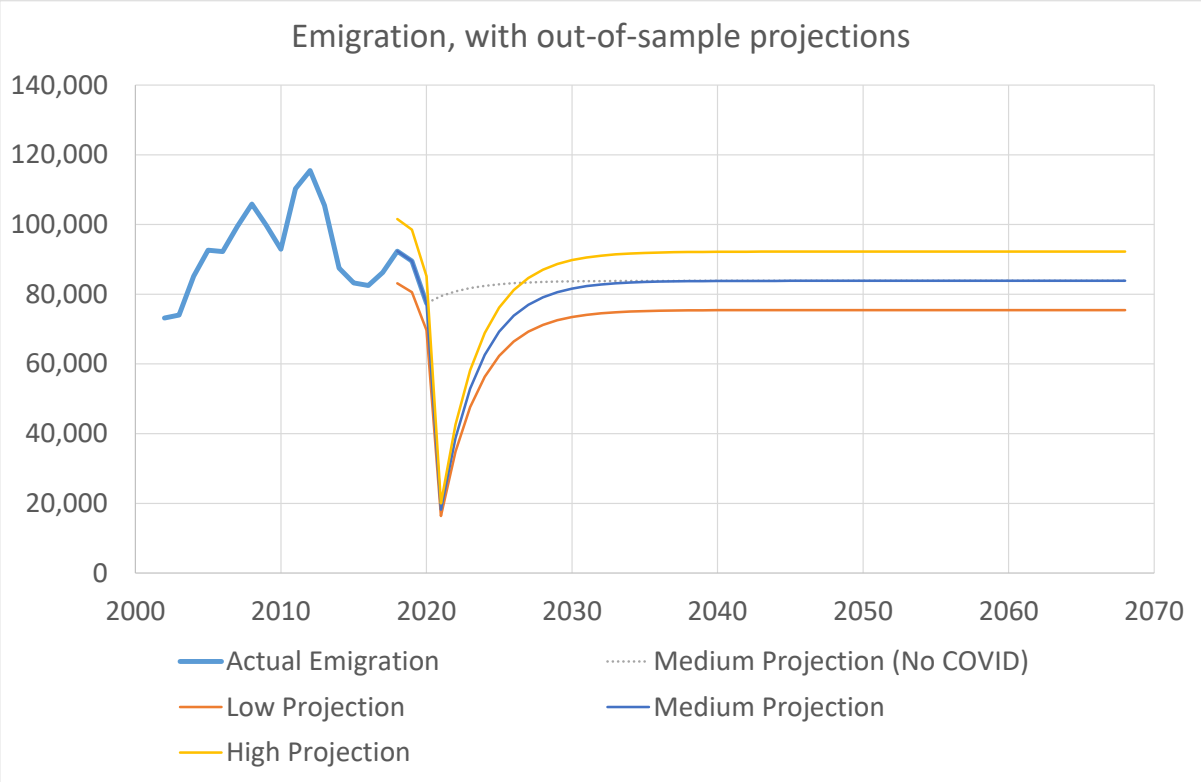
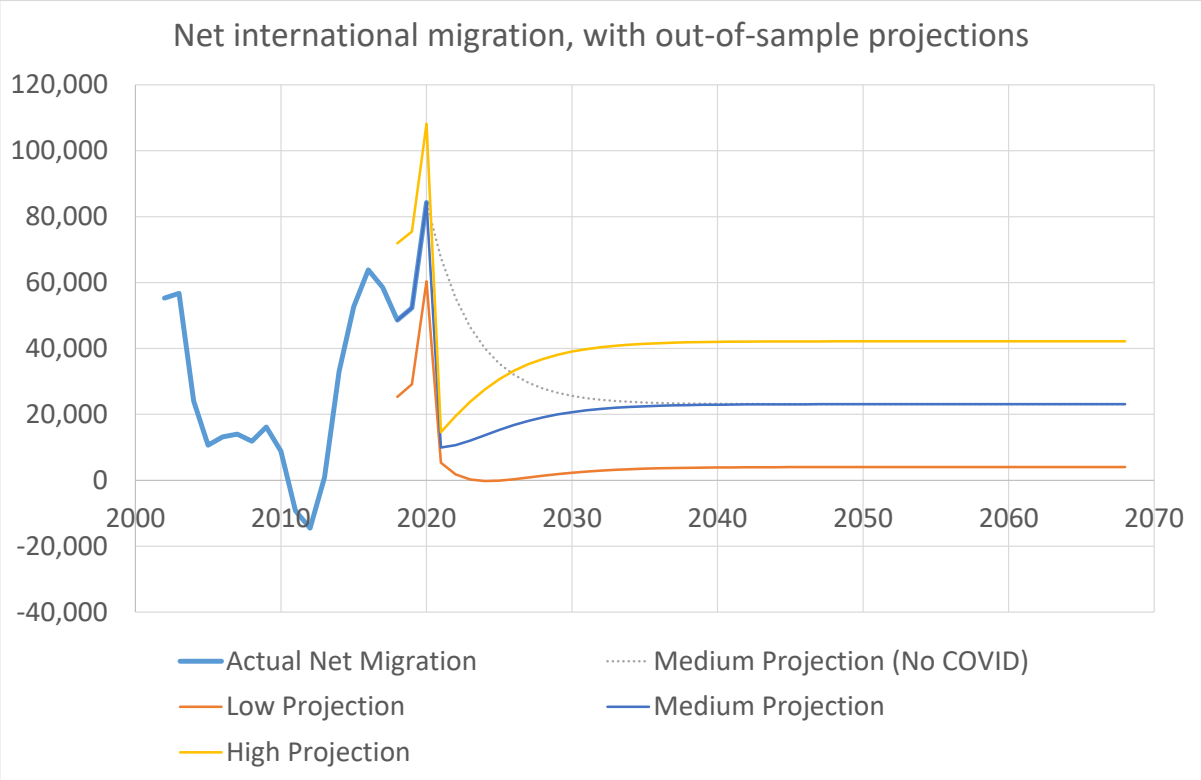


Figure 4: Actual and projection national-level net international migration flows, 2002-2068



Similar to the gravity model of internal migration, the error correction models provide projections of annual *total* international migration flows in each direction (emigration and immigration), but at the national level. To apportion immigration and emigration flows by TA, we first attempted structural modelling (as noted above). We then compared the TA shares of immigration and emigration flows with TA shares of population for the periods 2008-2013 and 2013-2018 (as reported in the 2013 and 2018 Censuses). Having tested various apportionments based on population shares of immigration and emigration, we identified that apportionment based on a modified share of population provided a plausible projection of future flows across TAs. The modified share of emigration for each TA was the share of population for each TA, with the exception of Auckland, where the share was decreased by 17.53 percentage points (being the average difference between Auckland's population share and its share of past emigration).[13] Emigration shares were then standardised to sum to one. Similarly, the modified share of immigration for each TA was the share of population for each TA, with the exception of Auckland, Hamilton City, Wellington City, Christchurch City, and Queenstown-Lakes District, where the shares were increased by 14.42, 0.40, 1.98, 1.33, and 1.23 percentage points respectively (being the average difference between those TA's population share and their share of past immigration).[14]

That process provides TA-specific *total* emigration and immigration flows. To convert these totals into age-sex-specific international migration flows for each TA, we estimated separate age-specific immigration and emigration profiles based on address-five-years-ago data for each TA from the 2018 Census. The age-specific immigration profile for each TA was based on data for that TA as a destination, as this was expected to more accurately reflect age-specific international migration flows. The age-specific emigration profile for each TA was based on data for that TA as an origin for *internal* migration flows, because data on emigration flows are not available.[15] The process of developing the profiles was identical to that used for internal migration profiles, with each migration profile standardised to sum to one. Separate migration profiles were not developed by sex, again due to the sparse nature of the data for many TAs. Similar to the case for internal migration profiles, for some TAs, the migration profile algorithm could not converge to a plausible profile. In those cases, mostly occurring for TAs

[13] Auckland is a significantly smaller contributor to emigration flows than would be implied by its population share.
[14] Auckland, Hamilton City, Wellington City, Christchurch City, and Queenstown-Lakes District are significantly larger recipients of immigration flows than would be implied by their respective population shares.
[15] Emigrants are not observed in the Census because they have moved overseas.

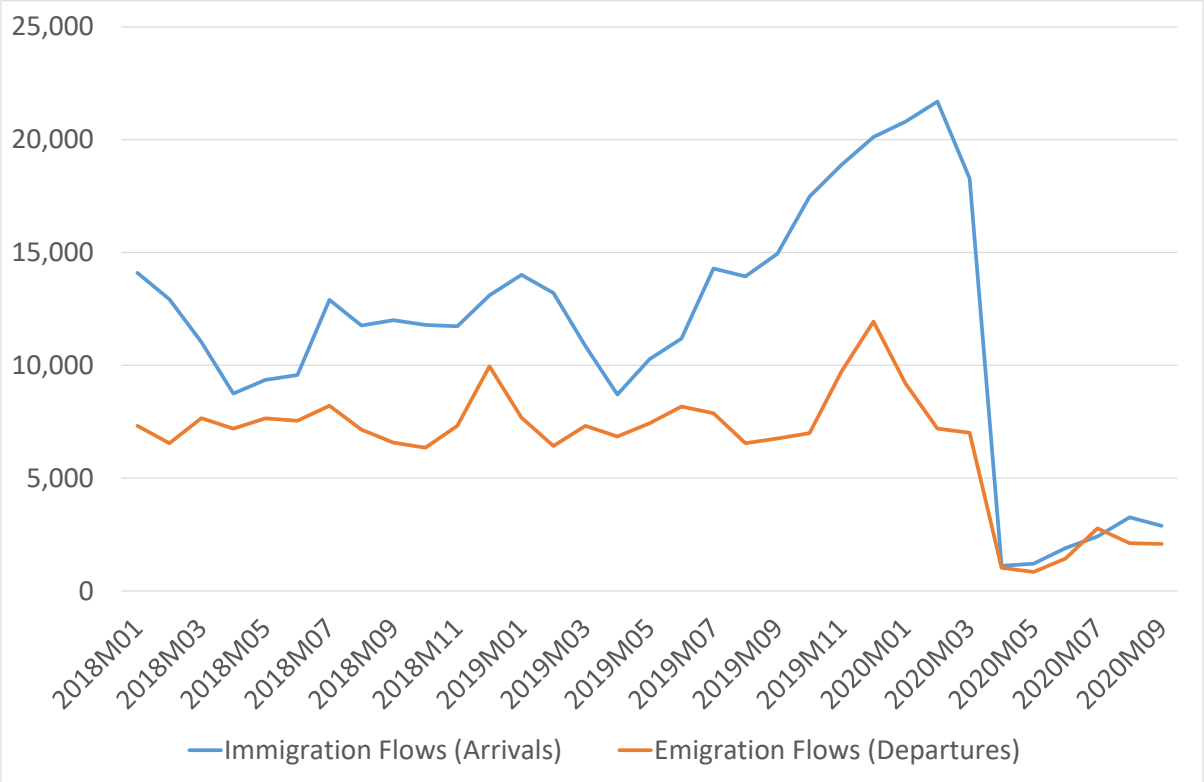
with small populations (and hence a small number of internal migrants), the profile for a neighbouring TA was substituted. In the Waikato Region, only one TA was affected, with the emigration profile for Waikato District substituted by the profile for Waipā District (i.e. we used the profile for Waipā District in place of the profile for Waikato District).

2.7 The Projected Impact of the Coronavirus Pandemic

One challenge to contemporary population projections in 2020/21 is anticipating and projecting the impact of the ongoing coronavirus pandemic. New Zealand has been fortunate to avoid the worst impacts on mortality that many other countries are experiencing (Balmford et al., 2020). Thus, we assumed no current or future impact on mortality arising from the pandemic. Similarly, there is little evidence currently to support significant changes in fertility as a result of the pandemic. While it is known that fertility is lower in times of economic recession (Sobotka et al., 2011), the New Zealand economy has bounced back from the pandemic well, and other than some changes in the timing of births, we anticipate no long-run deviation from trend fertility as a result of the pandemic. We also anticipate no change in internal migration flows, which might only be disrupted for short periods as the result of geographically-specific and time-limited lockdowns.

In contrast, international migration flows have been heavily affected by the pandemic. This is illustrated in Figure 5, which shows monthly immigration and emigration flows over the period from January 2018 to September 2020. After the coronavirus pandemic started, migration flows in *both* directions fell by around 80 percent, and have remained low since. Specifically, immigration flows in April-September 2020 were 82.6 percent lower than the corresponding months in 2019, and emigration flows in the same months were 76.5 percent lower. To account for the impacts of coronavirus on immigration and emigration, these percentage reductions were explicitly built into the projected immigration and emigration flows. The effect of this can be seen in Figures 2 and 3 above, by comparing the medium-variant projection with the medium (No COVID) projection. The medium projection starts low, with both immigration and emigration recovering to the long run trend over time. In contrast, the projection of immigration and emigration excluding the impact of the coronavirus pandemic start high and fall gradually over time towards the long run average.

Figure 5: Monthly international migration flows, 2018-2020



2.8 Validation and Calibration of the Population Model

Once the population model was parameterised, it was validated to ensure fidelity of the model, i.e. that all components (fertility and births; mortality and survivorship; internal migration; and international migration) were working as intended. This process identified no issues with the structure or initial parameterisation of the model.

Calibration of the model involved several stages. First, the projected number of births, by TA and in total for New Zealand as a whole, were compared with the actual number of births over the period from 2017 to 2020. As noted above, this resulted in a necessary downward adjustment to the projected total fertility rates for each TA. Second, the total population of New Zealand was calibrated by comparing the growth rate with recent national population projections. This resulted in no adjustment to the model parameters, as it confirmed a plausible path for future national population (in total, and by age and gender) (see also Section 3). Third, the total populations and growth rates for each TA were calibrated by adjusting the gravity model fixed effects, in order to more accurately reflect the relative growth rates from past subnational population projections. As no prior University of Waikato projections were

available for TAs outside of the Waikato and Bay of Plenty regions, the medium-variant 2013-base SNZ projections were used as the baseline for these comparisons. Finally, the TA-level age structures were calibrated through minor adjustments to the migration age profiles. This ensured that the model did not over- or under-project TA-level migration flows into or out of certain age groups, unbalancing the resulting age distribution.

2.9 Low-variant and High-variant Population Projection Assumptions

Following calibration of the medium-variant population projection model (see Section 2.8), other projection scenarios were run. In addition to the baseline (medium-variant) projections outlined above, we present low-variant and high-variant (as well as the medium-variant without COVID) population projections which are based on an alternative set of assumptions. These represent plausible alternative scenarios to the baseline (medium-variant) population projection scenario (see Section below on interpretation of the results).

For fertility and mortality, each age- and gender-specific rate (fertility, and mortality/survivorship) was multiplied by a shift factor, following Cameron and Poot (2010; 2011). The percentage change in each of the rates is given by k, whereby k is based on a distribution for fertility and mortality/survivorship. The entire deterministic path of fertility and mortality rates over the 2018-2068 projection period was shifted by the corresponding factors. In this way, setting all multipliers to zero would result in the baseline projection, and the multiplier was varied around zero to increase or decrease each rate.

Following Cameron and Poot (2010; 2011), distributional assumptions for each multiplier were based on observed data from 1950 to 2009. The fertility multiplier was assumed normally distributed with a mean zero and standard deviation of 1.25 (giving a range of about +/- 5% of the mean fertility rates). The survivorship multiplier was assumed normally distributed with mean zero and a standard deviation of 0.5 (i.e. giving a range of +/- 2% of the mean mortality rates).

For international migration (emigration and immigration), the high-variant projections assumed 10% lower emigration and 10% higher total immigration throughout the projection period, while the low-variant projections assumed 10% higher emigration and 10% lower total immigration throughout the projection period. These assumptions were based on observed variation in emigration and immigration over the period from 1980 to 2020, and approximately

represent one standard deviation lower, and higher, net migration flows for the low-variant and high-variant projections respectively.

The internal migration model was not adjusted for the low-variant or high-variant projections from that used for the medium-variant projections. That is because internal migration is a means of distributing population within the country, so by definition has no role in creating higher or lower projected populations, when the population of the entire country is being projected. That is, if internal migration were increased for some TAs, it must be reduced for other TAs, because the overall sum of net internal migration must be zero.

The interpretation of different projection scenarios is important. Specifically, the three scenarios (low, medium, and high) should be interpreted as individual scenarios from the many possible futures that could be realised for population, family and households, and the labour force. No scenario is any more likely than any other scenario of being the 'actual' path that future trends follow. However, the three scenarios (low, medium, and high) can be used to give a coarse representation of the uncertainty in the projections.

The medium-variant scenario represents approximately the centre of the distribution of all potential scenarios generated with this model and within the plausible distribution of assumptions. It is not exactly the middle of the distribution because the distribution of scenarios is likely to be asymmetric (for most TAs, the distribution has more 'upside risk' than 'downside risk') – for a demonstration of this, see Jackson et al. (2014a; 2014b), which include both a medium scenario projection, and a median stochastic projection. The interval between the low-variant scenario and the high-variant scenario represents approximately a 67 percent projection interval of all potential scenarios generated with this model and within the plausible distribution of assumptions. This interpretation was demonstrated by Stoto (1983) and Alho et al. (2008), and has recently been employed by Cameron *et al*. (2021) in a book chapter on uncertainty in subnational population projections. Under this interpretation, the interval between the low-variant and high-variant projections should be expected to capture the actual future population approximately 67 percent of the time. Approximately 33 percent of the time, the actual future population can be expected to be either higher than the high-variant projection, or lower than the low-variant projection.

An alternative way of interpreting the three scenarios (low, medium, and high) is that the low-variant projection is broadly representative of the bottom one-third of all potential scenarios generated with this model and within the plausible distribution of assumptions. The medium-

variant projection is broadly representative of the middle one-third of all potential scenarios generated with this model and within the plausible distribution of assumptions. The high-variant projection is broadly representative of the top one-third of all potential scenarios generated with this model and within the plausible distribution of assumptions.

Regardless of interpretation, it should be recognised that population projections are not a forecast of the future, unless they are considered alongside an appropriate measure of uncertainty. While the interval between the low-variant and high-variant projection adequately captures this uncertainty for the medium-variant projection, an even better method for representing uncertainty is to use stochastic population projections, where the uncertainty is directly modelled (e.g. see Cameron and Poot, 2010; 2011).

2.10 Family and Household Projection Methods and Assumptions

Projections of the future number of families and households were obtained by applying age- and gender-specific assumptions about future trends in living arrangement type rates (LATRs) and average household sizes to the projected population, as described in Cameron et al. (2007). The number of persons living in a particular living arrangement type is derived by multiplying the age- and gender-specific living arrangement type rate (LATR) by the number of persons at that age and gender and summating. LATRs can be thought of as the probability of an individual being in a particular living arrangement. Living arrangements include families (couples without children, couples with children, and one-parent families), other multi-person households (containing no families), single-person households, and people living in non-private dwellings (such as prisons, nursing homes, or student halls of residence). The number of households is made up of the number of family households (which is necessarily smaller than the number of families, because some households contain more than one family), other multi-person households, and single-person households.

We used LATRs and other assumptions (the average number of families per family household, and the average household size for other multi-person households) provided by SNZ, which were used in their 2013-base subnational family and household projections, as these were the best available data at the time of these projections. The 2016-update projections made a further modification of the base populations to account for people living in non-private dwellings. Following discussions with SNZ and careful inspection of the base data, we note that these

adjustments are not necessary. However, applying the LATR assumptions of SNZ clearly leads to an over-projection of families and households, compared with Census data (see Cameron and Cochrane, 2016). In the current projections, rather than making a population adjustment to better reflect the expected number of Census-year households at the beginning of the projection period (scaled to account for net Census undercount, as well as an adjustment for the difference between the March Census date and the 30 June projections date), we instead directly scaled the initial number of family households, other multi-person households, and single-person households to match the expected number in each TA. Those TA-specific scaling factors were then applied to the projected living arrangement type rates throughout the projection period, to ensure a consistent time series with the actual Census data on families and households in each TA.

LATRs were assumed to follow the SNZ projections to 2038, then continue to change in a linear fashion through until 2068. This represents a slight modification on the previous LATR assumptions, which assumed no further changes in LATRs after 2038 (Cameron and Cochrane, 2016). In contrast, the number of households per multi-family household and the number of persons per other multi-person household were assumed to follow the SNZ projections to 2038, then held constant from 2038 through until 2068.

Separate family and household projections were created corresponding to each of the low-variant, medium-variant, and high-variant population projections. Each family and household projection used the same projected LATRs and other assumptions.

2.11 Labour Force Projection Methods and Assumptions

The Labour Force projections were obtained by applying age- and sex-specific assumptions about future trends in labour force participation rates (LFPR) to the population projections (see Cameron *et al*., 2007). Following Bryant *et al*. (2004) and Jackson *et al*. (2014b), we assumed three long-run trends in labour force participation would continue into the future, specifically we assumed that: (1) age- and sex-specific participation rates increase in a linear fashion to 2043 before stabilising and remaining constant thereafter; (2) the labour force participation of prime age women increases over a twenty year period (2018-2043) so that half of the age-specific gender gap in labour force participation in 2013 is closed by 2043 (i.e. if the difference in labour force participation rates between the genders in a particular age group was six

percentage points in 2018, we assume that the gap would have closed to three percentage points by 2043); and (3) current increases in labour force participation rates amongst older workers continue out to 2043 before stabilising.

In the case of the latter assumption, we essentially assume that over the twenty-year period 2018-2043 the labour force participation rate profile of those older than the age group in which peak labour force participation occurs ages by five years, e.g. in 2043 the labour force participation rates of 50-54 year olds will be equal to the participation rates of 45-49 year olds in 2018. In instances where this would result in a fall in the age specific participation rate the higher (previous) rate is used. Similarly, in applying the second assumption (on changes in the labour force participation of women), if the female labour force participation rate was higher than the male labour force participation rate in any age group the higher rate was used. This ensured that the labour force participation rate of women did not fall in any age group. The effect of considering these three assumptions separately can be seen in earlier projections (Jackson *et al*., 2014b).

Separate labour force projections were created corresponding to each of the low-variant, medium-variant, and high-variant population projections. Each labour force projection used the same projected labour force participation rates, which correspond to Scenario 4 in Jackson et al. (2014b).

3. National-Level Population Projections

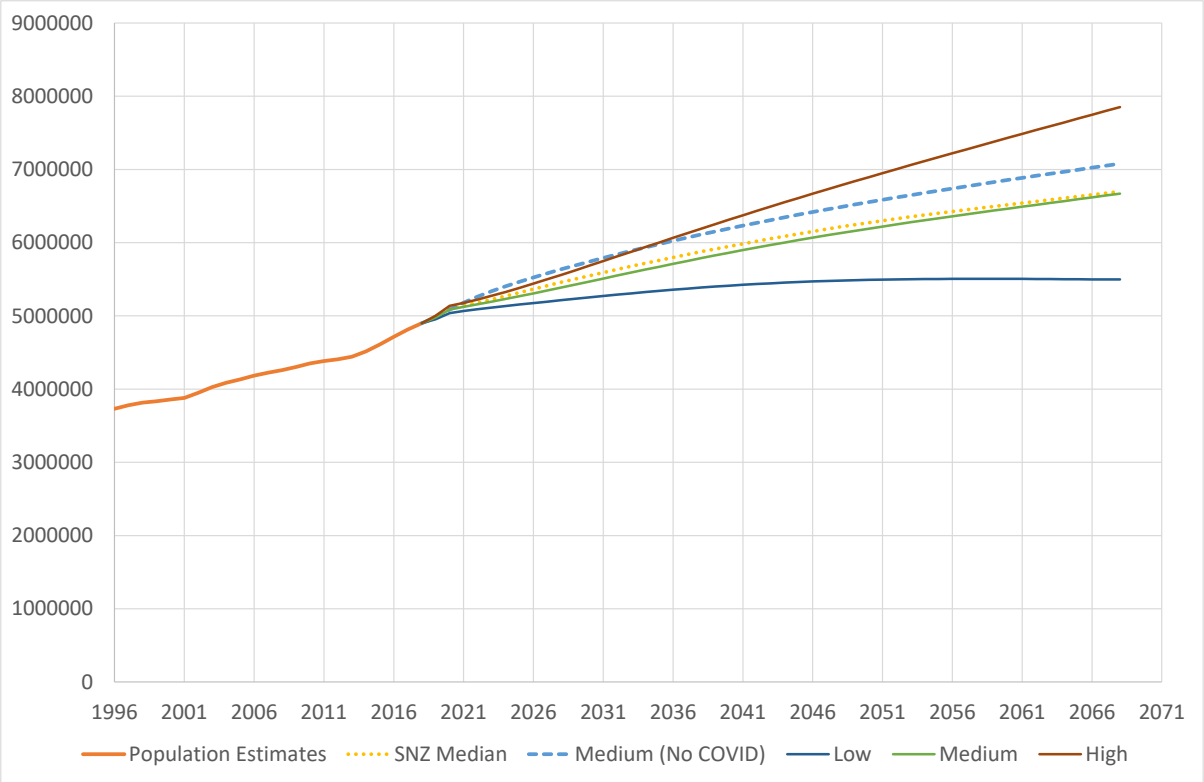
This section presents the population projections at the national level, obtained by summing the TA-level population projections for all TAs (except Chatham Islands Territory, which is not included in the model). As noted in the previous section, four projection scenarios are presented: (1) a low-variant population projection; (2) a medium-variant population projection; (3) a high-variant population projection; and (4) a medium-variant population projection that ignores the effect of the coronavirus pandemic. As noted in Section 2.9, the first three scenarios should be viewed as three possible futures, based on known assumptions about future fertility, mortality and net migration, and should not be interpreted as forecasts of future population.

Figure 6 presents the 2018-base national population projections to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2020-base Statistics New

Zealand (SNZ) median projection is also included for comparison. A 2018-base national population projection from SNZ was no longer available at the time of writing.

The June 2018 national population estimate (base population) is 4.90 million. Under the medium-variant population projection scenario, the national population increases throughout the projection period, reaching 6.67 million in 2068. Under the low-variant scenario, the national population increases to a peak of 5.51 million in 2058 before declining to 5.50 million in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 7.85 million in 2068. In comparison, the SNZ 2020-base median stochastic projection tracks very similar to the medium-variant projection presented here, with the national population projected to increase to 6.70 million in 2068. The low-variant projection is somewhat lower than the 10th percentile of the SNZ stochastic projections, while the high-variant projection is similar to the 90th percentile of the SNZ stochastic projections (data not shown).

Figure 6: National population projections, 2018-2068



The medium-variant with no coronavirus impact tracks initially higher than the high-variant projection until 2034, then runs approximately parallel to the medium-variant projection

thereafter. The impact of the coronavirus pandemic on the national population is a reduction in the total population size by 2068 of approximately 400,000 people.

4. Population, Family and Household, and Labour Force Projections

This section presents the population, family and household, and labour force projections for each TA wholly or substantially located in the Waikato region.[16] For population, four projection scenarios are presented: (1) a low-variant population projection; (2) a medium-variant population projection; (3) a high-variant population projection; and (4) a medium-variant population projection that ignores the effect of the coronavirus pandemic. As noted in the previous section, the three scenarios (low-variant, medium-variant, and high-variant) should be viewed as three possible futures, based on known assumptions about future fertility, mortality and net migration, and should not be interpreted as forecasts of future population. The family and household projections and labour force projections are also each presented for the first three scenarios.

All projections are presented in diagrammatic form[17] – tables showing the population projections numerically are included in Appendix I, which are also available using the Waikato Integrated Scenario Explorer software tool (Waikato Regional Council, 2021; Rutledge *et al*., 2008; 2010). Tables showing the family and household projections numerically are included in Appendix II, and tables showing the labour force projections numerically are included in Appendix III.[18]

[16] Rotorua District is excluded, as it is substantially located in the Bay of Plenty region. However, parts of Rotorua District are included in the Waikato Region projections presented in Section 4.11.

[17] In the figures for the family and household projections, the difference between the sum of the four categories presented (couples with children, two-parent families, one-parent families, and one-person households) and the total number of households is made up of the number of 'other multi-person households', as well as accounting for the number of households that contain more than one family.

[18] The population, family and household, and labour force projections can also be accessed and explored at http://www.creatingfutures.org.nz/waikato-projections-demographic-and-economic/.

4.1 Population, Family and Household, and Labour Force Projections for Thames-Coromandel District

Figure 7 presents the 2018-base population projections for Thames-Coromandel District to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for Thames-Coromandel District is 30,700. Under the medium-variant population projection scenario, the population increases throughout the projection period, reaching 34,172 in 2068. The medium-variant projection shows much lower growth than the recent experience of Thames-Coromandel District, but this reflects the much lower projection for international migration flows. The annualised projected population growth over the period 2018-2038 of 0.14% per year is substantially lower than the 0.87% annualised growth experienced over the period 1996-2018, again reflecting the much lower projected international migration. Under the low-variant scenario, the population increases to a peak of 30,990 in 2021 before declining to 27,736 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 40,674 in 2068. In comparison, the SNZ 2018-base medium-variant projection is similar to the Waikato high-variant projection for much of the projection period, but then falls away after the mid-2030s, with the SNZ low-variant similar to the Waikato medium-variant projection until the early-2030s.

Figure 8 disaggregates the components of population change for Thames-Coromandel District over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is positive throughout the projection period. This is made up of net inward internal migration (more in-migration from the rest of New Zealand than out-migration), offset by natural decrease (more deaths than births), and net outward international migration (more out-migration to overseas than in-migration from overseas). The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration flows. The growing contribution of net internal migration reflects mainly spill-over growth from surrounding faster growing TAs.

Figure 7: Population projections for Thames-Coromandel District, 2018-2068

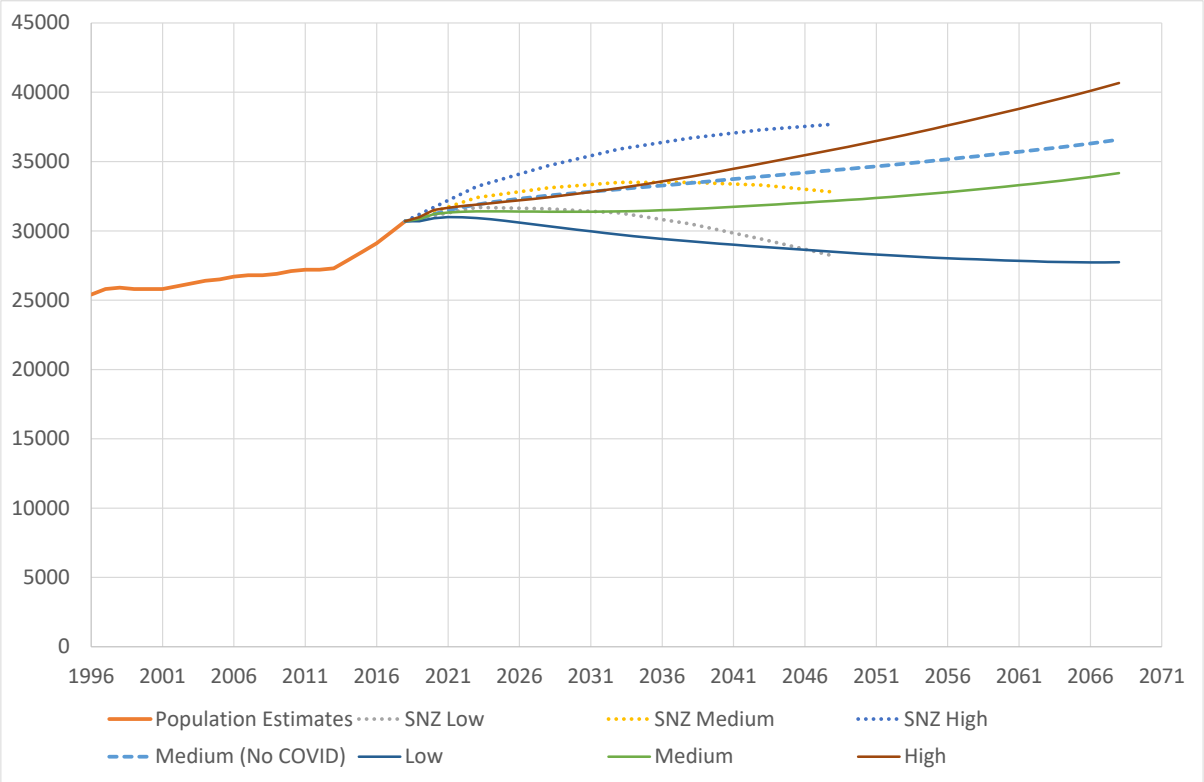
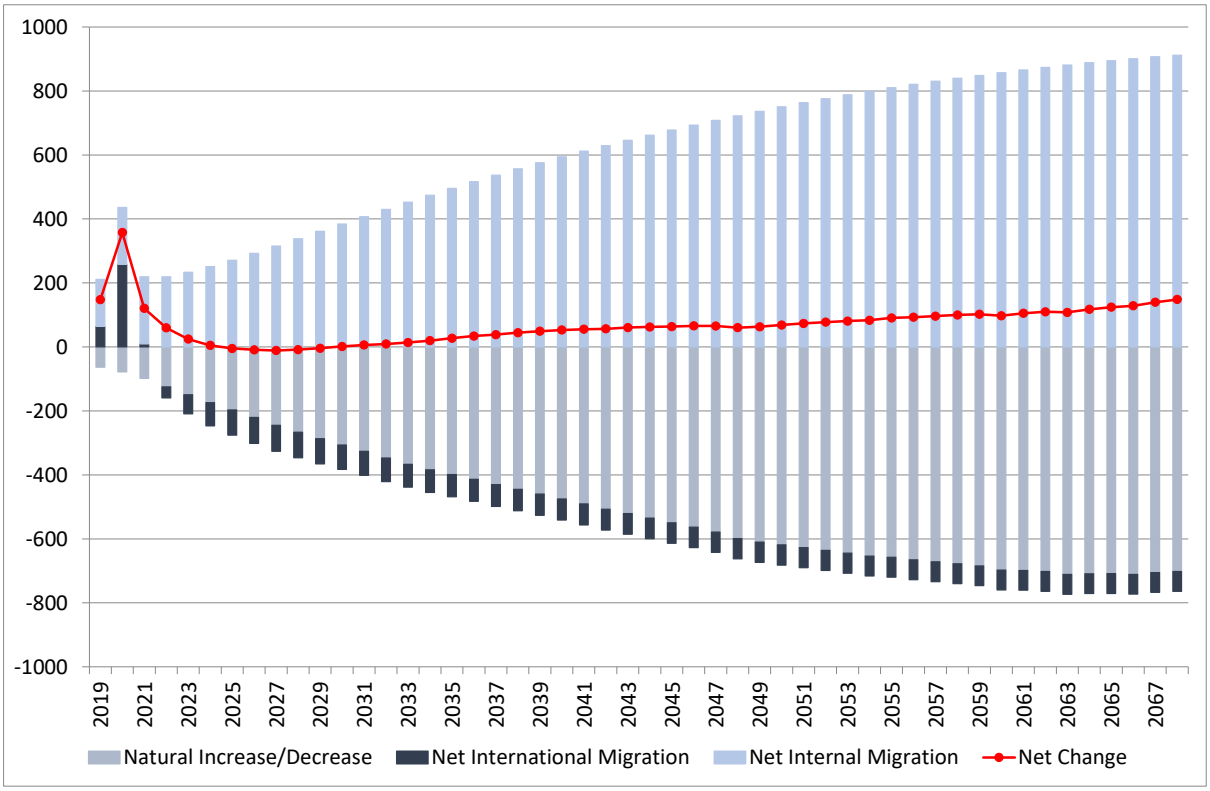


Figure 8: Projected components of population change for Thames-Coromandel District, medium-variant projection, 2019-2068



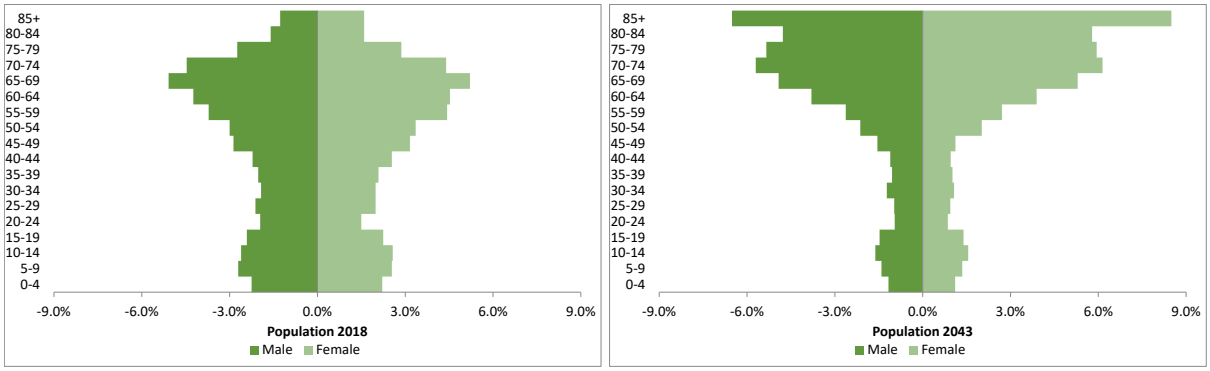
The spill-over growth from net internal migration for Thames Coromandel District is clearly shown in Table 2, which summarises the largest sources and destinations of inward and outward internal migrants respectively, for Thames Coromandel District in 2043 (being the middle of the projection period) for the medium-variant population projection. The largest flows in and out of the district can be attributed to Auckland, Hamilton City, and Tauranga City, all of which are large population centres in close proximity to Thames-Coromandel District. The inward migration from Auckland and Hamilton is larger than the outward flow, suggesting that the nearby cities are projected to be a substantial source of net internal migration for Thames-Coromandel District. This may also reflect the ageing New Zealand population, and Thames-Coromandel's attractiveness as a retirement destination.

Table 2: Top sources and destinations of internal migration for Thames-Coromandel District, 2043

Source	**Number**		**Destination**	**Number**
Auckland	1118		Auckland	512
Hamilton	120		Hamilton	96
Tauranga	90		Tauranga	90
Waikato	64		Hauraki	50
Hauraki	58		Waikato	48
Whangarei	35		Western Bay of Plenty	33
Rotorua	35		Whangarei	32
Western Bay of Plenty	32		Rotorua	30
Waipā	31		Waipā	28
Matamata-Piako	30		Matamata-Piako	27

The age structure of Thames-Coromandel District is the oldest in the region and continues ageing rapidly, as shown in Figure 9. In 2018, 30.8 percent of the population are aged 65 years and over, and this is projected to increase to 58.9 percent by 2043. This old age profile leads to the natural decrease shown in the previous figure.

Figure 9: Age-sex structure for Thames-Coromandel District, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for Thames-Coromandel District is shown in Figure 10. The estimated number of total households in June 2018 is 12,807. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households increasing throughout the projection period, reaching 15,845 in 2068. The number of one- and two-parent families decline fairly consistently over the projection period, while the number of couples without children and one-person households increase throughout the projection period. The low-variant and high-variant family and household projection (by type) for Thames-Coromandel District are shown in Figures 11 and 12 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households increasing to a peak of 13,540 in 2038, before declining to 13,158 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 18,542 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

Figure 10: Medium-variant family and household projections for Thames-Coromandel District, 2018-2068

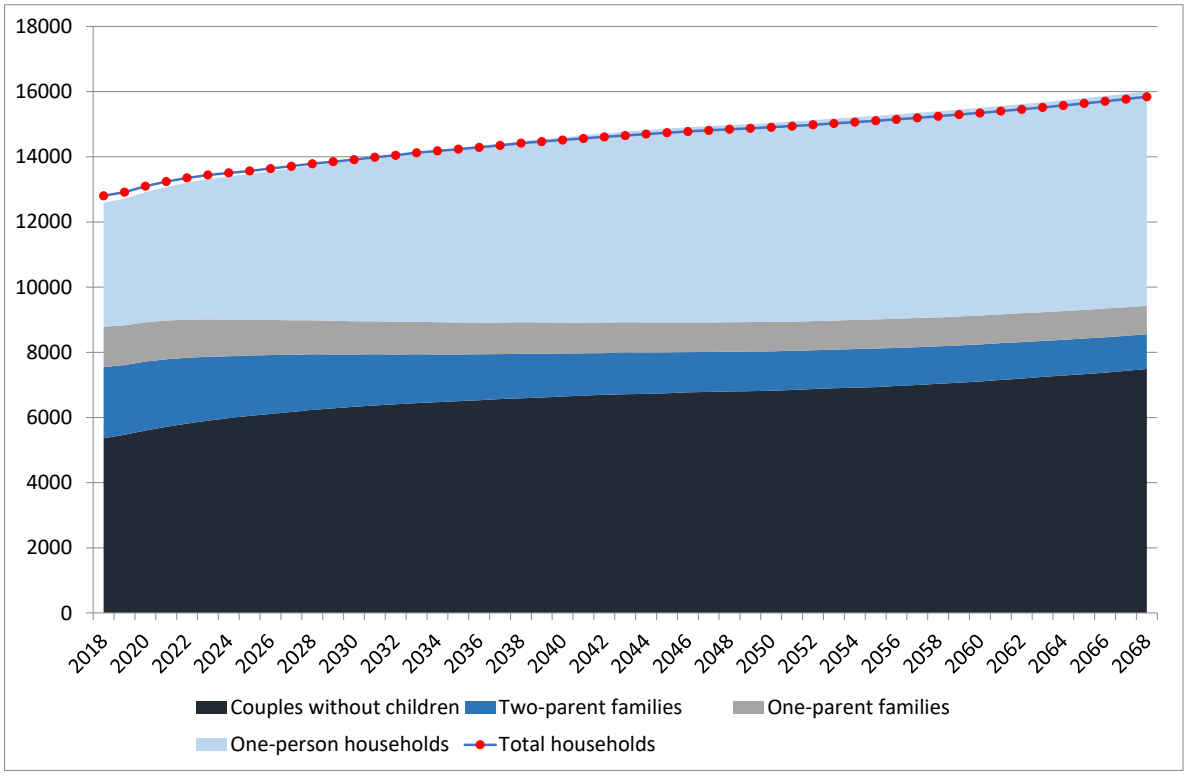


Figure 11: Low-variant family and household projections for Thames-Coromandel District, 2018-2068

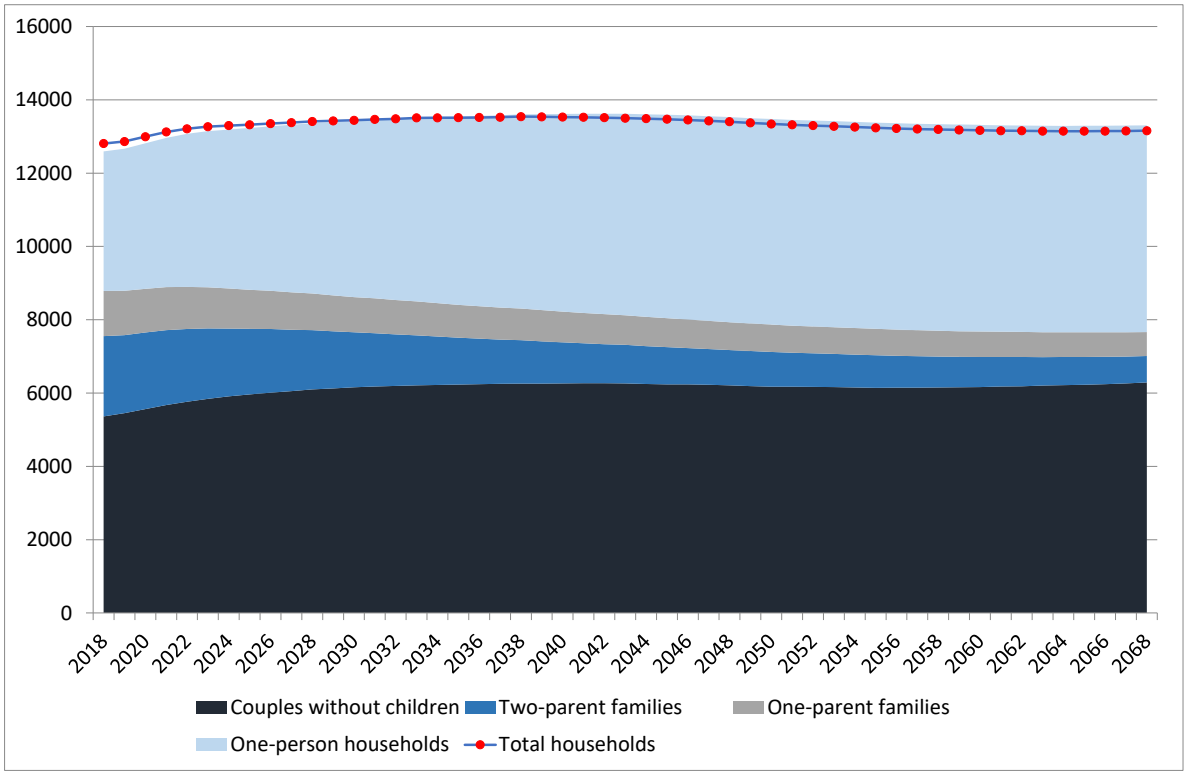
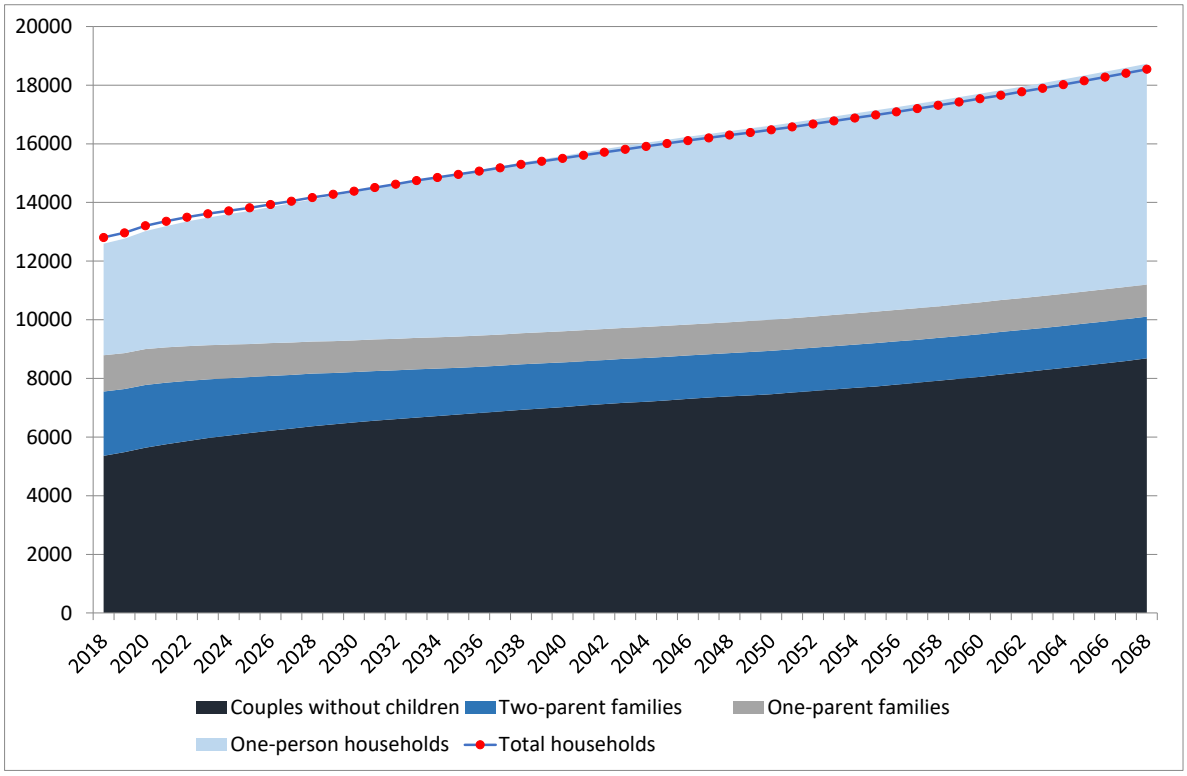
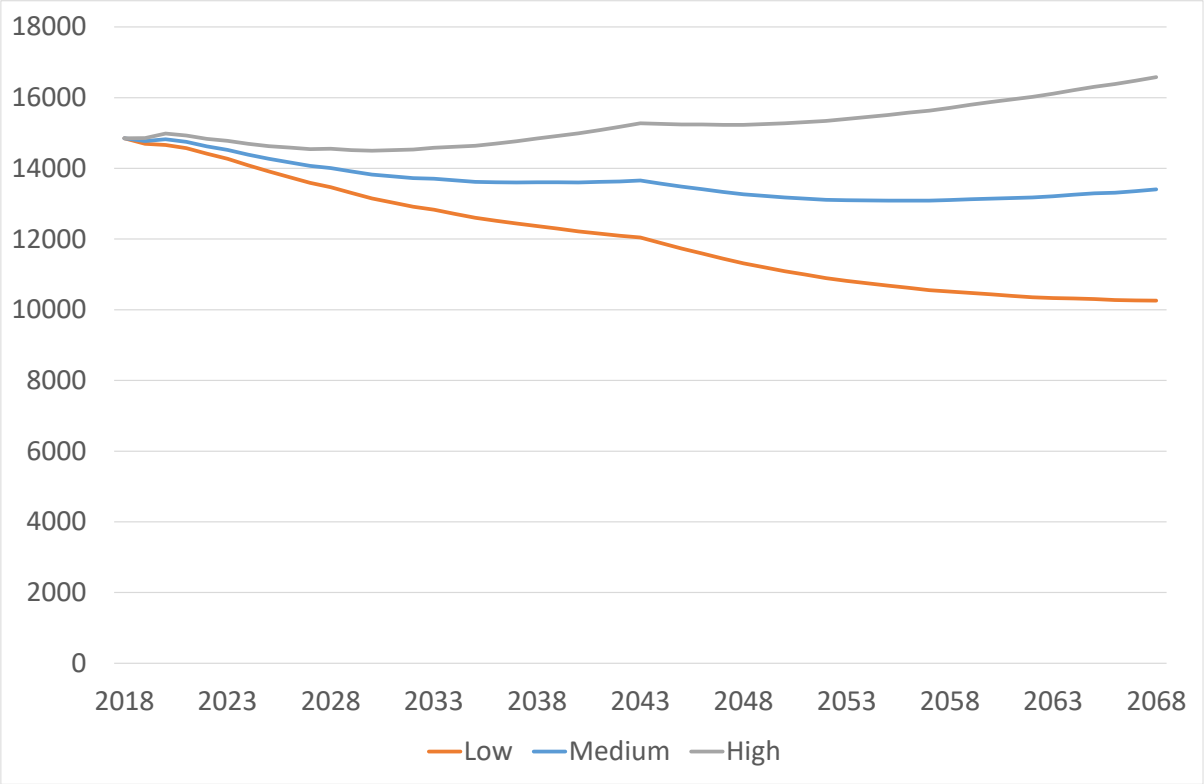


Figure 12: High-variant family and household projections for Thames-Coromandel District, 2018-2068



The labour force projections for Thames-Coromandel District are shown in Figure 13. The estimated labour force in June 2018 is 14,849. In the medium-variant projection, the labour force decreases through most of the projection period, falling to 13,405 in 2068. In the low-variant projection, the labour force decreases more consistently throughout the projection period, falling to 10,259 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 16,583 in 2068.

Figure 13: Labour force projections for Thames-Coromandel District, 2018-2068



4.2 Population, Family and Household, and Labour Force Projections for Hauraki District

Figure 14 presents the 2018-base population projections for Hauraki District to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for Hauraki District is 20,600. Under the medium-variant population projection scenario, the population increases throughout the projection period, reaching 25,221 in 2068. The medium-variant projection shows lower growth than the recent experience of Hauraki District, but this reflects the much lower projection international migration flows. The annualised projected population growth over the period 2018-2038 of 0.35% per year is somewhat lower than the 0.50% annualised growth experienced over the period 1996-2018, again reflecting the much lower projected international migration. Under the low-variant scenario, the population increases to a peak of 20,996 in 2023 before declining to 20,523 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 29,970 in 2068. In comparison, the SNZ 2018-base medium-variant projection is similar to the Waikato high-variant projection for much of the

projection period, but then falls away after the early-2030s, with the SNZ low-variant similar to the Waikato medium-variant projection only until the mid-2020s.

Figure 14: Population projections for Hauraki District, 2018-2068

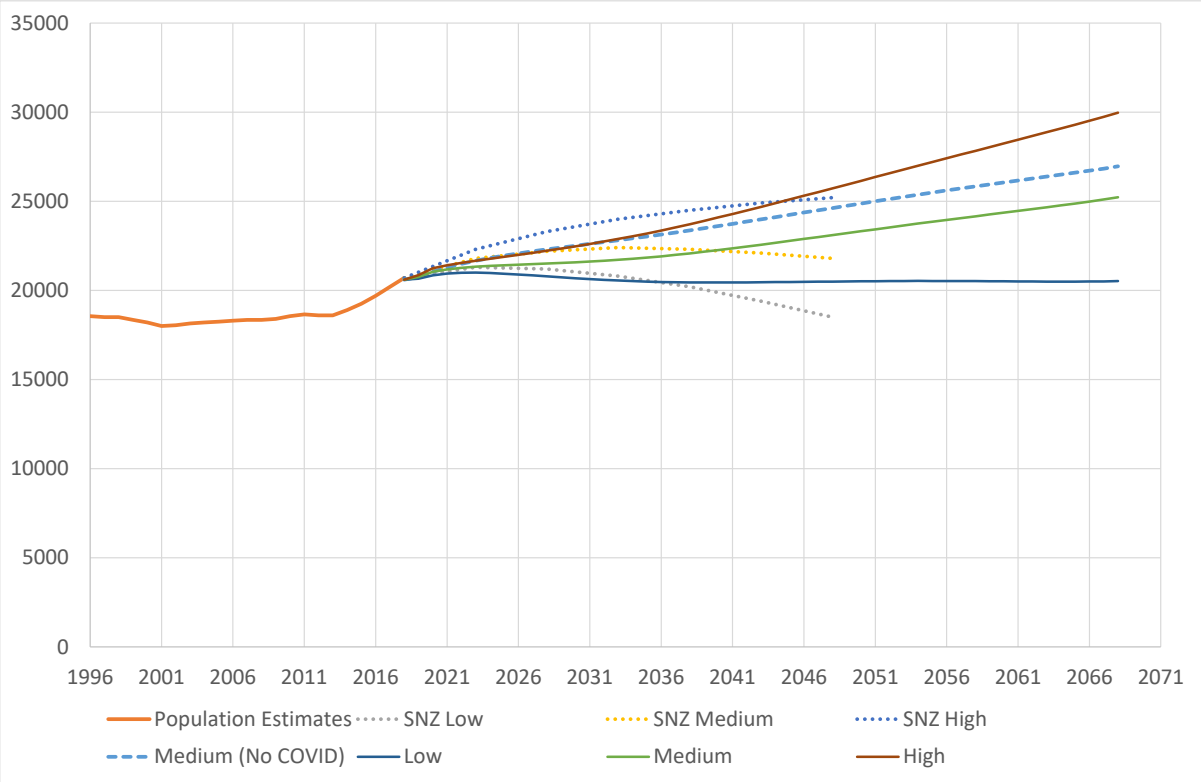
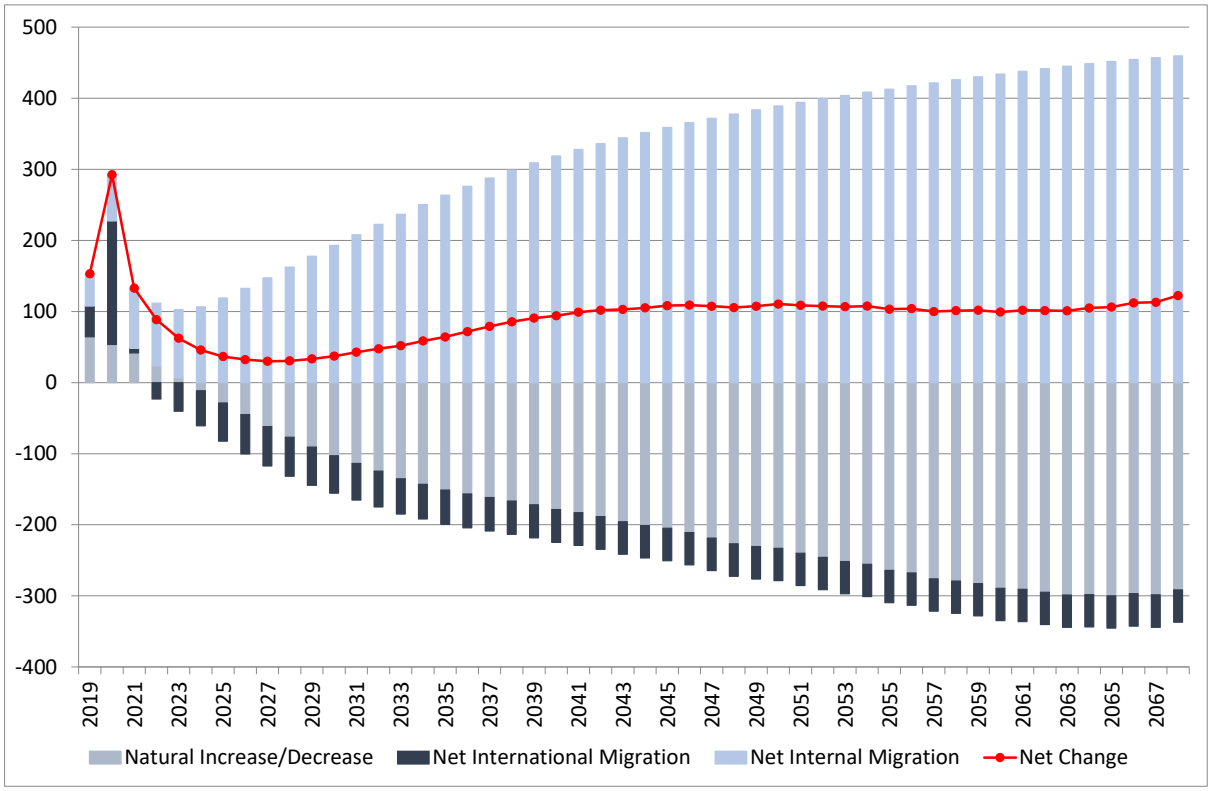


Figure 15 disaggregates the components of population change for Hauraki District over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is positive throughout the projection period. This is made up of net inward internal migration (more in-migration from the rest of New Zealand than out-migration), offset by natural decrease (more deaths than births), and net outward international migration (more out-migration to overseas than in-migration from overseas). The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration flows. The growing contribution of net internal migration reflects mainly spill-over growth from surrounding faster growing TAs.

Figure 15: Projected components of population change for Hauraki District, medium-variant projection, 2019-2068



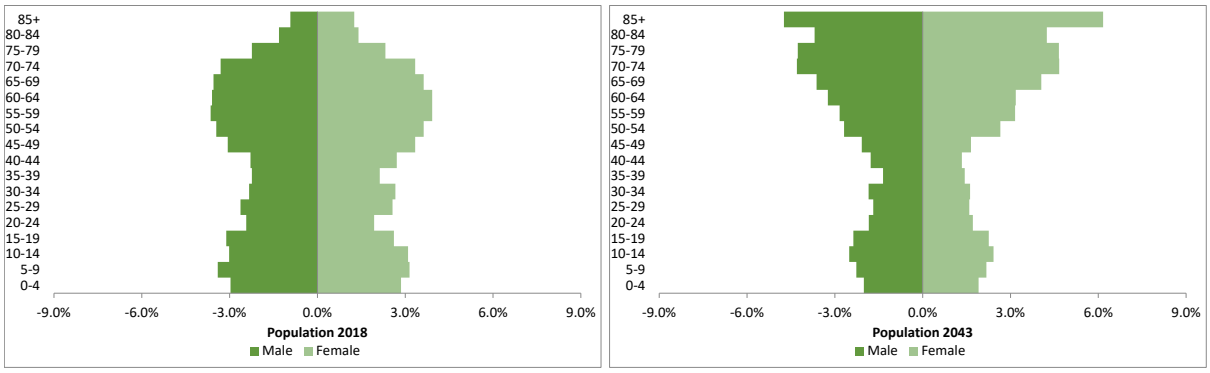
The spill-over growth from net internal migration for Hauraki District is clearly shown in Table 3, which summarises the largest sources and destinations of inward and outward internal migrants respectively, for Hauraki District in 2043 (being the middle of the projection period) for the medium-variant population projection. The largest flows in and out of the district can be attributed to Auckland and Hamilton City, as well as Waikato District and Tauranga City, all of which are large population centres in close proximity to Hauraki District. The inward migration from each of those TAs except Tauranga City is larger than the outward flow, suggesting that the nearby cities are generally projected to be a substantial source of net internal migration for Hauraki District.

Table 3: Top sources and destinations of internal migration for Hauraki District, 2043

Source	Number		Destination	Number
Auckland	823		Auckland	432
Hamilton	98		Hamilton	89
Waikato	79		Tauranga	83
Tauranga	73		Waikato	68
Matamata-Piako	54		Thames-Coromandel	58
Thames-Coromandel	50		Matamata-Piako	57
Western Bay of Plenty	46		Western Bay of Plenty	54
Waipā	25		Waipā	26
Rotorua	25		Rotorua	24
Whangarei	15		Christchurch	16

The age structure of Hauraki District is also among the oldest in the region and continues ageing rapidly, as shown in Figure 16. In 2018, 23.3 percent of the population are aged 65 years and over, and this is projected to increase to 44.4 percent by 2043. This old age profile leads to the natural decrease shown in the previous figure.

Figure 16: Age-sex structure for Hauraki District, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for Hauraki District is shown in Figure 17. The estimated number of total households in June 2018 is 8,093. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households increasing throughout the projection period, reaching 10,698 in 2068. The number of two-parent families declines fairly consistently over the projection period, while the number of one-parent families initially declines, before increasing again after 2035. Couples without children and one-person households increase throughout the projection period. The low-variant and high-variant family and household projection (by type) for Hauraki

District are shown in Figures 18 and 19 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households increasing throughout the projection period, reaching 8,924 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 12,478 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

The labour force projections for Hauraki District are shown in Figure 20. The estimated labour force in June 2018 is 10,268. In the medium-variant projection, the labour force decreases to a trough of 10,106 in 2030, before increasing to eventually reach 11,316 in 2068. In the low-variant projection, the labour force decreases through most of the projection period, falling to 8,905 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 13,748 in 2068.

Figure 17: Medium-variant family and household projections for Hauraki District, 2018-2068

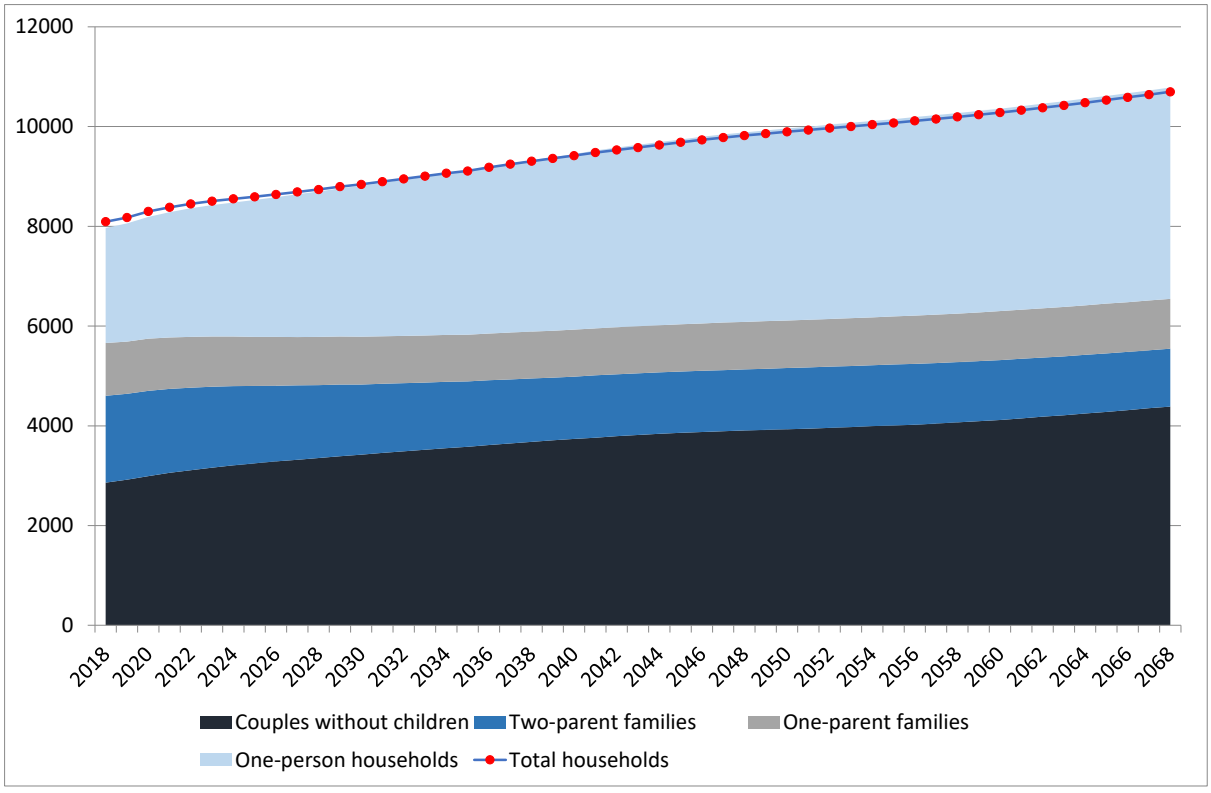


Figure 18: Low-variant family and household projections for Hauraki District, 2018-2068

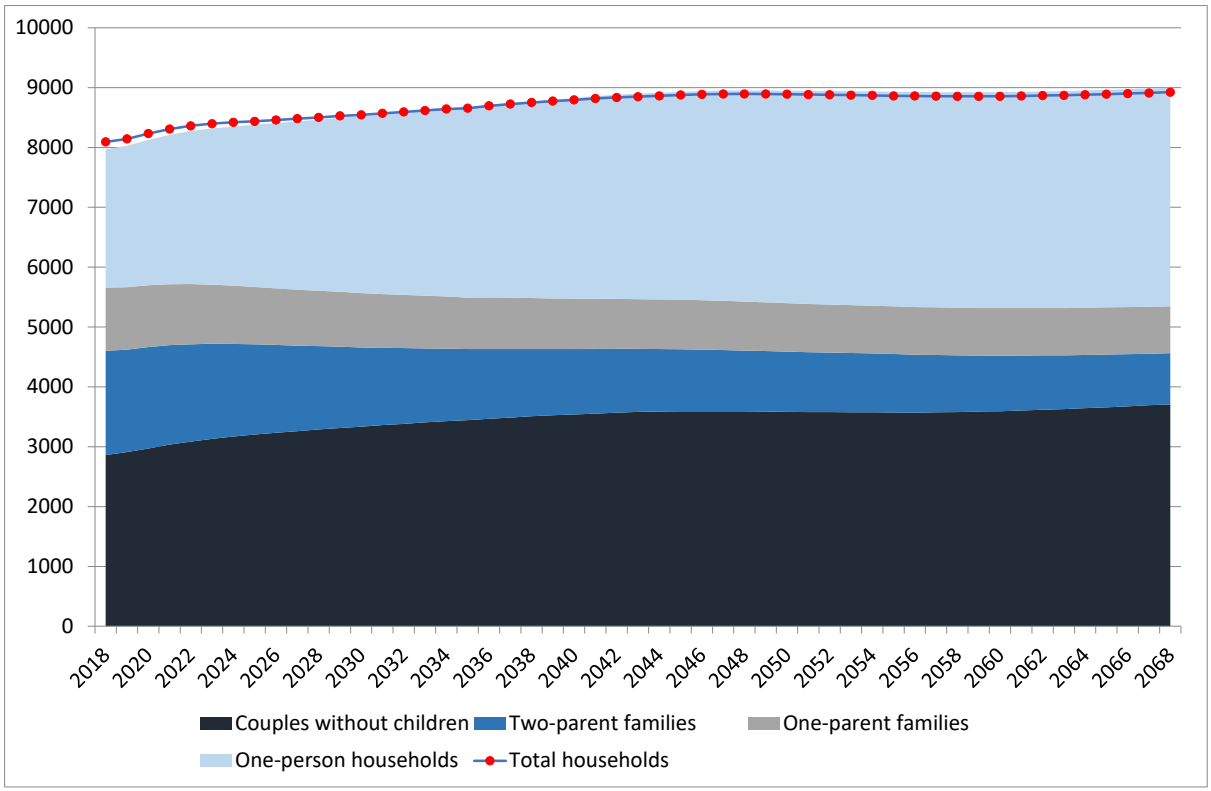


Figure 19: High-variant family and household projections for Hauraki District, 2018-2068

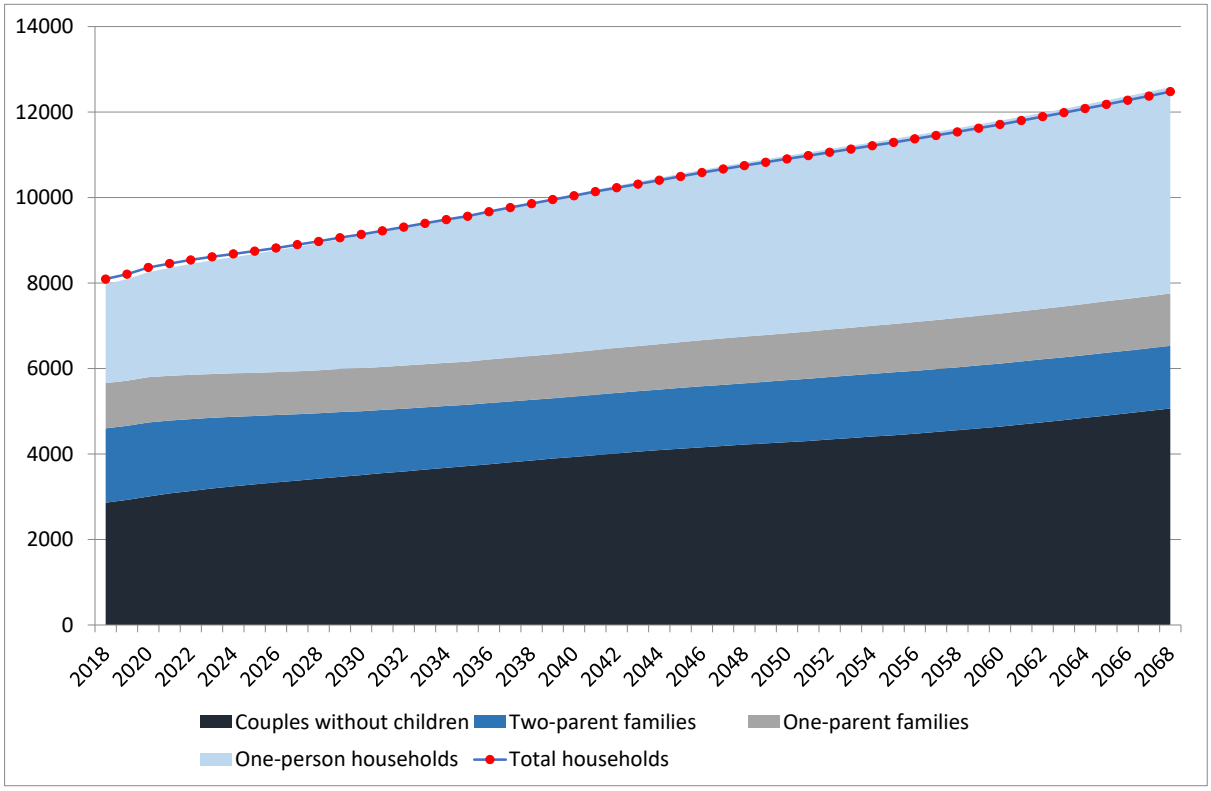
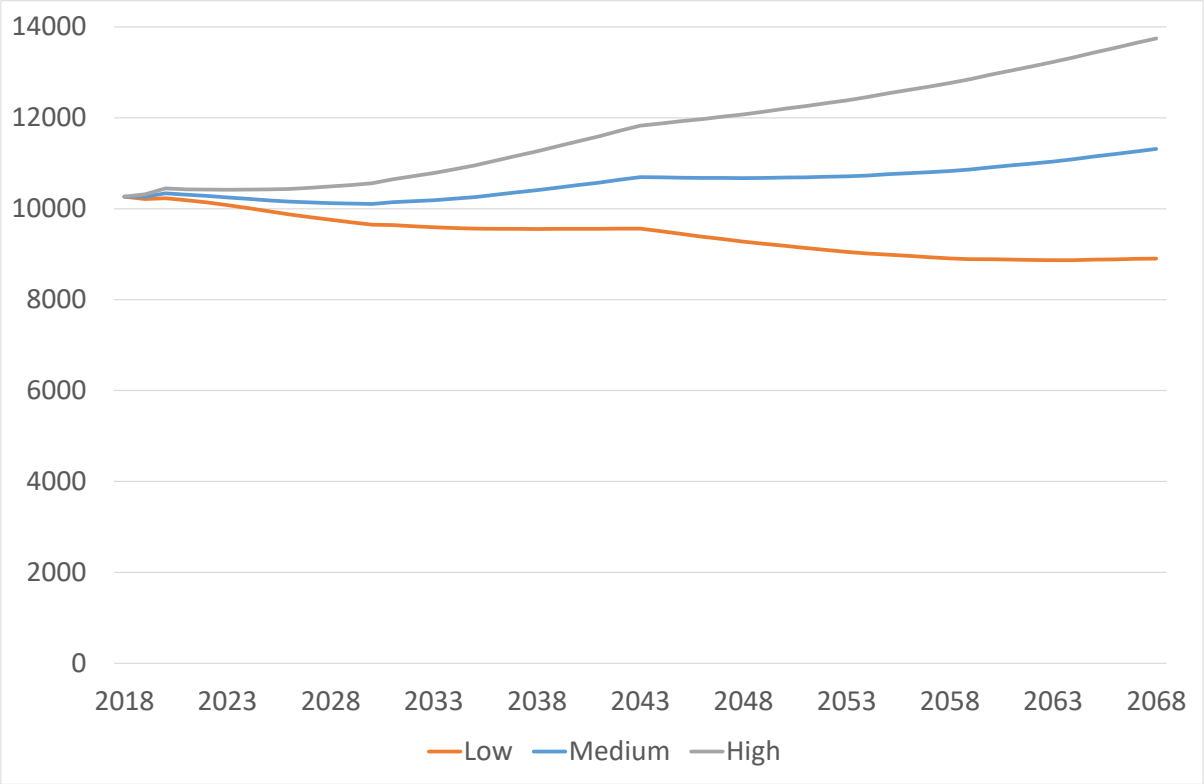


Figure 20: Labour force projections for Hauraki District, 2018-2068



4.3 Population, Family and Household, and Labour Force Projections for Waikato District

Figure 21 presents the 2018-base population projections for Waikato District to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for Waikato District is 78,200. Under the medium-variant population projection scenario, the population increases throughout the projection period, reaching 120,684 in 2068. The medium-variant projection shows lower growth than the recent experience of Waikato District, but this reflects the much lower projection for international migration flows. The annualised projected population growth over the period 2018-2038 of 1.20% per year is somewhat lower than the 1.87% annualised growth experienced over the period 1996-2018, again reflecting the much lower projected international migration. Under the low-variant scenario, the population increases throughout the projection period, reaching 99,229 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 142,269 in 2068. In comparison, the SNZ 2018-base

medium-variant projection is similar to the Waikato high-variant projection, with the SNZ low-variant somewhat lower than the Waikato medium-variant projection.

Figure 21: Population projections for Waikato District, 2018-2068

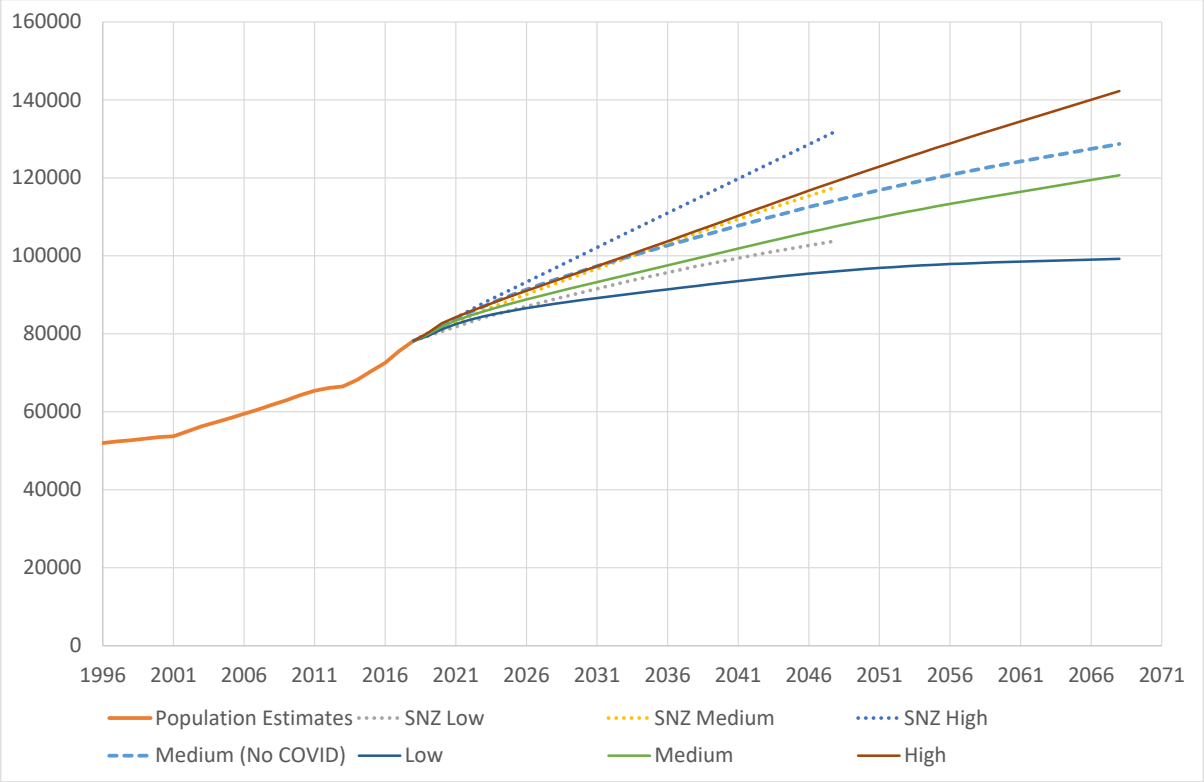


Figure 22 disaggregates the components of population change for Waikato District over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is positive throughout the projection period. This is made up of net inward internal migration (more in-migration from the rest of New Zealand than out-migration) and natural increase (more births than deaths) up to 2054 (after which there is natural decrease – more deaths than births), and net outward international migration (more out-migration to overseas than in-migration from overseas). The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration flows.

Figure 22: Projected components of population change for Waikato District, medium-variant projection, 2019-2068

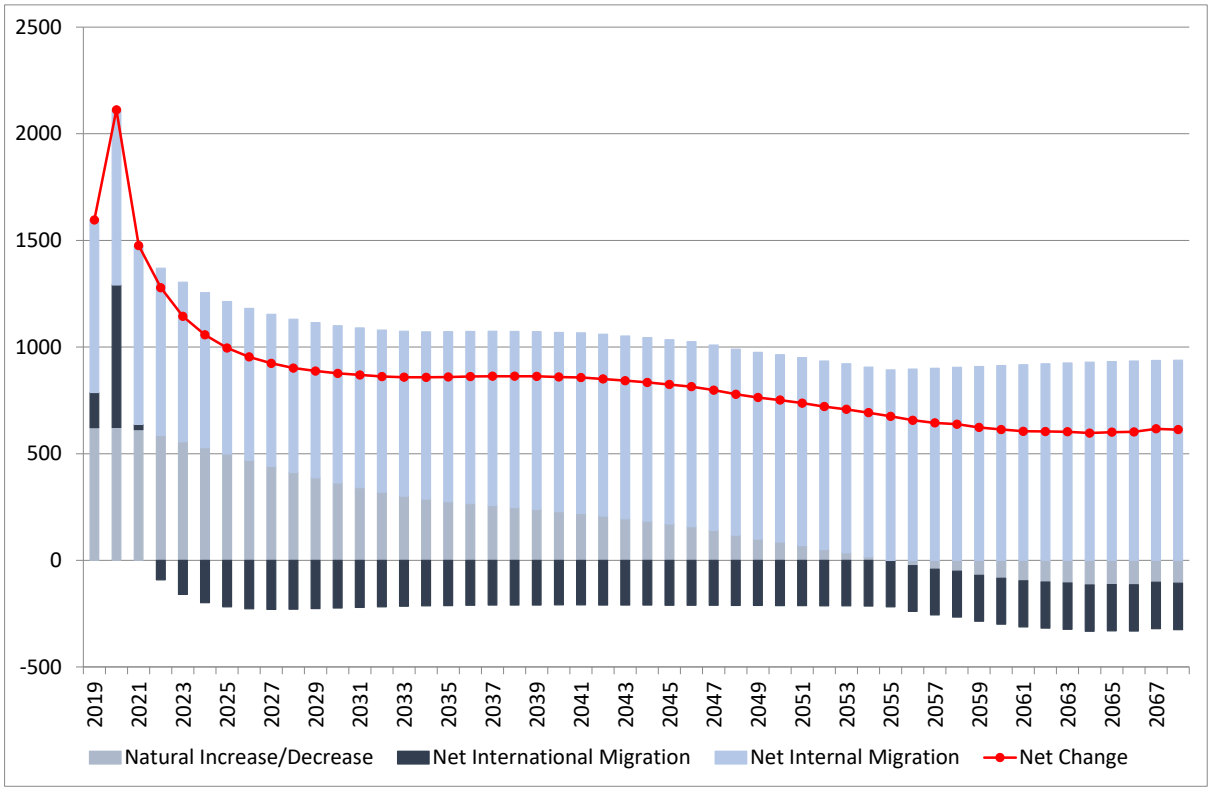


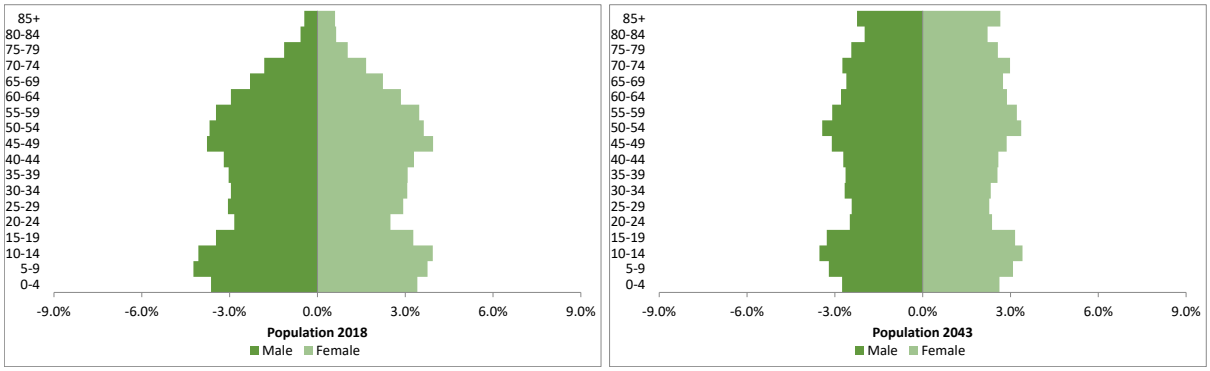
Table 4 summarises the largest sources and destinations of inward and outward internal migrants respectively, for Waikato District in 2043 (being the middle of the projection period) for the medium-variant population projection. The largest flows in and out of the district can be attributed to Auckland, Hamilton City, and Waipā District, all of which are large population centres in close proximity to Waikato District. The inward migration from Auckland is larger than the outward flow, suggesting that Auckland is projected to be a substantial source of net internal migration for Waikato District. In contrast, the outward migration is larger than the inward flow for Hamilton City and Waipā District, suggesting that Waikato District is a net donor of migrants to those TAs.

Table 4: Top sources and destinations of internal migration for Waikato District, 2043

Source	Number		Destination	Number
Auckland	3358		Auckland	2043
Hamilton	1051		Hamilton	1114
Waipā	187		Waipā	229
Tauranga	142		Tauranga	188
Matamat- Piako	122		Matamata Piako	148
Hauraki	68		Hauraki	79
Rotorua	66		Rotorua	76
Western Bay of Plenty	53		Western Bay of Plenty	73
Whangarei	52		Christchurch	65
Thames-Coromandel	48		Thames Coromandel	64

The age structure of Waikato District is much younger than either Thames-Coromandel or Hauraki Districts, as shown in Figure 23. In 2018, 12.5 percent of the population are aged 65 years and over, and this is projected to increase to 25.2 percent by 2043. This young age profile leads to the natural increase that is shown through most of the projection period in the previous figure.

Figure 23: Age-sex structure for Waikato District, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for Waikato District is shown in Figure 24. The estimated number of total households in June 2018 is 25,769. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households increasing throughout the projection period, reaching 42,841 in 2068. The number of one-parent and two-parent families increase fairly consistently over the projection period, as does the number of couples without children and one-person households.

The low-variant and high-variant family and household projection (by type) for Waikato District are shown in Figures 25 and 26 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households increasing throughout the projection period, reaching 35,623 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 50,063 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

The labour force projections for Waikato District are shown in Figure 27. The estimated labour force in June 2018 is 43,465. In the medium-variant projection, the labour force increases throughout the projection period, reaching 66,682 in 2068. In the low-variant projection, the labour force increases throughout the projection period, reaching 54,194 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 79,199 in 2068.

Figure 24: Medium-variant family and household projections for Waikato District, 2018-2068

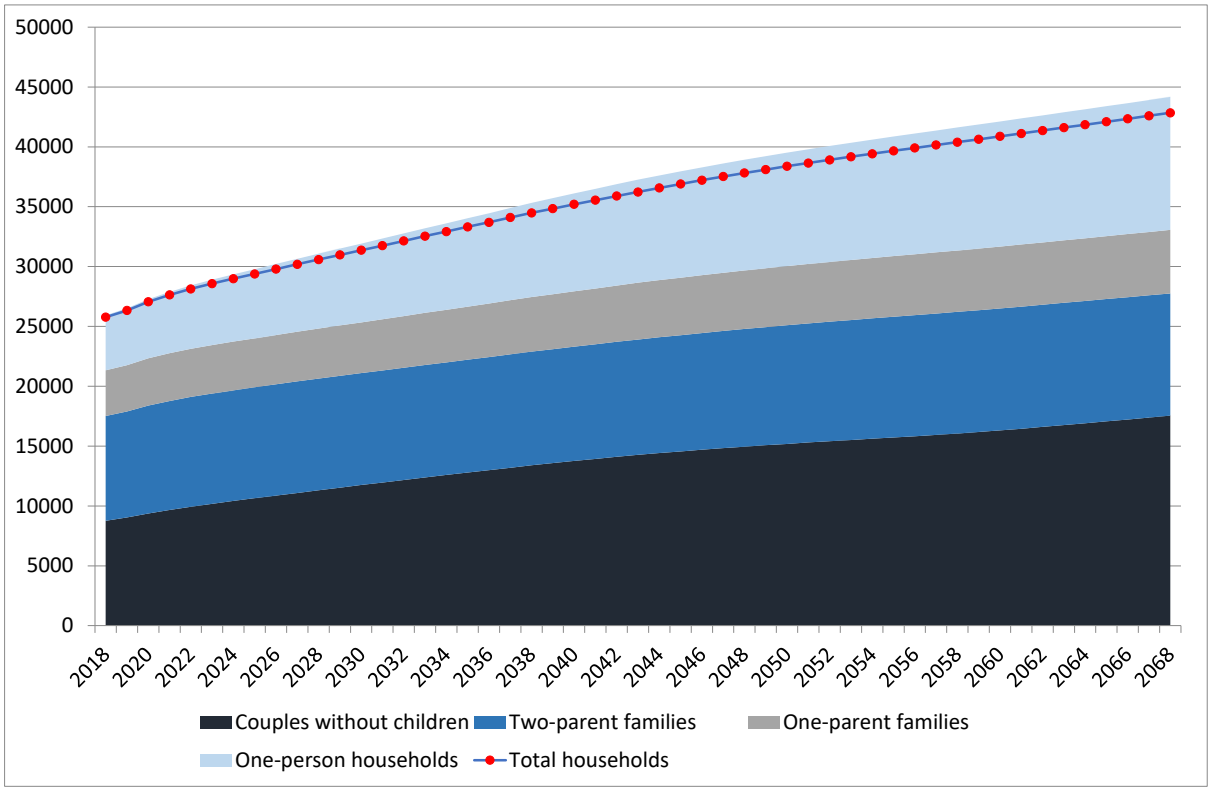


Figure 25: Low-variant family and household projections for Waikato District, 2018-2068

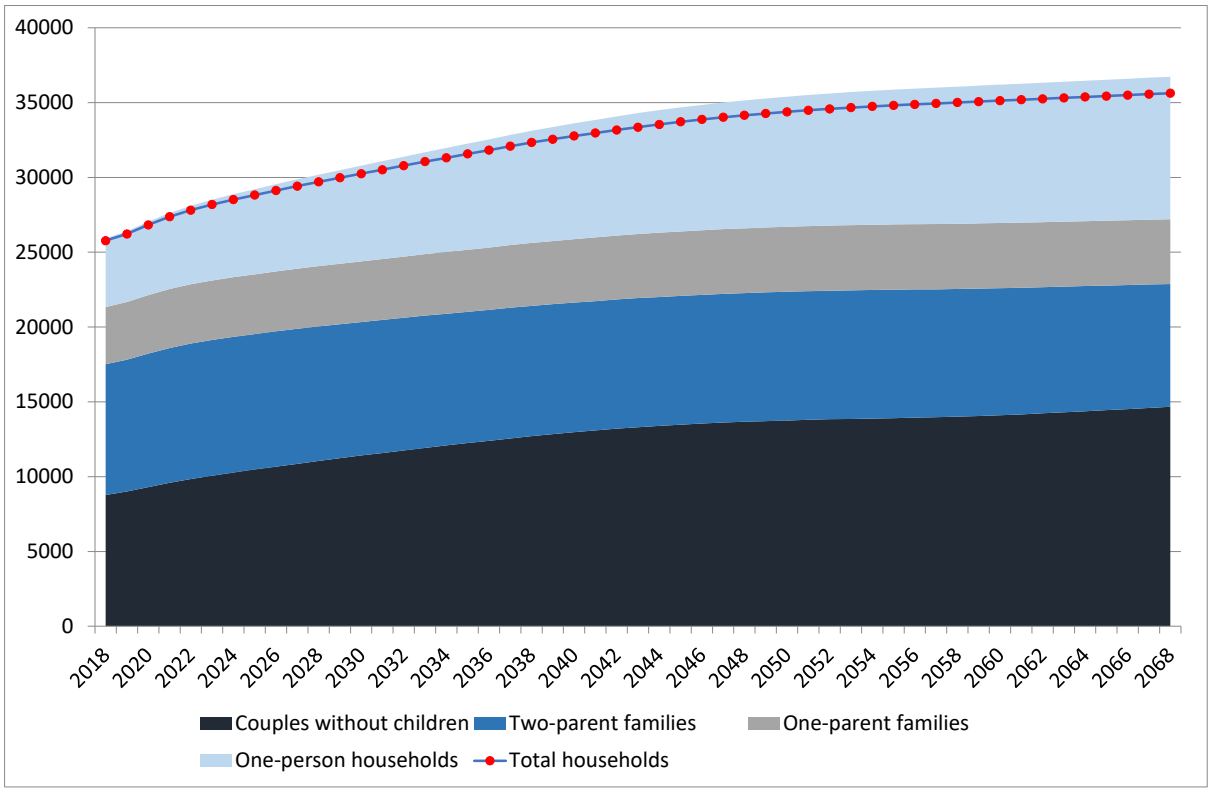


Figure 26: High-variant family and household projections for Waikato District, 2018-2068

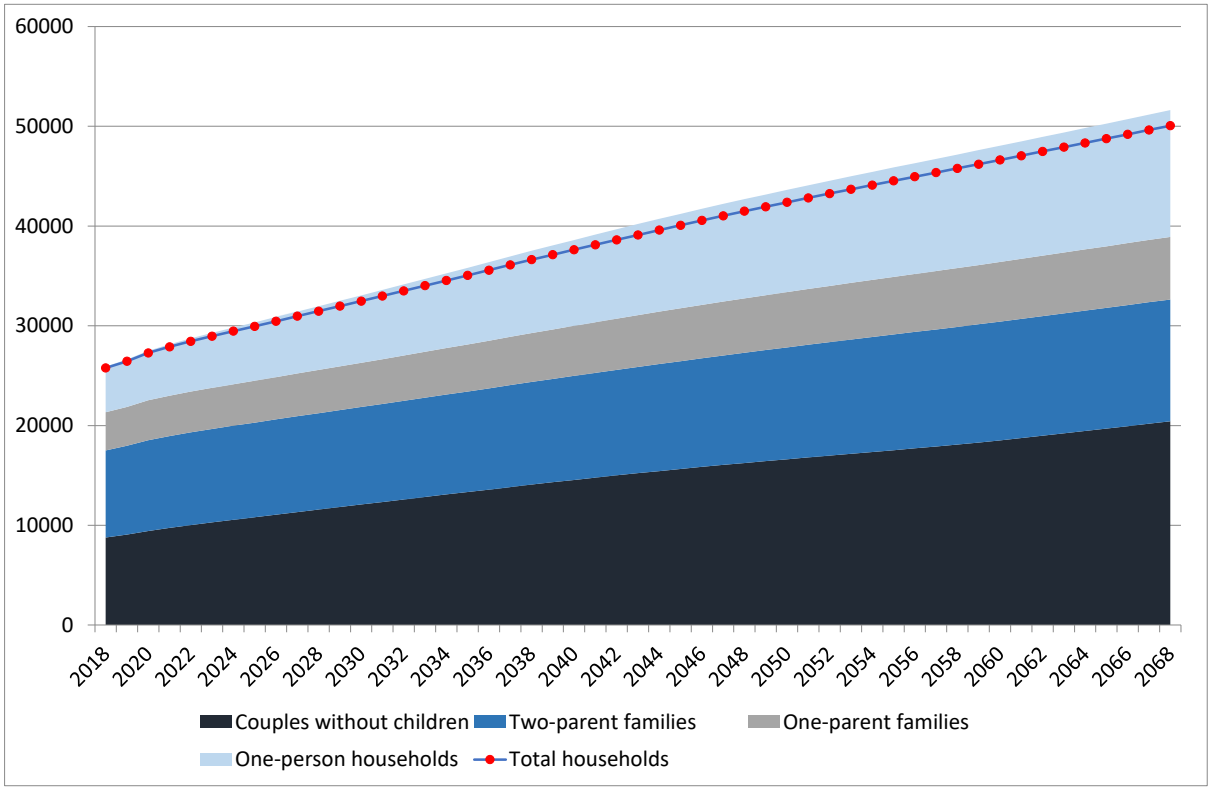
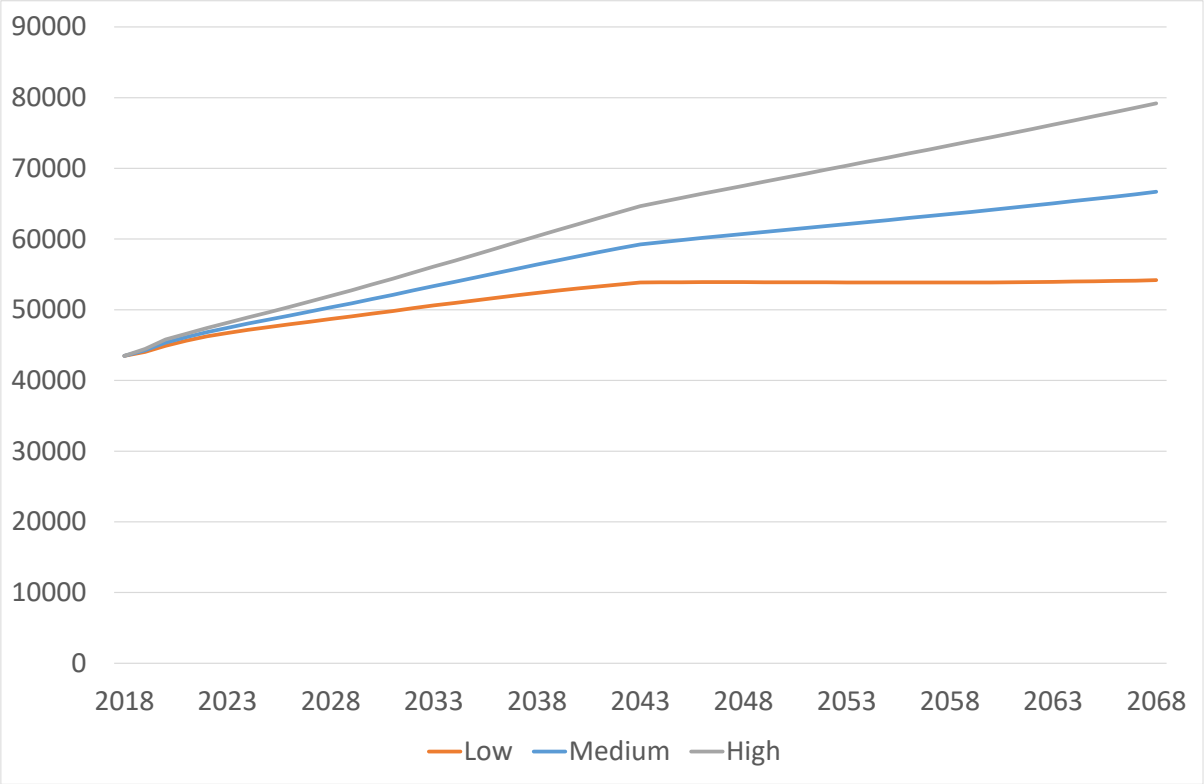


Figure 27: Labour force projections for Waikato District, 2018-2068



4.4 Population, Family and Household, and Labour Force Projections for Matamata-Piako District

Figure 28 presents the 2018-base population projections for Matamata-Piako District to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for Matamata-Piako District is 35,300. Under the medium-variant population projection scenario, the population increases throughout the projection period, reaching 44,866 in 2068. The medium-variant projection shows lower growth than the recent experience of Matamata-Piako District, but this reflects the much lower projection international migration flows. The annualised projected population growth over the period 2018-2038 of 0.54% per year is slightly lower than the 0.70% annualised growth experienced over the period 1996-2018, again reflecting the much lower projected international migration. Under the low-variant scenario, the population increases to a peak of 36,488 in 2045 before declining to 36,236 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 53,639 in 2068. In comparison, the SNZ 2018-base

medium-variant projection is very similar to the Waikato medium-variant projection, with the SNZ low-variant somewhat lower than the Waikato low-variant projection, particularly after the early 2030s.

Figure 28: Population projections for Matamata-Piako District, 2018-2068

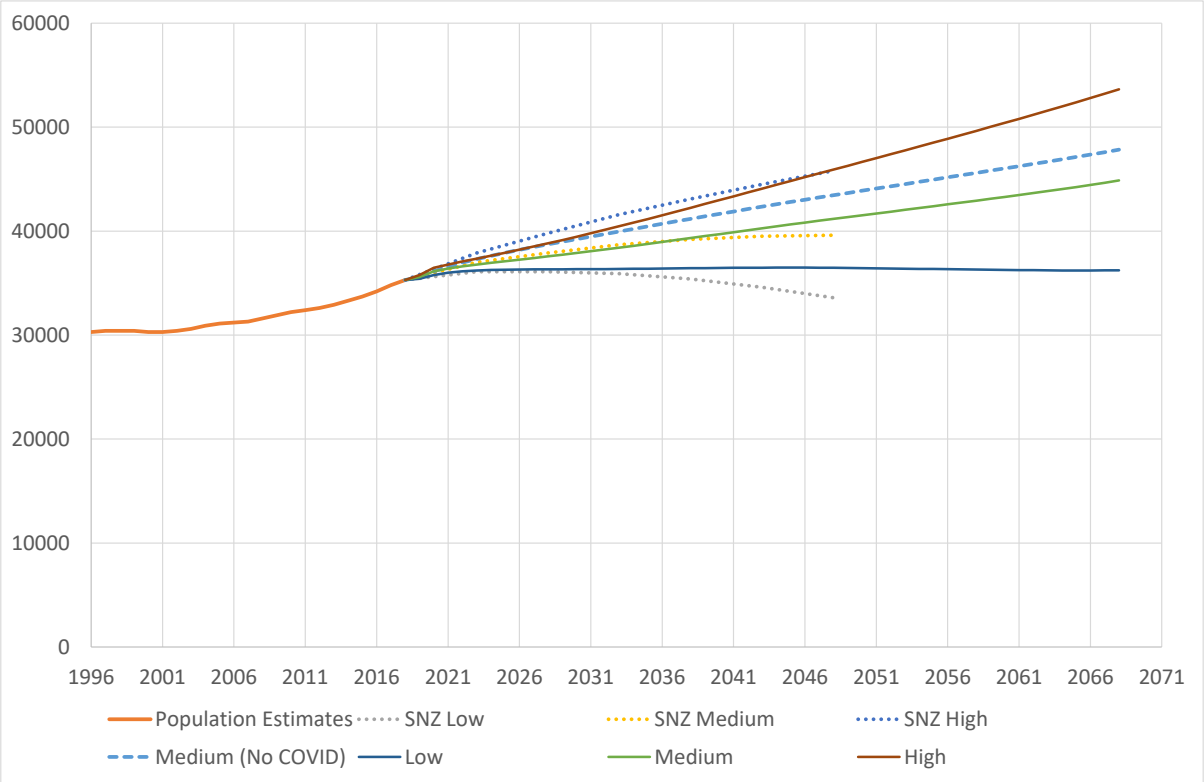


Figure 29 disaggregates the components of population change for Matamata-Piako District over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is positive throughout the projection period. This is made up of net inward internal migration (more in-migration from the rest of New Zealand than out-migration) and natural increase (more births than deaths) up to 2035 (after which there is natural decrease – more deaths than births), and net outward international migration (more out-migration to overseas than in-migration from overseas). The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration

flows. The growing contribution of net internal migration reflects mainly spill-over growth from surrounding faster growing TAs.

Figure 29: Projected components of population change for Matamata-Piako District, medium-variant projection, 2019-2068

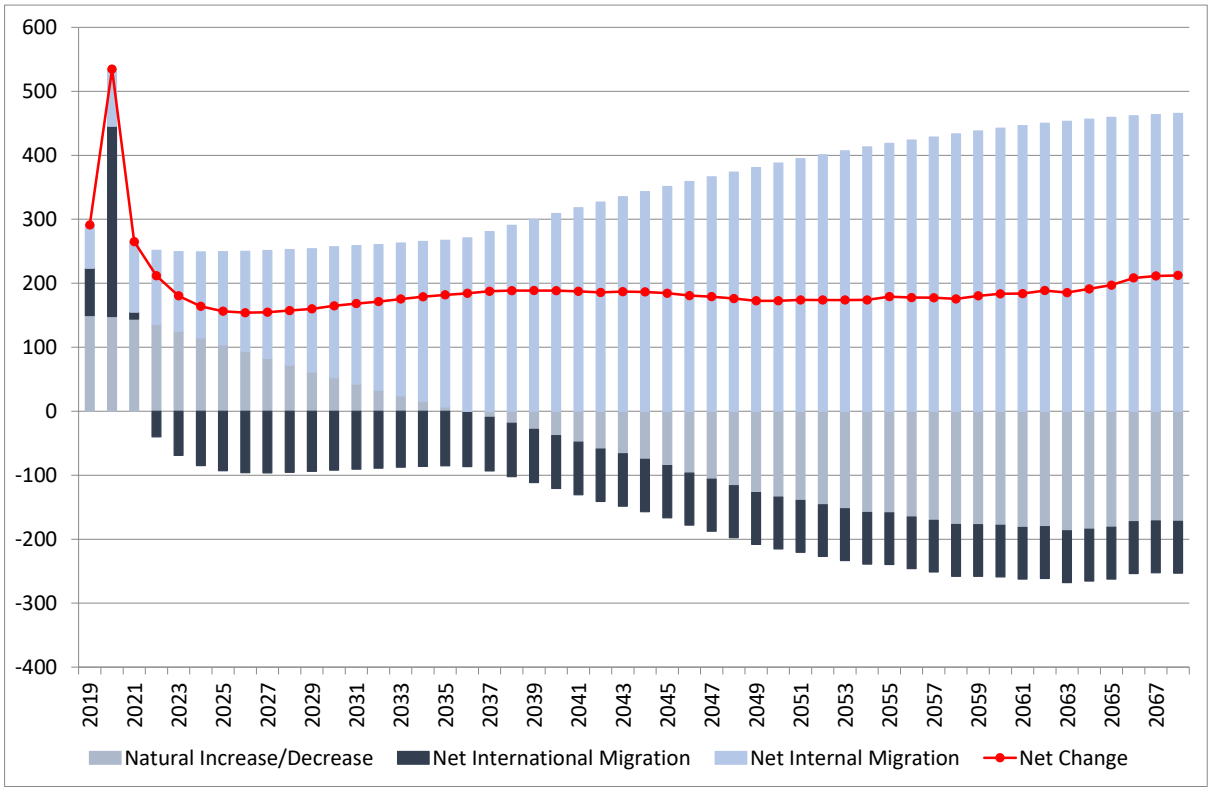


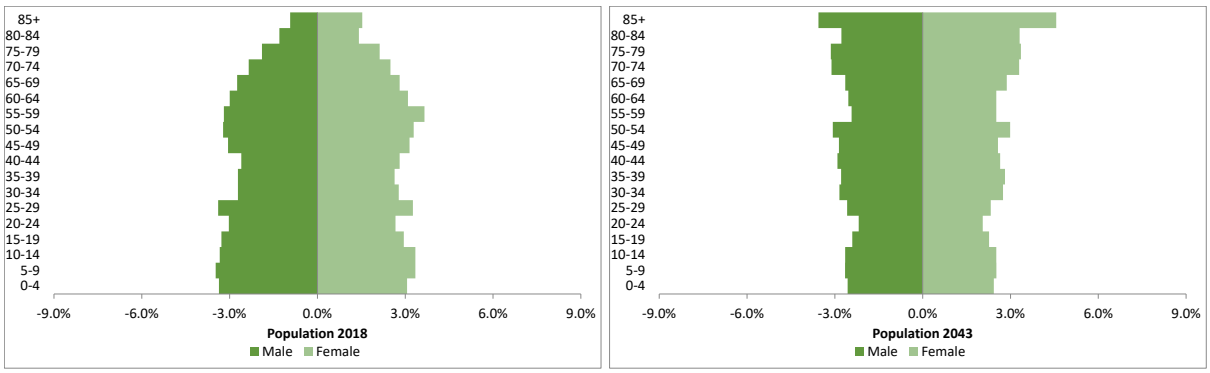
Table 5 summarises the largest sources and destinations of inward and outward internal migrants respectively, for Matamata-Piako District in 2043 (being the middle of the projection period) for the medium-variant population projection. The largest flows in and out of the district can be attributed to Auckland, Hamilton City, and Tauranga City, all of which are large population centres in close proximity to Matamata-Piako District. The inward migration flows from Auckland and Hamilton City are larger than the outward flows, suggesting that Auckland and Hamilton are projected to be a substantial source of net internal migration for Matamata-Piako District. In contrast, the outward migration is larger than the inward flow for Tauranga City, suggesting that Matamata-Piako District is a net donor of migrants to Tauranga.

Table 5: Top sources and destinations of internal migration for Matamata-Piako District, 2043

Source	Number		Destination	Number
Auckland	694		Auckland	349
Hamilton	290		Hamilton	254
Tauranga	170		Tauranga	186
Waikato	148		Waipā	144
Waipā	143		Western Bay of Plenty	131
Western Bay of Plenty	116		Waikato	122
Rotorua	62		Rotorua	59
Hauraki	57		Hauraki	54
South Waikato	41		South Waikato	37
Thames-Coromandel	27		Thames Coromandel	30

The age structure of Matamata-Piako District is moderately old compared with other TAs in the Waikato, but ages relatively quickly, as shown in Figure 30. In 2018, 19.6 percent of the population are aged 65 years and over, and this is projected to increase to 32.6 percent by 2043. The initially young age profile keeps natural increase positive through the early period of the projections, as shown in the previous figure.

Figure 30: Age-sex structure for Matamata-Piako District, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for Matamata-Piako District is shown in Figure 31. The estimated number of total households in June 2018 is 13,205. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households increasing throughout the projection period, reaching

18,608 in 2068. The number of one-parent families increases fairly consistently over the projection period, as does the number of couples without children and one-person households. The number of two-parent families remains relatively stable. The low-variant and high-variant family and household projection (by type) for Matamata-Piako District are shown in Figures 32 and 33 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households increasing throughout the projection period, reaching 15,404 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 21,844 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

Figure 31: Medium-variant family and household projections for Matamata-Piako District, 2018-2068

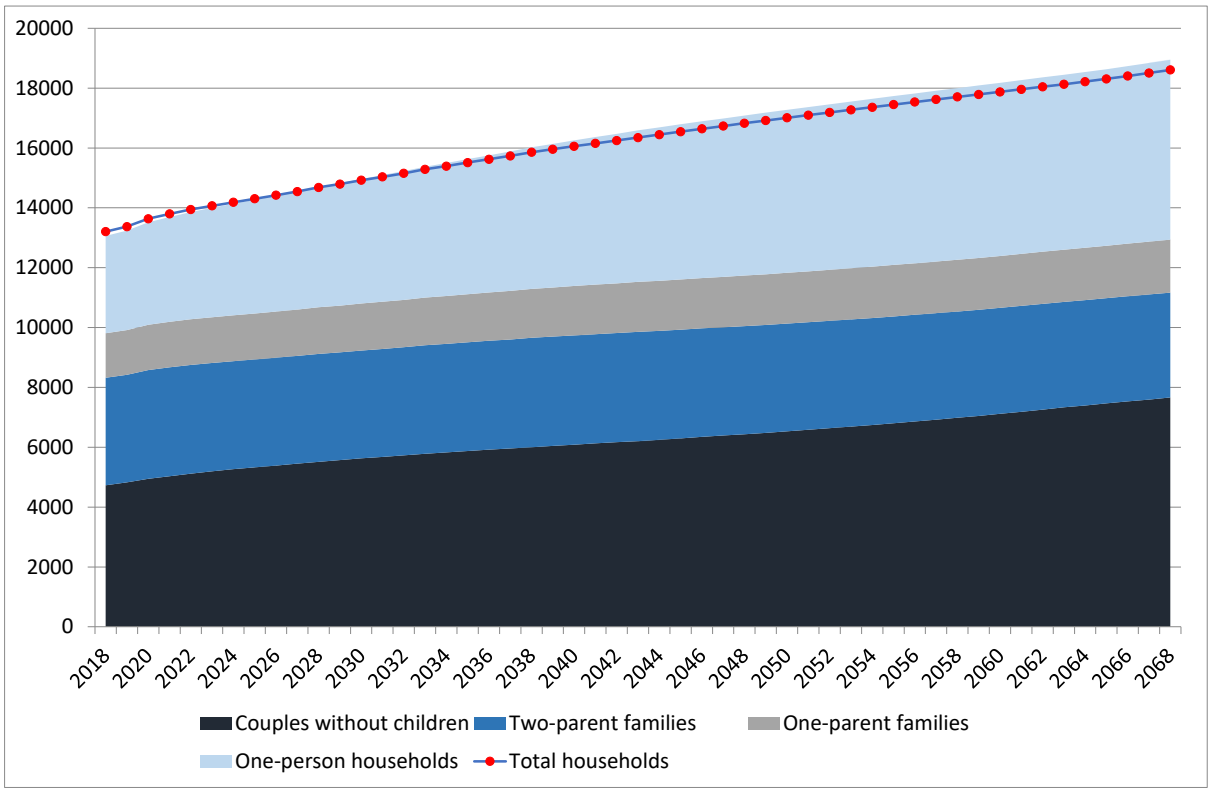


Figure 32: Low-variant family and household projections for Matamata-Piako District, 2018-2068

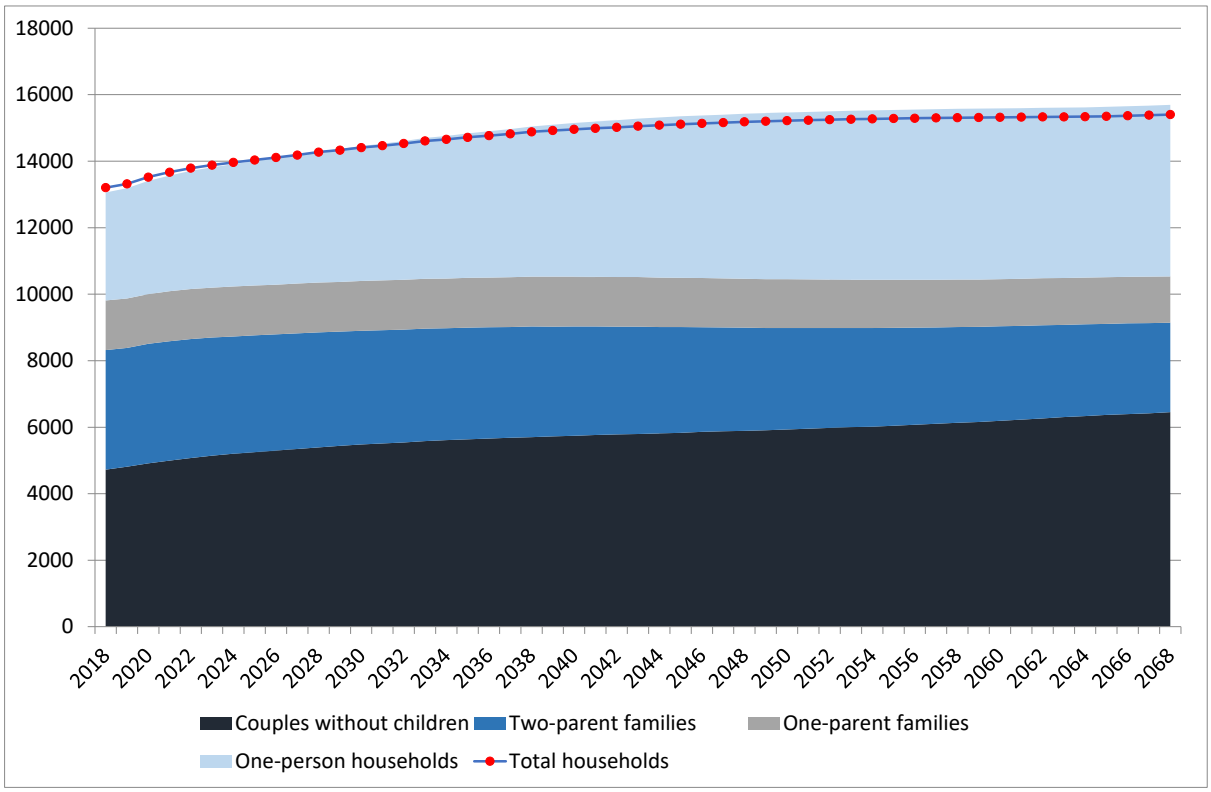
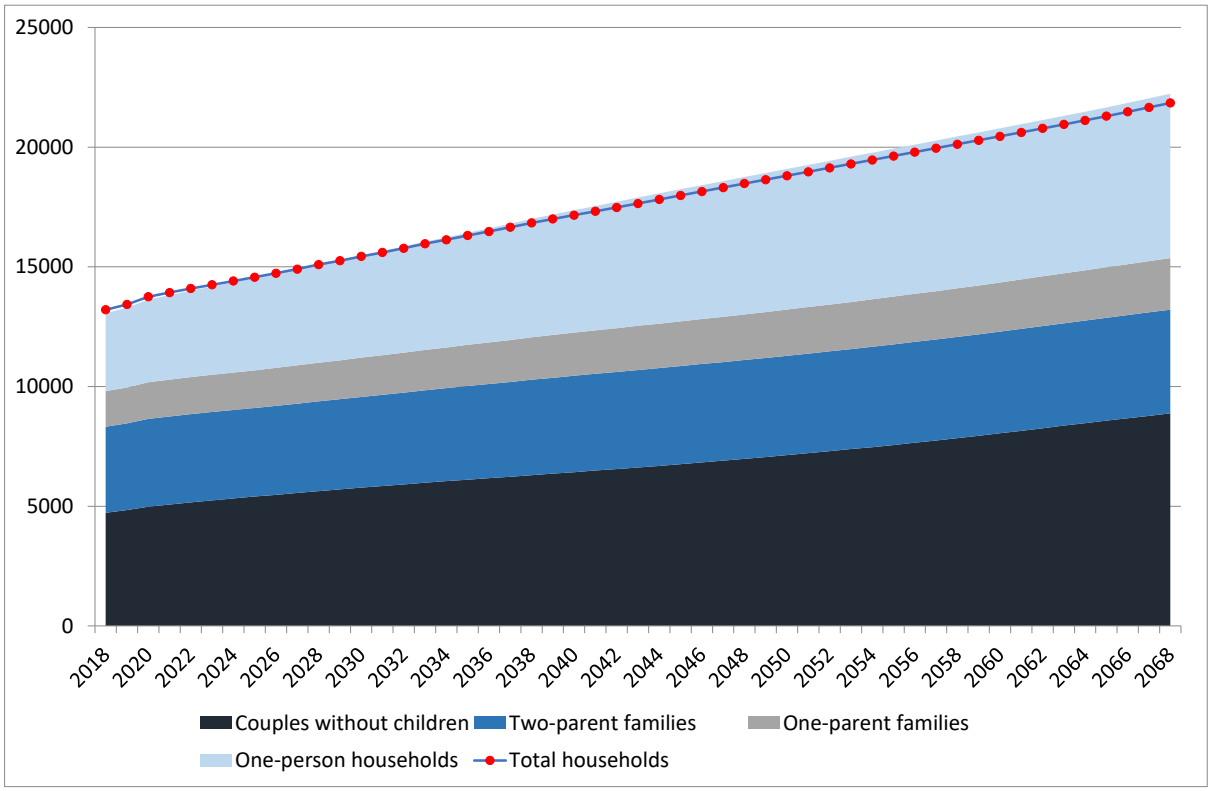
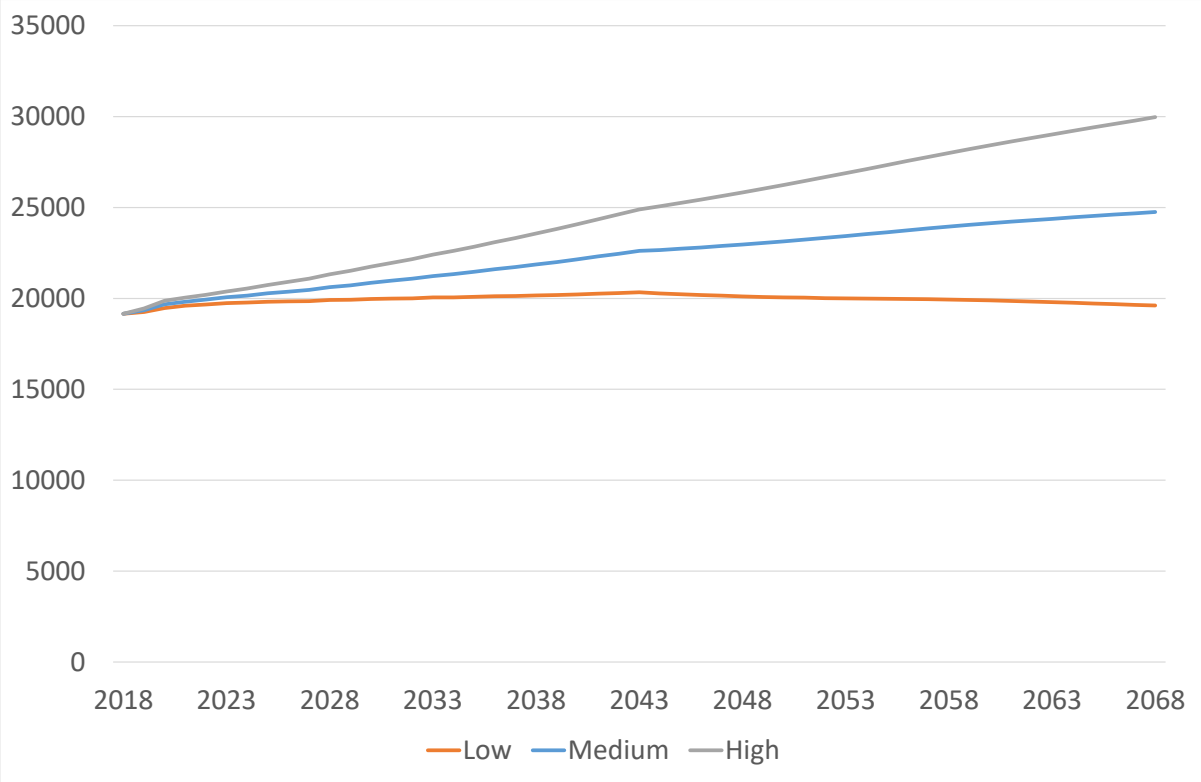


Figure 33: High-variant family and household projections for Matamata-Piako District, 2018-2068



The labour force projections for Matamata-Piako District are shown in Figure 34. The estimated labour force in June 2018 is 19,150. In the medium-variant projection, the labour force increases throughout the projection period, reaching 24,757 in 2068. In the low-variant projection, the labour force increases to a peak of 20,332 in 2043 before declining to 19,607 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 29,975 in 2068.

Figure 34: Labour force projections for Matamata-Piako District, 2018-2068



4.5 Population, Family and Household, and Labour Force Projections for Hamilton City

Figure 35 presents the 2018-base population projections for Hamilton City to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for Hamilton City is 168,600. Under the medium-variant population projection scenario, the population increases throughout the projection period, reaching 264,198 in 2068. The medium-variant projection shows lower growth than the recent experience of Hamilton City, but this reflects the much lower projection international migration flows. The annualised projected population growth over the period 2018-2038 of 1.25% per year is lower than the 1.82% annualised growth experienced over the period 1996-2018, again reflecting the much lower projected international migration. Under the low-variant scenario, the population increases throughout the projection period, reaching 216,661 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 312,161 in 2068. In comparison, the SNZ 2018-base medium-variant projection is very similar to the Waikato medium-variant projection, with the SNZ high-variant slightly higher than the Waikato high-variant projection, and the SNZ low-variant slightly lower than the Waikato low-variant projection.

Figure 35: Population projections for Hamilton City, 2018-2068

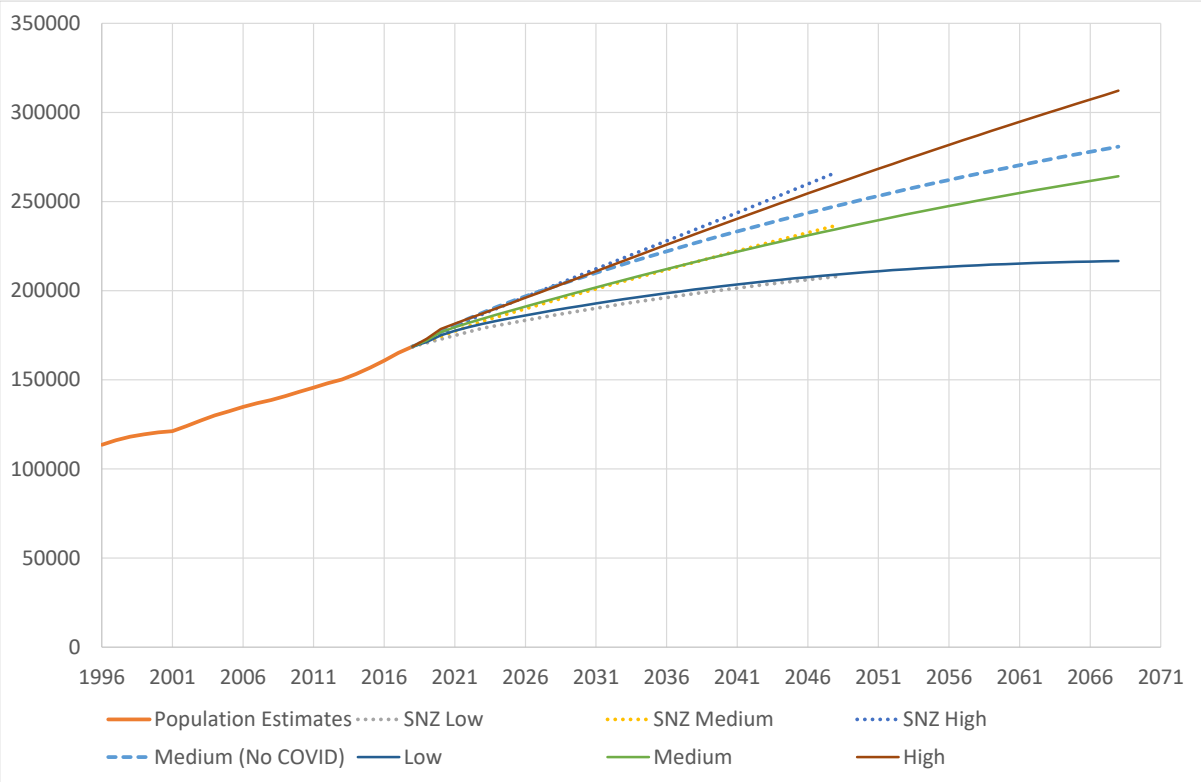


Figure 36 disaggregates the components of population change for Hamilton City over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is positive throughout the projection period. This is made up of net inward internal migration (more in-migration from the rest of New Zealand than out-migration) and natural increase (more births than deaths), offset by a small amount of net outward international migration (more out-migration to overseas than in-migration from overseas) throughout most of the projection period. The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration flows.

Figure 36: Projected components of population change for Hamilton City, medium-variant projection, 2019-2068

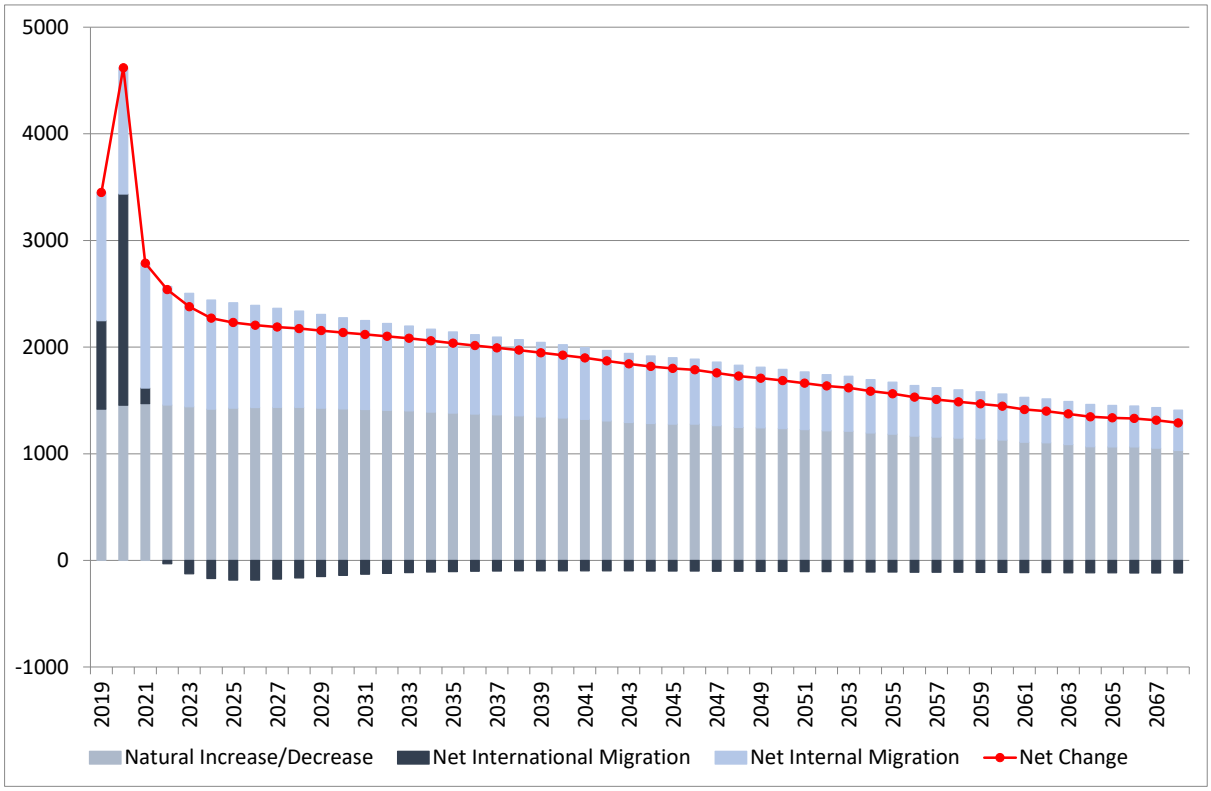


Table 6 summarises the largest sources and destinations of inward and outward internal migrants respectively, for Hamilton City in 2043 (being the middle of the projection period)

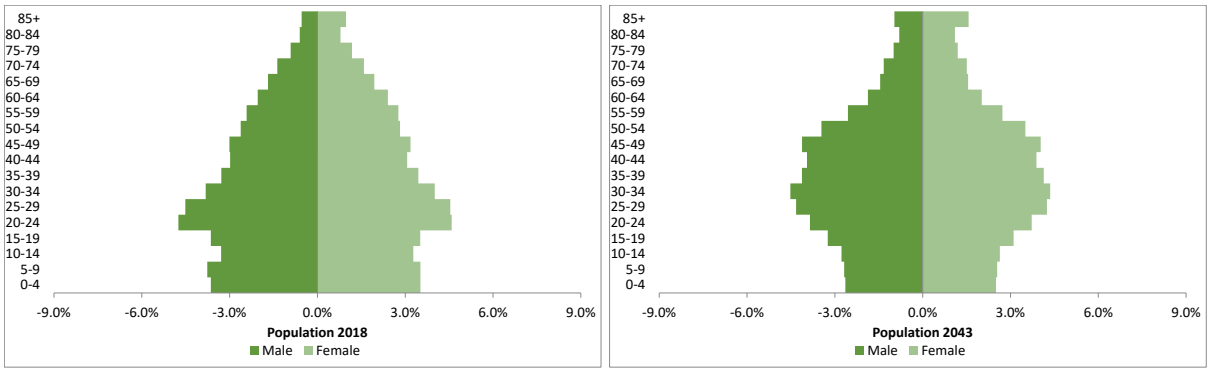
for the medium-variant population projection. The largest flows in and out of the district can be attributed to Auckland, Waikato District, and Waipā District, all of which are in close proximity to Hamilton City. The inward migration flows from Auckland and Waikato District are larger than the outward flows, suggesting that Auckland and Waikato District are projected to be a substantial source of net internal migration for Hamilton City. In contrast, the outward migration is larger than the inward flow for Waipā District, suggesting that Hamilton City is a net donor of migrants to Waipā District.

Table 6: Top sources and destinations of internal migration for Hamilton City, 2043

Source	**Number**		**Destination**	**Number**
Auckland	3288		Auckland	1887
Waikato	1114		Waipā	1254
Waipā	1089		Waikato	1051
Tauranga	409		Tauranga	513
Matamata Piako	254		Matamata Piako	290
Rotorua	202		Rotorua	217
Western Bay of Plenty	156		Western Bay of Plenty	201
Wellington	117		Christchurch	149
Whangarei	107		Taupō	123
Taupō	102		Whangarei	122

The age structure of Hamilton City is the youngest in the region in 2018, and remains relatively young throughout the projection period, as shown in Figure 37. In 2018, 11.6 percent of the population are aged 65 years and over, and this is projected to slightly increase to 12.5 percent by 2043. This low degree of ageing keeps natural increase positive through the early period of the projections, as shown in the previous figure.

Figure 37: Age-sex structure for Hamilton City, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for Hamilton City is shown in Figure 38. The estimated number of total households in June 2018 is 57,479. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households increasing throughout the projection period, reaching 102,962 in 2068. The number of one-parent and two-parent families increases fairly consistently over the projection period, as does the number of couples without children and one-person households. The low-variant and high-variant family and household projection (by type) for Hamilton City are shown in Figures 39 and 40 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households increasing throughout the projection period, reaching 85,690 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 120,325 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

The labour force projections for Hamilton City are shown in Figure 41. The estimated labour force in June 2018 is 92,473. In the medium-variant projection, the labour force increases throughout the projection period, reaching 165,877 in 2068. In the low-variant projection, the labour force increases to a peak of 137,332 in 2060 before declining to 135,450 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 196,462 in 2068.

Figure 38: Medium-variant family and household projections for Hamilton City, 2018-2068

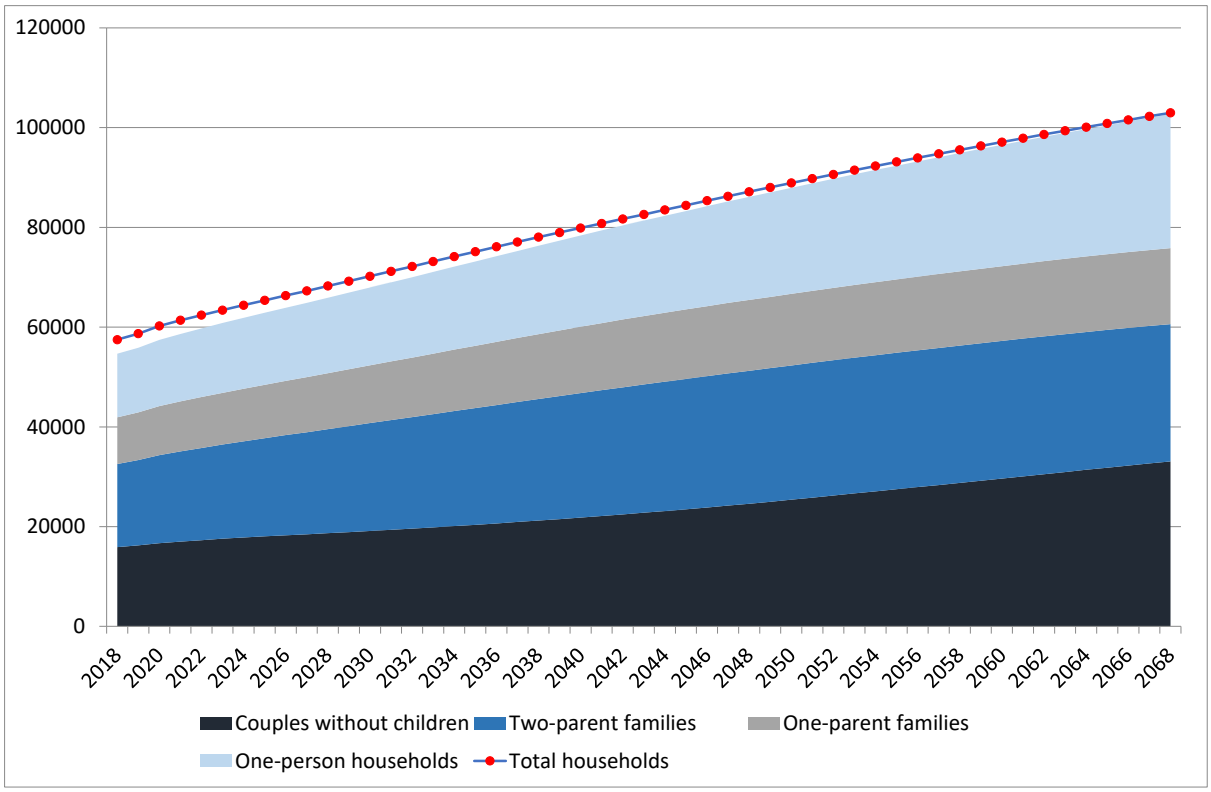


Figure 39: Low-variant family and household projections for Hamilton City, 2018-2068

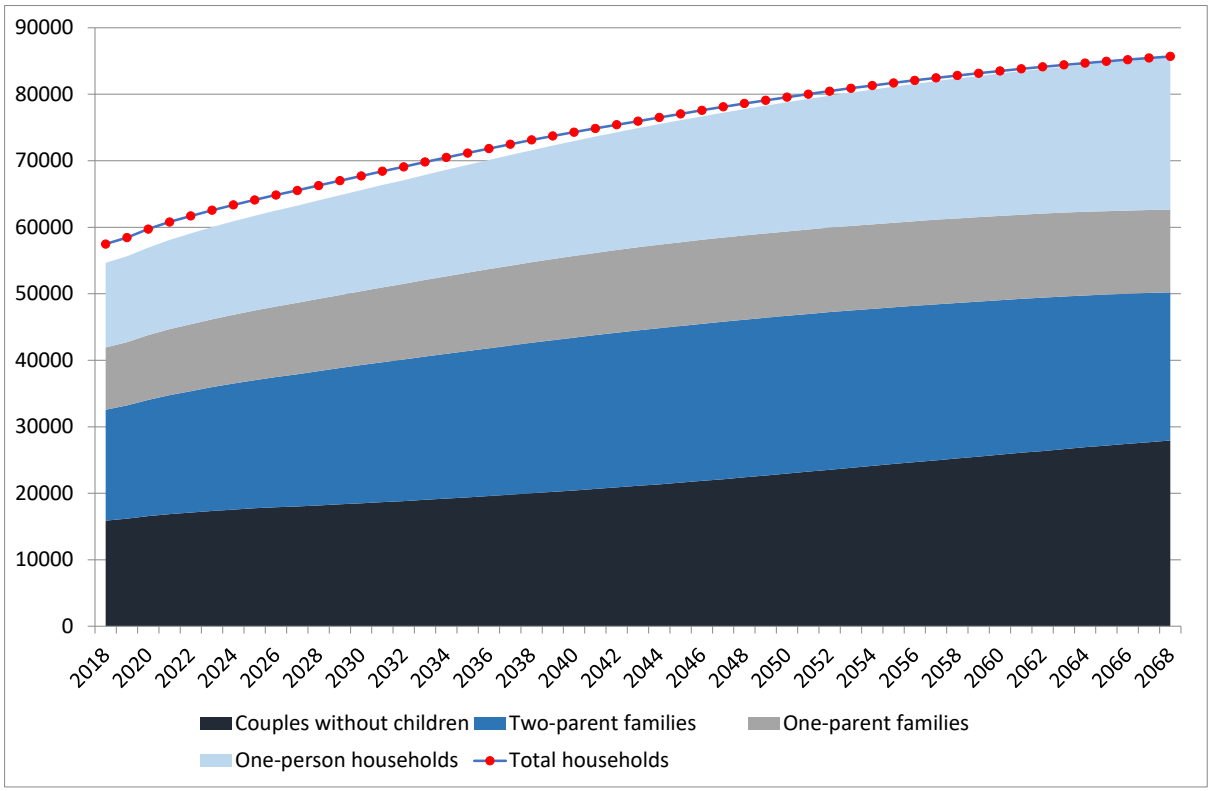


Figure 40: High-variant family and household projections for Hamilton City, 2018-2068

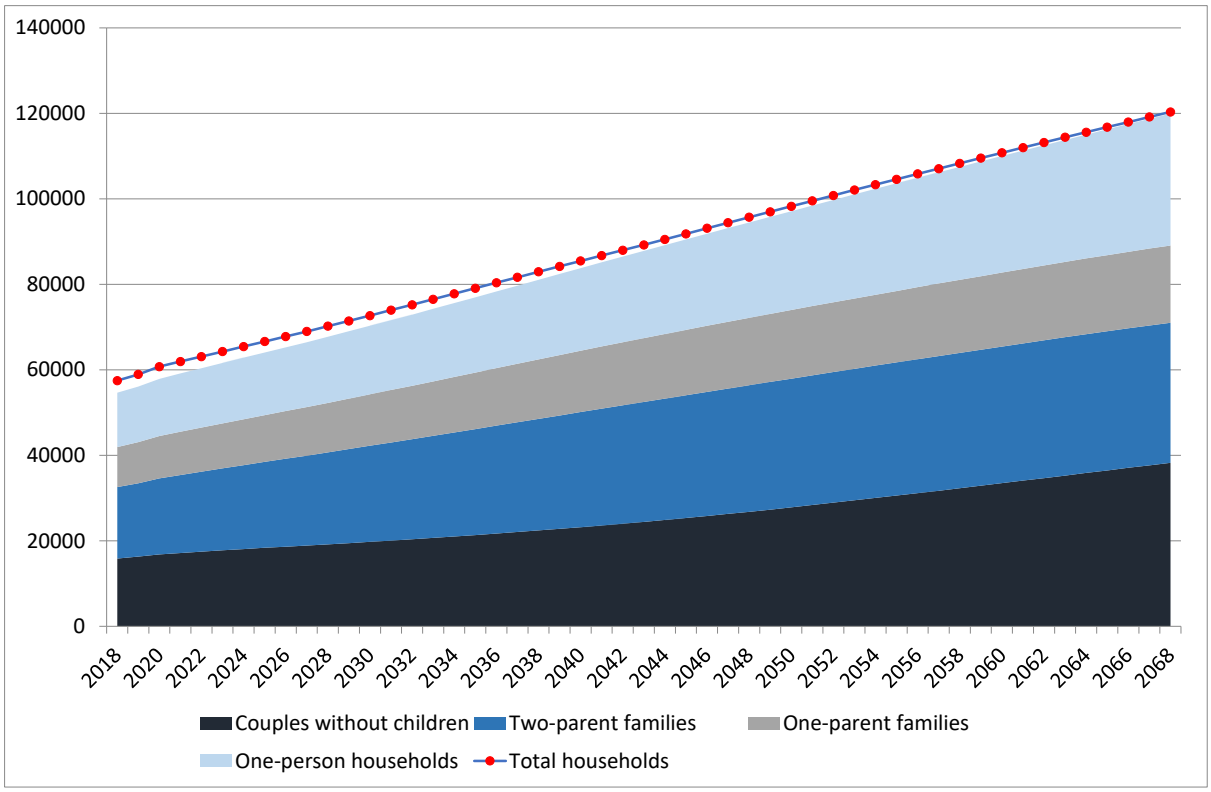
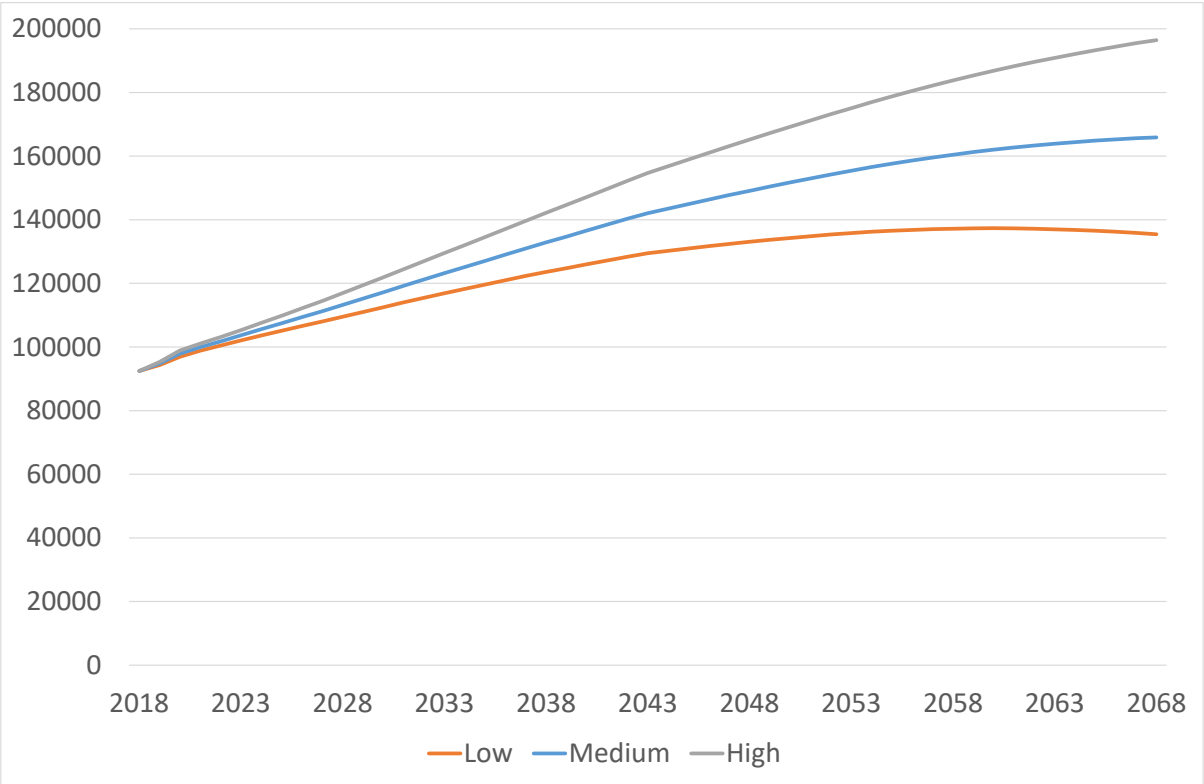


Figure 41: Labour force projections for Hamilton City, 2018-2068



4.6 Population, Family and Household, and Labour Force Projections for Waipā District

Figure 42 presents the 2018-base population projections for Waipā District to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for Waipā District is 55,000. Under the medium-variant population projection scenario, the population increases throughout the projection period, reaching 77,090 in 2068. The medium-variant projection shows lower growth than the recent experience of Waipā District, but this reflects the much lower projection international migration flows. The annualised projected population growth over the period 2018-2038 of 0.89% per year is substantially lower than the 1.65% annualised growth experienced over the period 1996-2018, again reflecting the much lower projected international migration. Under the low-variant scenario, the population increases throughout the projection period, reaching 62,549 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 91,836 in 2068. In comparison, the SNZ 2018-base medium-variant projection is slightly lower than the Waikato medium-variant projection, with the SNZ high-variant somewhat higher than the Waikato high-variant projection, and the SNZ low-variant very similar to the Waikato low-variant projection.

Figure 43 disaggregates the components of population change for Waipā District over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is positive throughout the projection period. This is made up of net inward internal migration (more in-migration from the rest of New Zealand than out-migration) and natural increase (more births than deaths) up to 2038 (after which there is natural decrease – more deaths than births), and net outward international migration (more out-migration to overseas than in-migration from overseas). The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration flows.

Figure 42: Population projections for Waipā District, 2018-2068

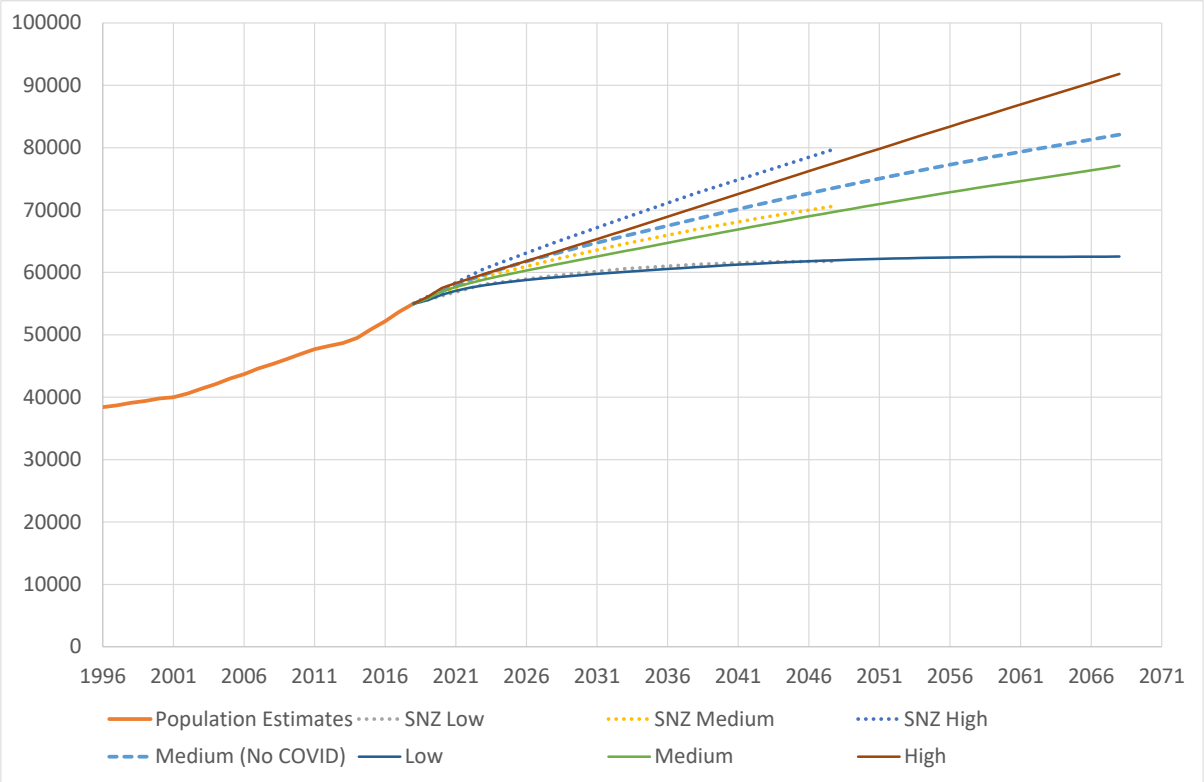


Figure 43: Projected components of population change for Waipā District, medium-variant projection, 2019-2068

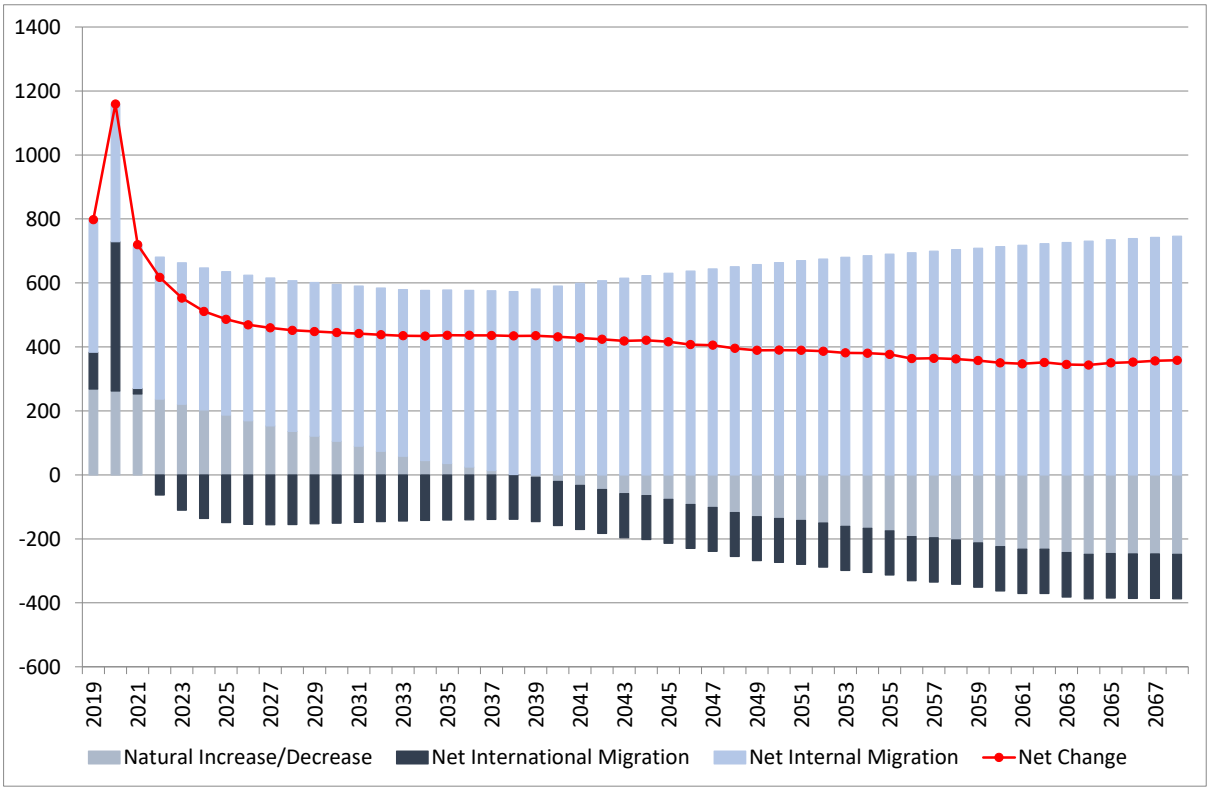


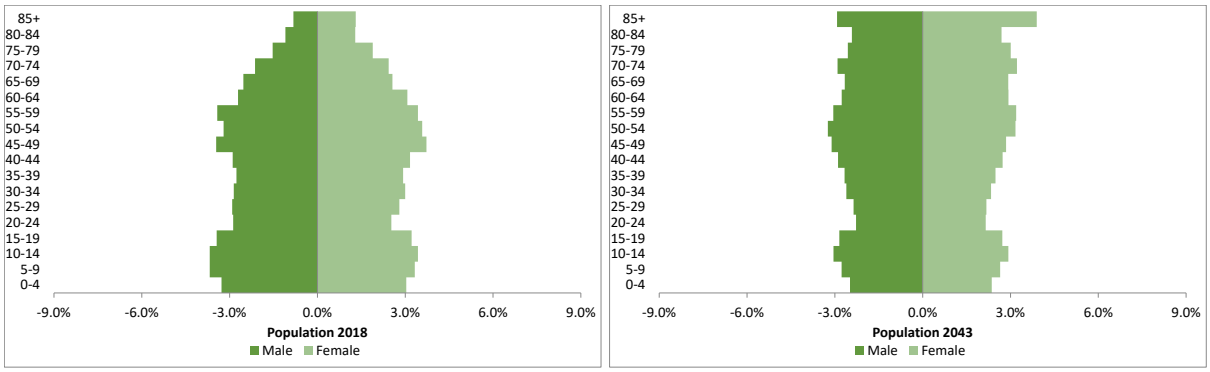
Table 7 summarises the largest sources and destinations of inward and outward internal migrants respectively, for Waipā District in 2043 (being the middle of the projection period) for the medium-variant population projection. The largest flows in and out of the district can be attributed to Hamilton City, Auckland, and Waikato District, all of which are large population centres in close proximity to Waipā District. The inward migration from each of those TAs is larger than the outward flow, suggesting that the nearby cities are projected to be a substantial source of net internal migration for Waipā District.

Table 7: Top sources and destinations of internal migration for Waipā District, 2043

Source	**Number**		**Destination**	**Number**
Hamilton	1254		Hamilton	1089
Auckland	953		Auckland	475
Waikato	229		Waikato	187
Tauranga	153		Tauranga	166
Matamata-Piako	144		Matamata Piako	143
Rotorua	85		Rotorua	79
South Waikato	73		Western Bay of Plenty	66
Otorohanga	64		South Waikato	66
Western Bay of Plenty	59		Otorohanga	58
Taupō	43		Christchurch	46

The age structure of Waipā District is moderately old compared with other TAs in the Waikato, but ages relatively quickly, as shown in Figure 44. In 2018, 17.6 percent of the population are aged 65 years and over, and this is projected to increase to 29.2 percent by 2043. This fastest rate of ageing explains the shift from natural increase to natural decrease shown in the previous figure.

Figure 44: Age-sex structure for Waipā District, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for Waipā District is shown in Figure 45. The estimated number of total households in June 2018 is 20,163. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households increasing throughout the projection period, reaching 30,107 in 2068. The number of one-parent and two-parent families increases fairly consistently over the projection period, as does the number of couples without children and one-person households. The low-variant and high-variant family and household projection (by type) for Waipā District are shown in Figures 46 and 47 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households increasing throughout the projection period, reaching 24,811 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 35,446 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

The labour force projections for Waipā District are shown in Figure 48. The estimated labour force in June 2018 is 30,664. In the medium-variant projection, the labour force increases throughout the projection period, reaching 42,918 in 2068. In the low-variant projection, the labour force increases to a peak of 35,417 in 2043 before declining to 34,232 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 51,696 in 2068.

Figure 45: Medium-variant family and household projections for Waipā District, 2018-2068

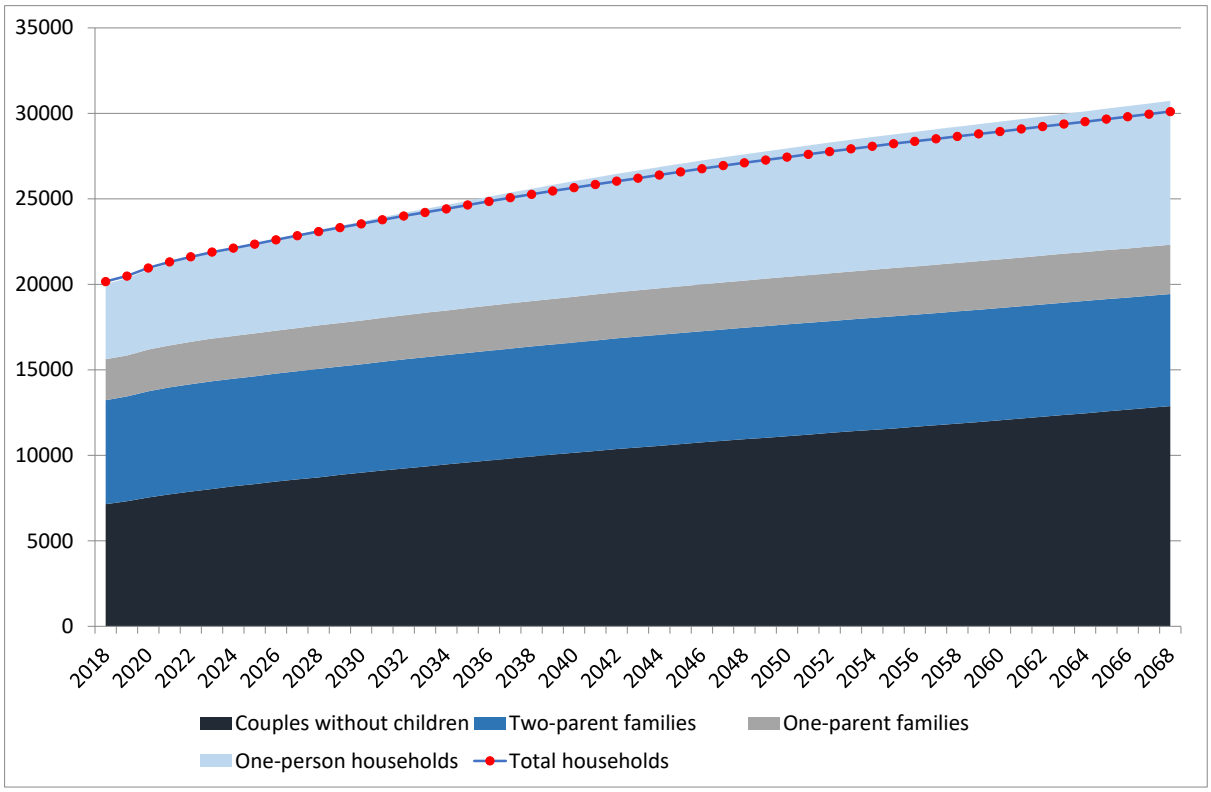


Figure 46: Low-variant family and household projections for Waipā District, 2018-2068

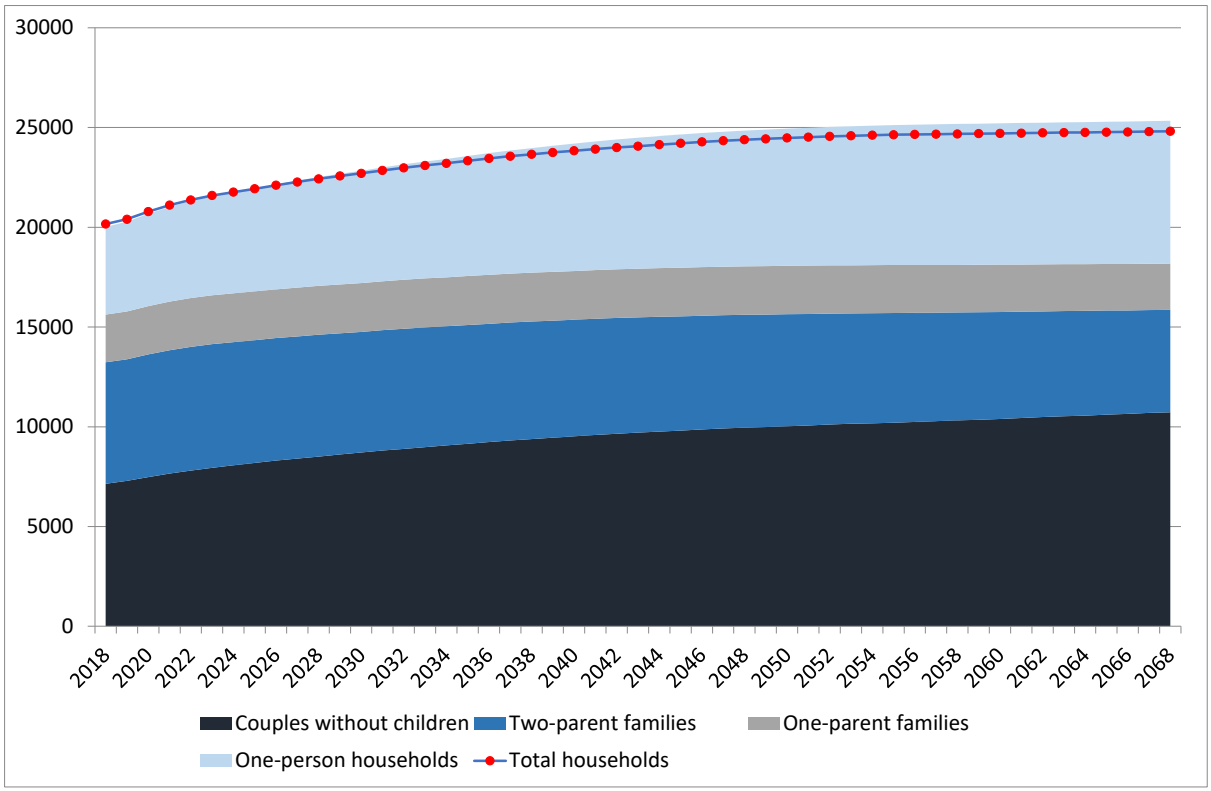


Figure 47: High-variant family and household projections for Waipā District, 2018-2068

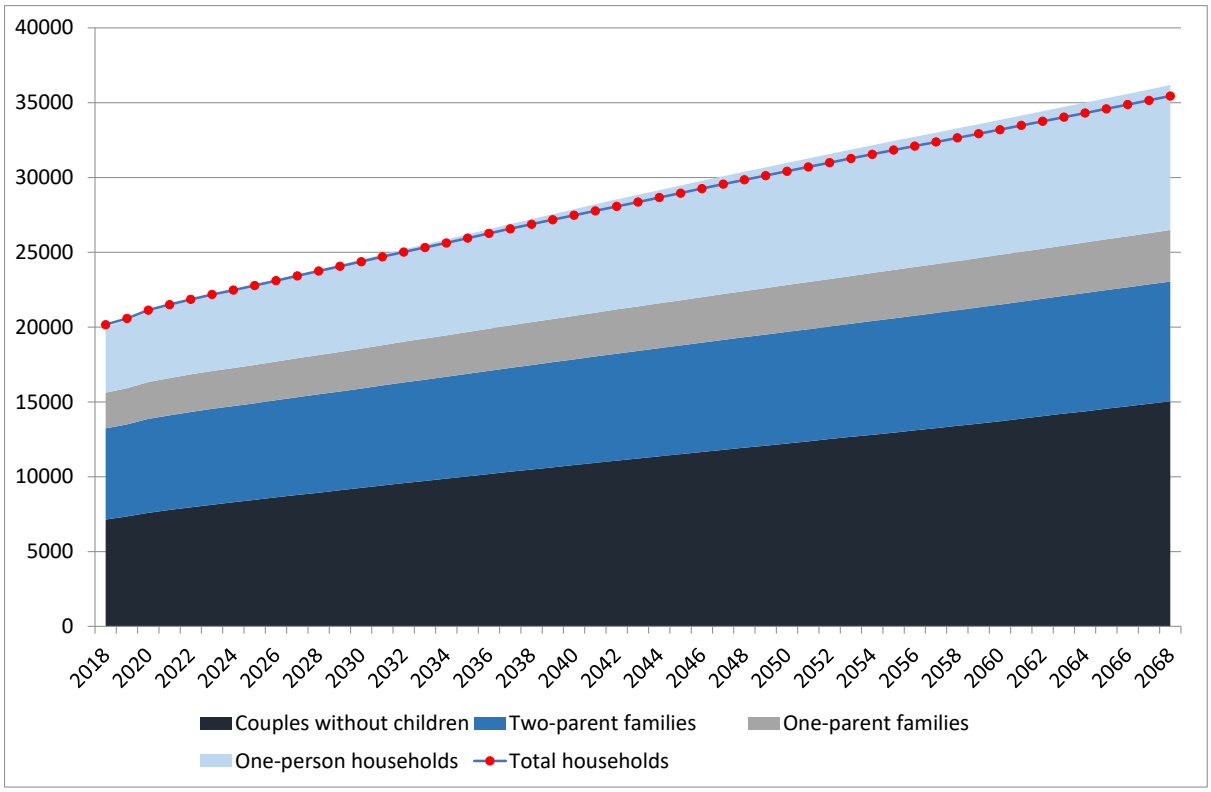
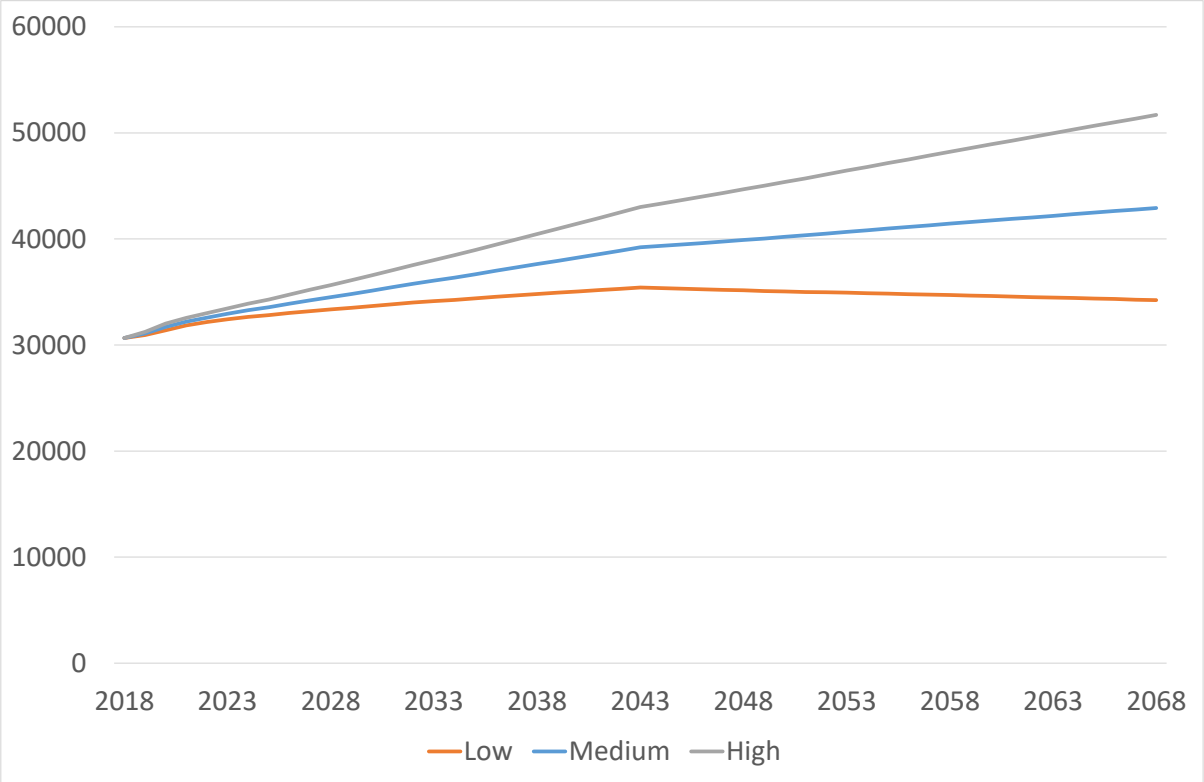


Figure 48: Labour force projections for Waipā District, 2018-2068



4.7 Population, Family and Household, and Labour Force Projections for Otorohanga District

Figure 49 presents the 2018-base population projections for Otorohanga District to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for Otorohanga District is 10,500. Under the medium-variant population projection scenario, the population increases throughout the projection period, reaching 13,968 in 2068. The medium-variant projection shows higher growth than the recent experience of Otorohanga District, more closely reflecting the TA's experience since 2006. The annualised projected population growth over the period 2018-2038 of 0.63% per year is somewhat lower than the 0.24% annualised growth experienced over the period 1996-2018. Under the low-variant scenario, the population increases throughout the projection period, reaching 11,339 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 16,640 in 2068. In comparison, the SNZ 2018-base medium-variant projection is similar to the Waikato medium-variant projection for much of the projection period, but then falls away after the early-2030s, with the SNZ high-variant projection slightly higher than the Waikato high-variant projection, and the low-variant projection similar to the Waikato low-variant projection only until the mid-2020s.

Figure 50 disaggregates the components of population change for Otorohanga District over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is positive throughout the projection period. This is made up of net inward internal migration (more in-migration from the rest of New Zealand than out-migration) and natural increase (more births than deaths), offset by net outward international migration (more out-migration to overseas than in-migration from overseas). The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration flows.

Figure 49: Population projections for Otorohanga District, 2018-2068

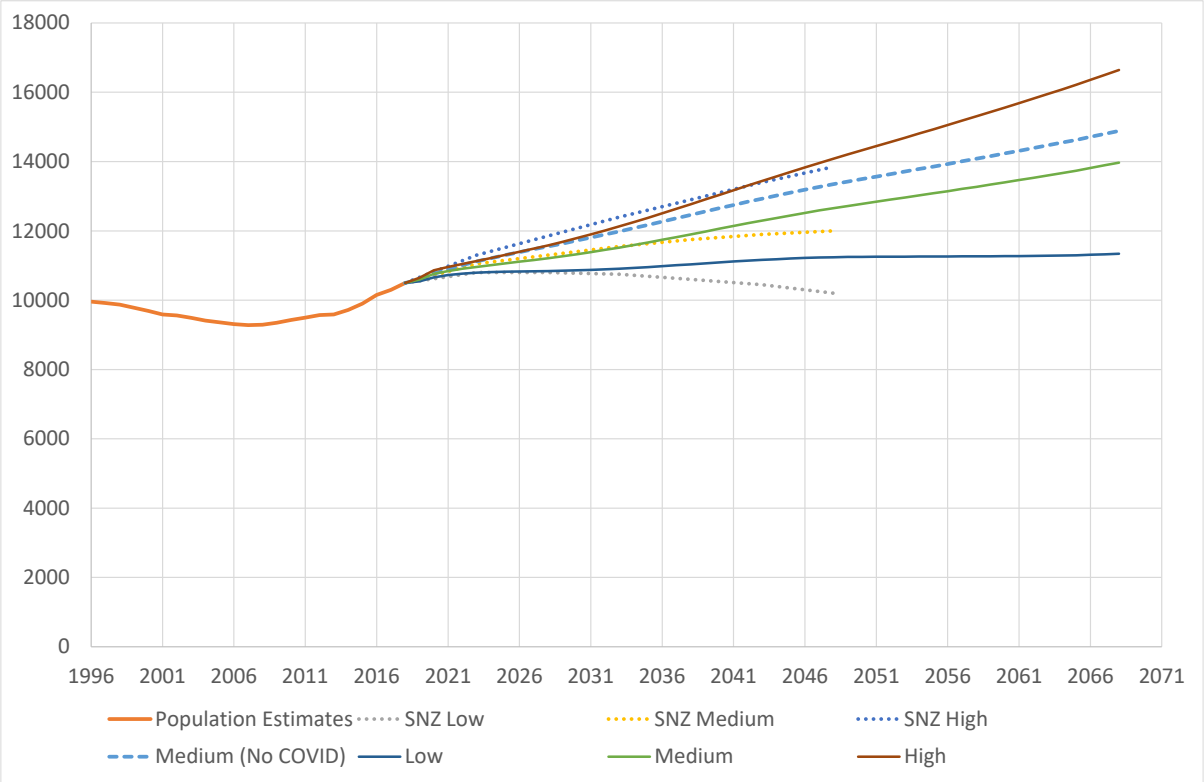


Figure 50: Projected components of population change for Otorohanga District, medium-variant projection, 2019-2068

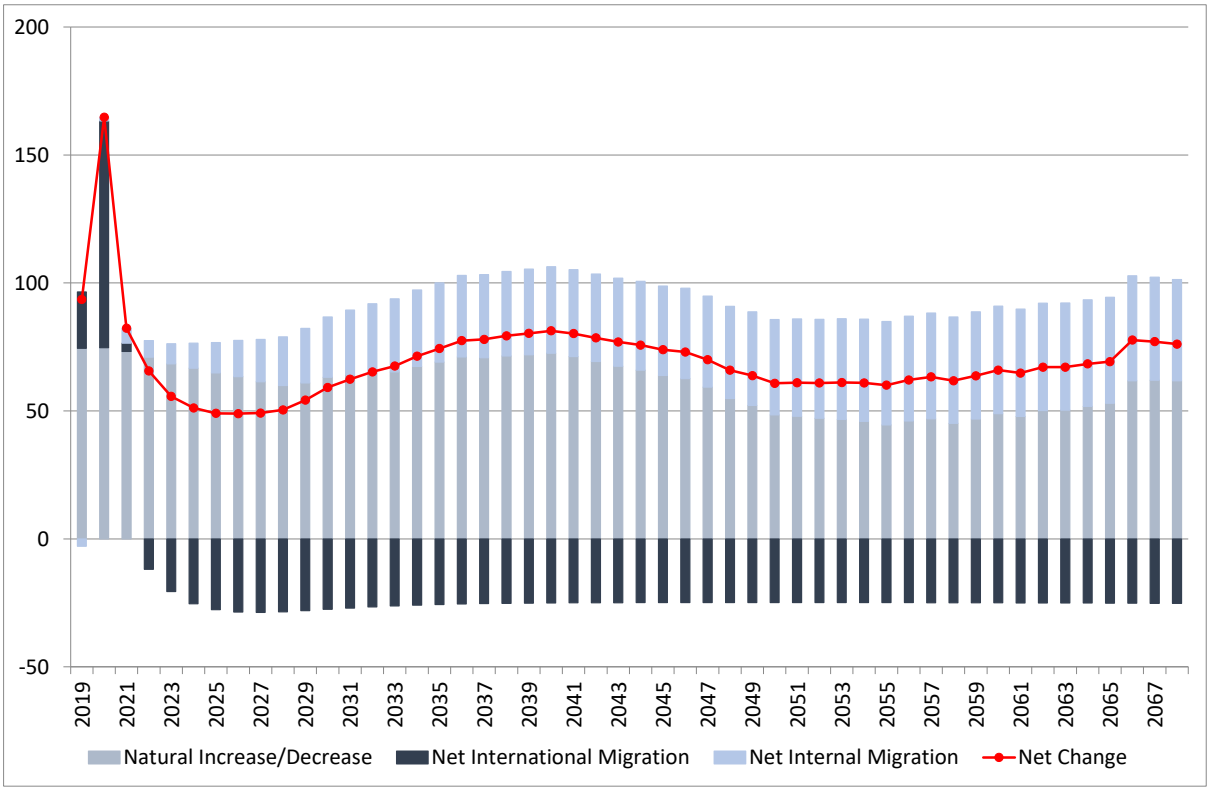


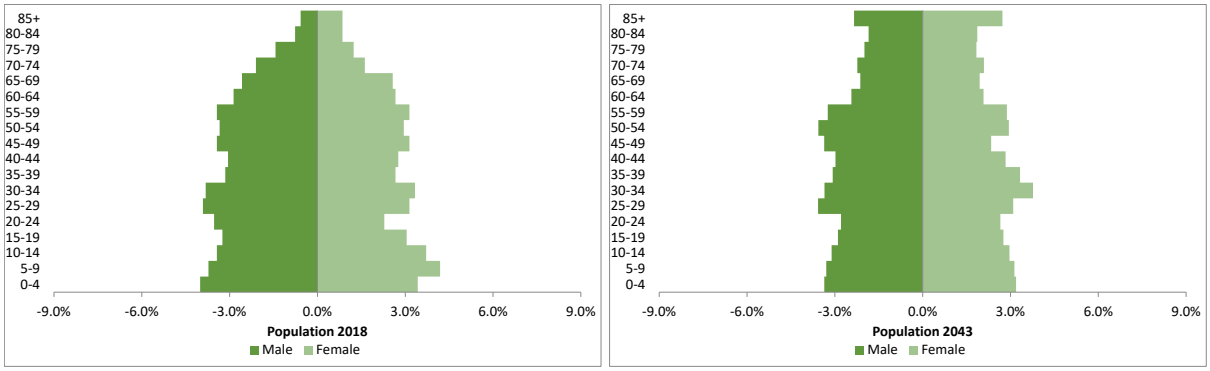
Table 8 summarises the largest sources and destinations of inward and outward internal migrants respectively, for Otorohanga District in 2043 (being the middle of the projection period) for the medium-variant population projection. The largest flows in and out of the district can be attributed to Auckland, Hamilton City, and Waipā Distict, all of which are large population centres in relatively close proximity to Otorohanga District. The inward migration from Auckland and Hamilton City are larger than the outward flows, suggesting that Auckland and Hamilton City are projected to be a substantial source of net internal migration for Otorohanga District. In contrast, the outward migration is larger than the inward flow for Waipā District, suggesting that Otorohanga District is a net donor of migrants to Waipā District

Table 8: Top sources and destinations of internal migration for Otorohanga District, 2043

Source	**Number**		**Destination**	**Number**
Auckland	171		Auckland	94
Hamilton	70		Hamilton	68
Waipā	58		Waipā	64
Waikato	34		Waikato	31
Tauranga	25		Tauranga	30
Taupō	18		Taupō	21
Rotorua	16		Rotorua	17
South Waikato	14		South Waikato	14
Waitomo	12		Waitomo	13
Matamata-Piako	10		Western Bay of Plenty	12

The age structure of Otorohanga District is amongst the most youthful in the Waikato Region and remains relatively young, as shown in Figure 51. In 2018, 14.6 percent of the population are aged 65 years and over, and this is projected to slightly increase to 21.0 percent by 2043. This slow rate of population ageing explains why the district remains in natural increase throughout the projection period, as shown in the previous figure.

Figure 51: Age-sex structure for Otorohanga District, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for Otorohanga District is shown in Figure 52. The estimated number of total households in June 2018 is 3,632. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households increasing throughout the projection period, reaching 5,285 in 2068. The number of one-parent and two-parent families increases fairly consistently over the projection period, as does the number of couples without children and one-person households. The low-variant and high-variant family and household projection (by type) for South Waikato District are shown in Figures 53 and 54 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households increasing throughout the projection period, reaching 4,369 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 6,211 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

The labour force projections for Otorohanga District are shown in Figure 55. The estimated labour force in June 2018 is 5,742. In the medium-variant projection, the labour force increases throughout the projection period, reaching 8,148 in 2068. In the low-variant projection, the labour force increases throughout the projection period, reaching 6,593 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 9,721 in 2068.

Figure 52: Medium-variant family and household projections for Otorohanga District, 2018-2068

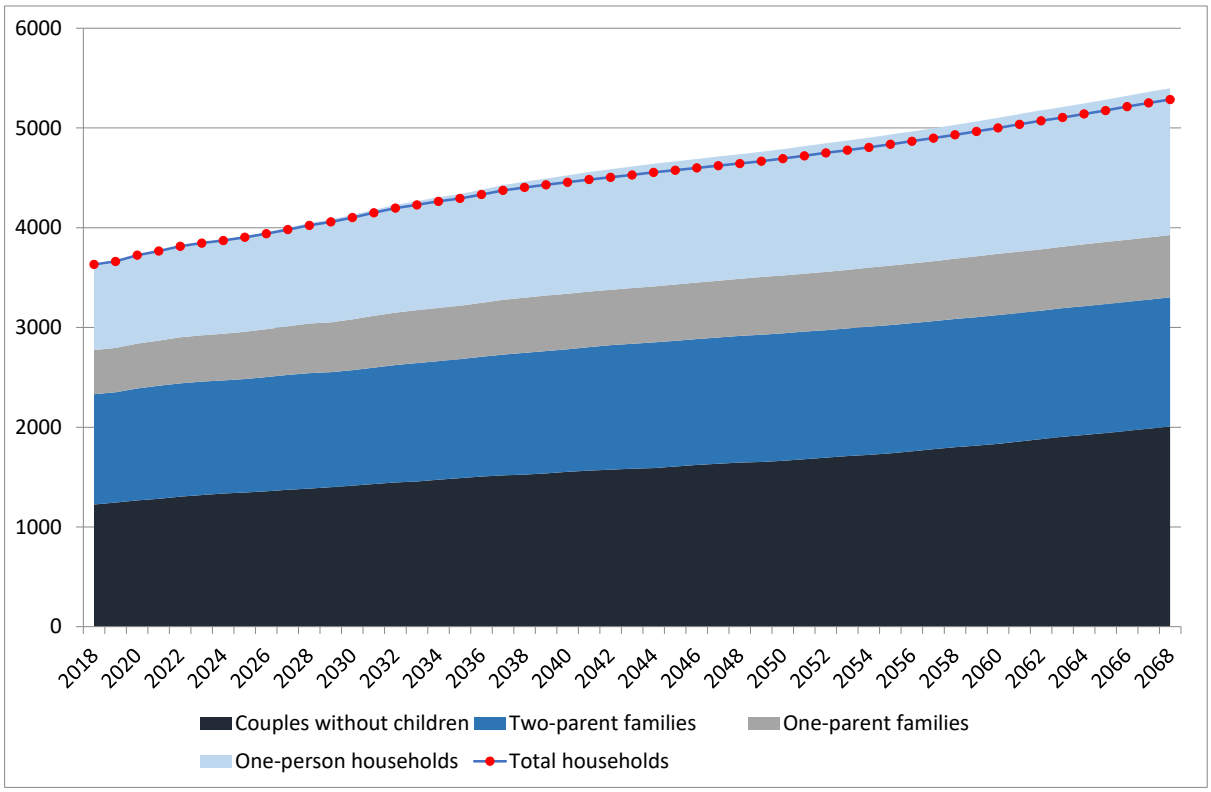


Figure 53: Low-variant family and household projections for Otorohanga District, 2018-2068

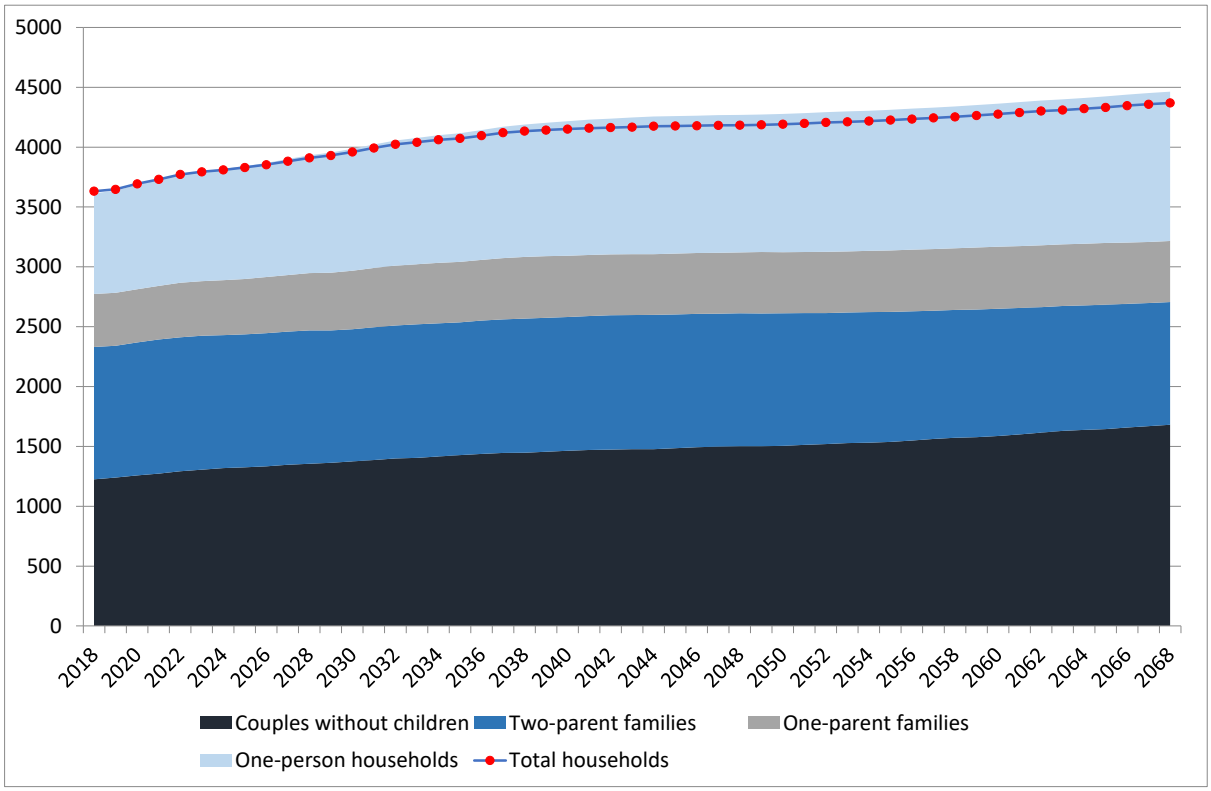


Figure 54: High-variant family and household projections for Otorohanga District, 2018-2068

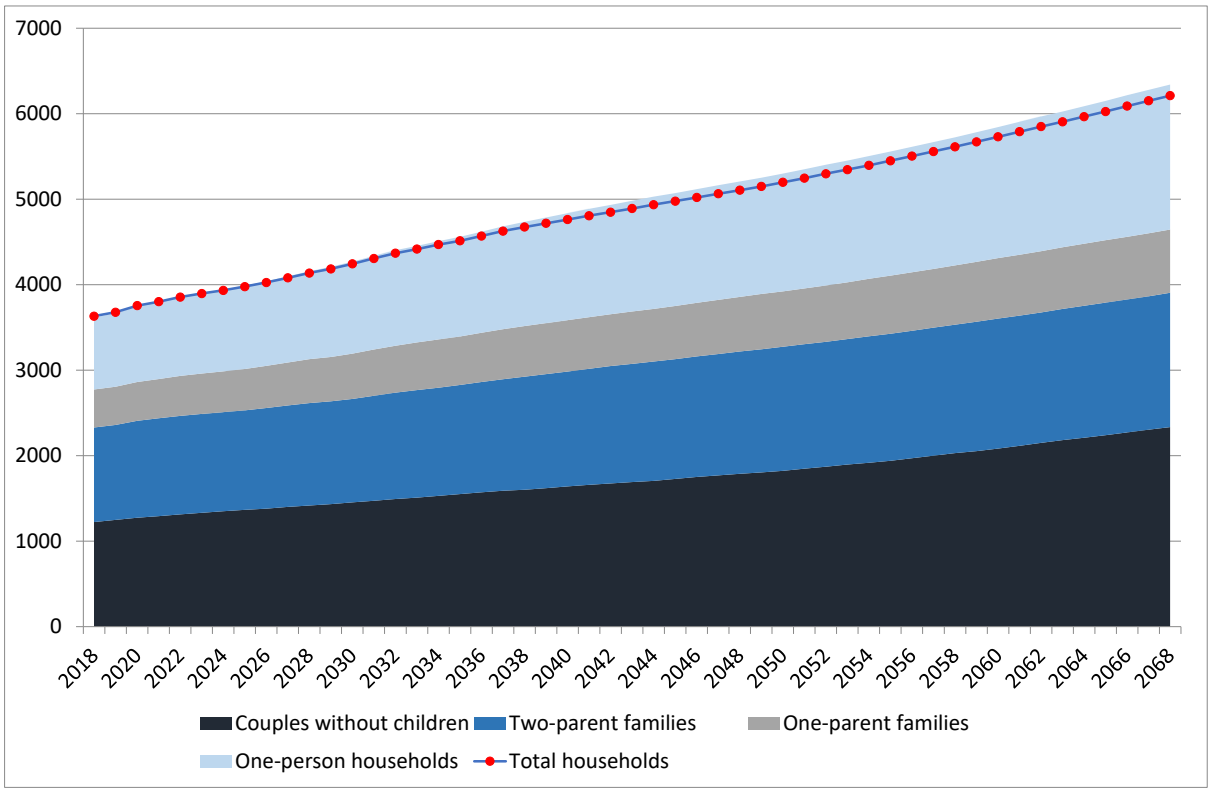
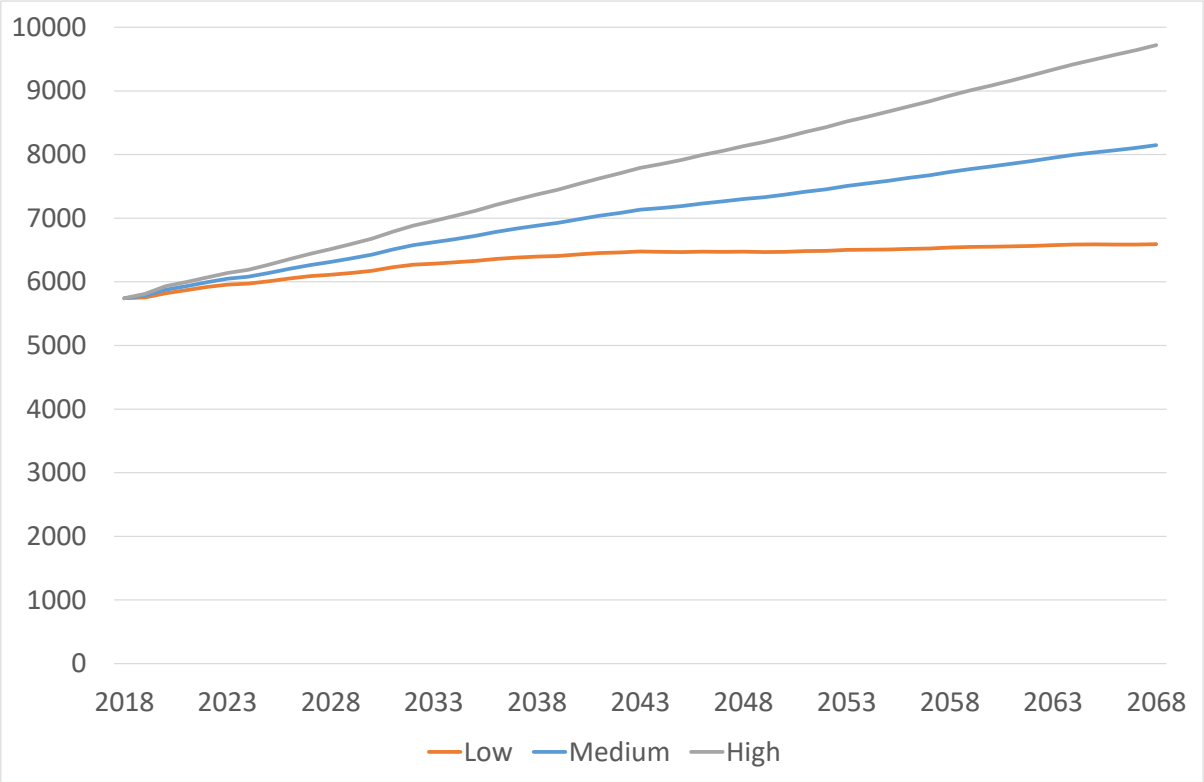


Figure 55: Labour force projections for Otorohanga District, 2018-2068



4.8 Population, Family and Household, and Labour Force Projections for South Waikato District

Figure 56 presents the 2018-base population projections for South Waikato District to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for South Waikato District is 24,900. Under the medium-variant population projection scenario, the population initially declines, reaching a trough of 24,750 in 2030, then increases throughout the remainder of the projection period, reaching 28,617 in 2068. The medium-variant projection shows higher growth than the recent experience of South Waikato District, more closely reflecting the TA's experience since 2006. The annualised projected population growth over the period 2018-2038 of 0.04% per year is somewhat higher than the -0.18% annualised growth experienced over the period 1996-2018. Under the low-variant scenario, the population decreases to a trough of 22,989 in 2061, before increasing to eventually reach 23,066 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 34,289 in 2068. In comparison, the SNZ 2018-base medium-variant and high-variant projections are higher than the Waikato high-variant projection for much of the projection period, but then the SNZ medium-variant projection falls away after the late-2030s, with the SNZ low-variant projection is similar to the Waikato medium-variant projection until the mid-2030s, before falling away.

Figure 57 disaggregates the components of population change for South Waikato District over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is initially negative, but then becomes positive from 2031, and remains positive throughout the remainder of the projection period. This is made up of natural increase (more births than deaths), offset by net outward international migration (more out-migration to overseas than in-migration from overseas). Net outward internal migration (more out-migration to the rest of New Zealand than in-migration) gradually reverses, to become net inward internal migration from 2038, as the district benefits from some spill-over growth from the rest of the region. The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration flows.

Figure 56: Population projections for South Waikato District, 2018-2068

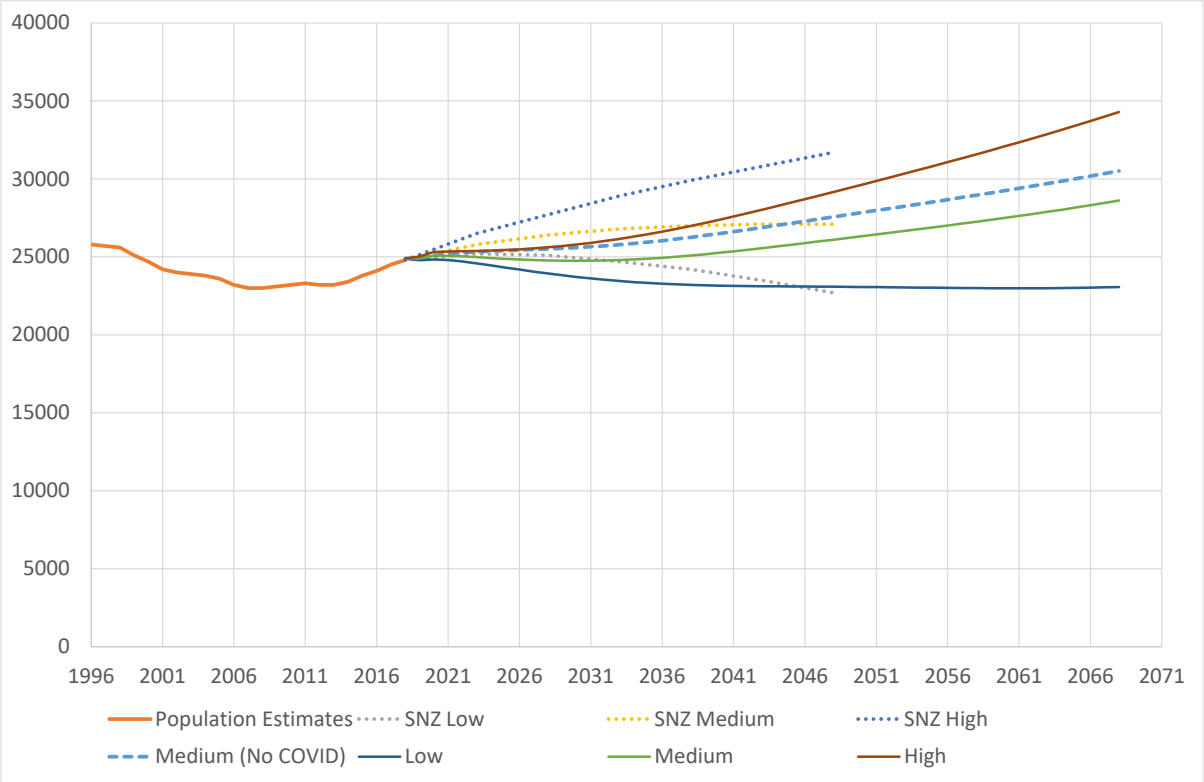


Figure 57: Projected components of population change for South Waikato District, medium-variant projection, 2019-2068

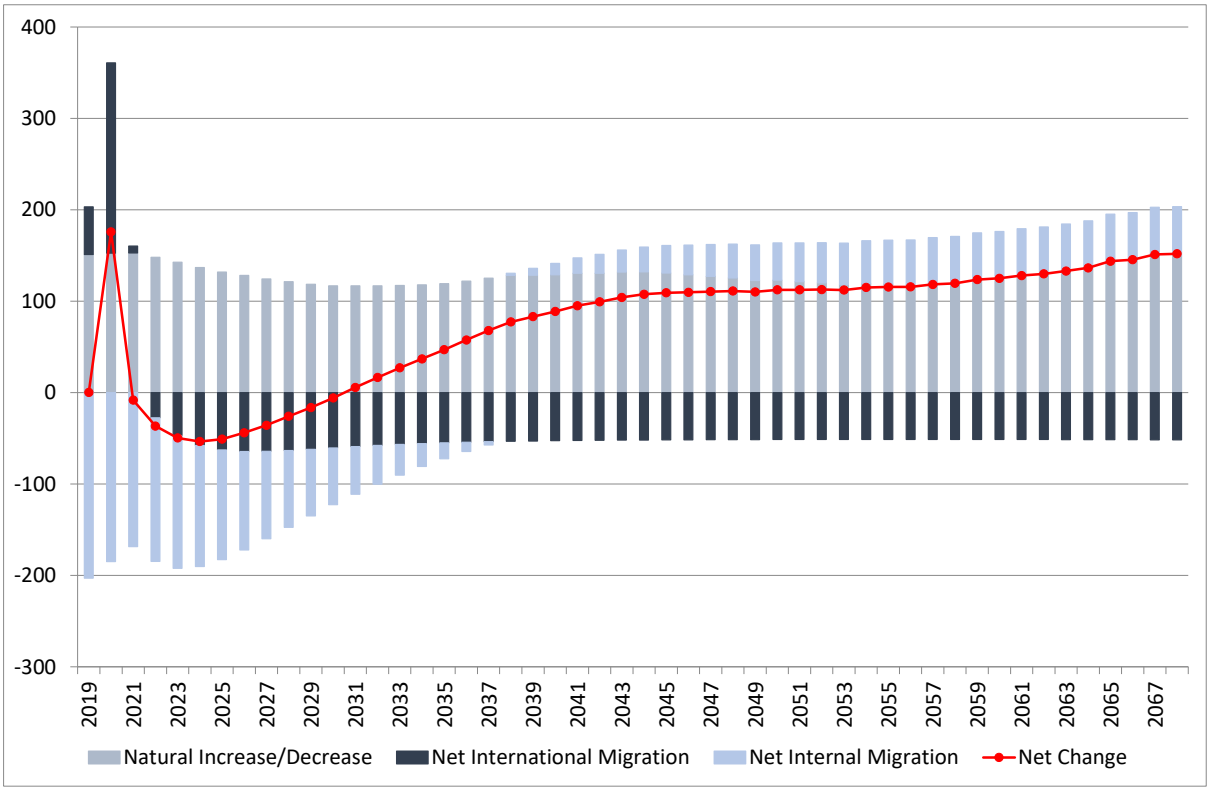


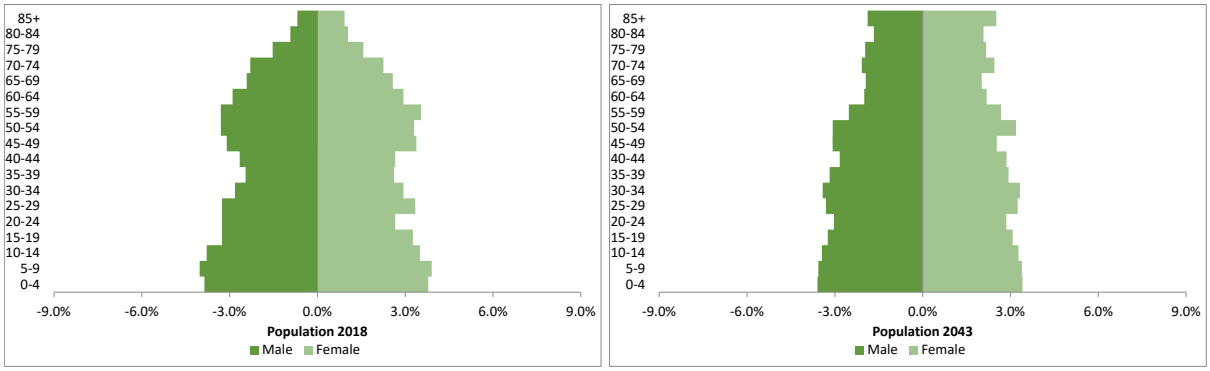
Table 9 summarises the largest sources and destinations of inward and outward internal migrants respectively, for South Waikato District in 2043 (being the middle of the projection period) for the medium-variant population projection. The largest flows in and out of the district can be attributed to Auckland, Rotorua District, Hamilton City, and Tauranga City, all of which are large population centres in relatively close proximity to South Waikato District. The inward migration from Auckland and Hamilton City are larger than the outward flows, suggesting that Auckland and Hamilton City are projected to be a substantial source of net internal migration for South Waikato District. In contrast, the outward migration is larger than the inward flow for Rotorua District and Tauranga City, suggesting that South Waikato District is a net donor of migrants to Rotorua District and Tauranga City.

Table 9: Top sources and destinations of internal migration for South Waikato District, 2043

Source	**Number**		**Destination**	**Number**
Auckland	270		Auckland	150
Rotorua	117		Rotorua	121
Hamilton	89		Tauranga	87
Tauranga	72		Hamilton	86
Waipā	66		Waipā	73
Western Bay of Plenty	47		Western Bay of Plenty	59
Taupō	44		Taupō	51
Matamata Piako	37		Matamata Piako	41
Waikato	27		Waikato	25
Wellington	17		Christchurch	19

The age structure of South Waikato District is moderately old compared with other TAs in the Waikato, but does not age as rapidly as other populations in the region, as shown in Figure 58. In 2018, 16.2 percent of the population are aged 65 years and over, and this is projected to slightly increase to 20.8 percent by 2043. This slow rate of population ageing explains why the district remains in natural increase throughout the projection period, as shown in the previous figure.

Figure 58: Age-sex structure for South Waikato District, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for South Waikato District is shown in Figure 59. The estimated number of total households in June 2018 is 8,815. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households initially declining, reaching a trough of 8,807 in 2027, then increases throughout the remainder of the projection period, reaching 10,504 in 2068. The number of one-parent families increases fairly consistently over the projection period, as does the number of couples without children and one-person households. The number of two-parent families remains fairly constant over time. The low-variant and high-variant family and household projection (by type) for South Waikato District are shown in Figures 60 and 61 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households initially declining, reaching a trough of 8,449 in 2052, then increases throughout the remainder of the projection period, reaching 8,639 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 12,397 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

Figure 59: Medium-variant family and household projections for South Waikato District, 2018-2068

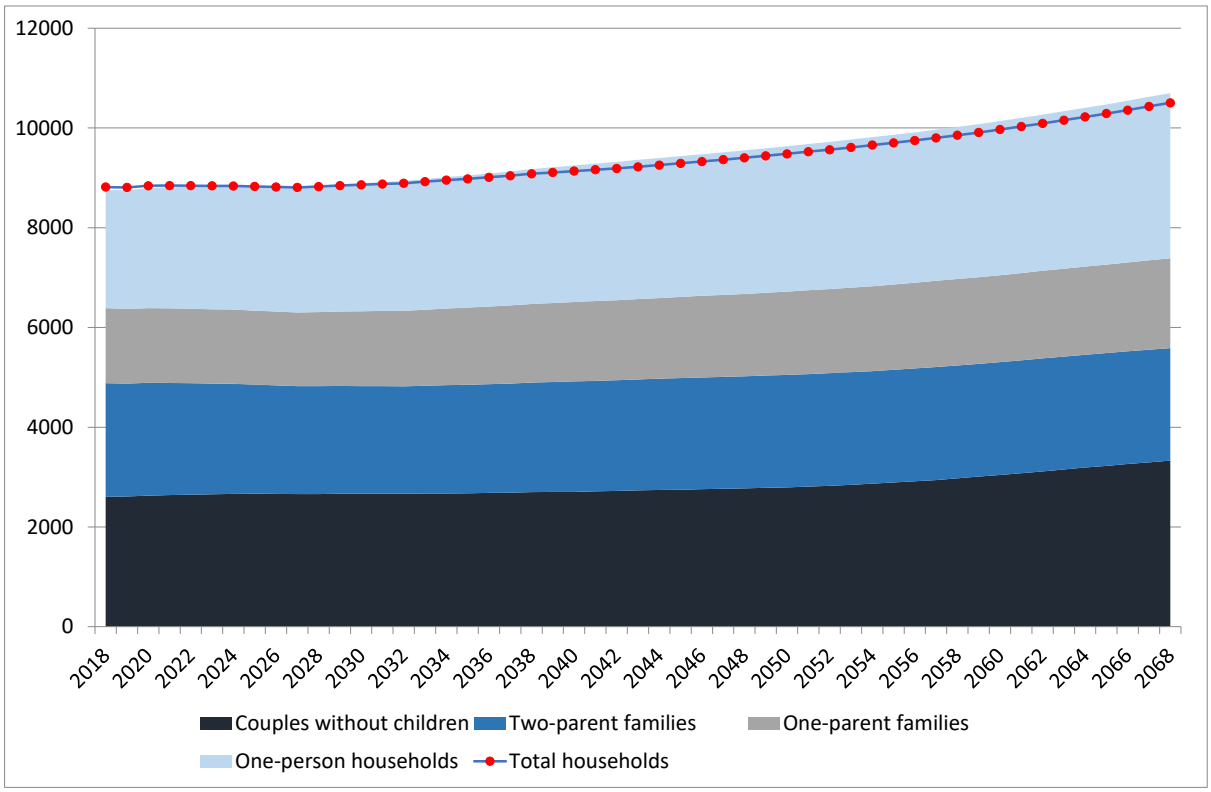


Figure 60: Low-variant family and household projections for South Waikato District, 2018-2068

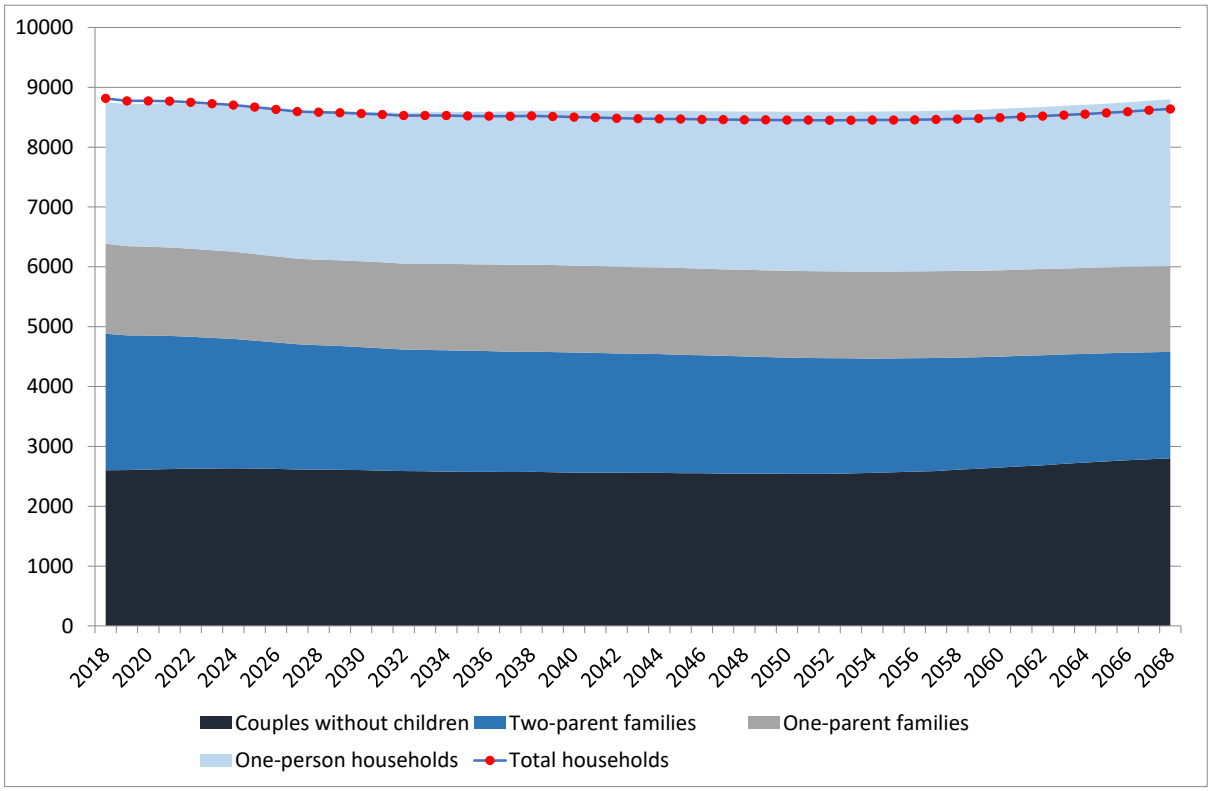
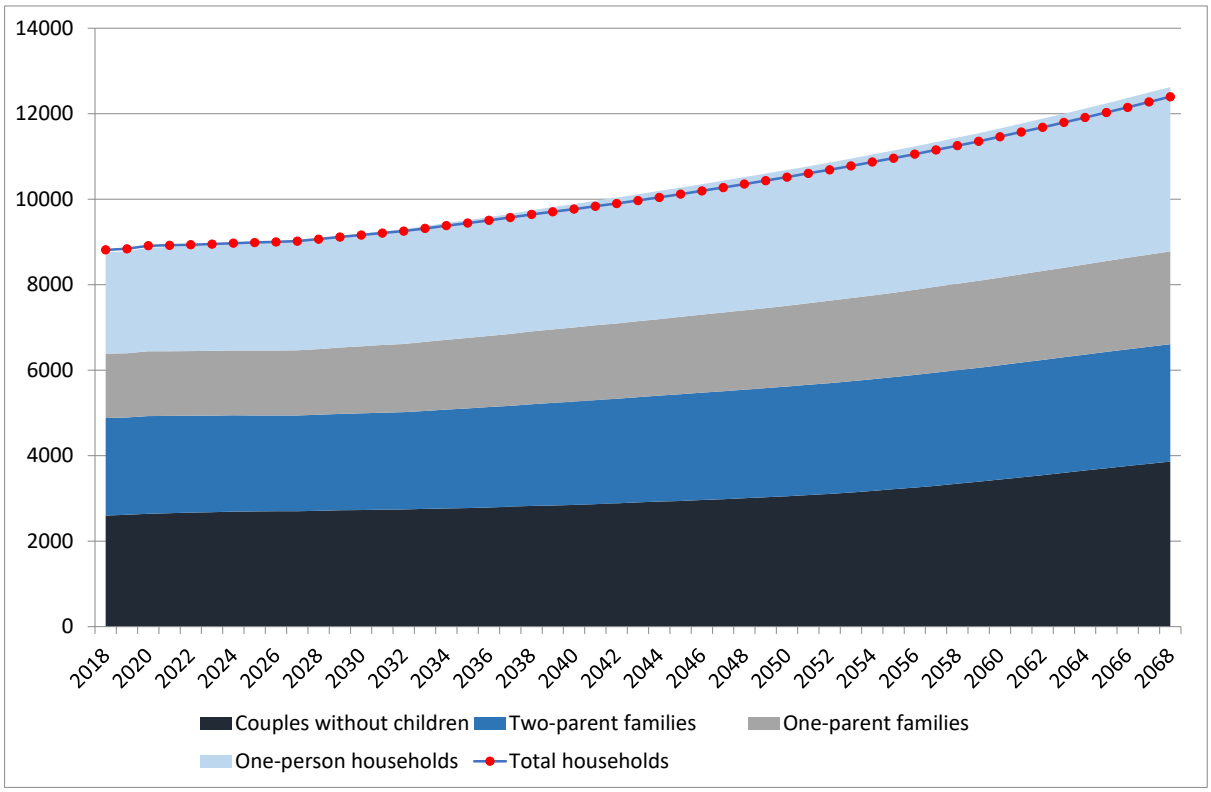
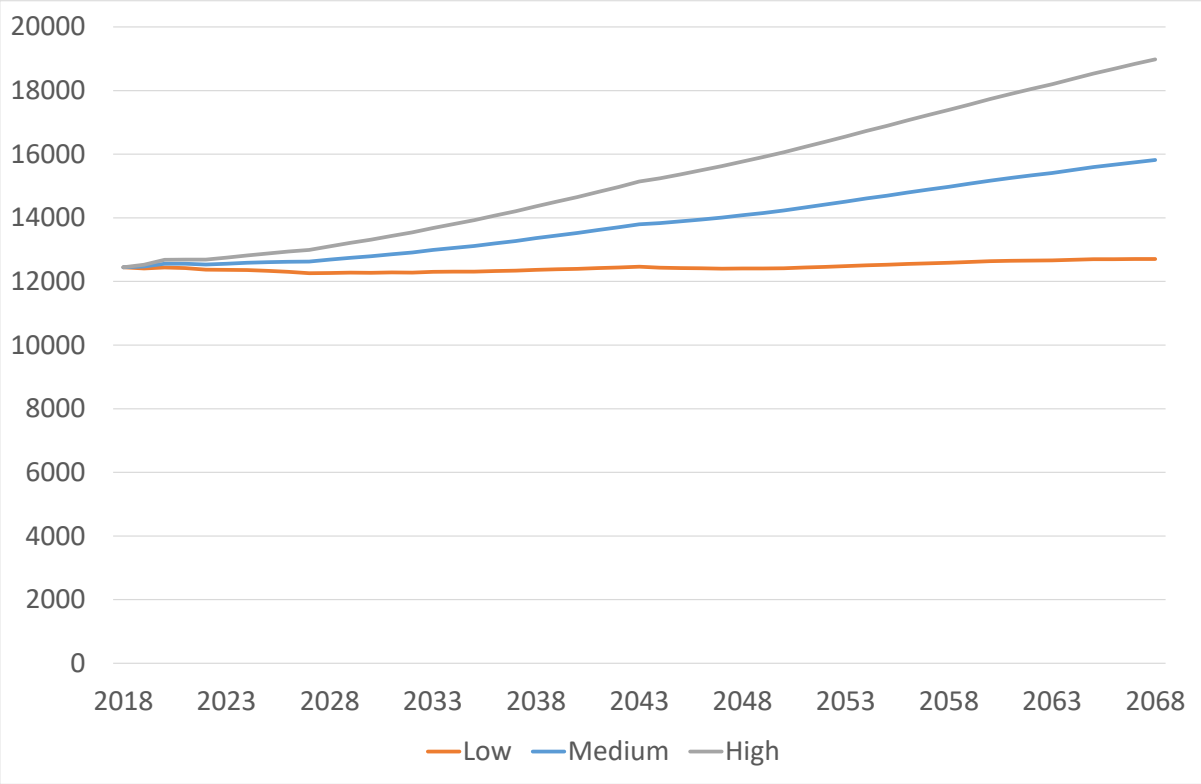


Figure 61: High-variant family and household projections for South Waikato District, 2018-2068



The labour force projections for South Waikato District are shown in Figure 62. The estimated labour force in June 2018 is 12,445. In the medium-variant projection, the labour force increases throughout the projection period, reaching 15,818 in 2068. In the low-variant projection, the labour force initially declines, reaching a trough of 12,261 in 2027, then increases throughout the remainder of the projection period, reaching 12,704 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 18,983 in 2068.

Figure 62: Labour force projections for South Waikato District, 2018-2068



4.9 Population, Family and Household, and Labour Force Projections for Waitomo District

Figure 63 presents the 2018-base population projections for Waitomo District to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for Waitomo District is 9,630. Under the medium-variant population projection scenario, the population initially declines, reaching a trough of 9,371 in 2034, then increases throughout the remainder of the projection period, reaching 10,384 in 2068. The medium-variant projection shows very similar growth to the recent experience of Waitomo District. The annualised projected population growth over the period 2018-2038 of -0.13% per year is very similar to the -0.17% annualised growth experienced over the period 1996-2018. Under the low-variant scenario, the population decreases to a trough of 8,386 in 2062, before recovering to 8,401 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 12,404 in 2068. In comparison, the SNZ 2018-base medium-variant projection is similar to the Waikato high-variant projection until the early 2030s, before falling away, while the SNZ low-variant

projection is similar to the Waikato low-variant projection until the mid-2030s, before falling away.

Figure 63: Population projections for Waitomo District, 2018-2068

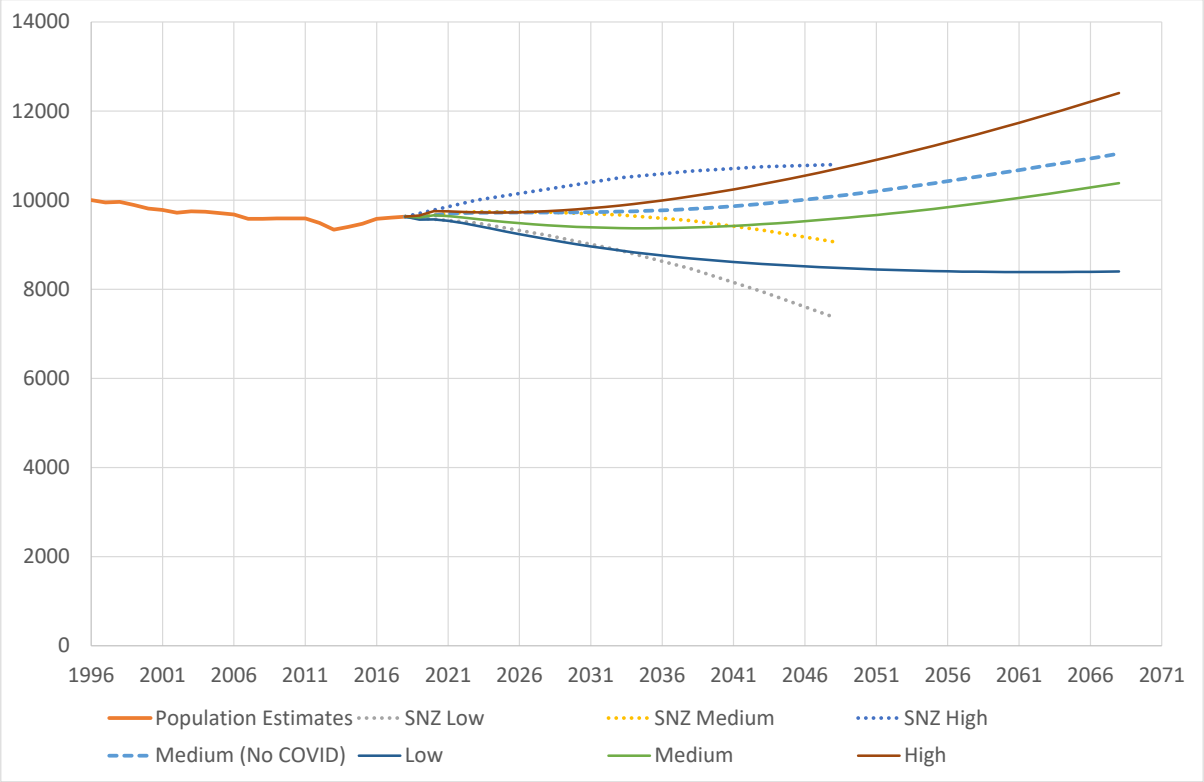


Figure 64 disaggregates the components of population change for Waitomo District over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is initially negative, but then becomes positive from 2036, and remains positive throughout the remainder of the projection period. This is made up of natural increase (more births than deaths), offset by net outward international migration (more out-migration to overseas than in-migration from overseas). Net outward internal migration (more out-migration to the rest of New Zealand than in-migration) gradually reverses, to become net inward internal migration from 2034, as the district benefits from some spill-over growth from the rest of the region. The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration flows.

Figure 64: Projected components of population change for Waitomo District, medium-variant projection, 2019-2068

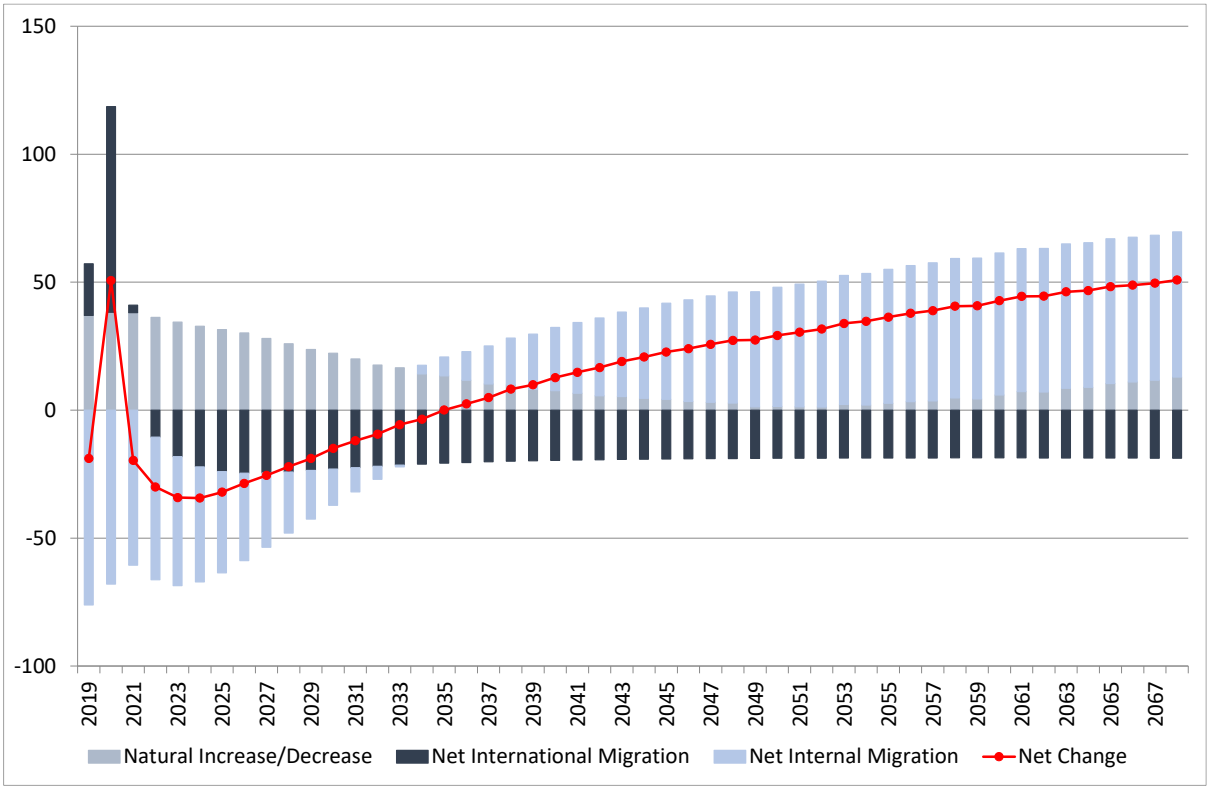


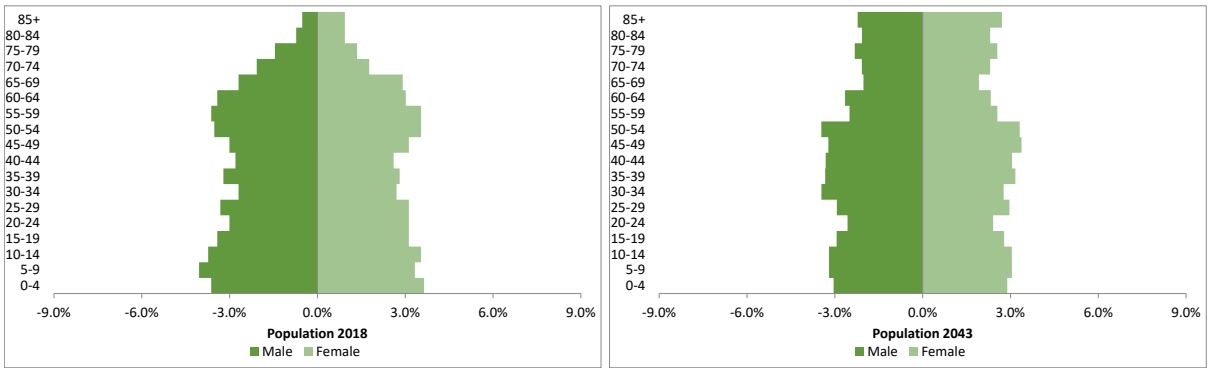
Table 10 summarises the largest sources and destinations of inward and outward internal migrants respectively, for Waitomo District in 2043 (being the middle of the projection period) for the medium-variant population projection. The largest flows in and out of the district can be attributed to Auckland, Hamilton City, and Tauranga City, all of which are large population centres in relatively close proximity to Waitomo District. The inward migration from Auckland and Hamilton City are larger than the outward flows, suggesting that Auckland and Hamilton City are projected to be a substantial source of net internal migration for Waitomo District. In contrast, the outward migration is larger than the inward flow for Tauranga City, suggesting that Waitomo District is a net donor of migrants to Tauranga City.

Table 10: Top sources and destinations of internal migration for Waitomo District, 2043

Source	Number		Destination	Number
Auckland	127		Auckland	68
Hamilton	39		Hamilton	36
Tauranga	16		Tauranga	19
Waipā	15		Taupō	16
Taupō	15		Waipā	16
Waikato	13		New Plymouth	16
Otorohanga	13		Otorohanga	12
New Plymouth	13		Waikato	11
Rotorua	11		Rotorua	11
Wellington	9		Christchurch	9

The age structure of Waitomo District is also amongst the most youthful in the Waikato Region, but ages relatively quickly, as shown in Figure 65. In 2018, 15.4 percent of the population are aged 65 years and over, and this is projected to increase to 22.5 percent by 2043. The initially young age profile explains why the district remains in natural increase throughout the projection period, as shown in the previous figure.

Figure 65: Age-sex structure for Waitomo District, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for Waitomo District is shown in Figure 66. The estimated number of total households in June 2018 is 3,503. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households increases throughout most of the projection period, reaching 4,071 in 2068. The number of one-parent and two-parent families remains fairly constant over the projection period, while the number of couples without children and one-person households

increases throughout the projection period. The low-variant and high-variant family and household projection (by type) for South Waikato District are shown in Figures 67 and 68 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households fluctuating over time on a slightly downward trend, reaching 3,367 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 4,784 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

Figure 66: Medium-variant family and household projections for Waitomo District, 2018-2068

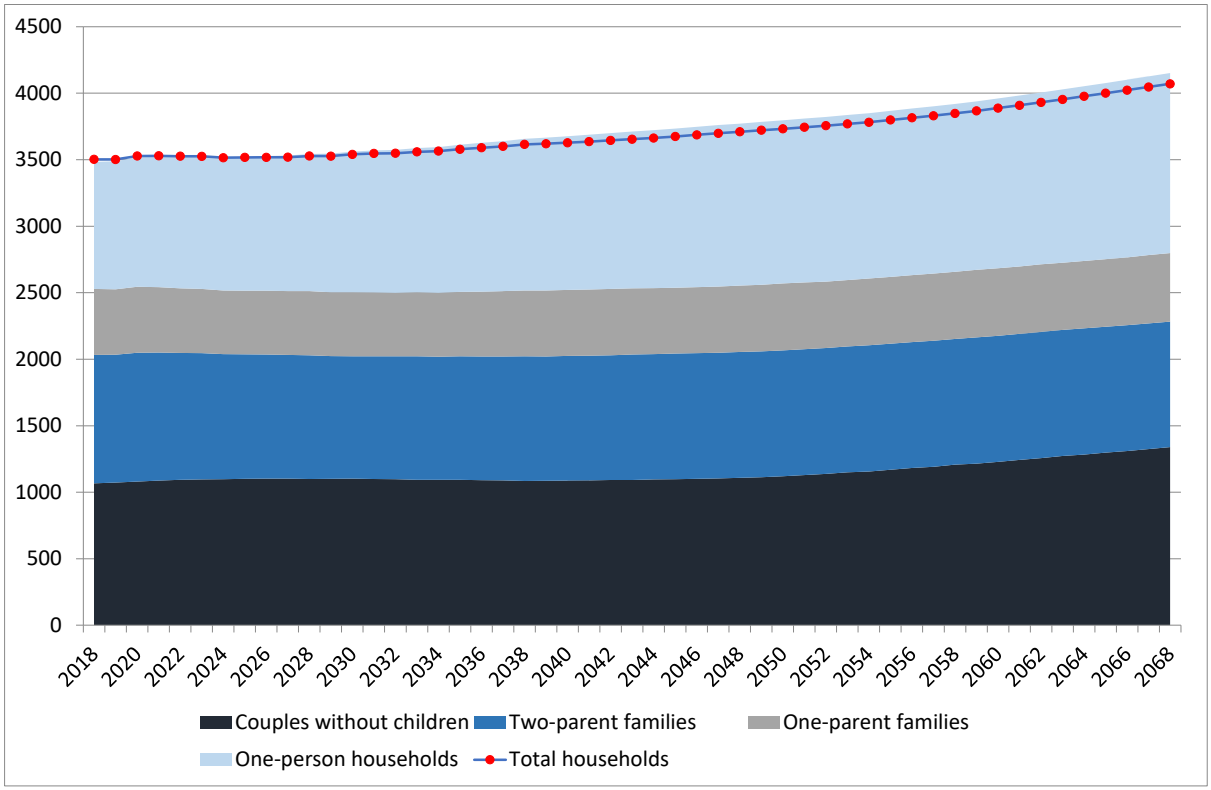


Figure 67: Low-variant family and household projections for Waitomo District, 2018-2068

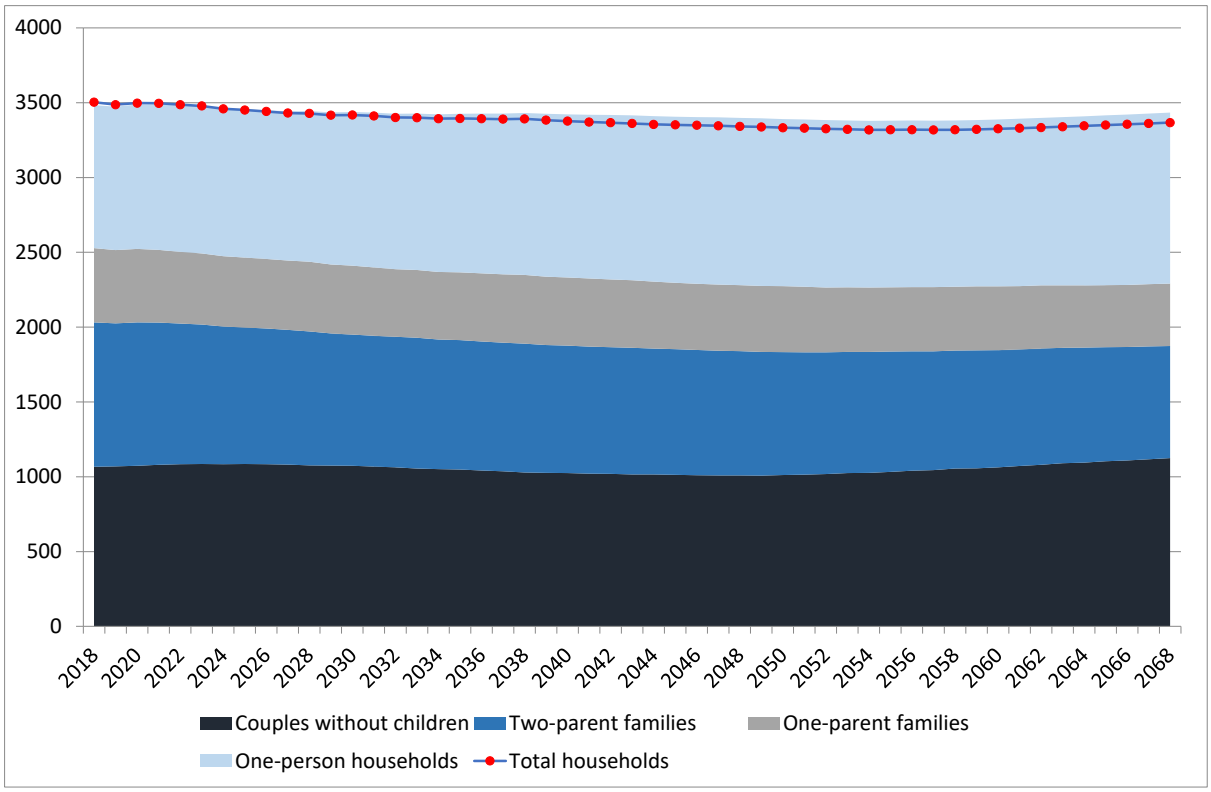
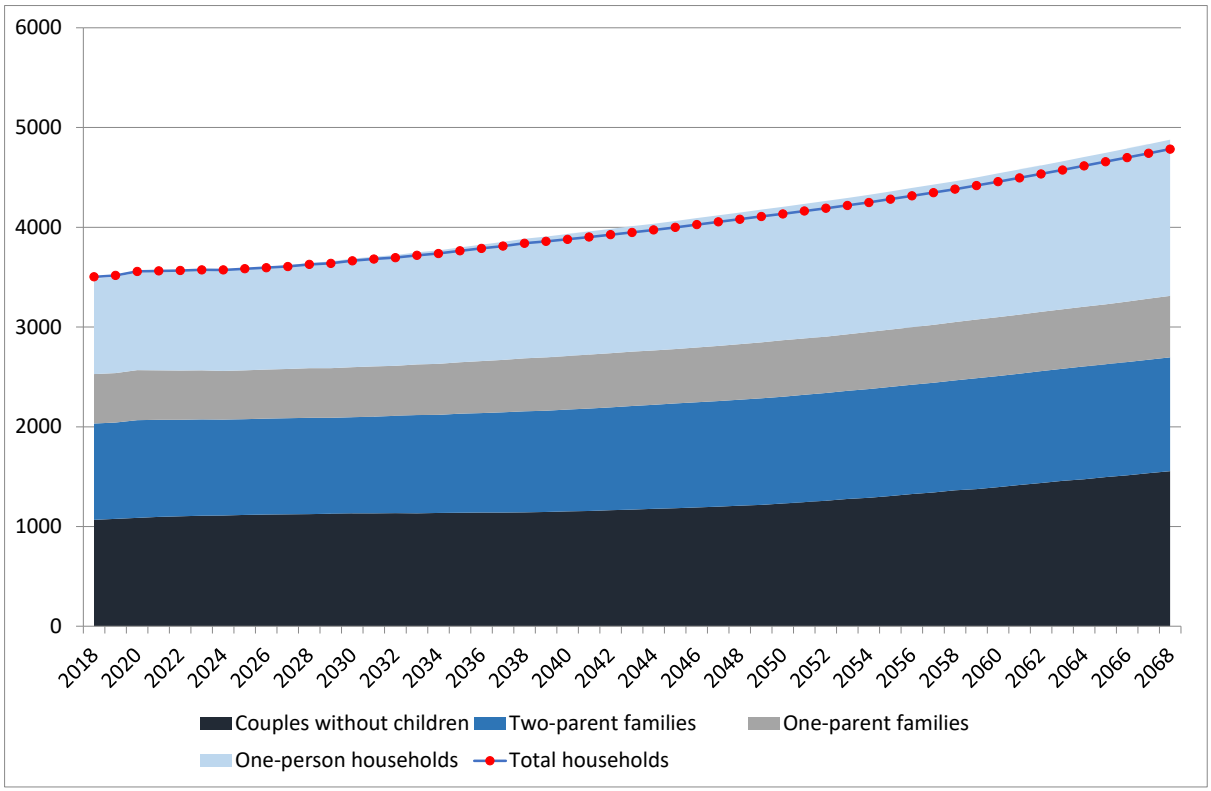
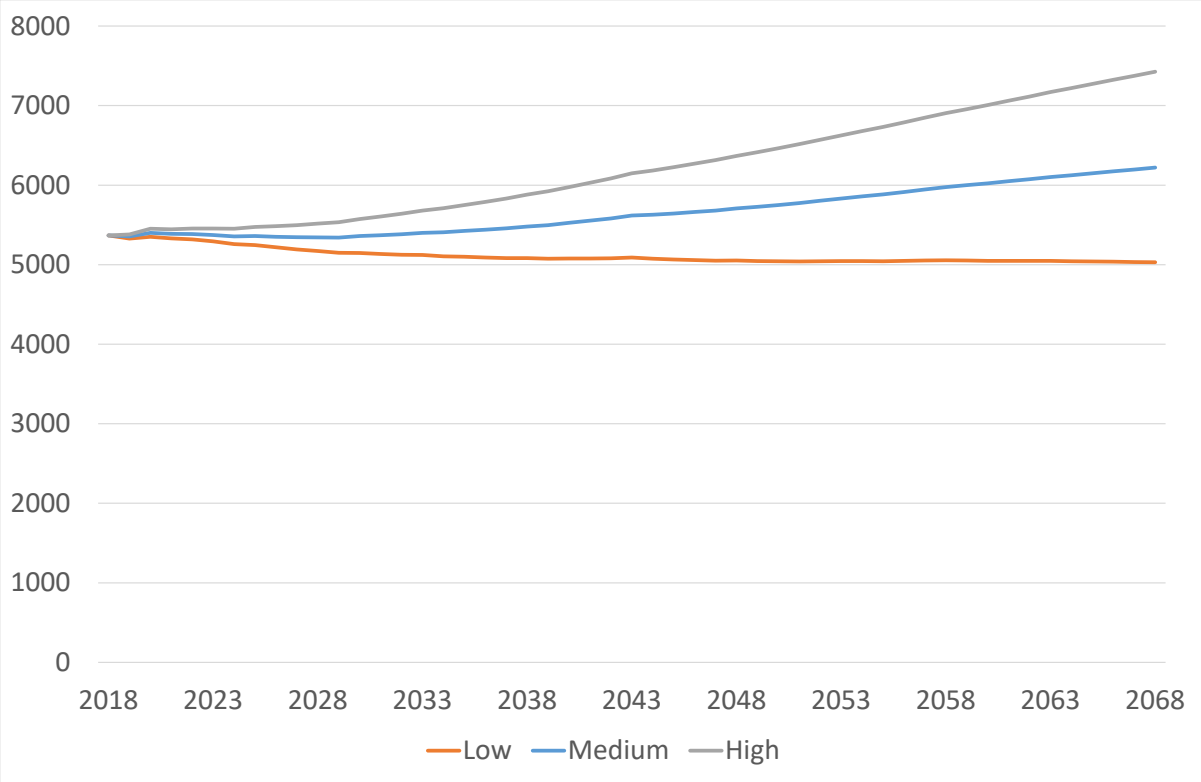


Figure 68: High-variant family and household projections for Waitomo District, 2018-2068



The labour force projections for Waitomo District are shown in Figure 69. The estimated labour force in June 2018 is 5,367. In the medium-variant projection, the labour force initially declines, reaching a trough of 5,341 in 2029, then increases throughout the remainder of the projection period, reaching 6,221 in 2068. In the low-variant projection, the labour force declines throughout of the projection period, reaching 5,030 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 7,427 in 2068.

Figure 69: Labour force projections for Waitomo District, 2018-2068



4.10 Population, Family and Household, and Labour Force Projections for Taupō District

Figure 70 presents the 2018-base population projections for Taupō District to 2068, along with historical population estimates from Statistics New Zealand back to 1996. The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for Taupō District is 38,600. Under the medium-variant population projection scenario, the population increases throughout the projection period, reaching 46,129 in 2068. The medium-variant projection shows much lower

growth than the recent experience of Taupō District, but this reflects the much lower projection international migration flows. The annualised projected population growth over the period 2018-2038 of 0.39% per year is very similar to the 0.91% annualised growth experienced over the period 1996-2018. Under the low-variant scenario, the population decreases throughout the projection period, falling to 37,084 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 55,361 in 2068. In comparison, the SNZ 2018-base medium-variant projection is similar to the Waikato high-variant projection until the early 2030s, before falling away, while the SNZ low-variant projection is similar to the Waikato low-variant projection throughout the projection period.

Figure 70: Population projections for Taupō District, 2018-2068

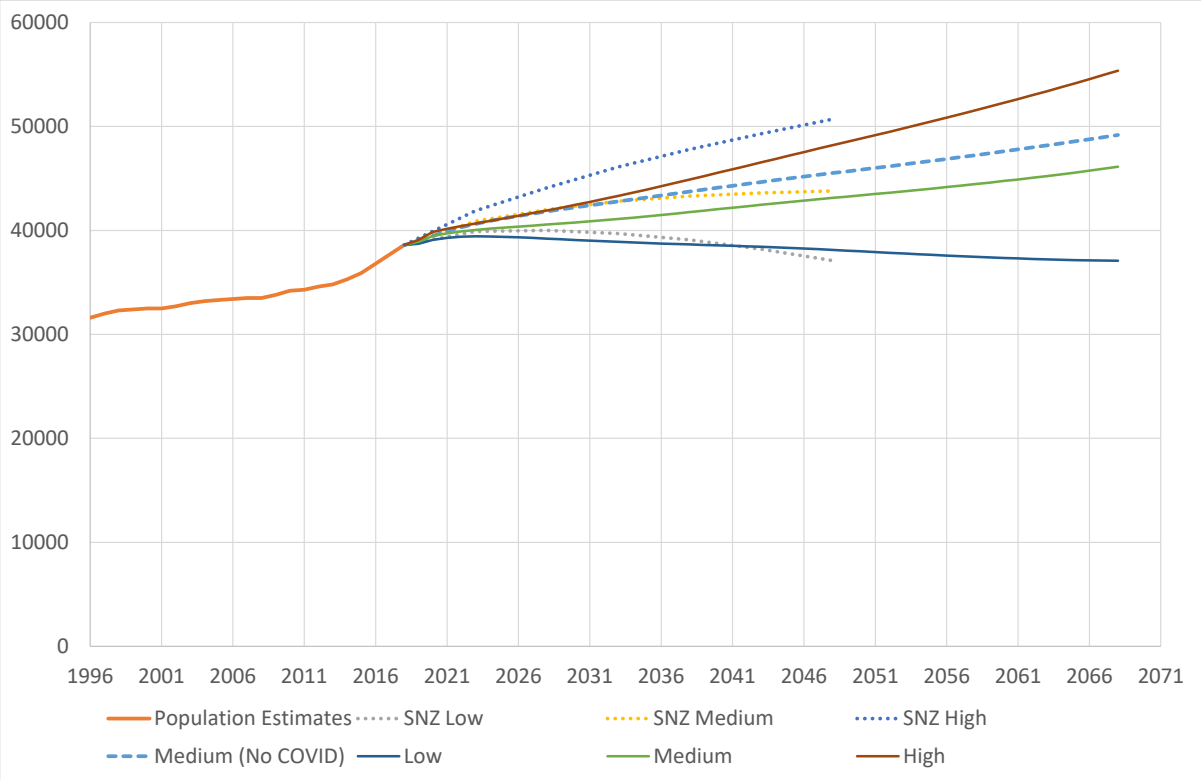


Figure 71 disaggregates the components of population change for Taupō District over the period 2019-2068 for the medium-variant population projection. As previously noted, net population change in the medium-variant projection scenario is positive throughout the projection period. This is made up of net inward internal migration (more in-migration from the rest of New Zealand than out-migration) and natural increase (more births than deaths) up

to 2035 (after which there is natural decrease – more deaths than births), and net outward international migration (more out-migration to overseas than in-migration from overseas). The initial bump in population from the historically high net international migration at the national level can clearly be seen in the first two years of the projections, but is quickly eliminated by the coronavirus border closures and the resulting substantial decrease in international migration flows

Figure 71: Projected components of population change for Taupō District, medium-variant projection, 2019-2068

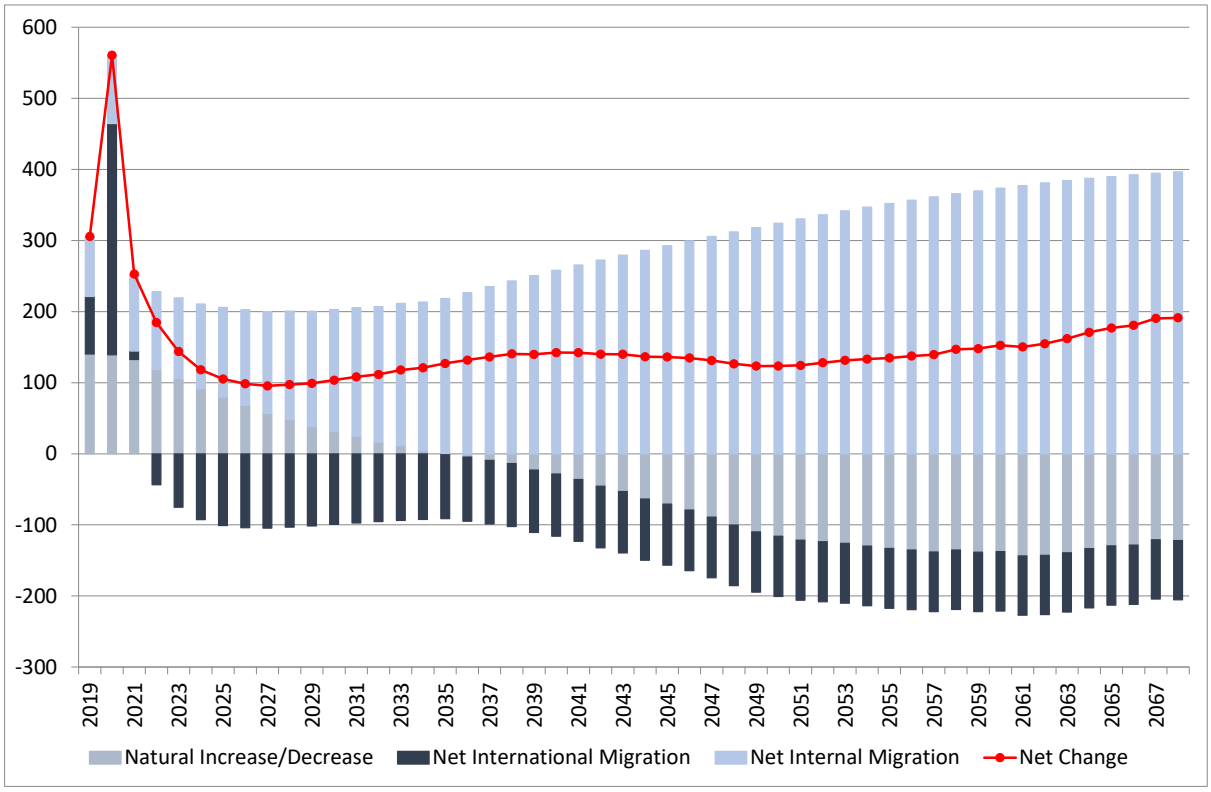


Table 11 summarises the largest sources and destinations of inward and outward internal migrants respectively, for Taupō District in 2043 (being the middle of the projection period) for the medium-variant population projection. The largest flows in and out of the district can be attributed to Auckland, Rotorua District, Hamilton City, and Tauranga City, all of which are large population centres in relatively close proximity to Taupō District. The inward migration from Auckland, Rotorua District, and Hamilton City are larger than the outward flows, suggesting that Auckland, Rotorua District, and Hamilton City are projected to be a substantial

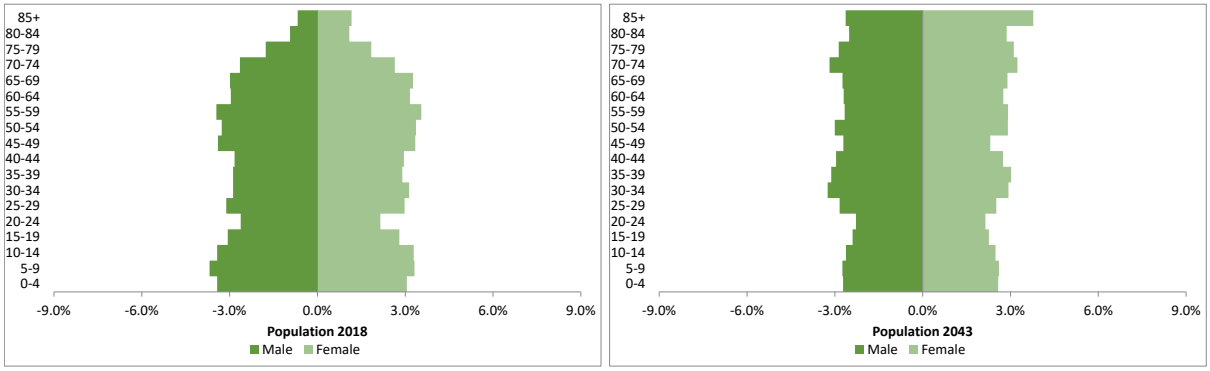
source of net internal migration for Taupō District. In contrast, the outward migration is larger than the inward flow for Tauranga City, suggesting that Taupō District is a net donor of migrants to Tauranga City.

Table 11: Top sources and destinations of internal migration for Taupō District, 2043

Source	Number		Destination	Number
Auckland	520		Auckland	249
Rotorua	170		Rotorua	153
Hamilton	123		Tauranga	103
Tauranga	99		Hamilton	102
Hastings	78		Hastings	84
Whakatane	51		Whakatane	48
South Waikato	51		Christchurch	47
Wellington	51		Palmerston North	45
Waipā	45		South Waikato	44
Waikato	44		Waipā	43

The age structure of Taupō District is moderately old compared with other TAs in the Waikato, but ages relatively quickly, as shown in Figure 72. In 2018, 19.0 percent of the population are aged 65 years and over, and this is projected to increase to 29.8 percent by 2043. This relatively fast rate of ageing explains the shift from natural increase to natural decrease shown in the previous figure.

Figure 72: Age-sex structure for Taupō District, 2018 and 2043 (medium-variant projection)



The medium-variant family and household projection (by type) for Taupō District is shown in Figure 73. The estimated number of total households in June 2018 is 14,356. In terms of total households, the projection closely follows the medium-variant population projection, with the total number of households increases throughout the projection period, reaching 18,367 in 2068. The number of one-parent families increases throughout the projection period, as does the number of couples without children and one-person households. The number of two-parent families decreases throughout the projection period. The low-variant and high-variant family and household projection (by type) for South Waikato District are shown in Figures 74 and 75 respectively. In terms of total households, the low-variant projection closely follows the low-variant population projection, with the total number of households increasing to a peak of 15,554 in 2038 before declining to 15,345 in 2068. The high-variant projection closely follows the high-variant population projection, with the total number of households throughout the projection period, reaching 21,974 in 2068. The relative size of the families and households by type are similar in the low-variant and high-variant projections to those in the medium-variant projection.

Figure 73: Medium-variant family and household projections for Taupō District, 2018-2068

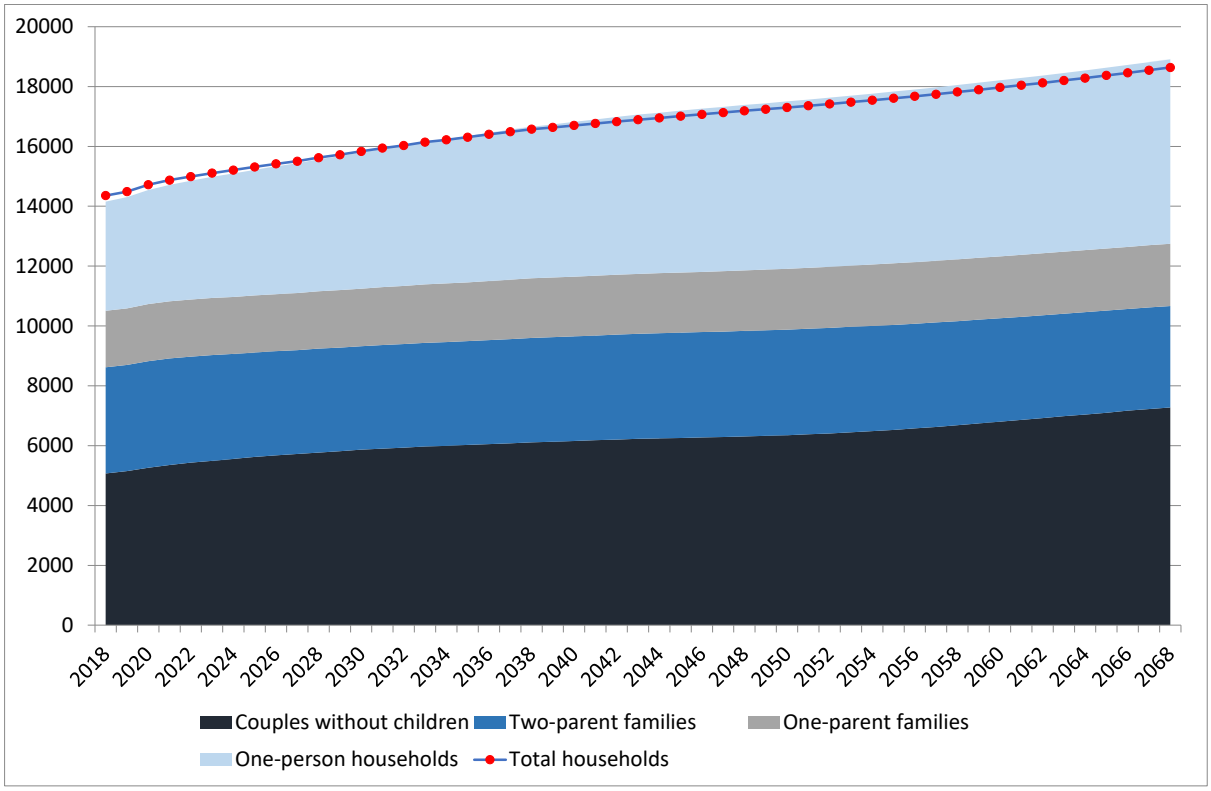


Figure 74: Low-variant family and household projections for Taupō District, 2018-2068

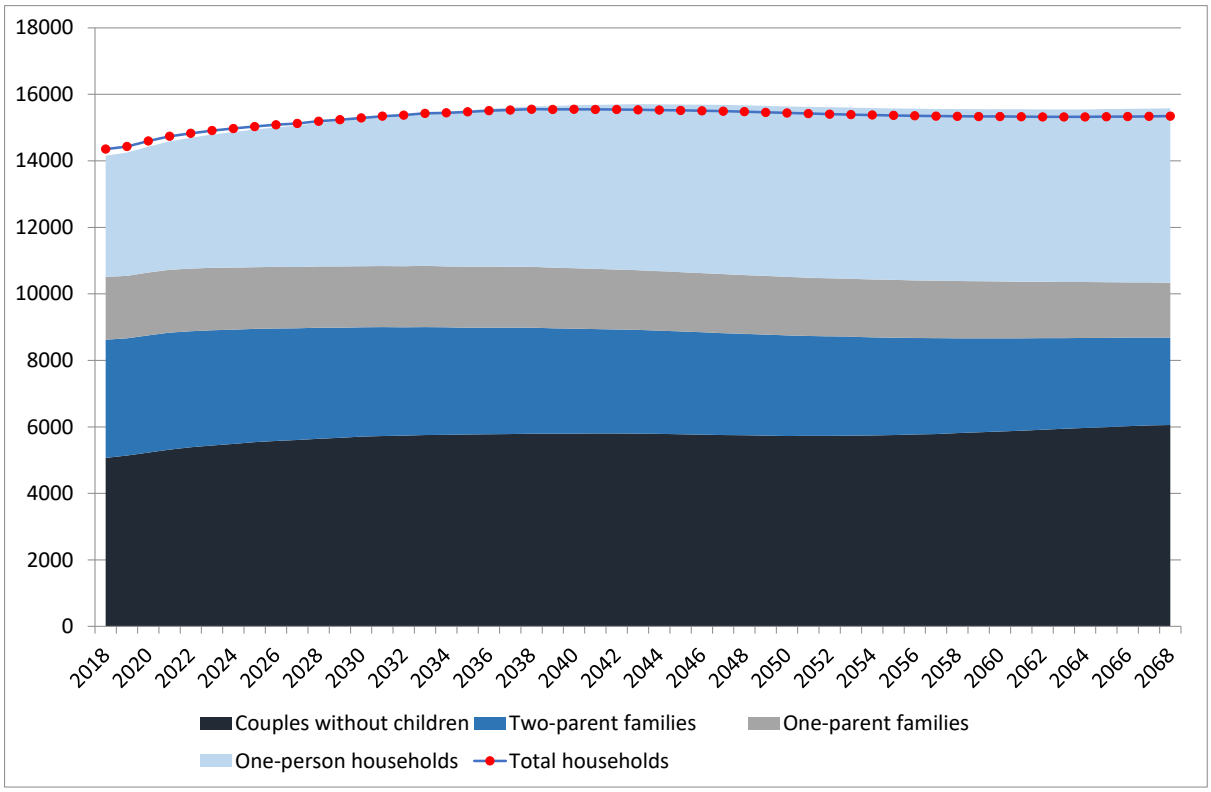
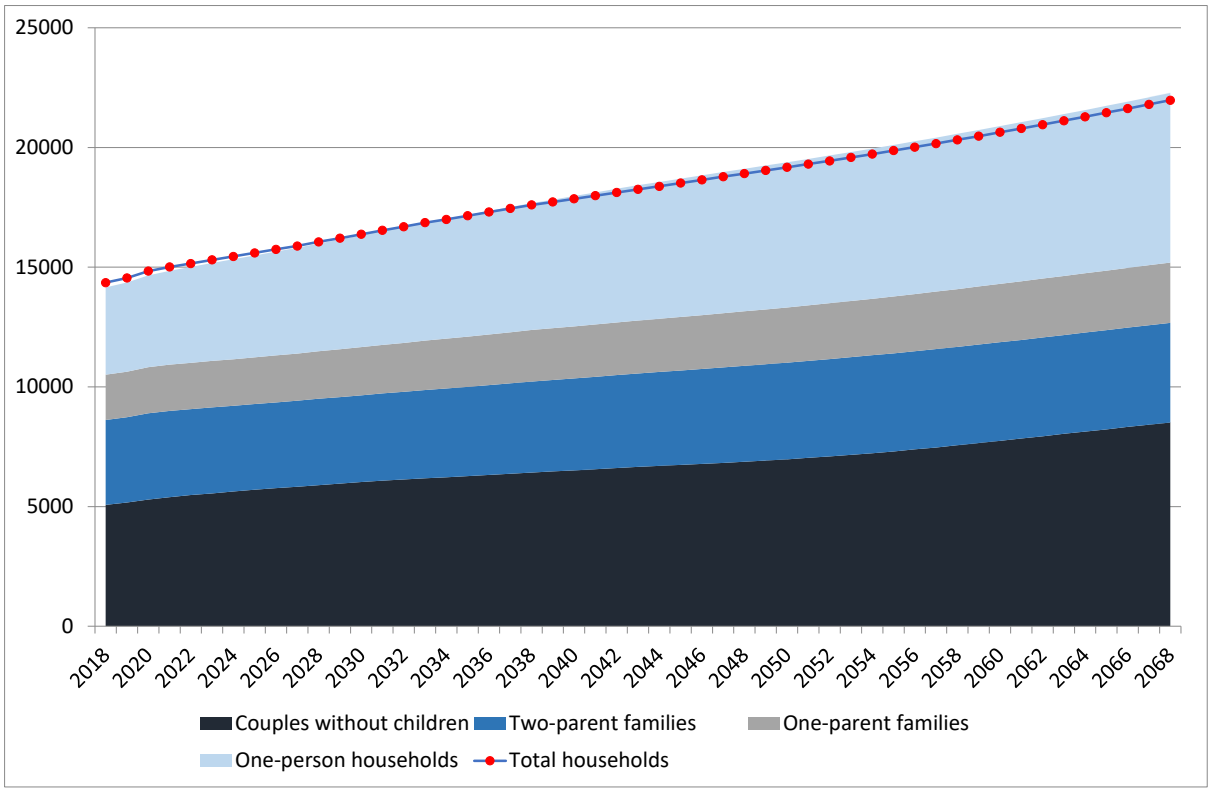
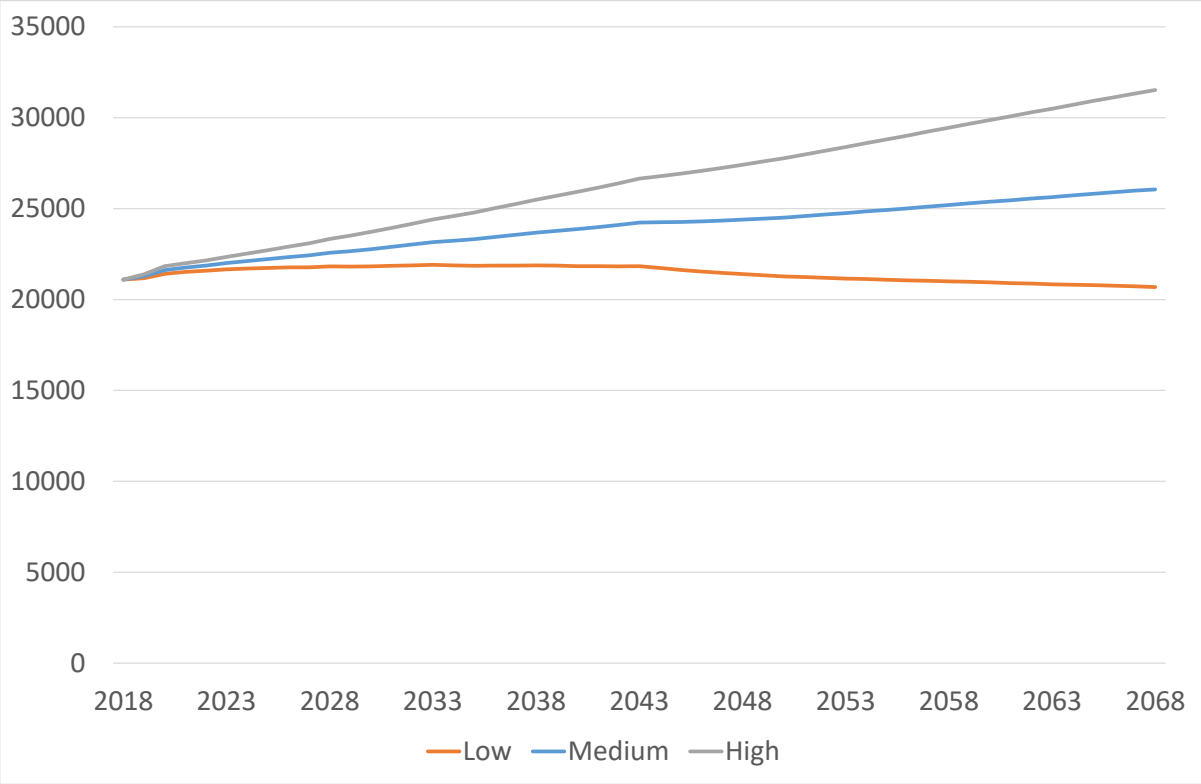


Figure 75: High-variant family and household projections for Taupō District, 2018-2068



The labour force projections for Taupō District are shown in Figure 76. The estimated labour force in June 2018 is 21,092. In the medium-variant projection, the labour force increases throughout the projection period, reaching 26,061 in 2068. In the low-variant projection, the labour force increases to a peak of 21,908 in 2033 before declining to 20,687 in 2068. In the high-variant projection, the labour force increases throughout the projection period, reaching 31,526 in 2068.

Figure 76: Labour force projections for Taupō District, 2018-2068

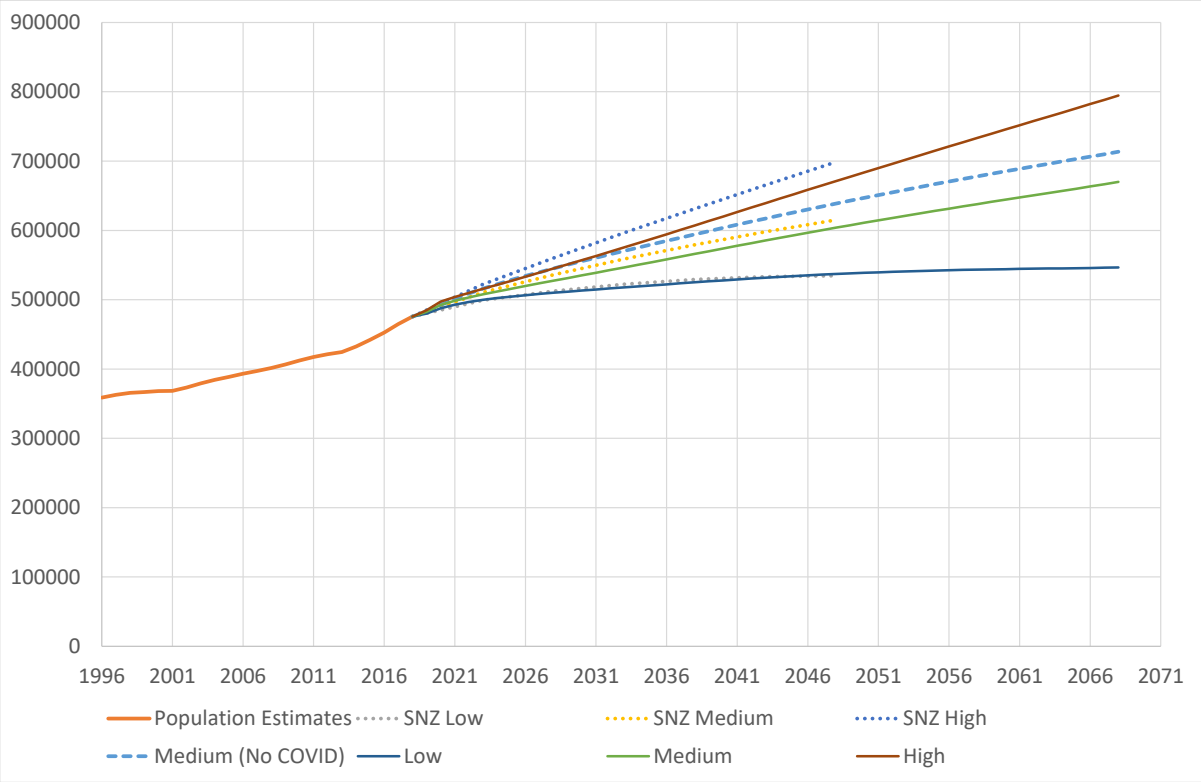


4.11 Total Population Projection for the Waikato Region

Figure 77 presents the 2018-base population projections for the Waikato Region as a whole, generated by summing the projections for all component TAs within each scenario, with some adjustments for the different boundaries (see Section 2.1 for details). The 2018-base Statistics New Zealand (SNZ) projections are also included for comparison.

The June 2018 population estimate (base population) for the Waikato Region is 475,600. Under the medium-variant population projection scenario, the population increases throughout the projection period, reaching 669,852 in 2068. Under the low-variant scenario, the population increases throughout the projection period, reaching 546,489 in 2068. Under the high-variant scenario, the population increases throughout the projection period, reaching 794,638 in 2068. In comparison, the SNZ 2018-base medium-variant projection is slightly higher than the Waikato medium-variant projection throughout the projection period. The SNZ high-variant projection is above the Waikato high-variant projection throughout the projection period, while the SNZ low-variant projection is similar to the Waikato low-variant projection.

Figure 77: Population projections for the Waikato region, 2018-2068



5. Discussion and Conclusion

This report outlines the methods and results of Territorial Authority-level demographic projections for the Waikato Region from 2018 to 2068. These projections were based on a newly-developed population projections model developed by experts at the University of Waikato, which differs in meaningful ways from the model employed by Statistics New Zealand. In particular, the Waikato model is a bottom-up model, projecting all TA populations in New Zealand, from which a national total population projection can be derived. In comparison, SNZ uses a top-down approach, where a national projection is created first, and then TA-level projections are produced later, conforming to an adding-up constraint that their sum must match the national projection. The Waikato model also differs in disaggregating internal and international migration flows, using a gravity model based approach to determine the internal migration flows. This represents a substantial improvement in projections methods from the standard approach of projecting net migration. Family and household projections, and labour force projections, were then derived from the population projections using established methods.

Three demographic projection scenarios were produced (low; medium; and high), representing three different scenarios of future population growth. These three scenarios can be thought of as a central projection (the medium-variant), and a measure of uncertainty (the range between the low-variant and high-variant projection represents approximately a 67 percent projection interval), or as three scenarios representing the top one-third (high-variant), middle one-third (medium-variant), and bottom one-third (low-variant) of all potential scenarios generated with this model and within the plausible distribution of assumptions. A fourth scenario, a medium-variant that ignores the impact of the coronavirus pandemic, was developed for the population projections only, to highlight how the coronavirus pandemic affected the projections.

The overall picture in the demographic projections is one of regional population growth throughout the projection period. However, that growth is projected to be much slower for most TAs than their recent experience. For the most part, that can be attributed to a 'reset' in net international migration as a result of the coronavirus pandemic and associated border closures. Net international migration has fallen by around 85 percent, and the prospects for a rapid return to 'normal' still do not appear good. Permanent migration flows are not likely to re-start until at least 2022. The difference that the coronavirus pandemic has made to the demographic projections is obvious when comparing the medium-variant projection without the coronavirus pandemic with the other projections. The medium-variant projection without the pandemic is substantially higher than the medium-variant, and more similar to the high-variant projection. The coronavirus pandemic has caused a substantial shift in population trajectory for the Waikato region and its TAs.

In spite of the lower net international migration, the region continues to grow, albeit at a slower rate. This overall picture, though, masks substantial variation in the projected population growth experience of the territorial authorities in the region. As noted in previous projections (e.g. Cameron and Cochrane, 2016), the TAs are projected to see one of several different growth experiences, with different mechanisms underlying their patterns of growth and decline.

First, Thames-Coromandel and Hauraki Districts are projected to experience overall population growth in the medium-variant projection, made up of net internal migration (more in-migration than out-migration), offset by natural decrease (more deaths than births) and net international out-migration (more emigration than immigration). This combination reflects spill-over growth from surrounding and nearby faster-growing TAs, combined with an old population age structure.

Second, Waikato, Matamata-Piako, Waipā, and Taupō Districts are projected to experience overall population growth in the medium-variant projection, made up of net internal migration (more in-migration than out-migration), offset by net international out-migration (more emigration than immigration, while natural increase (more births than deaths) gradually shifts to natural decrease (more deaths than births). This combination reflects population growth driven by internal migration along with an ageing population.

Third, Hamilton City is projected to experience overall population growth in the medium-variant projection, made up of net internal migration (more in-migration than out-migration) and natural increase (more births than deaths), offset by a small amount of net international out-migration (more emigration than immigration). This combination reflects strong population growth driven by internal migration along with a young population age structure

Fourth, Otorohanga District is projected to experience overall population growth in the medium-variant projection, made up of net internal migration (more in-migration than out-migration) and natural increase (more births than deaths), offset by a net international out-migration (more emigration than immigration). This is similar to Hamilton City, but net international out-migration is a more substantial feature, and reflects population growth driven by internal migration along with a young population age structure.

Fifth, South Waikato and Waitomo Districts are projected to experience initial population decline that gradually becomes growth, made up of natural increase (more births than deaths), net internal out-migration (more out-migration than in-migration) that later becomes net internal migration (more in-migration than out-migration), offset by a net international out-migration (more emigration than immigration). This combination reflects spill-over growth from surrounding and nearby faster-growing TAs that becomes more substantial over time, combined with a young population age structure.

While the experience of these TAs are in some ways different, they all share one thing in common. The age structure of all TAs is projected to get older over time. Birth rates are currently low, and projected to remain low. Life expectancy is expected to continue to increase. While migrants tend to be younger than the population average, they also age over time and are not much of a contributor to reducing population ageing (Jackson and Cameron, 2018). All TAs are going to have to develop policy to deal with population ageing. However, some TAs are projected to age faster than others, due to differences in fertility rates and the age structure of migration. In particular, Thames-Coromandel District, already the TA with the oldest age structure in the Waikato region, is projected to age significantly, along with Hauraki District

and Matamata-Piako District. In contrast, Hamilton City remains somewhat youthful, possibly due to the presence of two large tertiary education institutions.

Overall, the number of households is projected generally to closely follow the trajectory of the population for each TA. However, over time there is a substantial change in the distribution of households and families, with fewer couples with children and two-parent families, and more one-parent families and one-person households. This reflects underlying long-term social changes in the population.

The labour force projections also generally closely follow the trajectory of the population for each TA. However, the growth of labour force is much slower than the growth of population. This reflects the ageing of the population, with a greater proportion of the population at retirement ages, particularly later in the projection period. The difference between the population and labour force projections is consequently greater for those TAs that experience greater degrees of population ageing.

Finally, this is the first time that this new population projections model has been used to produce population projections. This is also a particularly challenging time to be projecting future population, with the coronavirus pandemic having severely impacted on the trajectory of international migration flows. An uninformed reader would be tempted to look at the projections produced by the model and identify a clear structural break in the time series, and infer that the model is deficient. However, the fact that the model demonstrates the structural break in population trends in 2020 is a key reason to believe that the model is accurately reflecting the underlying structural change in the population. Net international migration has reduced by 85 percent, and it should not be expected that past trends will continue as a result of that. Indeed, we should be deeply sceptical of any model that shows a simple continuation of past trends beyond 2020, as might be obtained from a naïve projection based on a time series extrapolation of the population. The key strengths of the new model are that it picks up this change, and explicitly includes the effects of structural changes in the population on internal migration flows. This is a continuation of improvements in understanding migration flows that researchers at the University of Waikato have been working on for some time.

Having said that, there are a number of improvements that can be made to the model. First, as noted in Section 2, the model could be improved by developing our own in-house projections of fertility (and potentially, mortality). The SNZ 2018-base subnational population projections revised downwards substantially the fertility assumptions relative to earlier projections. However, by developing our own assumptions we would no longer rely on SNZ assumptions, lead to more timely revisions in light of changes in the actual data. Second, we are continuing to consider alternative models of emigration and immigration flows, and how those flows are distributed across TAs. International migration is the most difficult component of population change to project, so it seems likely that there is no perfect solution. However, actively considering alternative means of projecting these flows will enable us to adopt the most suitable measures in the future.

To conclude, the demographic futures (Myers, 2001) of the Waikato region's territorial authorities cannot be determined with complete accuracy. As demonstrated by recent events, the national and international environment is complex and changeable. It is not possible to perfectly foresee all of the factors that might impact on future population. However, the projections presented in this report should assist planners in better understanding the demographic changes that they are faced with, and the sources and factors that underlie those demographic changes. In short, these projections are simply one tool that should be used in evaluating possible futures for the region.

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Appendix I

Appendix Table A1: Population projections for Thames-Coromandel District, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	30,700	30,700	30,700	-	-	-
2019	30,700	30,848	30,996	0.0%	0.5%	1.0%
2020	30,907	31,206	31,505	0.7%	1.2%	1.6%
2021	30,990	31,326	31,664	0.3%	0.4%	0.5%
2022	30,985	31,386	31,788	0.0%	0.2%	0.4%
2023	30,926	31,411	31,896	-0.2%	0.1%	0.3%
2024	30,834	31,415	31,998	-0.3%	0.0%	0.3%
2025	30,723	31,411	32,100	-0.4%	0.0%	0.3%
2026	30,601	31,402	32,204	-0.4%	0.0%	0.3%
2027	30,472	31,390	32,311	-0.4%	0.0%	0.3%
2028	30,342	31,382	32,425	-0.4%	0.0%	0.4%
2029	30,214	31,378	32,545	-0.4%	0.0%	0.4%
2030	30,090	31,379	32,673	-0.4%	0.0%	0.4%
2031	29,968	31,385	32,807	-0.4%	0.0%	0.4%
2032	29,849	31,395	32,945	-0.4%	0.0%	0.4%
2033	29,734	31,408	33,089	-0.4%	0.0%	0.4%
2034	29,624	31,428	33,240	-0.4%	0.1%	0.5%
2035	29,521	31,455	33,399	-0.3%	0.1%	0.5%
2036	29,424	31,490	33,565	-0.3%	0.1%	0.5%
2037	29,331	31,528	33,736	-0.3%	0.1%	0.5%
2038	29,243	31,572	33,914	-0.3%	0.1%	0.5%
2043	28,852	31,847	34,862	-0.3%	0.2%	0.6%
2048	28,495	32,165	35,862	-0.2%	0.2%	0.6%
2053	28,175	32,528	36,918	-0.2%	0.2%	0.6%
2058	27,947	32,991	38,083	-0.2%	0.3%	0.6%
2063	27,773	33,513	39,311	-0.1%	0.3%	0.6%
2068	27,736	34,172	40,674	0.0%	0.4%	0.7%

Appendix Table A2: Population projections for Hauraki District, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	20,600	20,600	20,600	-	-	-
2019	20,653	20,753	20,853	0.3%	0.7%	1.2%
2020	20,843	21,045	21,248	0.9%	1.4%	1.9%
2021	20,948	21,178	21,408	0.5%	0.6%	0.8%
2022	20,992	21,267	21,542	0.2%	0.4%	0.6%
2023	20,996	21,329	21,663	0.0%	0.3%	0.6%
2024	20,975	21,375	21,776	-0.1%	0.2%	0.5%
2025	20,938	21,412	21,886	-0.2%	0.2%	0.5%
2026	20,892	21,444	21,998	-0.2%	0.2%	0.5%
2027	20,840	21,474	22,110	-0.2%	0.1%	0.5%
2028	20,786	21,505	22,226	-0.3%	0.1%	0.5%
2029	20,733	21,538	22,346	-0.3%	0.2%	0.5%
2030	20,682	21,575	22,472	-0.2%	0.2%	0.6%
2031	20,636	21,618	22,604	-0.2%	0.2%	0.6%
2032	20,593	21,666	22,743	-0.2%	0.2%	0.6%
2033	20,554	21,718	22,886	-0.2%	0.2%	0.6%
2034	20,521	21,776	23,037	-0.2%	0.3%	0.7%
2035	20,493	21,840	23,195	-0.1%	0.3%	0.7%
2036	20,471	21,912	23,360	-0.1%	0.3%	0.7%
2037	20,457	21,991	23,534	-0.1%	0.4%	0.7%
2038	20,448	22,077	23,715	0.0%	0.4%	0.8%
2043	20,457	22,565	24,689	0.0%	0.4%	0.8%
2048	20,496	23,100	25,725	0.0%	0.5%	0.8%
2053	20,526	23,641	26,784	0.0%	0.5%	0.8%
2058	20,519	24,157	27,831	0.0%	0.4%	0.8%
2063	20,495	24,662	28,872	0.0%	0.4%	0.7%
2068	20,523	25,221	29,970	0.0%	0.4%	0.7%

Appendix Table A3: Population projections for Waikato District, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	78,200	78,200	78,200	-	-	-
2019	79,414	79,796	80,177	1.6%	2.0%	2.5%
2020	81,130	81,908	82,687	2.2%	2.6%	3.1%
2021	82,495	83,384	84,274	1.7%	1.8%	1.9%
2022	83,589	84,662	85,737	1.3%	1.5%	1.7%
2023	84,495	85,806	87,119	1.1%	1.4%	1.6%
2024	85,274	86,863	88,455	0.9%	1.2%	1.5%
2025	85,962	87,859	89,760	0.8%	1.1%	1.5%
2026	86,584	88,813	91,047	0.7%	1.1%	1.4%
2027	87,157	89,736	92,321	0.7%	1.0%	1.4%
2028	87,695	90,638	93,589	0.6%	1.0%	1.4%
2029	88,206	91,526	94,854	0.6%	1.0%	1.4%
2030	88,697	92,403	96,118	0.6%	1.0%	1.3%
2031	89,172	93,272	97,383	0.5%	0.9%	1.3%
2032	89,633	94,133	98,648	0.5%	0.9%	1.3%
2033	90,085	94,992	99,916	0.5%	0.9%	1.3%
2034	90,530	95,850	101,188	0.5%	0.9%	1.3%
2035	90,972	96,710	102,468	0.5%	0.9%	1.3%
2036	91,411	97,571	103,755	0.5%	0.9%	1.3%
2037	91,848	98,435	105,048	0.5%	0.9%	1.2%
2038	92,280	99,298	106,345	0.5%	0.9%	1.2%
2043	94,334	103,570	112,849	0.4%	0.8%	1.2%
2048	96,070	107,620	119,227	0.4%	0.8%	1.1%
2053	97,350	111,301	125,326	0.3%	0.7%	1.0%
2058	98,186	114,607	131,120	0.2%	0.6%	0.9%
2063	98,725	117,655	136,696	0.1%	0.5%	0.8%
2068	99,229	120,684	142,269	0.1%	0.5%	0.8%

Appendix Table A4: Population projections for Matamata-Piako District, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	2018	35,300	35,300	35,300	-	-
2019	2019	35,419	35,591	35,763	0.3%	0.8%
2020	2020	35,778	36,126	36,473	1.0%	1.5%
2021	2021	35,997	36,391	36,785	0.6%	0.7%
2022	2022	36,131	36,603	37,075	0.4%	0.6%
2023	2023	36,211	36,783	37,355	0.2%	0.5%
2024	2024	36,259	36,947	37,636	0.1%	0.4%
2025	2025	36,286	37,103	37,922	0.1%	0.4%
2026	2026	36,303	37,257	38,214	0.0%	0.4%
2027	2027	36,313	37,412	38,514	0.0%	0.4%
2028	2028	36,320	37,569	38,822	0.0%	0.4%
2029	2029	36,326	37,729	39,137	0.0%	0.4%
2030	2030	36,333	37,894	39,460	0.0%	0.4%
2031	2031	36,341	38,062	39,790	0.0%	0.4%
2032	2032	36,350	38,234	40,126	0.0%	0.5%
2033	2033	36,360	38,409	40,467	0.0%	0.5%
2034	2034	36,372	38,588	40,815	0.0%	0.5%
2035	2035	36,385	38,770	41,167	0.0%	0.5%
2036	2036	36,400	38,954	41,523	0.0%	0.5%
2037	2037	36,415	39,142	41,884	0.0%	0.5%
2038	2038	36,430	39,330	42,248	0.0%	0.5%
2043	2043	36,481	40,267	44,083	0.0%	0.5%
2048	2048	36,469	41,174	45,924	0.0%	0.4%
2053	2053	36,387	42,041	47,758	0.0%	0.4%
2058	2058	36,295	42,924	49,640	-0.1%	0.4%
2063	2063	36,222	43,846	51,583	0.0%	0.4%
2068	2068	36,236	44,866	53,639	0.0%	0.5%

Appendix Table A5: Population projections for Hamilton City, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	168,600	168,600	168,600	-	-	-
2019	171,180	172,049	172,919	1.5%	2.0%	2.6%
2020	174,896	176,669	178,443	2.2%	2.7%	3.2%
2021	177,448	179,456	181,467	1.5%	1.6%	1.7%
2022	179,589	181,995	184,404	1.2%	1.4%	1.6%
2023	181,451	184,374	187,302	1.0%	1.3%	1.6%
2024	183,117	186,646	190,181	0.9%	1.2%	1.5%
2025	184,675	188,877	193,088	0.9%	1.2%	1.5%
2026	186,155	191,083	196,022	0.8%	1.2%	1.5%
2027	187,577	193,271	198,979	0.8%	1.1%	1.5%
2028	188,953	195,445	201,955	0.7%	1.1%	1.5%
2029	190,283	197,600	204,938	0.7%	1.1%	1.5%
2030	191,572	199,735	207,925	0.7%	1.1%	1.5%
2031	192,826	201,855	210,915	0.7%	1.1%	1.4%
2032	194,045	203,956	213,903	0.6%	1.0%	1.4%
2033	195,232	206,038	216,888	0.6%	1.0%	1.4%
2034	196,382	208,098	219,863	0.6%	1.0%	1.4%
2035	197,498	210,135	222,828	0.6%	1.0%	1.3%
2036	198,581	212,150	225,781	0.5%	1.0%	1.3%
2037	199,632	214,143	228,724	0.5%	0.9%	1.3%
2038	200,653	216,116	231,656	0.5%	0.9%	1.3%
2043	205,245	225,598	246,069	0.5%	0.9%	1.2%
2048	209,039	234,490	260,106	0.4%	0.8%	1.1%
2053	212,044	242,802	273,779	0.3%	0.7%	1.0%
2058	214,236	250,478	287,000	0.2%	0.6%	0.9%
2063	215,727	257,580	299,782	0.1%	0.6%	0.9%
2068	216,661	264,198	312,161	0.1%	0.5%	0.8%

Appendix Table A6: Population projections for Waipā District, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	55,000	55,000	55,000	-	-	-
2019	55,530	55,798	56,065	1.0%	1.5%	1.9%
2020	56,414	56,957	57,500	1.6%	2.1%	2.6%
2021	57,059	57,676	58,294	1.1%	1.3%	1.4%
2022	57,553	58,294	59,035	0.9%	1.1%	1.3%
2023	57,945	58,847	59,749	0.7%	0.9%	1.2%
2024	58,268	59,358	60,449	0.6%	0.9%	1.2%
2025	58,546	59,844	61,144	0.5%	0.8%	1.2%
2026	58,791	60,313	61,838	0.4%	0.8%	1.1%
2027	59,014	60,773	62,535	0.4%	0.8%	1.1%
2028	59,220	61,225	63,234	0.3%	0.7%	1.1%
2029	59,414	61,673	63,937	0.3%	0.7%	1.1%
2030	59,599	62,118	64,644	0.3%	0.7%	1.1%
2031	59,774	62,559	65,353	0.3%	0.7%	1.1%
2032	59,942	62,998	66,064	0.3%	0.7%	1.1%
2033	60,102	63,433	66,776	0.3%	0.7%	1.1%
2034	60,257	63,867	67,491	0.3%	0.7%	1.1%
2035	60,411	64,303	68,212	0.3%	0.7%	1.1%
2036	60,561	64,739	68,937	0.2%	0.7%	1.1%
2037	60,708	65,175	69,664	0.2%	0.7%	1.1%
2038	60,851	65,610	70,393	0.2%	0.7%	1.0%
2043	61,487	67,747	74,049	0.2%	0.6%	1.0%
2048	61,969	69,793	77,680	0.2%	0.6%	1.0%
2053	62,285	71,730	81,265	0.1%	0.5%	0.9%
2058	62,463	73,578	84,816	0.1%	0.5%	0.9%
2063	62,511	75,329	88,309	0.0%	0.5%	0.8%
2068	62,549	77,090	91,836	0.0%	0.5%	0.8%

Appendix Table A7: Population projections for Otorohanga District, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	10,500	10,500	10,500	-	-	-
2019	10,542	10,594	10,645	0.4%	0.9%	1.4%
2020	10,655	10,758	10,862	1.1%	1.6%	2.0%
2021	10,724	10,841	10,958	0.6%	0.8%	0.9%
2022	10,767	10,906	11,046	0.4%	0.6%	0.8%
2023	10,793	10,962	11,131	0.2%	0.5%	0.8%
2024	10,809	11,013	11,217	0.2%	0.5%	0.8%
2025	10,820	11,062	11,305	0.1%	0.4%	0.8%
2026	10,828	11,111	11,395	0.1%	0.4%	0.8%
2027	10,835	11,160	11,487	0.1%	0.4%	0.8%
2028	10,840	11,211	11,582	0.1%	0.5%	0.8%
2029	10,849	11,265	11,682	0.1%	0.5%	0.9%
2030	10,861	11,324	11,788	0.1%	0.5%	0.9%
2031	10,876	11,386	11,899	0.1%	0.6%	0.9%
2032	10,892	11,452	12,013	0.2%	0.6%	1.0%
2033	10,911	11,519	12,130	0.2%	0.6%	1.0%
2034	10,932	11,591	12,252	0.2%	0.6%	1.0%
2035	10,956	11,665	12,378	0.2%	0.6%	1.0%
2036	10,982	11,742	12,507	0.2%	0.7%	1.0%
2037	11,008	11,820	12,637	0.2%	0.7%	1.0%
2038	11,035	11,900	12,769	0.2%	0.7%	1.0%
2043	11,163	12,297	13,439	0.2%	0.7%	1.0%
2048	11,241	12,656	14,083	0.1%	0.6%	0.9%
2053	11,257	12,963	14,687	0.0%	0.5%	0.8%
2058	11,265	13,271	15,303	0.0%	0.5%	0.8%
2063	11,285	13,600	15,948	0.0%	0.5%	0.8%
2068	11,339	13,968	16,640	0.1%	0.5%	0.9%

Appendix Table A8: Population projections for South Waikato District, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	24,900	24,900	24,900	-	-	-
2019	24,778	24,900	25,022	-0.5%	0.0%	0.5%
2020	24,832	25,076	25,321	0.2%	0.7%	1.2%
2021	24,792	25,068	25,344	-0.2%	0.0%	0.1%
2022	24,704	25,031	25,359	-0.4%	-0.1%	0.1%
2023	24,587	24,982	25,377	-0.5%	-0.2%	0.1%
2024	24,456	24,928	25,402	-0.5%	-0.2%	0.1%
2025	24,320	24,877	25,436	-0.6%	-0.2%	0.1%
2026	24,186	24,834	25,483	-0.6%	-0.2%	0.2%
2027	24,056	24,798	25,542	-0.5%	-0.1%	0.2%
2028	23,934	24,772	25,613	-0.5%	-0.1%	0.3%
2029	23,818	24,756	25,697	-0.5%	-0.1%	0.3%
2030	23,712	24,750	25,792	-0.4%	0.0%	0.4%
2031	23,616	24,755	25,901	-0.4%	0.0%	0.4%
2032	23,529	24,772	26,022	-0.4%	0.1%	0.5%
2033	23,452	24,799	26,154	-0.3%	0.1%	0.5%
2034	23,384	24,836	26,297	-0.3%	0.1%	0.5%
2035	23,325	24,883	26,452	-0.3%	0.2%	0.6%
2036	23,276	24,941	26,617	-0.2%	0.2%	0.6%
2037	23,236	25,009	26,795	-0.2%	0.3%	0.7%
2038	23,205	25,086	26,982	-0.1%	0.3%	0.7%
2043	23,118	25,556	28,020	-0.1%	0.4%	0.8%
2048	23,085	26,105	29,162	0.0%	0.4%	0.8%
2053	23,039	26,665	30,344	0.0%	0.4%	0.8%
2058	22,996	27,249	31,574	0.0%	0.4%	0.8%
2063	22,993	27,889	32,879	0.0%	0.5%	0.8%
2068	23,066	28,617	34,289	0.1%	0.5%	0.8%

Appendix Table A9: Population projections for Waitomo District, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	2018	9,630	9,630	9,630	-	-
2019	2019	9,564	9,611	9,658	-0.7%	-0.2%
2020	2020	9,568	9,662	9,756	0.0%	0.5%
2021	2021	9,537	9,642	9,748	-0.3%	-0.2%
2022	2022	9,487	9,612	9,738	-0.5%	-0.3%
2023	2023	9,427	9,578	9,729	-0.6%	-0.4%
2024	2024	9,364	9,544	9,724	-0.7%	-0.4%
2025	2025	9,300	9,512	9,724	-0.7%	-0.3%
2026	2026	9,238	9,483	9,729	-0.7%	-0.3%
2027	2027	9,177	9,457	9,739	-0.7%	-0.3%
2028	2028	9,119	9,435	9,753	-0.6%	-0.2%
2029	2029	9,064	9,417	9,770	-0.6%	-0.2%
2030	2030	9,012	9,402	9,793	-0.6%	-0.2%
2031	2031	8,963	9,390	9,818	-0.5%	-0.1%
2032	2032	8,916	9,380	9,847	-0.5%	-0.1%
2033	2033	8,872	9,375	9,879	-0.5%	-0.1%
2034	2034	8,831	9,371	9,914	-0.5%	0.0%
2035	2035	8,793	9,371	9,953	-0.4%	0.0%
2036	2036	8,757	9,374	9,994	-0.4%	0.0%
2037	2037	8,723	9,378	10,038	-0.4%	0.1%
2038	2038	8,693	9,387	10,086	-0.3%	0.1%
2043	2043	8,568	9,460	10,359	-0.3%	0.2%
2048	2048	8,485	9,580	10,688	-0.2%	0.3%
2053	2053	8,425	9,733	11,057	-0.1%	0.3%
2058	2058	8,394	9,921	11,471	-0.1%	0.4%
2063	2063	8,387	10,140	11,922	0.0%	0.4%
2068	2068	8,401	10,384	12,404	0.0%	0.5%

Appendix Table A10: Population projections for Taupō District, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	38,600	38,600	38,600	-	-	-
2019	38,718	38,906	39,094	0.3%	0.8%	1.3%
2020	39,087	39,466	39,846	1.0%	1.4%	1.9%
2021	39,289	39,719	40,149	0.5%	0.6%	0.8%
2022	39,390	39,904	40,418	0.3%	0.5%	0.7%
2023	39,425	40,048	40,671	0.1%	0.4%	0.6%
2024	39,417	40,166	40,916	0.0%	0.3%	0.6%
2025	39,382	40,271	41,161	-0.1%	0.3%	0.6%
2026	39,332	40,369	41,409	-0.1%	0.2%	0.6%
2027	39,272	40,465	41,661	-0.2%	0.2%	0.6%
2028	39,208	40,562	41,920	-0.2%	0.2%	0.6%
2029	39,142	40,661	42,186	-0.2%	0.2%	0.6%
2030	39,076	40,765	42,459	-0.2%	0.3%	0.6%
2031	39,013	40,873	42,741	-0.2%	0.3%	0.7%
2032	38,951	40,985	43,027	-0.2%	0.3%	0.7%
2033	38,893	41,102	43,322	-0.1%	0.3%	0.7%
2034	38,837	41,223	43,623	-0.1%	0.3%	0.7%
2035	38,785	41,351	43,931	-0.1%	0.3%	0.7%
2036	38,736	41,482	44,245	-0.1%	0.3%	0.7%
2037	38,691	41,619	44,565	-0.1%	0.3%	0.7%
2038	38,649	41,759	44,891	-0.1%	0.3%	0.7%
2043	38,421	42,464	46,543	-0.1%	0.3%	0.7%
2048	38,128	43,129	48,186	-0.2%	0.3%	0.7%
2053	37,776	43,760	49,825	-0.2%	0.3%	0.7%
2058	37,461	44,451	51,553	-0.2%	0.3%	0.7%
2063	37,207	45,219	53,378	-0.1%	0.3%	0.7%
2068	37,084	46,129	55,361	-0.1%	0.4%	0.7%

Appendix Table A11: Population projections for the Waikato Region, 2018-2068

Year	Absolute population			Growth Rate (Annualised)		
	Low-variant	Medium-variant	High-variant	Low-variant	Medium-variant	High-variant
2018	475,601	475,601	475,601	-	-	-
2019	480,073	482,437	484,802	0.9%	1.4%	1.9%
2020	487,711	492,510	497,311	1.6%	2.1%	2.6%
2021	492,895	498,337	503,785	1.1%	1.2%	1.3%
2022	496,807	503,329	509,860	0.8%	1.0%	1.2%
2023	499,880	507,800	515,733	0.6%	0.9%	1.2%
2024	502,394	511,946	521,515	0.5%	0.8%	1.1%
2025	504,571	515,929	527,310	0.4%	0.8%	1.1%
2026	506,526	519,822	533,147	0.4%	0.8%	1.1%
2027	508,327	523,661	539,034	0.4%	0.7%	1.1%
2028	510,029	527,481	544,981	0.3%	0.7%	1.1%
2029	511,658	531,291	550,984	0.3%	0.7%	1.1%
2030	513,242	535,108	557,046	0.3%	0.7%	1.1%
2031	514,791	538,934	563,163	0.3%	0.7%	1.1%
2032	516,306	542,763	569,321	0.3%	0.7%	1.1%
2033	517,800	546,604	575,525	0.3%	0.7%	1.1%
2034	519,276	550,455	581,771	0.3%	0.7%	1.1%
2035	520,745	554,328	588,065	0.3%	0.7%	1.1%
2036	522,208	558,218	594,404	0.3%	0.7%	1.1%
2037	523,660	562,122	600,780	0.3%	0.7%	1.1%
2038	525,098	566,034	607,189	0.3%	0.7%	1.1%
2043	531,749	585,368	639,336	0.3%	0.8%	1.3%
2048	537,106	603,905	671,209	0.2%	0.6%	1.0%
2053	540,898	621,356	702,504	0.1%	0.6%	0.9%
2058	543,402	637,925	733,354	0.1%	0.5%	0.9%
2063	544,975	653,840	763,856	0.1%	0.5%	0.8%
2068	546,489	669,852	794,638	0.1%	0.5%	0.8%

Appendix II

Appendix Table A12: Medium-variant family and household projections for Thames Coromandel District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	5,362	2,189	1,237	8,788	8,587	416	3,805	12,807
2019	5,469	2,141	1,216	8,826	8,616	407	3,891	12,914
2020	5,600	2,115	1,205	8,921	8,700	403	3,996	13,100
2021	5,716	2,072	1,187	8,975	8,744	393	4,104	13,242
2022	5,813	2,019	1,166	8,999	8,760	384	4,210	13,354
2023	5,903	1,962	1,144	9,010	8,762	376	4,304	13,443
2024	5,980	1,903	1,120	9,004	8,748	368	4,391	13,506
2025	6,052	1,846	1,097	8,995	8,731	361	4,476	13,567
2026	6,113	1,804	1,079	8,996	8,724	354	4,563	13,641
2027	6,171	1,753	1,061	8,986	8,706	347	4,659	13,712
2028	6,232	1,706	1,048	8,986	8,697	343	4,750	13,790
2029	6,280	1,656	1,033	8,969	8,673	338	4,840	13,851
2030	6,327	1,609	1,020	8,956	8,653	334	4,927	13,913
2031	6,368	1,574	1,013	8,955	8,643	328	5,016	13,987
2032	6,404	1,533	1,004	8,941	8,622	326	5,104	14,051
2033	6,439	1,504	999	8,942	8,615	324	5,189	14,128
2034	6,469	1,468	989	8,926	8,592	321	5,269	14,181
2035	6,501	1,434	980	8,915	8,573	318	5,344	14,235
2036	6,531	1,408	974	8,913	8,563	315	5,415	14,293
2037	6,566	1,381	966	8,913	8,554	311	5,488	14,353
2038	6,592	1,367	963	8,923	8,556	307	5,557	14,420
2043	6,714	1,277	932	8,923	8,517	289	5,849	14,655
2048	6,797	1,219	907	8,924	8,518	274	6,055	14,847
2053	6,895	1,185	896	8,976	8,567	263	6,196	15,026
2058	7,037	1,148	889	9,075	8,662	260	6,326	15,247
2063	7,245	1,103	882	9,230	8,810	260	6,446	15,516
2068	7,488	1,068	871	9,427	8,997	262	6,585	15,845

Appendix Table A13: Low-variant family and household projections for Thames Coromandel District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	5,362	2,189	1,237	8,788	8,587	416	3,805	12,807
2019	5,452	2,128	1,209	8,789	8,579	404	3,878	12,862
2020	5,565	2,089	1,191	8,845	8,626	398	3,971	12,995
2021	5,675	2,043	1,171	8,889	8,660	387	4,074	13,122
2022	5,764	1,984	1,148	8,896	8,659	377	4,174	13,211
2023	5,844	1,920	1,122	8,885	8,641	368	4,260	13,269
2024	5,908	1,853	1,093	8,854	8,602	359	4,336	13,297
2025	5,965	1,786	1,065	8,817	8,558	350	4,411	13,319
2026	6,011	1,735	1,042	8,788	8,522	343	4,487	13,352
2027	6,054	1,674	1,020	8,747	8,474	334	4,570	13,378
2028	6,097	1,617	1,001	8,715	8,435	328	4,648	13,411
2029	6,128	1,556	981	8,665	8,379	322	4,724	13,425
2030	6,157	1,499	962	8,619	8,327	316	4,797	13,440
2031	6,179	1,455	950	8,584	8,285	309	4,872	13,466
2032	6,196	1,404	936	8,535	8,230	305	4,945	13,480
2033	6,212	1,365	925	8,502	8,191	302	5,014	13,507
2034	6,222	1,319	910	8,451	8,134	297	5,079	13,510
2035	6,233	1,276	896	8,405	8,082	293	5,138	13,512
2036	6,241	1,241	885	8,367	8,038	289	5,192	13,519
2037	6,254	1,205	872	8,331	7,996	283	5,247	13,526
2038	6,259	1,183	863	8,305	7,964	278	5,299	13,540
2043	6,261	1,054	807	8,122	7,752	253	5,495	13,500
2048	6,209	964	760	7,934	7,572	232	5,597	13,401
2053	6,164	902	728	7,794	7,439	215	5,625	13,279
2058	6,153	842	703	7,698	7,348	207	5,636	13,191
2063	6,206	775	678	7,659	7,310	203	5,633	13,146
2068	6,289	721	652	7,662	7,313	201	5,644	13,158

Appendix Table A14: High-variant family and household projections for Thames Coromandel District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	5,362	2,189	1,237	8,788	8,587	416	3,805	12,807
2019	5,487	2,154	1,223	8,864	8,653	410	3,904	12,966
2020	5,636	2,142	1,220	8,997	8,774	408	4,022	13,205
2021	5,756	2,102	1,203	9,061	8,828	399	4,134	13,361
2022	5,862	2,055	1,185	9,102	8,860	391	4,247	13,497
2023	5,963	2,005	1,167	9,135	8,883	384	4,349	13,616
2024	6,053	1,954	1,147	9,154	8,893	377	4,445	13,715
2025	6,139	1,906	1,128	9,173	8,903	371	4,541	13,815
2026	6,214	1,873	1,115	9,203	8,925	366	4,640	13,931
2027	6,289	1,832	1,103	9,224	8,937	361	4,748	14,046
2028	6,366	1,795	1,095	9,257	8,960	358	4,852	14,169
2029	6,432	1,755	1,086	9,272	8,967	355	4,955	14,276
2030	6,498	1,718	1,078	9,294	8,979	352	5,056	14,387
2031	6,557	1,694	1,076	9,326	9,002	348	5,160	14,509
2032	6,612	1,663	1,073	9,347	9,013	347	5,263	14,622
2033	6,667	1,644	1,073	9,383	9,039	346	5,363	14,749
2034	6,717	1,617	1,069	9,402	9,050	344	5,460	14,854
2035	6,770	1,592	1,065	9,426	9,064	343	5,551	14,958
2036	6,821	1,575	1,064	9,460	9,088	341	5,639	15,069
2037	6,877	1,557	1,061	9,495	9,114	339	5,729	15,181
2038	6,926	1,552	1,063	9,541	9,149	336	5,816	15,301
2043	7,169	1,500	1,057	9,727	9,284	325	6,203	15,812
2048	7,385	1,476	1,056	9,917	9,466	316	6,515	16,297
2053	7,628	1,470	1,065	10,163	9,700	311	6,768	16,780
2058	7,921	1,459	1,078	10,457	9,981	313	7,017	17,311
2063	8,284	1,437	1,088	10,809	10,317	318	7,260	17,895
2068	8,685	1,420	1,094	11,200	10,690	324	7,528	18,542

Appendix Table A15: Medium-variant family and household projections for Hauraki District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	2,861	1,741	1,058	5,660	5,498	286	2,309	8,093
2019	2,920	1,721	1,048	5,688	5,521	283	2,371	8,175
2020	2,989	1,713	1,045	5,747	5,572	282	2,443	8,297
2021	3,058	1,683	1,031	5,772	5,591	279	2,512	8,381
2022	3,111	1,652	1,022	5,785	5,599	276	2,576	8,451
2023	3,162	1,621	1,007	5,791	5,599	273	2,634	8,506
2024	3,207	1,588	995	5,790	5,592	270	2,688	8,551
2025	3,247	1,553	985	5,785	5,583	266	2,744	8,592
2026	3,286	1,520	976	5,782	5,574	262	2,803	8,639
2027	3,319	1,491	969	5,779	5,566	260	2,863	8,689
2028	3,356	1,462	965	5,783	5,565	258	2,915	8,738
2029	3,390	1,436	964	5,790	5,567	257	2,972	8,795
2030	3,422	1,408	959	5,789	5,560	256	3,024	8,840
2031	3,457	1,384	953	5,794	5,560	257	3,079	8,897
2032	3,488	1,366	949	5,803	5,563	257	3,132	8,952
2033	3,522	1,346	944	5,812	5,567	257	3,184	9,007
2034	3,554	1,328	941	5,823	5,572	256	3,235	9,063
2035	3,581	1,311	934	5,827	5,571	257	3,283	9,110
2036	3,614	1,299	938	5,852	5,590	257	3,336	9,182
2037	3,647	1,285	940	5,872	5,604	257	3,385	9,245
2038	3,680	1,270	940	5,890	5,615	257	3,433	9,305
2043	3,818	1,234	943	5,995	5,689	252	3,639	9,580
2048	3,908	1,223	954	6,084	5,773	247	3,799	9,820
2053	3,976	1,225	958	6,158	5,844	242	3,917	10,003
2058	4,068	1,209	973	6,250	5,931	242	4,020	10,193
2063	4,211	1,182	990	6,382	6,057	245	4,123	10,425
2068	4,386	1,160	1,001	6,547	6,213	248	4,237	10,698

Appendix Table A16: Low-variant family and household projections for Hauraki District, 2018-2068

Year	Families				Households			
	Couples without children	**Two-parent families**	**One-parent families**	**Total families**	**Family households**	**Other multi-person households**	**One-person households**	**Total households**
2018	2,861	1,741	1,058	5,660	5,498	286	2,309	8,093
2019	2,911	1,711	1,043	5,664	5,497	281	2,364	8,142
2020	2,971	1,692	1,033	5,697	5,524	279	2,428	8,231
2021	3,037	1,660	1,018	5,715	5,536	276	2,495	8,307
2022	3,086	1,625	1,006	5,717	5,533	272	2,556	8,362
2023	3,132	1,588	989	5,709	5,520	268	2,610	8,398
2024	3,171	1,548	972	5,691	5,497	265	2,658	8,420
2025	3,203	1,506	959	5,668	5,470	259	2,708	8,437
2026	3,234	1,466	945	5,646	5,443	255	2,760	8,458
2027	3,260	1,429	934	5,622	5,416	252	2,813	8,481
2028	3,288	1,392	925	5,605	5,394	249	2,858	8,501
2029	3,313	1,358	920	5,591	5,375	247	2,907	8,528
2030	3,336	1,322	910	5,568	5,348	245	2,951	8,544
2031	3,362	1,290	898	5,551	5,327	245	2,998	8,570
2032	3,383	1,264	890	5,536	5,308	244	3,042	8,594
2033	3,406	1,236	880	5,523	5,290	243	3,085	8,618
2034	3,428	1,210	873	5,511	5,274	242	3,127	8,642
2035	3,445	1,186	861	5,492	5,250	241	3,165	8,656
2036	3,467	1,167	860	5,493	5,247	240	3,208	8,696
2037	3,488	1,145	857	5,490	5,239	239	3,247	8,725
2038	3,509	1,123	852	5,484	5,228	238	3,285	8,751
2043	3,581	1,055	831	5,466	5,187	228	3,433	8,848
2048	3,593	1,013	818	5,425	5,148	218	3,529	8,894
2053	3,577	988	800	5,365	5,091	208	3,575	8,874
2058	3,579	947	795	5,321	5,050	203	3,602	8,855
2063	3,628	898	791	5,317	5,045	202	3,624	8,871
2068	3,708	855	782	5,345	5,072	200	3,652	8,924

Appendix Table A17: High-variant family and household projections for Hauraki District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	2,861	1,741	1,058	5,660	5,498	286	2,309	8,093
2019	2,928	1,730	1,054	5,713	5,545	284	2,378	8,207
2020	3,007	1,733	1,057	5,797	5,621	285	2,457	8,363
2021	3,078	1,706	1,044	5,828	5,646	282	2,528	8,456
2022	3,136	1,680	1,037	5,853	5,664	280	2,596	8,540
2023	3,193	1,654	1,026	5,873	5,678	277	2,659	8,615
2024	3,244	1,627	1,017	5,888	5,688	275	2,718	8,681
2025	3,291	1,600	1,011	5,902	5,695	272	2,780	8,747
2026	3,337	1,574	1,007	5,918	5,706	269	2,846	8,820
2027	3,378	1,553	1,004	5,936	5,717	268	2,913	8,898
2028	3,424	1,532	1,005	5,960	5,736	267	2,972	8,975
2029	3,467	1,514	1,009	5,989	5,758	267	3,036	9,061
2030	3,508	1,494	1,009	6,010	5,773	267	3,096	9,137
2031	3,553	1,479	1,007	6,038	5,794	269	3,160	9,224
2032	3,593	1,468	1,008	6,069	5,819	270	3,222	9,310
2033	3,637	1,456	1,008	6,101	5,844	271	3,282	9,397
2034	3,680	1,446	1,010	6,136	5,871	271	3,343	9,485
2035	3,718	1,437	1,008	6,163	5,892	272	3,400	9,564
2036	3,762	1,432	1,017	6,211	5,933	274	3,463	9,670
2037	3,807	1,425	1,024	6,255	5,969	275	3,522	9,766
2038	3,851	1,417	1,029	6,297	6,003	275	3,581	9,859
2043	4,056	1,414	1,056	6,526	6,193	276	3,844	10,314
2048	4,222	1,433	1,090	6,746	6,401	277	4,069	10,748
2053	4,375	1,463	1,116	6,954	6,599	277	4,258	11,134
2058	4,557	1,473	1,153	7,183	6,816	282	4,438	11,536
2063	4,793	1,470	1,190	7,453	7,073	289	4,622	11,984
2068	5,064	1,468	1,223	7,756	7,360	296	4,822	12,478

Appendix Table A18: Medium-variant family and household projections for Waikato District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	8,766	8,744	3,820	21,330	20,334	844	4,591	25,769
2019	9,040	8,853	3,873	21,766	20,730	852	4,750	26,332
2020	9,363	9,019	3,954	22,337	21,253	866	4,935	27,054
2021	9,660	9,111	3,999	22,771	21,646	872	5,117	27,635
2022	9,931	9,176	4,027	23,133	21,970	875	5,285	28,130
2023	10,183	9,215	4,049	23,447	22,247	877	5,451	28,574
2024	10,418	9,245	4,073	23,735	22,499	879	5,610	28,988
2025	10,647	9,266	4,091	24,004	22,733	881	5,771	29,384
2026	10,865	9,300	4,119	24,284	22,976	882	5,931	29,788
2027	11,088	9,324	4,150	24,561	23,217	885	6,090	30,191
2028	11,312	9,330	4,178	24,820	23,439	890	6,252	30,581
2029	11,533	9,339	4,210	25,082	23,664	895	6,415	30,974
2030	11,753	9,345	4,240	25,337	23,883	900	6,580	31,362
2031	11,955	9,369	4,272	25,597	24,105	904	6,741	31,749
2032	12,167	9,386	4,313	25,865	24,335	908	6,900	32,143
2033	12,383	9,398	4,352	26,133	24,564	913	7,064	32,541
2034	12,589	9,407	4,390	26,386	24,778	918	7,226	32,922
2035	12,799	9,418	4,428	26,644	24,997	924	7,391	33,313
2036	12,990	9,446	4,469	26,905	25,218	928	7,551	33,697
2037	13,193	9,477	4,513	27,183	25,455	933	7,708	34,096
2038	13,393	9,500	4,556	27,449	25,681	937	7,867	34,485
2043	14,265	9,642	4,740	28,647	26,677	945	8,607	36,229
2048	14,953	9,831	4,889	29,673	27,633	939	9,247	37,819
2053	15,512	10,025	5,018	30,555	28,454	931	9,789	39,174
2058	16,052	10,163	5,126	31,341	29,186	928	10,278	40,391
2063	16,761	10,212	5,216	32,189	29,975	938	10,695	41,609
2068	17,547	10,210	5,300	33,057	30,784	943	11,113	42,841

Appendix Table A19: Low-variant family and household projections for Waikato District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	8,766	8,744	3,820	21,330	20,334	844	4,591	25,769
2019	9,006	8,811	3,853	21,670	20,638	847	4,734	26,219
2020	9,295	8,933	3,912	22,139	21,066	856	4,901	26,823
2021	9,582	9,012	3,951	22,545	21,432	862	5,078	27,371
2022	9,836	9,055	3,970	22,861	21,712	863	5,237	27,812
2023	10,068	9,068	3,979	23,115	21,932	862	5,391	28,185
2024	10,277	9,066	3,989	23,332	22,116	861	5,538	28,516
2025	10,478	9,052	3,992	23,521	22,275	860	5,683	28,819
2026	10,665	9,047	4,003	23,715	22,438	858	5,827	29,123
2027	10,856	9,031	4,016	23,902	22,593	858	5,968	29,420
2028	11,046	8,995	4,026	24,066	22,727	860	6,112	29,699
2029	11,231	8,960	4,039	24,230	22,860	861	6,255	29,976
2030	11,414	8,921	4,050	24,385	22,985	862	6,400	30,247
2031	11,578	8,900	4,063	24,542	23,111	863	6,539	30,513
2032	11,749	8,872	4,084	24,705	23,243	864	6,676	30,783
2033	11,925	8,838	4,104	24,867	23,373	866	6,816	31,055
2034	12,088	8,800	4,123	25,011	23,487	867	6,955	31,308
2035	12,253	8,765	4,141	25,159	23,604	870	7,095	31,568
2036	12,399	8,747	4,161	25,307	23,721	870	7,229	31,819
2037	12,555	8,732	4,185	25,472	23,853	871	7,359	32,084
2038	12,707	8,710	4,208	25,625	23,974	872	7,491	32,337
2043	13,303	8,627	4,288	26,219	24,416	861	8,079	33,356
2048	13,666	8,603	4,332	26,601	24,772	834	8,546	34,152
2053	13,860	8,593	4,354	26,807	24,964	806	8,894	34,665
2058	14,007	8,533	4,359	26,899	25,049	785	9,169	35,003
2063	14,305	8,393	4,344	27,042	25,182	778	9,355	35,315
2068	14,668	8,209	4,325	27,202	25,332	767	9,523	35,623

Appendix Table A20: High-variant family and household projections for Waikato District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	8,766	8,744	3,820	21,330	20,334	844	4,591	25,769
2019	9,073	8,895	3,894	21,862	20,821	857	4,767	26,445
2020	9,432	9,106	3,997	22,534	21,441	875	4,968	27,285
2021	9,739	9,210	4,047	22,996	21,860	883	5,156	27,898
2022	10,025	9,296	4,084	23,405	22,228	888	5,333	28,448
2023	10,299	9,362	4,118	23,780	22,562	892	5,510	28,964
2024	10,559	9,424	4,156	24,139	22,882	896	5,683	29,461
2025	10,816	9,481	4,190	24,487	23,190	901	5,858	29,950
2026	11,065	9,552	4,235	24,852	23,514	906	6,035	30,454
2027	11,320	9,617	4,283	25,221	23,840	912	6,211	30,963
2028	11,578	9,666	4,330	25,574	24,151	921	6,392	31,464
2029	11,835	9,718	4,381	25,933	24,467	929	6,575	31,971
2030	12,092	9,768	4,429	26,290	24,780	937	6,760	32,478
2031	12,333	9,837	4,481	26,652	25,098	944	6,943	32,985
2032	12,584	9,900	4,541	27,025	25,426	952	7,124	33,503
2033	12,842	9,958	4,600	27,400	25,754	961	7,311	34,026
2034	13,090	10,014	4,658	27,762	26,070	969	7,497	34,536
2035	13,344	10,071	4,715	28,130	26,391	979	7,687	35,057
2036	13,581	10,145	4,776	28,502	26,716	986	7,873	35,574
2037	13,832	10,222	4,840	28,894	27,057	994	8,057	36,109
2038	14,080	10,291	4,903	29,275	27,388	1,002	8,244	36,634
2043	15,228	10,657	5,191	31,076	28,939	1,029	9,135	39,104
2048	16,240	11,060	5,447	32,747	30,496	1,044	9,948	41,488
2053	17,164	11,457	5,682	34,304	31,945	1,055	10,685	43,685
2058	18,097	11,793	5,895	35,785	33,325	1,071	11,386	45,782
2063	19,216	12,033	6,090	37,339	34,772	1,099	12,036	47,906
2068	20,423	12,215	6,278	38,916	36,241	1,120	12,702	50,063

Appendix Table A21: Medium-variant family and household projections for Matamata-Piako District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	4,726	3,596	1,489	9,811	9,500	457	3,248	13,205
2019	4,826	3,597	1,491	9,914	9,590	454	3,328	13,372
2020	4,945	3,635	1,512	10,092	9,753	457	3,425	13,635
2021	5,032	3,637	1,521	10,191	9,840	453	3,505	13,798
2022	5,118	3,632	1,527	10,277	9,914	448	3,582	13,944
2023	5,195	3,621	1,530	10,346	9,970	443	3,655	14,068
2024	5,266	3,608	1,534	10,408	10,021	439	3,726	14,186
2025	5,328	3,604	1,537	10,470	10,071	434	3,799	14,304
2026	5,387	3,605	1,542	10,534	10,123	429	3,870	14,421
2027	5,450	3,604	1,548	10,603	10,179	423	3,942	14,545
2028	5,514	3,605	1,557	10,676	10,240	423	4,020	14,684
2029	5,572	3,600	1,562	10,734	10,286	420	4,089	14,795
2030	5,629	3,604	1,571	10,805	10,344	419	4,160	14,922
2031	5,678	3,608	1,578	10,864	10,392	414	4,228	15,034
2032	5,726	3,614	1,586	10,926	10,441	412	4,301	15,154
2033	5,781	3,625	1,593	10,998	10,500	412	4,376	15,288
2034	5,829	3,625	1,598	11,052	10,541	408	4,443	15,393
2035	5,875	3,634	1,607	11,116	10,593	406	4,514	15,513
2036	5,918	3,639	1,614	11,171	10,635	405	4,582	15,622
2037	5,958	3,644	1,624	11,226	10,678	402	4,657	15,737
2038	5,999	3,657	1,635	11,292	10,730	398	4,729	15,858
2043	6,204	3,653	1,669	11,526	10,902	382	5,063	16,347
2048	6,436	3,613	1,687	11,737	11,101	376	5,349	16,827
2053	6,693	3,579	1,709	11,980	11,332	373	5,571	17,276
2058	6,989	3,549	1,726	12,263	11,600	370	5,737	17,707
2063	7,333	3,521	1,746	12,600	11,918	366	5,846	18,130
2068	7,664	3,502	1,769	12,936	12,236	362	6,010	18,608

Appendix Table A22: Low-variant family and household projections for Matamata-Piako District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	4,726	3,596	1,489	9,811	9,500	457	3,248	13,205
2019	4,810	3,577	1,484	9,871	9,548	451	3,317	13,317
2020	4,913	3,595	1,496	10,003	9,668	451	3,404	13,522
2021	4,996	3,592	1,503	10,091	9,743	446	3,480	13,670
2022	5,075	3,577	1,506	10,157	9,798	441	3,552	13,791
2023	5,142	3,555	1,504	10,200	9,830	434	3,618	13,882
2024	5,202	3,528	1,502	10,233	9,852	429	3,681	13,962
2025	5,252	3,509	1,499	10,261	9,870	423	3,746	14,038
2026	5,298	3,493	1,498	10,289	9,888	415	3,807	14,110
2027	5,347	3,476	1,497	10,320	9,908	408	3,870	14,186
2028	5,396	3,459	1,499	10,354	9,932	406	3,937	14,275
2029	5,439	3,436	1,496	10,371	9,939	401	3,995	14,335
2030	5,480	3,422	1,499	10,401	9,958	398	4,054	14,409
2031	5,512	3,407	1,498	10,418	9,965	392	4,110	14,467
2032	5,544	3,394	1,498	10,436	9,972	388	4,171	14,531
2033	5,581	3,386	1,497	10,464	9,990	387	4,233	14,610
2034	5,612	3,367	1,494	10,473	9,989	381	4,287	14,657
2035	5,638	3,358	1,496	10,492	9,998	377	4,344	14,719
2036	5,662	3,344	1,495	10,501	9,997	374	4,398	14,769
2037	5,683	3,330	1,497	10,509	9,996	370	4,458	14,824
2038	5,703	3,324	1,500	10,528	10,005	364	4,516	14,884
2043	5,794	3,228	1,493	10,515	9,946	339	4,767	15,052
2048	5,893	3,101	1,471	10,465	9,899	323	4,961	15,183
2053	6,001	2,984	1,452	10,437	9,872	311	5,080	15,264
2058	6,134	2,876	1,429	10,439	9,874	301	5,135	15,309
2063	6,305	2,775	1,409	10,489	9,921	290	5,123	15,334
2068	6,456	2,687	1,392	10,535	9,965	280	5,159	15,404

Appendix Table A23: High-variant family and household projections for Matamata-Piako District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	4,726	3,596	1,489	9,811	9,500	457	3,248	13,205
2019	4,842	3,616	1,499	9,957	9,632	457	3,338	13,427
2020	4,978	3,675	1,528	10,180	9,839	462	3,447	13,748
2021	5,069	3,683	1,539	10,291	9,937	459	3,530	13,925
2022	5,162	3,686	1,549	10,397	10,030	455	3,613	14,097
2023	5,248	3,687	1,556	10,491	10,111	451	3,691	14,253
2024	5,330	3,688	1,566	10,584	10,190	449	3,770	14,409
2025	5,405	3,699	1,575	10,679	10,272	446	3,852	14,570
2026	5,477	3,716	1,586	10,779	10,358	442	3,932	14,732
2027	5,554	3,733	1,599	10,885	10,451	438	4,015	14,904
2028	5,632	3,751	1,615	10,998	10,549	440	4,104	15,093
2029	5,705	3,764	1,627	11,096	10,634	439	4,184	15,256
2030	5,778	3,787	1,644	11,209	10,732	439	4,266	15,436
2031	5,843	3,809	1,659	11,312	10,819	436	4,346	15,602
2032	5,909	3,834	1,674	11,416	10,909	436	4,432	15,777
2033	5,981	3,864	1,688	11,533	11,011	438	4,519	15,968
2034	6,048	3,883	1,701	11,631	11,094	436	4,600	16,130
2035	6,112	3,911	1,718	11,741	11,189	435	4,684	16,308
2036	6,174	3,935	1,734	11,843	11,275	436	4,767	16,477
2037	6,234	3,958	1,751	11,944	11,361	435	4,856	16,652
2038	6,296	3,991	1,770	12,057	11,457	433	4,944	16,833
2043	6,616	4,078	1,846	12,540	11,861	426	5,359	17,647
2048	6,981	4,128	1,905	13,014	12,310	430	5,739	18,479
2053	7,388	4,177	1,968	13,534	12,801	435	6,064	19,300
2058	7,848	4,227	2,026	14,102	13,339	440	6,344	20,122
2063	8,367	4,276	2,087	14,729	13,932	443	6,574	20,949
2068	8,881	4,329	2,152	15,362	14,530	446	6,868	21,844

Appendix Table A24: Medium-variant family and household projections for Hamilton City, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	15,886	16,687	9,357	41,930	40,600	4,140	12,739	57,479
2019	16,258	17,088	9,560	42,906	41,506	4,209	12,972	58,687
2020	16,696	17,631	9,835	44,162	42,681	4,304	13,257	60,241
2021	17,011	18,071	10,023	45,106	43,552	4,305	13,521	61,377
2022	17,286	18,485	10,195	45,966	44,341	4,297	13,766	62,403
2023	17,571	18,894	10,363	46,828	45,130	4,284	14,001	63,415
2024	17,827	19,281	10,530	47,639	45,868	4,301	14,231	64,400
2025	18,060	19,680	10,706	48,446	46,601	4,328	14,446	65,375
2026	18,268	20,077	10,876	49,221	47,302	4,361	14,671	66,334
2027	18,453	20,467	11,040	49,961	47,967	4,387	14,900	67,254
2028	18,677	20,871	11,212	50,760	48,689	4,426	15,135	68,250
2029	18,903	21,252	11,386	51,541	49,392	4,457	15,375	69,224
2030	19,133	21,633	11,568	52,334	50,105	4,486	15,613	70,204
2031	19,367	21,999	11,757	53,123	50,813	4,520	15,863	71,196
2032	19,596	22,349	11,934	53,880	51,488	4,557	16,109	72,154
2033	19,848	22,714	12,129	54,690	52,214	4,578	16,374	73,166
2034	20,099	23,070	12,318	55,486	52,924	4,591	16,635	74,150
2035	20,360	23,411	12,495	56,267	53,618	4,603	16,903	75,125
2036	20,645	23,737	12,672	57,054	54,318	4,612	17,174	76,104
2037	20,944	24,039	12,843	57,826	55,002	4,625	17,441	77,068
2038	21,236	24,352	13,011	58,598	55,684	4,623	17,727	78,035
2043	22,787	25,713	13,716	62,216	58,848	4,579	19,156	82,583
2048	24,598	26,656	14,206	65,460	61,917	4,569	20,656	87,142
2053	26,662	27,205	14,577	68,445	64,740	4,544	22,189	91,473
2058	28,767	27,522	14,889	71,178	67,326	4,492	23,725	95,543
2063	30,955	27,638	15,113	73,706	69,717	4,426	25,233	99,375
2068	33,084	27,521	15,238	75,843	71,738	4,351	26,874	102,962

Appendix Table A25: Low-variant family and household projections for Hamilton City, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	15,886	16,687	9,357	41,930	40,600	4,140	12,739	57,479
2019	16,192	17,010	9,516	42,718	41,324	4,182	12,931	58,437
2020	16,562	17,470	9,744	43,776	42,308	4,248	13,174	59,729
2021	16,859	17,886	9,919	44,664	43,125	4,243	13,425	60,794
2022	17,104	18,258	10,069	45,431	43,824	4,225	13,651	61,700
2023	17,349	18,613	10,209	46,171	44,496	4,200	13,859	62,555
2024	17,559	18,937	10,343	46,838	45,097	4,201	14,057	63,355
2025	17,739	19,264	10,481	47,484	45,675	4,211	14,237	64,123
2026	17,891	19,583	10,610	48,084	46,208	4,226	14,424	64,858
2027	18,017	19,889	10,730	48,636	46,695	4,233	14,611	65,539
2028	18,179	20,203	10,856	49,238	47,229	4,253	14,803	66,285
2029	18,341	20,490	10,982	49,814	47,736	4,265	14,997	66,999
2030	18,506	20,773	11,115	50,394	48,247	4,275	15,187	67,709
2031	18,672	21,039	11,252	50,963	48,746	4,291	15,387	68,424
2032	18,832	21,284	11,377	51,493	49,207	4,309	15,582	69,098
2033	19,013	21,542	11,517	52,072	49,714	4,312	15,793	69,819
2034	19,191	21,789	11,650	52,630	50,200	4,306	15,997	70,503
2035	19,378	22,018	11,771	53,167	50,665	4,299	16,208	71,172
2036	19,585	22,231	11,890	53,706	51,130	4,290	16,418	71,839
2037	19,806	22,417	12,002	54,225	51,577	4,284	16,623	72,484
2038	20,017	22,613	12,110	54,741	52,019	4,263	16,845	73,128
2043	21,119	23,376	12,503	56,997	53,912	4,123	17,918	75,953
2048	22,397	23,709	12,668	58,774	55,593	4,019	19,000	78,612
2053	23,839	23,655	12,714	60,208	56,950	3,907	20,051	80,907
2058	25,238	23,386	12,704	61,328	58,009	3,776	21,043	82,827
2063	26,644	22,942	12,613	62,199	58,832	3,638	21,946	84,416
2068	27,933	22,294	12,427	62,654	59,263	3,498	22,929	85,690

Appendix Table A26: High-variant family and household projections for Hamilton City, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	15,886	16,687	9,357	41,930	40,600	4,140	12,739	57,479
2019	16,324	17,165	9,604	43,093	41,687	4,237	13,013	58,937
2020	16,831	17,792	9,926	44,548	43,054	4,360	13,340	60,753
2021	17,163	18,257	10,127	45,548	43,979	4,366	13,616	61,960
2022	17,469	18,712	10,321	46,502	44,857	4,368	13,882	63,107
2023	17,794	19,175	10,517	47,486	45,763	4,369	14,143	64,275
2024	18,096	19,626	10,718	48,440	46,639	4,401	14,405	65,445
2025	18,381	20,096	10,932	49,409	47,527	4,446	14,655	66,627
2026	18,645	20,572	11,143	50,359	48,396	4,496	14,919	67,811
2027	18,890	21,047	11,350	51,287	49,240	4,541	15,189	68,970
2028	19,175	21,540	11,569	52,284	50,151	4,599	15,468	70,217
2029	19,465	22,015	11,790	53,271	51,049	4,649	15,753	71,452
2030	19,762	22,493	12,023	54,277	51,965	4,697	16,040	72,702
2031	20,063	22,961	12,263	55,287	52,882	4,750	16,340	73,972
2032	20,362	23,414	12,493	56,269	53,771	4,806	16,638	75,215
2033	20,684	23,887	12,741	57,312	54,717	4,845	16,957	76,519
2034	21,008	24,353	12,986	58,347	55,652	4,876	17,274	77,803
2035	21,345	24,806	13,221	59,371	56,577	4,907	17,600	79,084
2036	21,706	25,246	13,455	60,407	57,510	4,935	17,931	80,377
2037	22,084	25,663	13,686	61,433	58,433	4,967	18,261	81,660
2038	22,456	26,093	13,913	62,462	59,356	4,983	18,611	82,950
2043	24,460	28,055	14,931	67,446	63,795	5,036	20,398	89,230
2048	26,807	29,608	15,748	72,164	68,258	5,121	22,319	95,697
2053	29,497	30,764	16,446	76,707	72,555	5,184	24,335	102,075
2058	32,314	31,670	17,081	81,065	76,677	5,213	26,421	108,311
2063	35,288	32,351	17,623	85,263	80,648	5,218	28,537	114,403
2068	38,266	32,769	18,062	89,097	84,274	5,209	30,841	120,325

Appendix Table A27: Medium-variant family and household projections for Waipā District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	7,142	6,089	2,389	15,620	15,089	677	4,396	20,163
2019	7,320	6,125	2,404	15,848	15,296	678	4,515	20,490
2020	7,537	6,213	2,441	16,192	15,612	684	4,662	20,958
2021	7,721	6,251	2,462	16,434	15,831	688	4,790	21,309
2022	7,884	6,280	2,479	16,643	16,017	684	4,912	21,614
2023	8,039	6,300	2,494	16,833	16,185	681	5,021	21,887
2024	8,190	6,293	2,499	16,982	16,312	679	5,127	22,119
2025	8,322	6,301	2,504	17,128	16,437	676	5,241	22,354
2026	8,467	6,315	2,513	17,295	16,582	675	5,350	22,608
2027	8,592	6,330	2,526	17,448	16,713	672	5,463	22,848
2028	8,718	6,344	2,539	17,601	16,844	671	5,576	23,091
2029	8,863	6,334	2,547	17,743	16,964	672	5,682	23,319
2030	8,984	6,341	2,559	17,884	17,083	672	5,785	23,540
2031	9,115	6,358	2,572	18,045	17,221	670	5,884	23,775
2032	9,232	6,376	2,589	18,197	17,349	671	5,981	24,000
2033	9,345	6,392	2,602	18,338	17,467	670	6,074	24,211
2034	9,471	6,389	2,611	18,471	17,577	668	6,171	24,416
2035	9,589	6,400	2,626	18,615	17,698	668	6,274	24,639
2036	9,709	6,411	2,634	18,754	17,814	666	6,377	24,856
2037	9,823	6,427	2,647	18,896	17,932	664	6,472	25,068
2038	9,933	6,436	2,656	19,026	18,038	661	6,568	25,267
2043	10,468	6,478	2,707	19,653	18,546	651	7,009	26,207
2048	10,952	6,512	2,759	20,224	19,085	642	7,383	27,110
2053	11,406	6,542	2,800	20,749	19,581	636	7,705	27,922
2058	11,863	6,561	2,831	21,256	20,059	632	7,962	28,652
2063	12,369	6,566	2,857	21,792	20,565	630	8,179	29,375
2068	12,880	6,558	2,879	22,317	21,060	628	8,419	30,107

Appendix Table A28: Low-variant family and household projections for Waipā District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	7,142	6,089	2,389	15,620	15,089	677	4,396	20,163
2019	7,292	6,094	2,392	15,779	15,229	674	4,500	20,403
2020	7,480	6,152	2,417	16,049	15,475	676	4,631	20,782
2021	7,657	6,181	2,434	16,272	15,675	679	4,754	21,108
2022	7,806	6,196	2,446	16,448	15,830	674	4,868	21,373
2023	7,944	6,197	2,454	16,596	15,957	668	4,967	21,593
2024	8,075	6,168	2,451	16,694	16,036	665	5,062	21,763
2025	8,185	6,152	2,447	16,784	16,107	659	5,163	21,929
2026	8,305	6,140	2,446	16,891	16,195	656	5,258	22,108
2027	8,403	6,127	2,449	16,979	16,264	650	5,355	22,269
2028	8,502	6,113	2,451	17,065	16,331	646	5,452	22,429
2029	8,618	6,073	2,448	17,138	16,385	645	5,541	22,571
2030	8,709	6,049	2,449	17,207	16,436	642	5,626	22,704
2031	8,809	6,035	2,450	17,295	16,505	637	5,707	22,849
2032	8,894	6,022	2,456	17,372	16,562	635	5,785	22,982
2033	8,974	6,006	2,456	17,436	16,608	631	5,859	23,098
2034	9,067	5,972	2,453	17,492	16,646	626	5,936	23,208
2035	9,150	5,950	2,457	17,557	16,692	624	6,017	23,333
2036	9,234	5,930	2,453	17,616	16,733	619	6,099	23,451
2037	9,312	5,913	2,453	17,678	16,776	615	6,172	23,563
2038	9,384	5,890	2,451	17,725	16,805	609	6,245	23,660
2043	9,712	5,773	2,440	17,924	16,915	585	6,564	24,064
2048	9,959	5,652	2,430	18,041	17,026	561	6,800	24,387
2053	10,151	5,532	2,411	18,095	17,076	541	6,970	24,587
2058	10,324	5,407	2,383	18,114	17,094	524	7,062	24,680
2063	10,531	5,273	2,350	18,154	17,132	511	7,105	24,747
2068	10,729	5,132	2,315	18,176	17,153	497	7,161	24,811

Appendix Table A29: High-variant family and household projections for Waipā District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	7,142	6,089	2,389	15,620	15,089	677	4,396	20,163
2019	7,348	6,155	2,416	15,918	15,363	682	4,530	20,576
2020	7,593	6,275	2,466	16,334	15,750	692	4,693	21,135
2021	7,785	6,321	2,489	16,596	15,987	696	4,826	21,509
2022	7,961	6,365	2,511	16,837	16,204	695	4,956	21,855
2023	8,134	6,403	2,534	17,071	16,413	693	5,075	22,181
2024	8,305	6,418	2,547	17,269	16,589	694	5,193	22,475
2025	8,460	6,450	2,561	17,471	16,767	693	5,319	22,780
2026	8,630	6,490	2,580	17,700	16,970	695	5,443	23,108
2027	8,781	6,533	2,603	17,917	17,162	694	5,571	23,427
2028	8,934	6,576	2,627	18,137	17,357	696	5,700	23,753
2029	9,108	6,595	2,646	18,349	17,543	700	5,823	24,066
2030	9,259	6,633	2,670	18,562	17,730	703	5,944	24,376
2031	9,422	6,680	2,694	18,796	17,937	703	6,061	24,702
2032	9,570	6,730	2,723	19,023	18,137	707	6,177	25,020
2033	9,716	6,777	2,747	19,240	18,326	708	6,290	25,324
2034	9,876	6,807	2,768	19,451	18,510	709	6,407	25,626
2035	10,029	6,849	2,795	19,674	18,704	712	6,530	25,947
2036	10,185	6,893	2,815	19,893	18,896	712	6,655	26,263
2037	10,336	6,941	2,840	20,117	19,090	714	6,772	26,576
2038	10,484	6,982	2,862	20,328	19,272	714	6,890	26,877
2043	11,227	7,184	2,975	21,386	20,182	718	7,456	28,356
2048	11,949	7,376	3,090	22,414	21,152	724	7,968	29,843
2053	12,667	7,558	3,192	23,416	22,098	731	8,443	31,273
2058	13,410	7,723	3,283	24,416	23,041	740	8,866	32,648
2063	14,219	7,870	3,369	25,457	24,024	751	9,260	34,035
2068	15,045	7,999	3,449	26,493	25,002	760	9,685	35,446

Appendix Table A30: Medium-variant family and household projections for Otorohanga District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	1,225	1,106	443	2,774	2,686	104	841	3,632
2019	1,245	1,106	444	2,795	2,704	103	856	3,663
2020	1,266	1,123	449	2,838	2,743	103	878	3,724
2021	1,283	1,133	454	2,869	2,771	102	893	3,766
2022	1,303	1,136	462	2,901	2,799	102	913	3,814
2023	1,319	1,138	464	2,921	2,816	101	928	3,845
2024	1,335	1,134	468	2,937	2,828	101	942	3,872
2025	1,346	1,137	473	2,956	2,845	101	959	3,904
2026	1,358	1,144	481	2,983	2,868	101	971	3,939
2027	1,373	1,151	487	3,011	2,892	102	988	3,981
2028	1,386	1,156	497	3,039	2,916	102	1,006	4,024
2029	1,399	1,153	500	3,053	2,926	103	1,029	4,058
2030	1,414	1,158	509	3,081	2,950	104	1,047	4,102
2031	1,430	1,168	518	3,116	2,981	106	1,063	4,150
2032	1,446	1,177	525	3,148	3,009	106	1,081	4,196
2033	1,457	1,187	529	3,173	3,030	106	1,092	4,229
2034	1,473	1,189	535	3,196	3,050	107	1,108	4,265
2035	1,489	1,193	536	3,218	3,067	106	1,119	4,293
2036	1,505	1,202	541	3,248	3,093	107	1,133	4,333
2037	1,518	1,210	548	3,276	3,117	106	1,150	4,374
2038	1,525	1,221	553	3,299	3,136	105	1,163	4,404
2043	1,584	1,252	560	3,396	3,213	98	1,218	4,529
2048	1,645	1,269	574	3,488	3,301	95	1,248	4,644
2053	1,712	1,279	587	3,578	3,385	96	1,296	4,777
2058	1,800	1,284	605	3,689	3,491	100	1,340	4,931
2063	1,905	1,288	617	3,810	3,605	101	1,399	5,104
2068	2,006	1,297	624	3,927	3,716	99	1,470	5,285

Appendix Table A31: Low-variant family and household projections for Otorohanga District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	1,225	1,106	443	2,774	2,686	104	841	3,632
2019	1,240	1,101	442	2,783	2,693	102	853	3,647
2020	1,257	1,112	444	2,813	2,719	102	872	3,693
2021	1,273	1,120	448	2,841	2,744	100	886	3,731
2022	1,292	1,120	456	2,868	2,767	100	905	3,772
2023	1,305	1,119	457	2,881	2,777	99	918	3,794
2024	1,318	1,111	459	2,888	2,781	99	930	3,810
2025	1,326	1,109	462	2,898	2,788	98	944	3,831
2026	1,334	1,112	469	2,915	2,802	98	954	3,853
2027	1,346	1,113	472	2,932	2,816	98	968	3,882
2028	1,355	1,114	480	2,948	2,829	98	983	3,910
2029	1,364	1,105	481	2,951	2,828	99	1,004	3,930
2030	1,375	1,104	488	2,967	2,841	100	1,018	3,959
2031	1,387	1,109	495	2,990	2,861	101	1,031	3,993
2032	1,399	1,112	500	3,010	2,877	101	1,046	4,023
2033	1,404	1,116	502	3,022	2,886	100	1,054	4,041
2034	1,416	1,112	505	3,033	2,893	101	1,067	4,061
2035	1,427	1,110	504	3,041	2,899	100	1,074	4,073
2036	1,438	1,113	507	3,058	2,912	100	1,085	4,096
2037	1,446	1,116	512	3,073	2,924	99	1,098	4,120
2038	1,447	1,120	515	3,082	2,930	97	1,107	4,134
2043	1,476	1,121	508	3,106	2,939	88	1,141	4,168
2048	1,502	1,110	510	3,121	2,953	83	1,148	4,184
2053	1,528	1,090	511	3,129	2,960	82	1,169	4,211
2058	1,572	1,068	516	3,155	2,985	84	1,184	4,253
2063	1,629	1,044	515	3,189	3,017	82	1,211	4,310
2068	1,680	1,027	509	3,216	3,042	80	1,247	4,369

Appendix Table A32: High-variant family and household projections for Otorohanga District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	1,225	1,106	443	2,774	2,686	104	841	3,632
2019	1,249	1,112	446	2,807	2,716	103	859	3,678
2020	1,274	1,134	454	2,862	2,767	104	885	3,756
2021	1,292	1,146	459	2,897	2,798	103	900	3,801
2022	1,315	1,151	468	2,935	2,832	103	921	3,856
2023	1,333	1,157	472	2,962	2,855	103	938	3,897
2024	1,352	1,157	477	2,986	2,876	103	955	3,933
2025	1,366	1,165	484	3,015	2,901	103	973	3,978
2026	1,381	1,177	494	3,052	2,934	104	988	4,026
2027	1,400	1,188	502	3,091	2,968	105	1,008	4,081
2028	1,417	1,199	513	3,129	3,003	106	1,028	4,137
2029	1,434	1,202	519	3,155	3,024	107	1,055	4,186
2030	1,453	1,212	530	3,195	3,059	109	1,076	4,244
2031	1,474	1,227	541	3,242	3,102	111	1,095	4,308
2032	1,494	1,242	550	3,287	3,142	111	1,115	4,369
2033	1,509	1,258	557	3,324	3,175	112	1,130	4,417
2034	1,530	1,266	564	3,360	3,206	113	1,150	4,469
2035	1,551	1,276	568	3,395	3,236	113	1,164	4,513
2036	1,572	1,290	576	3,438	3,274	114	1,182	4,570
2037	1,590	1,305	585	3,480	3,311	114	1,203	4,627
2038	1,603	1,322	592	3,517	3,343	113	1,219	4,675
2043	1,692	1,383	611	3,686	3,487	108	1,296	4,891
2048	1,789	1,429	638	3,857	3,649	107	1,349	5,106
2053	1,896	1,468	664	4,029	3,812	111	1,424	5,346
2058	2,030	1,502	695	4,227	3,999	116	1,497	5,613
2063	2,183	1,534	720	4,438	4,199	119	1,589	5,906
2068	2,335	1,571	741	4,646	4,396	120	1,695	6,211

Appendix Table A33: Medium-variant family and household projections for South Waikato District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	2,603	2,280	1,503	6,386	6,118	331	2,366	8,815
2019	2,612	2,264	1,496	6,372	6,099	329	2,379	8,807
2020	2,628	2,261	1,500	6,389	6,109	328	2,405	8,841
2021	2,639	2,250	1,495	6,384	6,098	322	2,425	8,845
2022	2,649	2,234	1,491	6,374	6,083	317	2,442	8,842
2023	2,654	2,220	1,489	6,364	6,068	313	2,458	8,838
2024	2,664	2,206	1,488	6,358	6,056	311	2,471	8,838
2025	2,666	2,189	1,483	6,338	6,031	309	2,487	8,828
2026	2,662	2,178	1,480	6,320	6,009	307	2,501	8,817
2027	2,659	2,166	1,477	6,302	5,986	303	2,518	8,807
2028	2,661	2,164	1,483	6,308	5,987	304	2,534	8,825
2029	2,667	2,162	1,491	6,319	5,991	304	2,551	8,846
2030	2,667	2,158	1,500	6,325	5,991	303	2,567	8,861
2031	2,666	2,157	1,509	6,332	5,992	303	2,582	8,877
2032	2,666	2,153	1,514	6,334	5,988	303	2,600	8,891
2033	2,670	2,161	1,527	6,358	6,005	302	2,616	8,923
2034	2,671	2,171	1,538	6,381	6,021	300	2,632	8,954
2035	2,676	2,177	1,547	6,399	6,033	298	2,649	8,980
2036	2,682	2,182	1,557	6,421	6,048	297	2,665	9,011
2037	2,689	2,185	1,568	6,441	6,062	296	2,686	9,043
2038	2,699	2,195	1,577	6,471	6,084	294	2,704	9,082
2043	2,733	2,226	1,610	6,569	6,147	283	2,791	9,221
2048	2,774	2,248	1,651	6,673	6,245	279	2,879	9,402
2053	2,844	2,260	1,696	6,800	6,363	280	2,966	9,609
2058	2,976	2,264	1,732	6,972	6,525	281	3,049	9,854
2063	3,153	2,262	1,762	7,177	6,716	282	3,158	10,156
2068	3,329	2,257	1,800	7,386	6,912	281	3,312	10,504

Appendix Table A34: Low-variant family and household projections for South Waikato District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	2,603	2,280	1,503	6,386	6,118	331	2,366	8,815
2019	2,605	2,252	1,489	6,346	6,074	327	2,372	8,772
2020	2,614	2,238	1,484	6,336	6,058	324	2,390	8,772
2021	2,622	2,223	1,478	6,324	6,041	318	2,409	8,767
2022	2,630	2,203	1,470	6,303	6,015	312	2,422	8,750
2023	2,631	2,182	1,464	6,277	5,985	307	2,434	8,726
2024	2,636	2,160	1,458	6,254	5,957	304	2,442	8,703
2025	2,632	2,135	1,447	6,214	5,914	302	2,453	8,669
2026	2,623	2,115	1,438	6,176	5,872	298	2,461	8,631
2027	2,614	2,094	1,429	6,137	5,829	293	2,472	8,594
2028	2,610	2,082	1,429	6,121	5,809	293	2,482	8,583
2029	2,609	2,070	1,430	6,109	5,792	291	2,492	8,575
2030	2,603	2,055	1,433	6,092	5,770	289	2,501	8,560
2031	2,595	2,045	1,435	6,075	5,749	288	2,509	8,546
2032	2,588	2,031	1,433	6,052	5,722	287	2,519	8,528
2033	2,585	2,028	1,439	6,052	5,716	285	2,528	8,529
2034	2,579	2,028	1,443	6,050	5,709	282	2,536	8,527
2035	2,576	2,023	1,445	6,043	5,698	279	2,545	8,521
2036	2,573	2,018	1,447	6,039	5,688	277	2,553	8,518
2037	2,572	2,011	1,451	6,033	5,678	274	2,565	8,517
2038	2,574	2,011	1,452	6,037	5,675	271	2,574	8,521
2043	2,560	1,989	1,447	5,995	5,610	254	2,613	8,477
2048	2,545	1,958	1,447	5,950	5,568	244	2,645	8,458
2053	2,550	1,920	1,452	5,922	5,541	239	2,671	8,451
2058	2,610	1,875	1,448	5,933	5,552	235	2,684	8,471
2063	2,709	1,827	1,436	5,972	5,589	231	2,717	8,536
2068	2,801	1,779	1,432	6,012	5,626	225	2,788	8,639

Appendix Table A35: High-variant family and household projections for South Waikato District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	2,603	2,280	1,503	6,386	6,118	331	2,366	8,815
2019	2,620	2,275	1,504	6,399	6,124	330	2,386	8,841
2020	2,643	2,284	1,515	6,442	6,160	331	2,419	8,910
2021	2,655	2,276	1,513	6,444	6,155	326	2,442	8,923
2022	2,669	2,266	1,512	6,446	6,152	321	2,462	8,935
2023	2,678	2,258	1,514	6,450	6,150	318	2,482	8,950
2024	2,692	2,251	1,518	6,462	6,155	317	2,499	8,972
2025	2,699	2,243	1,519	6,461	6,149	317	2,521	8,987
2026	2,701	2,242	1,521	6,464	6,146	315	2,541	9,002
2027	2,704	2,239	1,525	6,467	6,143	313	2,564	9,020
2028	2,712	2,246	1,538	6,496	6,165	315	2,587	9,067
2029	2,724	2,254	1,551	6,529	6,191	316	2,610	9,117
2030	2,732	2,260	1,568	6,559	6,213	316	2,633	9,162
2031	2,737	2,270	1,584	6,590	6,236	317	2,656	9,209
2032	2,744	2,276	1,596	6,616	6,255	319	2,681	9,254
2033	2,756	2,294	1,615	6,664	6,295	319	2,704	9,318
2034	2,764	2,315	1,634	6,713	6,334	318	2,728	9,381
2035	2,776	2,331	1,650	6,757	6,370	317	2,753	9,441
2036	2,790	2,347	1,667	6,804	6,409	318	2,778	9,505
2037	2,806	2,360	1,685	6,851	6,447	317	2,808	9,572
2038	2,824	2,381	1,701	6,906	6,493	317	2,834	9,644
2043	2,907	2,464	1,774	7,146	6,687	312	2,970	9,969
2048	3,006	2,539	1,856	7,401	6,926	315	3,114	10,354
2053	3,141	2,603	1,942	7,686	7,193	321	3,265	10,778
2058	3,345	2,657	2,021	8,023	7,508	327	3,418	11,253
2063	3,601	2,703	2,093	8,398	7,859	334	3,604	11,796
2068	3,862	2,744	2,174	8,780	8,217	338	3,842	12,397

Appendix Table A36: Medium-variant family and household projections for Waitomo District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	1,066	965	496	2,528	2,415	133	955	3,503
2019	1,072	961	492	2,526	2,411	129	961	3,502
2020	1,080	969	496	2,545	2,427	128	973	3,528
2021	1,088	962	492	2,541	2,421	127	981	3,529
2022	1,093	954	485	2,533	2,410	127	989	3,526
2023	1,097	949	483	2,529	2,405	126	995	3,526
2024	1,098	940	479	2,517	2,391	125	999	3,516
2025	1,101	936	478	2,515	2,387	125	1,006	3,517
2026	1,102	934	479	2,515	2,384	123	1,011	3,518
2027	1,102	931	479	2,512	2,380	120	1,019	3,519
2028	1,100	930	482	2,512	2,377	119	1,031	3,528
2029	1,101	922	480	2,503	2,367	118	1,043	3,527
2030	1,103	920	481	2,504	2,365	118	1,057	3,541
2031	1,100	922	480	2,502	2,361	118	1,068	3,547
2032	1,098	924	477	2,499	2,356	118	1,074	3,548
2033	1,093	929	480	2,503	2,358	117	1,084	3,559
2034	1,093	925	481	2,500	2,352	118	1,096	3,565
2035	1,093	929	484	2,506	2,356	117	1,106	3,579
2036	1,090	931	488	2,509	2,356	116	1,118	3,590
2037	1,089	932	491	2,512	2,357	116	1,128	3,601
2038	1,085	937	495	2,517	2,360	115	1,140	3,615
2043	1,092	942	498	2,533	2,363	111	1,180	3,654
2048	1,109	946	499	2,554	2,383	109	1,218	3,710
2053	1,150	946	499	2,595	2,422	107	1,241	3,769
2058	1,208	945	505	2,658	2,480	107	1,262	3,848
2063	1,273	947	506	2,726	2,544	107	1,303	3,954
2068	1,339	943	516	2,799	2,611	107	1,353	4,071

Appendix Table A37: Low-variant family and household projections for Waitomo District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	1,066	965	496	2,528	2,415	133	955	3,503
2019	1,069	956	490	2,515	2,400	129	958	3,487
2020	1,073	959	490	2,522	2,405	127	966	3,498
2021	1,080	950	486	2,516	2,396	126	973	3,496
2022	1,084	940	479	2,503	2,382	125	980	3,487
2023	1,086	932	475	2,493	2,370	124	984	3,478
2024	1,084	921	470	2,474	2,350	123	986	3,459
2025	1,085	913	467	2,465	2,339	122	990	3,451
2026	1,084	907	466	2,456	2,329	119	993	3,441
2027	1,082	900	464	2,445	2,316	117	998	3,431
2028	1,076	895	465	2,437	2,306	115	1,007	3,428
2029	1,075	883	461	2,419	2,287	114	1,016	3,416
2030	1,073	877	461	2,411	2,277	114	1,027	3,418
2031	1,068	875	457	2,399	2,264	113	1,035	3,412
2032	1,062	873	453	2,388	2,251	112	1,038	3,401
2033	1,055	874	454	2,382	2,244	111	1,045	3,400
2034	1,051	866	452	2,369	2,229	111	1,053	3,393
2035	1,048	865	453	2,366	2,225	110	1,060	3,394
2036	1,042	863	455	2,359	2,216	109	1,068	3,393
2037	1,036	861	456	2,353	2,208	108	1,074	3,390
2038	1,029	861	459	2,349	2,202	107	1,083	3,392
2043	1,016	846	451	2,313	2,158	100	1,102	3,361
2048	1,009	830	441	2,280	2,128	96	1,117	3,341
2053	1,025	809	431	2,265	2,114	92	1,116	3,322
2058	1,054	789	427	2,270	2,118	90	1,111	3,319
2063	1,090	771	418	2,279	2,127	89	1,124	3,339
2068	1,125	749	417	2,291	2,138	86	1,143	3,367

Appendix Table A38: High-variant family and household projections for Waitomo District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	1,066	965	496	2,528	2,415	133	955	3,503
2019	1,076	967	495	2,538	2,422	130	965	3,517
2020	1,087	980	501	2,568	2,448	130	980	3,558
2021	1,096	973	498	2,567	2,445	129	989	3,563
2022	1,103	968	492	2,563	2,439	129	998	3,566
2023	1,108	965	492	2,565	2,439	128	1,006	3,573
2024	1,111	960	489	2,560	2,432	127	1,013	3,572
2025	1,117	959	489	2,566	2,435	127	1,022	3,584
2026	1,121	961	492	2,573	2,440	126	1,030	3,595
2027	1,123	962	494	2,579	2,443	124	1,040	3,607
2028	1,124	965	499	2,588	2,449	123	1,055	3,627
2029	1,128	961	499	2,588	2,446	122	1,070	3,639
2030	1,132	963	502	2,598	2,453	123	1,087	3,664
2031	1,133	969	502	2,604	2,458	124	1,101	3,682
2032	1,133	976	502	2,611	2,462	123	1,111	3,696
2033	1,132	985	507	2,624	2,472	123	1,124	3,719
2034	1,135	985	510	2,630	2,475	124	1,139	3,737
2035	1,139	993	515	2,646	2,488	124	1,153	3,764
2036	1,139	999	520	2,658	2,497	123	1,168	3,788
2037	1,141	1,005	525	2,671	2,506	123	1,182	3,812
2038	1,141	1,013	532	2,687	2,519	123	1,198	3,840
2043	1,169	1,039	545	2,753	2,569	121	1,258	3,949
2048	1,209	1,063	557	2,829	2,640	122	1,319	4,080
2053	1,277	1,083	568	2,927	2,732	122	1,366	4,219
2058	1,363	1,103	584	3,049	2,845	124	1,414	4,382
2063	1,458	1,124	596	3,178	2,965	126	1,484	4,575
2068	1,556	1,140	617	3,312	3,091	127	1,565	4,784

Appendix Table A39: Medium-variant family and household projections for Taupō District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	5,068	3,552	1,889	10,509	10,153	554	3,648	14,356
2019	5,153	3,544	1,892	10,588	10,220	553	3,716	14,489
2020	5,262	3,562	1,909	10,733	10,350	558	3,809	14,717
2021	5,356	3,556	1,913	10,825	10,429	554	3,890	14,873
2022	5,432	3,541	1,907	10,880	10,472	549	3,971	14,992
2023	5,495	3,531	1,908	10,933	10,513	544	4,050	15,108
2024	5,559	3,509	1,905	10,972	10,540	544	4,125	15,210
2025	5,624	3,489	1,905	11,018	10,575	542	4,198	15,316
2026	5,675	3,482	1,906	11,062	10,607	539	4,270	15,416
2027	5,721	3,473	1,905	11,099	10,632	536	4,337	15,505
2028	5,771	3,472	1,914	11,157	10,678	537	4,410	15,625
2029	5,815	3,463	1,917	11,196	10,705	536	4,481	15,723
2030	5,866	3,456	1,922	11,244	10,742	537	4,554	15,833
2031	5,903	3,461	1,932	11,296	10,780	536	4,625	15,942
2032	5,934	3,460	1,940	11,334	10,807	535	4,690	16,032
2033	5,969	3,466	1,953	11,388	10,849	534	4,762	16,145
2034	5,994	3,467	1,959	11,420	10,868	530	4,822	16,219
2035	6,022	3,469	1,964	11,456	10,892	527	4,889	16,309
2036	6,050	3,478	1,976	11,503	10,927	524	4,954	16,405
2037	6,079	3,483	1,985	11,547	10,959	523	5,009	16,490
2038	6,111	3,490	1,991	11,592	10,991	518	5,065	16,575
2043	6,227	3,511	2,003	11,740	11,080	489	5,320	16,889
2048	6,310	3,527	2,021	11,857	11,190	470	5,528	17,189
2053	6,450	3,522	2,043	12,014	11,339	458	5,681	17,478
2058	6,684	3,476	2,066	12,226	11,539	453	5,826	17,818
2063	6,988	3,421	2,070	12,480	11,778	452	5,973	18,203
2068	7,277	3,389	2,078	12,743	12,027	447	6,163	18,637

Appendix Table A40: Low-variant family and household projections for Taupō District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	5,068	3,552	1,889	10,509	10,153	554	3,648	14,356
2019	5,136	3,526	1,882	10,544	10,177	549	3,704	14,430
2020	5,227	3,526	1,889	10,642	10,263	551	3,785	14,598
2021	5,317	3,516	1,890	10,723	10,331	546	3,862	14,738
2022	5,385	3,491	1,881	10,757	10,354	539	3,937	14,830
2023	5,438	3,471	1,876	10,784	10,370	533	4,009	14,911
2024	5,490	3,436	1,866	10,791	10,367	530	4,075	14,973
2025	5,542	3,403	1,859	10,804	10,369	527	4,138	15,034
2026	5,578	3,380	1,853	10,811	10,366	521	4,200	15,087
2027	5,609	3,356	1,843	10,809	10,354	516	4,255	15,125
2028	5,644	3,339	1,844	10,826	10,362	515	4,316	15,192
2029	5,672	3,314	1,839	10,824	10,350	511	4,375	15,236
2030	5,706	3,290	1,835	10,830	10,346	510	4,436	15,291
2031	5,725	3,277	1,836	10,838	10,343	507	4,493	15,343
2032	5,738	3,259	1,835	10,832	10,328	503	4,545	15,376
2033	5,756	3,247	1,838	10,841	10,328	500	4,603	15,431
2034	5,762	3,230	1,835	10,827	10,305	493	4,647	15,445
2035	5,771	3,215	1,832	10,817	10,285	489	4,700	15,475
2036	5,778	3,206	1,834	10,818	10,277	484	4,749	15,509
2037	5,787	3,194	1,833	10,815	10,264	480	4,788	15,532
2038	5,798	3,184	1,831	10,812	10,252	473	4,828	15,554
2043	5,798	3,118	1,796	10,712	10,109	433	4,995	15,537
2048	5,747	3,052	1,767	10,567	9,973	403	5,103	15,479
2053	5,739	2,969	1,745	10,453	9,865	382	5,145	15,393
2058	5,812	2,850	1,724	10,387	9,803	368	5,171	15,342
2063	5,946	2,725	1,685	10,356	9,774	358	5,191	15,324
2068	6,060	2,625	1,649	10,334	9,753	347	5,246	15,345

Appendix Table A41: High-variant family and household projections for Taupō District, 2018-2068

Year	Families				Households			
	Couples without children	Two-parent families	One-parent families	Total families	Family households	Other multi-person households	One-person households	Total households
2018	5,068	3,552	1,889	10,509	10,153	554	3,648	14,356
2019	5,170	3,561	1,901	10,632	10,263	557	3,728	14,548
2020	5,297	3,598	1,929	10,823	10,437	566	3,833	14,836
2021	5,395	3,597	1,935	10,928	10,528	563	3,918	15,008
2022	5,479	3,590	1,934	11,003	10,591	558	4,005	15,154
2023	5,552	3,591	1,940	11,083	10,657	556	4,091	15,304
2024	5,628	3,581	1,943	11,152	10,714	557	4,176	15,447
2025	5,707	3,575	1,951	11,233	10,781	558	4,258	15,597
2026	5,771	3,583	1,960	11,314	10,849	557	4,341	15,746
2027	5,832	3,590	1,967	11,389	10,910	556	4,419	15,885
2028	5,898	3,605	1,984	11,487	10,994	560	4,504	16,057
2029	5,959	3,613	1,996	11,568	11,061	561	4,587	16,210
2030	6,027	3,623	2,010	11,659	11,138	564	4,673	16,375
2031	6,081	3,644	2,029	11,754	11,218	566	4,757	16,541
2032	6,129	3,662	2,046	11,837	11,286	567	4,836	16,690
2033	6,183	3,685	2,068	11,936	11,370	568	4,922	16,861
2034	6,227	3,703	2,083	12,013	11,433	566	4,996	16,995
2035	6,275	3,723	2,097	12,095	11,501	566	5,079	17,146
2036	6,322	3,750	2,118	12,190	11,580	565	5,159	17,304
2037	6,372	3,773	2,136	12,281	11,656	566	5,230	17,451
2038	6,424	3,798	2,152	12,374	11,733	563	5,302	17,599
2043	6,658	3,905	2,211	12,774	12,056	545	5,647	18,248
2048	6,875	4,005	2,276	13,155	12,416	538	5,956	18,910
2053	7,165	4,079	2,344	13,588	12,824	536	6,221	19,581
2058	7,563	4,109	2,413	14,085	13,293	540	6,486	20,319
2063	8,039	4,128	2,462	14,629	13,807	547	6,762	21,116
2068	8,509	4,165	2,514	15,188	14,334	550	7,090	21,974

Appendix III

Appendix Table A42: Medium-variant Labour Force Projections, 2018-2068

Year	Thames-Coromandel District	Hauraki District	Waikato District	Matamata-Piako District	Hamilton City
2018	14,849	10,268	43,465	19,150	92,473
2019	14,775	10,266	44,250	19,348	94,832
2020	14,823	10,340	45,344	19,671	97,899
2021	14,750	10,309	46,116	19,818	99,941
2022	14,624	10,282	46,824	19,931	101,789
2023	14,523	10,249	47,437	20,061	103,690
2024	14,389	10,220	48,045	20,155	105,589
2025	14,270	10,184	48,607	20,281	107,478
2026	14,169	10,155	49,163	20,373	109,403
2027	14,067	10,139	49,748	20,469	111,268
2028	14,010	10,124	50,334	20,618	113,233
2029	13,911	10,113	50,907	20,719	115,215
2030	13,823	10,106	51,508	20,854	117,197
2031	13,773	10,143	52,104	20,974	119,233
2032	13,723	10,167	52,745	21,083	121,245
2033	13,706	10,189	53,363	21,229	123,209
2034	13,661	10,221	53,942	21,336	125,133
2035	13,620	10,259	54,545	21,466	127,082
2036	13,609	10,308	55,161	21,602	129,046
2037	13,601	10,361	55,793	21,723	131,000
2038	13,604	10,408	56,396	21,864	132,869
2043	13,657	10,695	59,256	22,612	142,096
2048	13,269	10,673	60,716	22,960	149,099
2053	13,100	10,713	62,119	23,432	155,400
2058	13,103	10,832	63,542	23,952	160,442
2063	13,210	11,040	65,046	24,379	163,877
2068	13,405	11,316	66,682	24,757	165,877

Appendix Table A42: Medium-variant Labour Force Projections, 2018-2068 ctd.

Year	Waipā District	Otorohanga District	South Waikato District	Waitomo District	Taupō District
2018	30,664	5,742	12,445	5,367	21,092
2019	31,087	5,782	12,469	5,354	21,280
2020	31,707	5,877	12,560	5,401	21,619
2021	32,208	5,933	12,557	5,388	21,757
2022	32,583	5,993	12,530	5,386	21,867
2023	32,941	6,048	12,558	5,374	22,005
2024	33,275	6,080	12,590	5,355	22,117
2025	33,556	6,138	12,606	5,361	22,229
2026	33,891	6,204	12,621	5,351	22,338
2027	34,204	6,265	12,627	5,345	22,433
2028	34,504	6,313	12,685	5,344	22,577
2029	34,802	6,367	12,745	5,341	22,663
2030	35,123	6,427	12,794	5,360	22,772
2031	35,454	6,509	12,857	5,370	22,899
2032	35,776	6,575	12,912	5,383	23,025
2033	36,067	6,621	12,990	5,401	23,156
2034	36,359	6,670	13,056	5,407	23,236
2035	36,673	6,721	13,117	5,425	23,325
2036	36,999	6,784	13,198	5,439	23,442
2037	37,318	6,836	13,273	5,456	23,557
2038	37,632	6,885	13,361	5,480	23,679
2043	39,209	7,134	13,800	5,617	24,237
2048	39,907	7,300	14,082	5,708	24,395
2053	40,675	7,507	14,511	5,832	24,754
2058	41,441	7,728	14,975	5,976	25,196
2063	42,180	7,949	15,413	6,103	25,629
2068	42,918	8,148	15,818	6,221	26,061

Appendix Table A43: Low-variant Labour Force Projections, 2018-2068

Year	Thames-Coromandel District	Hauraki District	Waikato District	Matamata-Piako District	Hamilton City
2018	14,849	10,268	43,465	19,150	92,473
2019	14,695	10,213	44,031	19,250	94,350
2020	14,662	10,233	44,900	19,471	96,911
2021	14,571	10,190	45,617	19,595	98,826
2022	14,413	10,142	46,228	19,665	100,452
2023	14,270	10,079	46,712	19,740	102,062
2024	14,086	10,016	47,167	19,768	103,614
2025	13,912	9,943	47,558	19,821	105,116
2026	13,752	9,874	47,930	19,835	106,621
2027	13,589	9,816	48,320	19,847	108,039
2028	13,469	9,757	48,702	19,910	109,533
2029	13,304	9,702	49,063	19,922	111,027
2030	13,150	9,650	49,447	19,965	112,502
2031	13,033	9,640	49,820	19,991	114,017
2032	12,915	9,617	50,232	20,005	115,493
2033	12,830	9,591	50,619	20,053	116,911
2034	12,715	9,575	50,957	20,060	118,265
2035	12,603	9,562	51,311	20,086	119,628
2036	12,519	9,560	51,673	20,115	120,992
2037	12,438	9,560	52,047	20,129	122,335
2038	12,368	9,555	52,387	20,161	123,582
2043	12,043	9,564	53,849	20,332	129,494
2048	11,314	9,275	53,902	20,110	133,063
2053	10,819	9,050	53,867	20,001	135,789
2058	10,514	8,910	53,852	19,939	137,188
2063	10,333	8,868	53,940	19,791	136,996
2068	10,259	8,905	54,194	19,607	135,450

Appendix Table A43: Low-variant Labour Force Projections, 2018-2068 ctd.

Year	Waipā District	Otorohanga District	South Waikato District	Waitomo District	Taupō District
2018	30,664	5,742	12,445	5,367	21,092
2019	30,933	5,754	12,410	5,329	21,175
2020	31,394	5,821	12,441	5,349	21,406
2021	31,857	5,870	12,423	5,330	21,518
2022	32,163	5,918	12,371	5,319	21,583
2023	32,431	5,957	12,367	5,293	21,662
2024	32,656	5,970	12,360	5,258	21,704
2025	32,817	6,008	12,333	5,247	21,738
2026	33,023	6,051	12,302	5,219	21,764
2027	33,198	6,088	12,261	5,193	21,772
2028	33,354	6,112	12,269	5,172	21,824
2029	33,503	6,141	12,277	5,149	21,815
2030	33,671	6,174	12,273	5,147	21,827
2031	33,843	6,229	12,282	5,135	21,855
2032	34,005	6,268	12,281	5,126	21,879
2033	34,132	6,286	12,303	5,122	21,908
2034	34,254	6,306	12,311	5,105	21,882
2035	34,394	6,327	12,311	5,099	21,861
2036	34,542	6,360	12,330	5,089	21,867
2037	34,680	6,381	12,342	5,082	21,869
2038	34,810	6,397	12,367	5,082	21,877
2043	35,417	6,479	12,466	5,090	21,834
2048	35,154	6,474	12,406	5,052	21,399
2053	34,940	6,501	12,482	5,045	21,156
2058	34,715	6,539	12,587	5,056	20,996
2063	34,466	6,577	12,661	5,049	20,834
2068	34,232	6,593	12,704	5,030	20,687

Appendix Table A44: High-variant Labour Force Projections, 2018-2068

Year	Thames-Coromandel District	Hauraki District	Waikato District	Matamata-Piako District	Hamilton City
2018	14,849	10,268	43,465	19,150	92,473
2019	14,855	10,319	44,468	19,447	95,314
2020	14,983	10,447	45,789	19,870	98,888
2021	14,928	10,428	46,615	20,042	101,057
2022	14,835	10,423	47,421	20,196	103,126
2023	14,776	10,418	48,163	20,382	105,320
2024	14,692	10,423	48,923	20,542	107,564
2025	14,628	10,425	49,656	20,741	109,841
2026	14,586	10,436	50,396	20,911	112,187
2027	14,546	10,462	51,176	21,090	114,500
2028	14,553	10,490	51,966	21,326	116,935
2029	14,518	10,524	52,750	21,516	119,407
2030	14,497	10,563	53,569	21,743	121,896
2031	14,514	10,646	54,388	21,958	124,454
2032	14,532	10,718	55,258	22,163	127,003
2033	14,583	10,787	56,108	22,406	129,515
2034	14,608	10,869	56,929	22,615	132,010
2035	14,639	10,957	57,780	22,849	134,546
2036	14,701	11,058	58,650	23,091	137,113
2037	14,766	11,163	59,542	23,321	139,681
2038	14,844	11,264	60,407	23,572	142,172
2043	15,277	11,830	64,669	24,900	154,728
2048	15,233	12,076	67,539	25,826	165,182
2053	15,396	12,386	70,383	26,889	175,082
2058	15,713	12,768	73,250	28,003	183,789
2063	16,114	13,229	76,174	29,018	190,881
2068	16,583	13,748	79,199	29,975	196,462

Appendix Table A44: High-variant Labour Force Projections, 2018-2068 ctd.

Year	Waipā District	Otorohanga District	South Waikato District	Waitomo District	Taupō District
2018	30,664	5,742	12,445	5,367	21,092
2019	31,242	5,809	12,529	5,380	21,385
2020	32,020	5,933	12,680	5,453	21,832
2021	32,559	5,995	12,691	5,445	21,996
2022	33,003	6,068	12,689	5,454	22,151
2023	33,452	6,139	12,750	5,455	22,348
2024	33,893	6,189	12,821	5,452	22,529
2025	34,294	6,268	12,879	5,475	22,719
2026	34,760	6,356	12,939	5,484	22,912
2027	35,211	6,441	12,994	5,497	23,096
2028	35,654	6,514	13,102	5,516	23,331
2029	36,102	6,594	13,214	5,534	23,512
2030	36,576	6,679	13,316	5,574	23,718
2031	37,065	6,788	13,434	5,605	23,944
2032	37,549	6,883	13,544	5,640	24,172
2033	38,004	6,957	13,679	5,680	24,406
2034	38,466	7,035	13,804	5,709	24,593
2035	38,955	7,116	13,925	5,751	24,791
2036	39,460	7,210	14,068	5,789	25,021
2037	39,961	7,293	14,207	5,831	25,250
2038	40,459	7,373	14,359	5,880	25,487
2043	43,013	7,791	15,141	6,148	26,653
2048	44,683	8,131	15,770	6,368	27,413
2053	46,446	8,519	16,559	6,626	28,387
2058	48,218	8,926	17,392	6,905	29,447
2063	49,963	9,335	18,203	7,171	30,492
2068	51,696	9,721	18,983	7,427	31,526