

Growth Management - Role of Demographic Projections

Report prepared for SmartGrowth Strategy Update 2012

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1 Background

- 1.1. The SmartGrowth projection forecasts produced by the University of Waikato were based on Statistics NZ (SNZ) national and sub-national projections post 2001 census but applied some different assumptions and methodology particularly in terms of net migration. They were produced at the TLA level.
- 1.2. In simple terms SNZ uses a cohort component method to derive projections. This takes the initial age-sex structure at base population (2001 census) and applies birth and death rates to produce projections. Net migration rates are then added.
- 1.3. The SmartGrowth approach was to adapt SNZ medium variant assumptions on fertility, mortality and net migration. In the SmartGrowth approach net migration profiles for each TA are used to estimate levels of net migration that are adjusted to take into account the changing age-sex composition of the national population over the projection period, 2001-2051. Household projections are derived directly from the population projections applying household occupation/ composition ratios.
- 1.4. Following the 2006 census results the University of Waikato were requested to review their projections. They indicated that the Census outcomes did not make any material difference. The SmartGrowth Strategy provides for the projections to be reviewed after the 2011 Census which has now been delayed until 2013.
- 1.5. In the interim, as outlined in detail below, the population projection situation has been considered several times in a pragmatic way. Intuitive information has been used based on actual development trends, rather than demographic data, to assist current and short term strategic planning, capital and operational decisions. This approach is not considered robust for long term planning and needs the surety of new projections.
- 1.6. Notwithstanding, some observations can be made to provide a level of comfort for the SmartGrowth Update without the benefit of the new Census information and new projections. These observations do not obviate a need to source new projections at the earliest possible time after the Census.
- 1.7. Population growth through natural increase does not change suddenly. Change occurs over time and is heavily influenced by the existing demographic structure. Immigration policy may also have an influence but the WBOP sub-regional migration patterns are largely driven by NZ internal migration (which can also change in response to economic factors), not from overseas. In the SmartGrowth migration survey of 2003/4 the main drivers noted for in-migration were the desire to be closer to family, and lifestyle change. Family ties and a lack of economic opportunities in the Bay were given as a key driver for out-migration.
- 1.8. Other influences are the ethnic mix and aging. There is a strong influence with the Maori population which has different demographic patterns from non-Maori. Again, overall, these are unlikely to change significantly from the

assumptions used in the SmartGrowth projections in the short term. The WBOP sub-region has a general ageing of the population as well as increases in most broad age groups. Annual growth rates may have slowed over the last five years but the demographic variables are unlikely to have change dramatically.

- 1.9. The trend is towards smaller household sizes as the population ages, with the emergence of one person and couples without children households. This mirrors general trends for the national population as the baby boom generation matures, and is reinforced by the net migration drivers. Whether this further changes due to economic factors, and others such as PSA or housing affordability challenges remains to be seen.
- 1.10. There is one other element not directly captured by conventional projections: the recreational and leisure population such as second home households, tourists, visitors and seasonal workers. These place demands on services and infrastructure, as can be seen in a traditional summer in Mount Maunganui and Waihi Beach for example. These people are an important extra population demand for planning purposes.
- 1.11. While it is acknowledged that there is a level of uncertainty, the fundamental demographic patterns underlying the historical forecasts are still relevant at this time, particularly for the shorter term. The immediate exception may be the rate of population growth but with no census that change is uncertain with the only data set providing an indication being building consent numbers.
- 1.12. These demographic assumptions will be entirely reviewed through new demographic modelling and projection work commissioned after the 2013 Census and reflected in any subsequent policy amendments after that.
- 1.13. In summary the current patterns are:
 - A higher growth rate projection for the sub-region over 40 years compared to the SNZ medium variant
 - Significant proportion of the growth is from net migration
 - Natural increase has only a small influence
 - An ageing population and decreasing size of households.
 - A reasonable amount of population 'churn'.
 - Different demographic patterns of fertility and mortality for Maori compared to non Maori.
 - Seasonal holiday demand

2 SmartGrowth Update

- 2.1. The University of Waikato National Institute of Demographic and Economic Analysis (UOW) were asked to provide advice on updating the original SmartGrowth forecasts in 2010. A brief was prepared and an Offer of Service provided about the time the Government postponed the 2011 Census.
- 2.2. The UOW methodology was to develop a suitable model and localised assumptions to produce draft projections, and then revise the model inputs with actual Census-based data later, at additional cost. These draft projections would have had a reasonable level of confidence for use in the SmartGrowth Update because they were a long term view, and with the

caveat of recalibration later. Thus final projections would have been available in 2013.

- 2.3. SmartGrowth felt that the work should logically be done only once, done well and changes in demographic patterns, for confidence in projections, based on actual Census information. The decision to delay the updating of the projections was a pragmatic decision having regard to Census delay, general cost and strategy review needs.
- 2.4. Projections are most valuable for long term planning needs. The delay in starting new projections is not considered fatal particularly as in the short term the Councils have already made changes to the projections for use in their Ten Year Plans (See below). These will be reviewed when the new forecasts are completed to assess the assumption impact on policy and operations, and on the long term SmartGrowth Update assumptions. Realistically, this is not likely to be done until 2014/15 financial year.

3 Population Projection Reviews Undertaken to Date

- 3.1. The difference between the 2001 and 2006 period SmartGrowth forecasts and Census results were reported to SGIMG by Ken Tremaine on 11 December 2006. The results are as follows:

Territorial Authority	2001 Census Usually Resident Population	SmartGrowth Strategy 2001	2006 Census Usually Resident Population	SmartGrowth Strategy 2006
Tauranga	90906	90800	103635	102280
Western Bay of Plenty	38232	38300	42015	42470
Sub-regional Total	129138	129100	145710	144750

- 3.2. Since the SmartGrowth Strategy was first published in 2004 the SmartGrowth forecasts produced by the University of Waikato and their allocation have been reviewed three times; in 2007, 2010 and 2011.
- 3.3. **SmartGrowth 2007 Review** - A full review of the allocation of the University of Waikato SmartGrowth forecasts was undertaken in 2007 ("SmartGrowth 2007") as part of the wider SmartGrowth Review. The reallocation responded to 2006 Census results and revised assumptions around the release and uptake of growth in the sub-region. March 2006 Census was the starting point with the original 2004 SmartGrowth bottom line forecasts from 2006 retained out to 2051.
- 3.4. **SmartGrowth 2010 Review** - This Review responded to a request by Tauranga City Council's City Transportation Group via SmartTransport that the SmartGrowth forecasts be reviewed as part of the Traffic Model Recalibration Project. The traffic model is sensitive to changes occurring and as a number of key transportation projects rely on the model as an analytical tool it is important that model inputs be as current as is practicable. This request for a review to be undertaken was endorsed by SmartGrowth Implementation Group in June 2010.

- 3.5. Population and dwelling figures were reduced to respond to the downturn in the economy over the 2006-2011 period. However a "clawback" assumption was applied where growth that was forecasted but not realised in the 2006-2011 period would be clawed back by 2026.
- 3.6. **SmartGrowth 2011 Review** – This review was initiated as part of the 10 year plan process. The recommended scenario (i.e. last 3 year average applied to 2011-14, last 10 year average applied to 2014-21) was selected as the most likely to occur as it was considered that the recession was likely to last over the next few years. Hence the last 3 year average was applied. For the longer term, application of the last ten year average was a cautious approach to recognise that there may likely be periods of boom and downturn to 2021. This approach was endorsed by SGIMG earlier this year.
- 3.7. The SmartGrowth 2007, 2010 and 2011 Review forecasts are graphed at territorial authority and at sub regional level and the changes between each forecast detailed below (see the Appendix for graphed data).

3.8. Tauranga City

- 3.8.1. In comparison to the SmartGrowth 2007 Review allocation, the key changes in the SmartGrowth 2010 Forecast were:
 - The 2006-2011 forecast was reduced by 34% or by 4,246 persons (based on monitoring results) reflecting the economic downturn of recent years. It was assumed that this shortfall would be recovered over the 15 year period to 2026.
- 3.8.2. In comparison to the 2010 Review allocation, the key changes in the SmartGrowth 2011 Forecast are:
 - Decrease of 5,757 (or -12%) households and 13,126 people to 2051.

3.9. Western Bay of Plenty District

- 3.9.1. No changes were made to the SmartGrowth 2007 Forecasts for Western Bay of Plenty District in 2010.
- 3.9.2. In comparison to the 2010 Review allocation, the key changes in the SmartGrowth 2011 Forecast are:
 - Decrease of 2433 households (6.9%) and 3227 people to 2051.

4 Approach for the Current SmartGrowth Update

- 4.1. The current SmartGrowth Strategy sets out population projections in relation to particular years. The consequence of this has been that many commentators view those years as being the expected growth milestones, rather than the population number. This causes friction when the population numbers and timing diverge, such as in the current low growth period, and some people expect action to occur at the given time, rather than when the

population has reached a particular level. It is the population that generates the need for the many SmartGrowth actions ie for many actions to occur they need a particular number of people to support them. In response to this the SmartGrowth Update proposes to use population numbers as the trigger, rather than specific dates. To make this approach useful the population figures will be broken down into stages based on population numbers and the particular matter involved. For example a structure plan may be split into two stages designed to cater for 12,000 persons in each. In this case the growth milestone will be by stage and population number. Monitoring will then be used to give an estimate of timing. Thus timing will be measured by population growth which is a response to what is happening in the market and the economy. Monitoring is currently undertaken as part of the Annual Development Trends Report, and this will be modified to meet these needs.

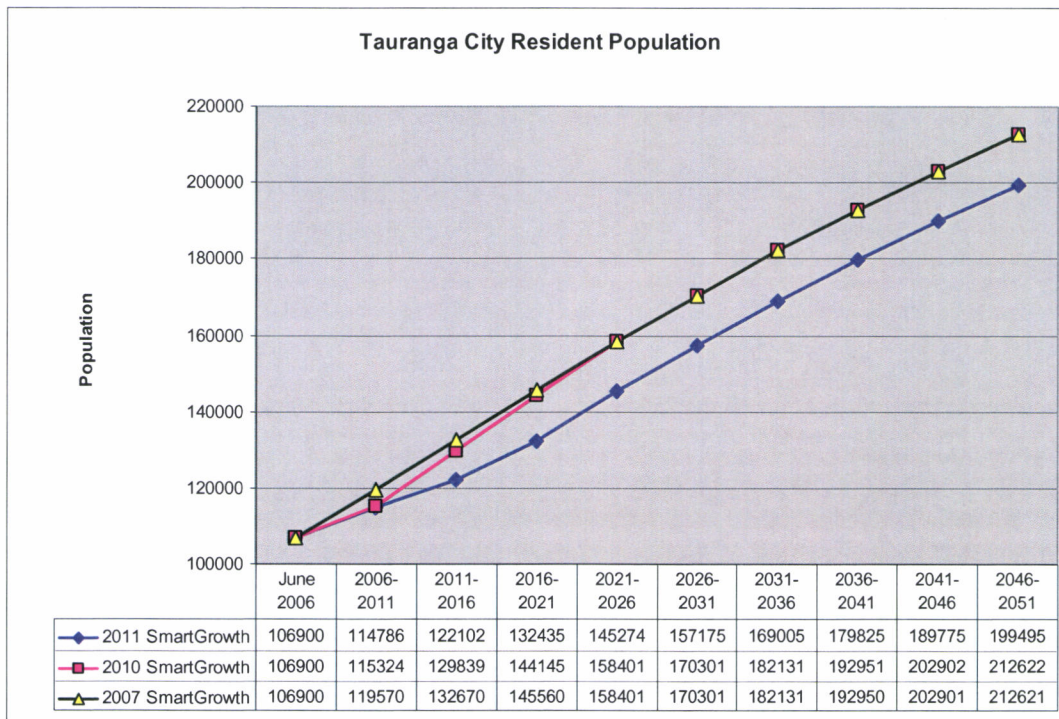
- 4.2. The current population projections provide for a total population for the sub-region in 2051 of 273,573. The question has been frequently raised as to what number is going to be used for the Update. As discussed above new population projections will not be available until 2014. Firstly it is recommended that the updated Strategy will extend the timeframe out to 2061 to maintain a 50 year time horizon for the SmartGrowth Strategy. There is some uncertainty at local, national and international level as to what is going to happen to long term growth in areas such as the western Bay of Plenty. Some commentators say that population growth is going to taper off earlier than previously expected, whereas others expect it to return to previous levels. The approach recommended to be used in the Update is to have a population estimate of 275,000 people in 2051 and 300,000 people in 2061. These population estimates are consistent with the latest population projections adopted for both the TCC and WBOPDC 2012-22 Long Term Plans. These figures, particularly the 300,000, will be reviewed after the projections are revised post the 2013 Census.

5 Conclusion

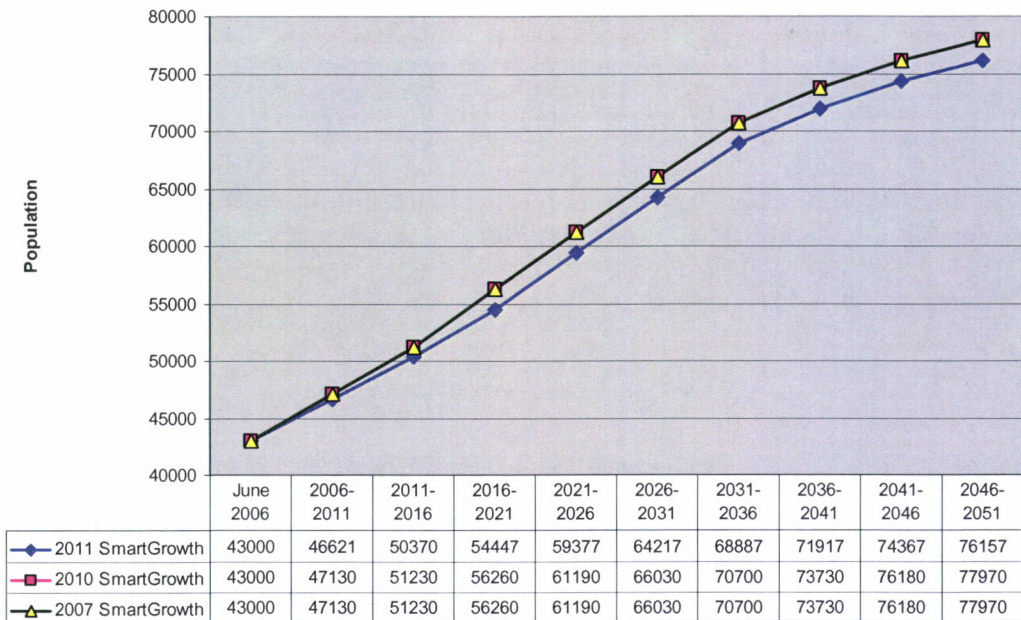
- 5.1. The TLA's have already made changes to the adopted SmartGrowth projections for use in their Ten Year Plans. These were undertaken on a pragmatic basis, as no other current projections are available, and revised projections using demographic inputs could not be made available in time.
- 5.2. Projections are most valuable for long term planning, therefore a delay of 2 years is considered a pragmatic response when put along side other factors. Most notable is the cost, whereby undertaking projections now and then calibrating post 2013 Census adds 50% to the cost of the projections. Secondly would be the delay of 2 years in updating the Strategy if it was proposed to wait for the new projections to be available before commencing the Update.
- 5.3. The risk in delaying the projections to 2014 is if the projections produce trends that are significantly different to current expectations. This would mean the need to revisit the SmartGrowth Strategy Update and the possible need for reworking parts of it. However the overall trends are not expected to change dramatically.

Appendix: Population Projection Comparisons

In the graphs below it is noted that for the 2011 Review figures the June 2006 Statistics New Zealand estimate was used at the starting point (rather than the March 2006 Census count). This was adopted on advice from Statistics New Zealand that it considers the June 2006 estimate to be more accurate than the March 2006 count. The June 2006 estimate makes adjustments for net census undercount and residents temporarily absent. This start date has been applied to all three SmartGrowth Forecasts graphed for consistency.



Western Bay of Plenty District Resident Population



Western Bay of Plenty Subregion Resident Population

