

# Report to Strategy and Policy Committee August 2015 – To be received

**File No:** 41 10 19  
**Date:** 27 July 2015  
**To:** Chief Executive Officer  
**From:** Director Science and Strategy  
**Subject:** **Waikato Population Projections 2013 to 2063**  
**Section:** A (Committee has delegated authority to make decision)

---

## Purpose

The purpose of this report is to inform the Committee about the recently completed population projections from 2013 to 2063 for the Waikato region and its eleven territorial authorities. The report discusses some of the strategic issues related to the projected changes in population numbers and structure, including differences across the region.

## Recommendation:

That the report “*Waikato Population Projections 2013 to 2063*” (Doc # 3462880 dated 27 July 2015) be received for information.

## Background

New Zealand’s population is in a period of rapid change, with implications for the economy, social cohesion, education, health and the place of Maori. Understanding where people live now, where they will live in the future and why this may change over time is fundamental to planning for the future of our region. Demographic changes are one of the key drivers for change identified in Council’s Strategic Direction. The 2013 census provides an ideal opportunity to achieve a better understanding of the changing nature of our region’s population.

In early 2015, the Waikato Regional Council (WRC) commissioned the University of Waikato to provide regional and territorial authority (TA) level population, household and labour force projections for the Waikato Region<sup>1</sup>. This was undertaken in collaboration with the territorial authorities (TAs) to inform LTPs, Future Proof and the Waikato Plan. These projections are an update on preliminary projections undertaken in 2014 for council’s LTPs<sup>2</sup> and build on other work undertaken by the National Institute of Demographic and Economic Analysis (NIDEA), University of Waikato<sup>3</sup>.

---

<sup>1</sup> Cameron, M.P. and Cochrane, W. 2015. *Population, Household, and Labour Force Projections for the Waikato Region, 2013-2051*, research report commissioned by Waikato Regional Council, Hamilton: University of Waikato. WRC Technical Report 2015/28.

<sup>2</sup> Cameron, M.P., and Cochrane, W. 2014. *Population, Household, and Labour Force Projections for the Waikato Region, 2013-2051*, research report commissioned by Waikato Regional Council, Hamilton: University of Waikato. WRC Technical Report 2014/47. <http://www.waikatoregion.govt.nz/tr201447/>

<sup>3</sup> Cameron, M.P., Jackson, N., and Cochrane, W. 2014. *Baseline and Stochastic Population Projections for the Territorial Authorities of the Waikato Region for the Period 2013-2063*, commissioned report, Hamilton: University of Waikato, National Institute of Demographic and Economic Analysis.

This report summarises the NIDEA projection results. *Projections* are an indication of the future characteristics of a population based on an assessment of past trends and assumptions about the future course of demographic behaviour (e.g. fertility, mortality, migration). They are not forecasts or predictions, because they depend on sets of assumptions and no explicit assessment is made of the relatively likelihood of the assumptions being correct in the future.

**Caveats of projections**

*Projections are not forecasts or predictions*

No model can predict the future. Models are not reality but a representation of it based on input data, available knowledge and expert assumptions. The projections represent only one possible, albeit plausible, future.

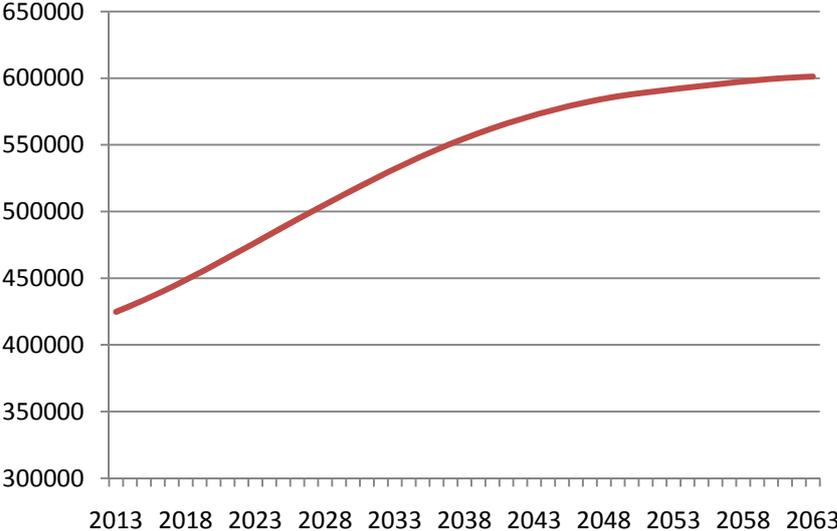
*Uncertainty*

There is a risk that the detailed information provided for such a long time frame may result in a false sense of accuracy. The further out in time, and the smaller the spatial scale considered, the higher the level of uncertainty associated with the projections. Demographies and economies are complex systems characterised by multi-scale dynamic feedbacks which cannot be predicted. For this reason it is not possible to fully quantify the uncertainty associated with our projections. Planners and policy analysts would be much more assisted in testing various plausible futures and better understanding the range of possible futures rather than detailing any of them to a high level of detail.

**Results**

*Population Projections*

Attachment 1 summarises the baseline (2013) and projected future populations, households and labour force for selected future years (2018, 2043 and 2063). Overall the Waikato region shows steady growth (see Figure 1) from 424,740 in 2013 to 601,259 in 2063.

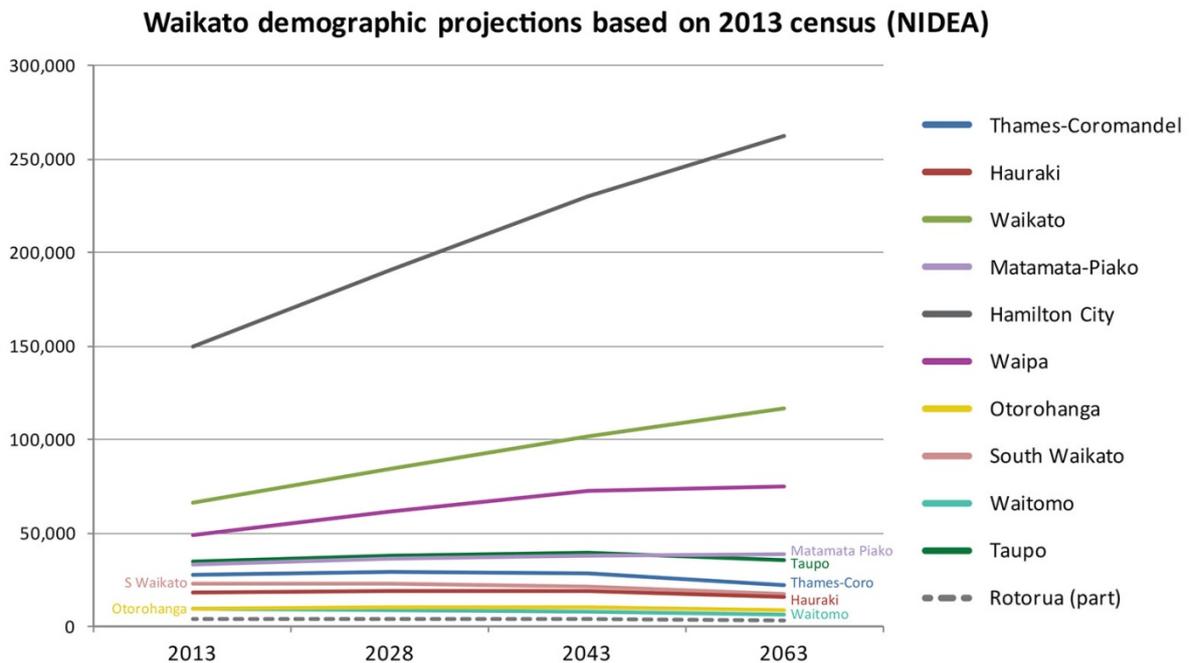


**Figure 1 Population projections for the Waikato Region, 2013-2063.**

---

McMillan, R. 2015. Strategic interventions to population decline. Commissioned report for the Local Government Shared Services, University Of Waikato, Hamilton.  
Jackson,N.O. 2011. The demographic forces shaping New Zealand’s future. What population ageing really means. NIDEA working papers No.1.

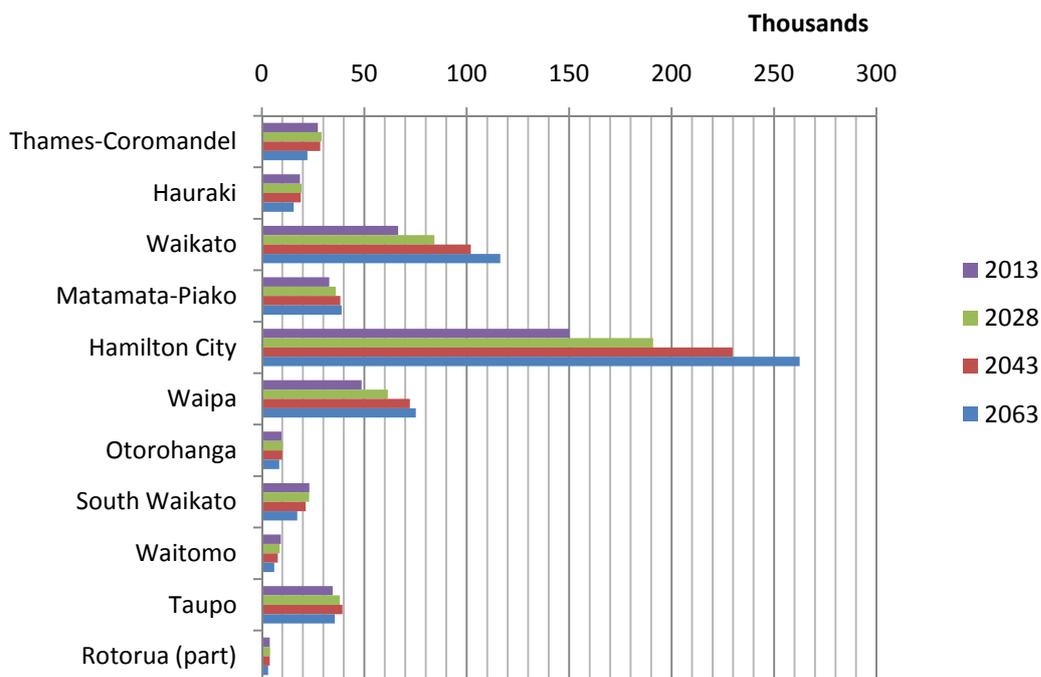
However, this overall picture masks substantial variation in the projected population growth experienced by the individual TAs (Figure 2 and 3, Attachment 1).



**Figure 2 Population projections for the TAs in the Waikato region, 2013-2063.**

Three principal patterns of projected population change over the next fifty years can be differentiated (Figure 3):

1. Ongoing strong growth through to 2063 (Hamilton, Waikato and Waipa, and to a lesser extent Matamata-Piako).
2. Initial growth followed by decline after 2040/2050 (Thames-Coromandel, Hauraki, Otorohanga, Taupo and Rotorua (part in Waikato region only)).
3. Steady decline from now through to 2063 (South Waikato and Waitomo).



**Figure 3 Baseline population (2013) and projections for 2028, 2043, 2063 for the TAs in the Waikato region.**

### *Household Projections*

Overall, the number of households is projected to closely follow the trajectory of the population for each territorial authority (Attachment 1). However, 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.

### *Labour Force Projections*

The labour force projections generally show a sustained increase in the labour force to about 2030, after which the labour force begins to slow down and become stagnant (Attachment 1). However, given the significant population ageing that the region will experience the size of the future labour force depends crucially on the incentives (or disincentives) provided for older people to remain in the paid workforce.

## **What the projections tell us**

The following is a summary of some observations from the results of the Waikato projections:

- **Overall the Waikato is a region of sustained population growth:** Overall the region is projected to experience a strong population growth from 424,740 in 2013 to 601,259 in 2063, an increase of 41.6 percent. Population growth will increase demands for a range of services and infrastructure, particularly transport systems and public services, such as for health, social services and education. This will require a significant investment and coordinated planning.
- **We are at the transition from growth to decline:** The sub-national end of growth and onset of absolute decline affects most of the TAs in the Waikato region, only Hamilton, Waipa, Waikato and to a lesser degree Matamata-Piako will not experience absolute or relative decline in the period until 2063. In Hamilton and surrounding districts international and domestic migration and the ethnic composition (more youthful Maori, Pacific Island and Asian population) will slow ageing and the population continues to grow. This means Hamilton City will increase its share of the region's population from 35.5 percent in 2013 to nearly half (43.7% percent) in 2063. It also means even more pressures on limited resources such as water, high quality soil in and around Hamilton, and to a lesser extent other urban areas. In areas of declining (and ageing) population in rural towns and communities it will be increasingly difficult to provide adequate infrastructure and services at an affordable cost to the ratepayers. Funding from other sources (e.g. central government) will also be increasingly limited, because of more demand and competition.
- **In growth areas housing will be less affordable:** In areas of strong ongoing projected growth (Hamilton, Waipa, Waikato), and especially those areas under pressure from Auckland spill-over (North Waikato) housing will be in high demand, prices increase and affordability decreases.
- **Smaller families will change future housing needs:** The low fertility (smaller family sizes), increasing longevity and mobility will alter housing demand/type. Smaller family sizes will not necessarily correlate with smaller house sizes, because fertility trends are /strongly associated with increasing affluence. More people living longer and more widowed elderly will be associated with diminishing average household size and increasing demand for smaller units and/or retirement villages.
- **The Waikato is relatively youthful:** Compared to New Zealand the Waikato has a relatively young population, mainly due to a high proportion of young people in Hamilton with its educational facilities. Investing in youth to ensure they have the right skills and providing attractive work opportunities within the region will be important to retain young people.

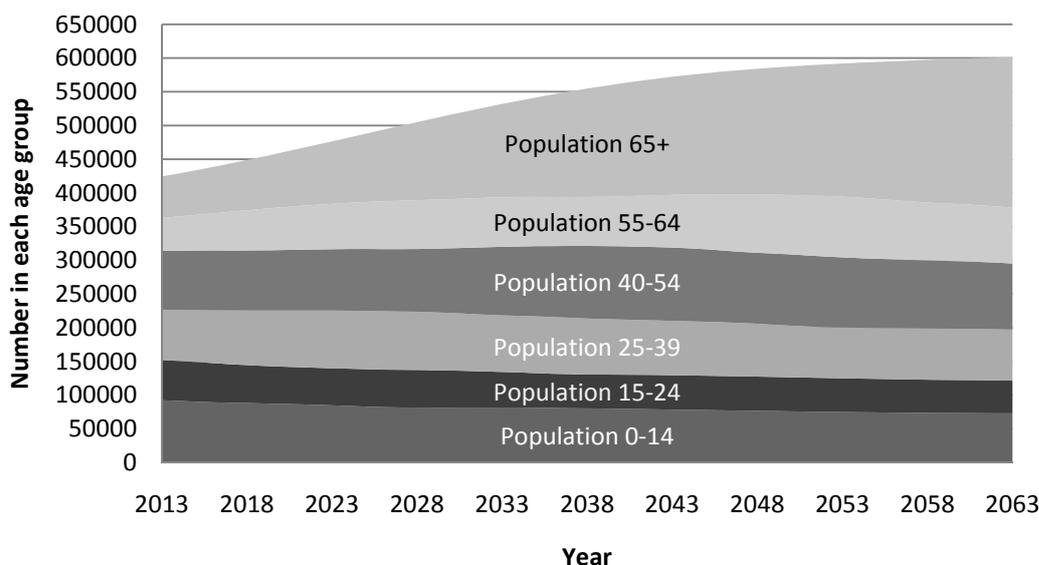
- **Age-related population waves and troughs will pass through the education system:** Over the next few years, the number of Waikato school leavers will decline markedly, but increase again from about 2020 as the recently born blip arrives at school age. This will cause oscillating demand and supply, not only for education but also related services.
- **The Waikato labour market could get 'tight':** Every year for the next 12-15 years a successively larger cohort will retire (or reduce its participation in the labour force) and will be 'replaced' by a successively smaller cohort at labour market entry age. This results in an increase in competition for labour and presumably labour costs. This shift is likely to be felt across most industries, particularly those that already have relatively 'old' age structures (like teaching, nursing, health care).
- **The region's elderly will age in urban areas:** Hamilton City is presently home to the region's single-largest share of 65+ year olds (27.3 percent), followed by Waipa and Waikato districts. These shares are projected to increase (Hamilton to 40.5 per cent) by 2063. In contrast, the shares held by all other TA's are projected to decline, suggesting age-related movement toward services concentrated in urban areas.
- **Future population growth is driven by age** (see also next section): More than four-fifth of the region's projected growth will be from the age category of 65+ years, and most TAs will see a decline at most other ages. Age-driven growth will significantly alter local demand and consumption patterns, affecting the provision and location of services (particularly schools, supermarkets, health, leisure, and transport).

## Population ageing

As the rest of New Zealand the Waikato region is facing a set of unprecedented demographic shifts that will radically alter the demands of public policy across the next few election terms. The most salient and far-reaching of these is population ageing. In the near future we will have many more older people compared to younger and working-age people to support them. This change is happening now and can't be averted. At issue is how we can support and provide services to older people given the ratio of young people to older people may halve in the next 50 years.

The statistics are clear that ageing is already happening in the Waikato region (and in New Zealand and many other developed countries). It's tempting to think that migration will resolve the projected ageing but demographic experts increasingly believe that migration merely alters the overall size of the population rather than altering the age structure. Ageing is primarily a consequence of the baby boom, which occurred very strongly in New Zealand. The baby boomers themselves had fewer children than their parents, and their children had fewer births again, meaning that they were not replaced in adequate numbers and older people became a higher proportion of the population. The over 65 year old population are set to increase from 61,585 in 2013 to 222,640 in 2063 and the number of economically active people aged 15 to 64 years old from 270,640 to 305,590. This will change the ratio of active workers per retiree from 4.4 in 2013 to 1.4 by 2063, a dramatic change (Figure 4).

The consequences of ageing are many and far-reaching: affordability of local rates and taxes for universal superannuation, increased social services and health expenditure. There will also be industry and labour market implications, such as how to retain workers in industries traditionally staffed by younger people due to low wages (such as retail), and how to supplement the supply of skills of older workers given a lack of new entrants to the labour market.

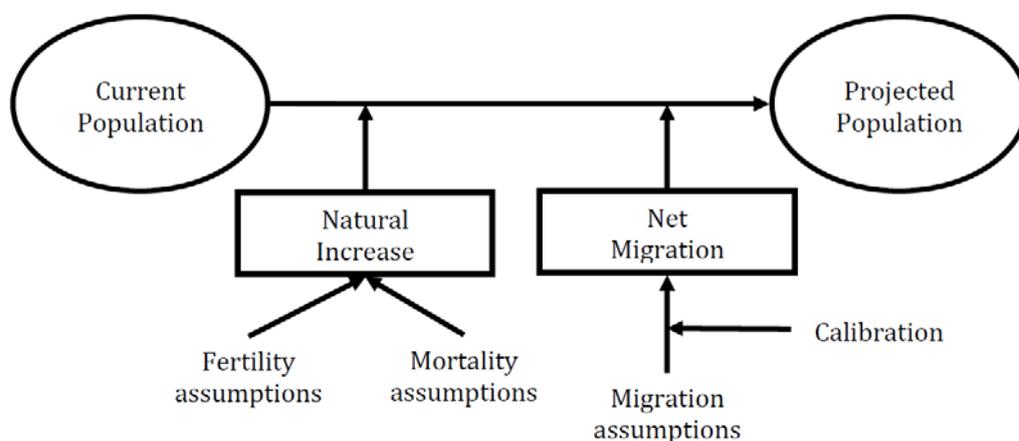


**Figure 4** Projected regional population changes by age group (2013 to 2063).

### How the Waikato population projections were calculated

The data used in the formulation of these projections was sourced from Statistics New Zealand (SNZ). This includes national and subnational data from the Census of Population and Dwellings. The Waikato projections used as a base population the 2014 revised Estimated Usually Resident Populations (EURPs) by SNZ. These are based on the 2013 Census data and adjusted for net census undercount, residents temporarily overseas, and births, deaths, and migration between census night (March 2013) and June 2014. The projections presented in this report are only for those parts of each territorial authority that are contained within the Waikato Region (this affects Waitomo, Taupo and Rotorua districts).

There are three basic factors influencing the number of people over time: fertility, mortality and migration. NIDEA uses the ‘Whole of Waikato’<sup>4</sup> population model to generate possible future populations, referred to as population projections, starting from a given base population and assumptions about the demographic processes of fertility, mortality and migration (see Figure 5). The combination of these demographic change assumptions, when applied to the current base population, allows the calculation of possible future populations. This standard methodology (cohort-component model) is widely used by demographers and statistical agencies, including SNZ.



**Figure 5** NIDEA’s ‘Whole of Waikato’ Population Model.

<sup>4</sup> NIDEA’s model is also incorporated into the regional WISE model (Waikato Integrated Scenario Explorer).

Family and household projections were derived from the baseline population projections by employing additional assumptions regarding the rates of people living in different living arrangements (e.g. couples without children, couples with children, etc.), the average number of families per household, and the average number of people per multi-person household. The numbers of households are then derived from the number of people in each living arrangement type. 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.

## Use of the projections

Population is a key driver of future change. Knowledge and understanding about how and where demographic changes occur is therefore important to assist Council to better plan for future community needs. An increasing population places greater pressure on our natural resources and infrastructure, such as roads, housing, water supply and sewage treatment. In areas where the population is declining, existing infrastructure services will be under-used, and access to health, recreational and social services may become limited.

These projections are used for:

- Council's Long Term Plan (LTP) assumptions
- regional and district RMA plans (RPS, RP, DPs)
- transport planning (RLTP, RTP)
- infrastructure and Asset Management Plans
- non-statutory strategic planning (Waikato Plan, Sea Change, Future Proof)
- economic Development (EDS and implementation plan) Plan)
- input into models (WISE, WRTM) and other decision-support tools.

Together with land use projections from the WISE model, the TA level projections reported here will also be used to calculate population and economic/employment projections to 2063 at the more detailed Census Area Unit (CAU) level (the Waikato region has 201 CAUs). The CAU projections will be available later in 2015.

## Conclusion

These projections for the Waikato region are based on the latest Census 2013 data and represent the best dataset available now (and until late 2019 when the next Census 2018 data will be released). These projections are not predictions, and should be used as an indication of the overall trend, rather than as exact forecasts. Uncertainty increases over time, i.e. their primary application should be on the next 10-30 years rather than out to 2063.

The projections suggest that the Waikato experiences an ageing population, rural depopulation and a growing urban population centred on Hamilton. Responses to the projected population changes may include:

- Opportunities as a result of wider growth pressures being experienced in Auckland by capitalising on Government policies (e.g. incentivised migration into regions) or by promoting the Waikato as an attractive place to live and work (*'Waikato Story'*).
- Population decline will require a mix of responses, including accepting and managing the consequences, combined with stimulation of development (although not necessarily, population growth per se), for example enhancing or developing local 'specialities' or niche business, visitor and community experiences.

- An ageing population changing demands for goods and services, and may mean to change the nature of work and maximise the potential of older workers, it provides a growing consumer market for older people, and opportunities for community participation (e.g. volunteering).
- Develop actions around future housing supply to respond and adapt to demographic changes, such as ensuring sufficient land and infrastructure is available. Such actions should result in the provision of a mix of housing types and tenure.
- Initiatives to strengthen inter-linkages between the region's higher education establishments and their communities, and the business/innovation/agri-tech sector to help retain young professionals in the region and to boost economic activity.

The demographic futures experienced by the Waikato region and its component territorial authorities cannot be determined with absolute accuracy. However, the projections presented in this report assist planners to better understand the demographic changes we are faced with, and the sources and factors that underlie those demographic changes. All councils are faced with a complex and changing local/regional, national and international environment. These projections are but one tool that should be used in evaluating possible futures for the region.

These projections were jointly developed with all councils, especially Future Proof (Hamilton, Waikato, Waipa), including NZTA to provide input into the Regional Land Transport Model (WRTM). It is vital that these projections serve as a shared and common evidence-base to ensure consistency in planning and decision-making. It is planned that the projections are:

- Used for the next 2018-2028 LTPs (or earlier, if LTPs will be reviewed), Infrastructure Plans, the Waikato Plan, Future Proof, WRTM, WISE and other strategies and plans.
- Updated in 2019 to maintain their relevance and usefulness, by incorporating new demographic trends (e.g. migration, ageing) and enhanced modelling methods.

### **Assessment of Significance**

To the best of the writer's knowledge, this decision is not significantly inconsistent with nor is anticipated to have consequences that will be significantly inconsistent with any policy adopted by this local authority or any plan required by the Local Government Act 2002 or any other enactment.

---

**Beat Huser**  
Principal Strategic Advisor  
Science and Strategy Directorate

---

**Tracey May**  
Director Science and Strategy

### **Attachments**

1. Baseline and projected future population households and labour force for the Waikato

## Attachment 1 Baseline and projected future population, households and labour force for the Waikato.

Area	Population				Households				Labour Force			
	2013	2028	2043	2063	2013	2028	2043	2063	2013	2028	2043	2063
Thames-Coromandel	27,340	29,108	28,514	22,197	11,529	14,099	14,672	11,816	13,305	15,798	14,930	10,421
Hauraki	18,620	19,413	19,007	15,520	7,378	9,029	9,648	8,322	8,974	10,721	10,401	7,826
Waikato	66,530	84,271	101,980	116,370	22,090	32,065	40,619	47,916	35,453	50,296	60,797	69,277
Matamata-Piako	32,910	36,087	38,314	38,978	12,284	14,574	15,980	16,465	17,303	20,780	21,910	22,332
Hamilton City	150,180	190,998	229,794	262,493	50,521	72,491	93,741	111,427	79,632	110,937	133,827	145,864
Waipa	48,660	61,488	72,241	75,161	17,572	25,656	92,232	34,482	26,599	36,963	41,948	43,141
Otorohanga	9,610	10,090	10,003	8,475	3,312	4,055	4,379	4,012	5,176	6,559	6,892	5,862
South Waikato	23,190	23,076	21,353	17,318	8,407	9,533	9,523	8,117	11,138	12,546	11,832	9,272
Waitomo	9,295	8,696	7,809	6,090	3,369	3,573	3,459	2,852	4,969	5,464	5,198	4,042
Taupo	34,585	38,010	39,335	35,569	12,913	16,015	17,617	16,494	18,423	22,312	22,596	19,778
Rotorua (part)	3,820	3,990	3,880	3,087	1,420	1,839	1,951	1,616	2,083	2,443	2,288	1,749
<b>Waikato Region</b>	<b>424,740</b>	<b>505,228</b>	<b>572,231</b>	<b>601,259</b>	<b>150,795</b>	<b>202,929</b>	<b>303,821</b>	<b>263,519</b>	<b>225,068</b>	<b>294,819</b>	<b>332,619</b>	<b>339,564</b>