

Mapping Trends in the Auckland Region

Interpreting the maps

Commentary

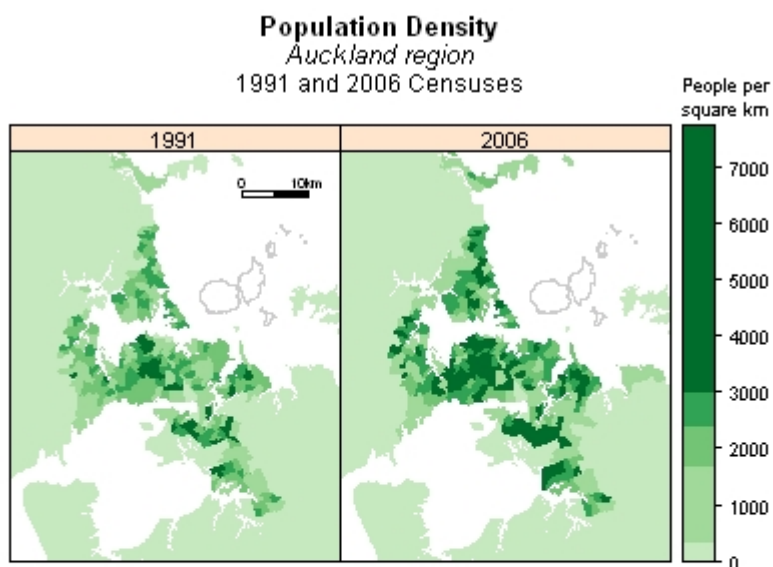
Overview

The report uses thematic maps to represent geographical patterns in demographic, social, and economic variables. In the thematic maps, darker shades represent higher values. The values themselves are derived mainly from census data.

What are thematic maps?

Standard maps portray geographical features such as mountains, lakes, and roads. In contrast, the thematic maps in this report portray demographic, social, and economic variables. Figure 1.1, for instance, shows population density, the number of usual residents per square kilometre. Thematic maps are an effective tool for investigating geographical differences.

Figure 1.1



Downloadable version of figure 1.1 (PDF, 2.6MB)

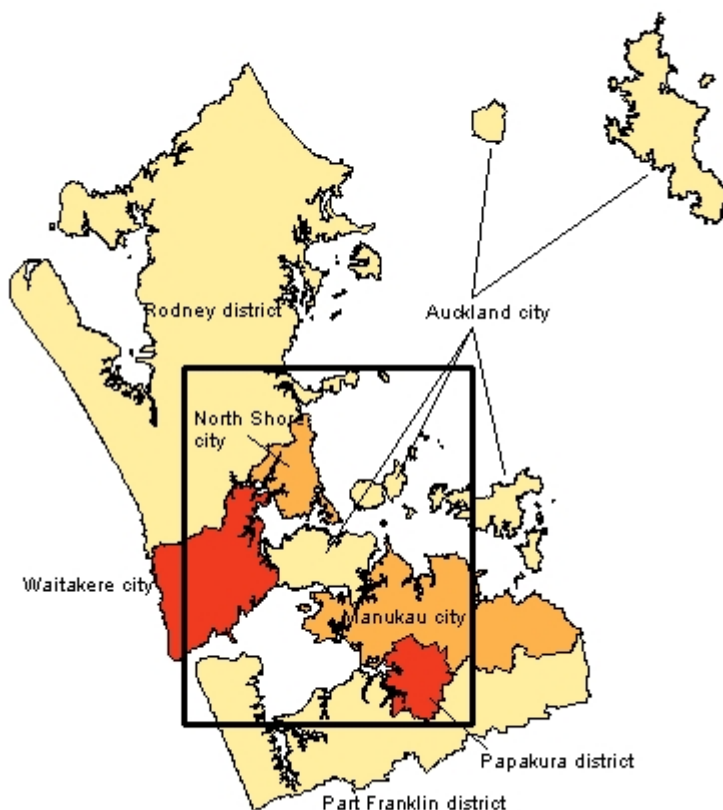
If you do not have Adobe Acrobat Reader, download [Adobe Reader](#) for PDFs to view or print this file.

How the maps are constructed

The thematic maps in this report include the area within the black box in figure 1.2. This is where most Aucklanders live, and includes part of each of the region's seven territorial authorities. All maps are oriented to the north.

Figure 1.2

Area Included in Thematic Maps
Auckland region



The maps are composed of irregular patches. Each patch corresponds to an area unit, a geographical unit typically covering one or two square kilometres. The darker the patch, the higher the value being measured. For instance, the patches with the darkest shade of green in figure 1.1 have population densities of 3,000 or more, while the patches with the lightest shade of green have densities of less than 300. Further details about the shading scheme and the scale bars on the right of the maps are given in the Notes and sources for this chapter. However, for most purposes, all that needs to be remembered is that darker shades mean higher values.

Clicking on the link underneath each figure opens up a high-resolution portable document file (PDF) version of the maps. This version can be magnified to examine small areas (for instance by selecting **Select and Zoom** in the **Tools** menu of Adobe Reader).

The data

Almost all the data presented in the maps come from the 1991, 1996, 2001, and 2006 Censuses. The main additional data source is population projections, which draw heavily on the censuses.

To protect confidentiality, all census counts have been rounded to base 3. If an area unit has five or fewer members, its data are not used. Instead, the maps show the average value for neighbouring area units.

Further information

This page is part of Mapping Trends in the Auckland Region, available on www.stats.govt.nz.

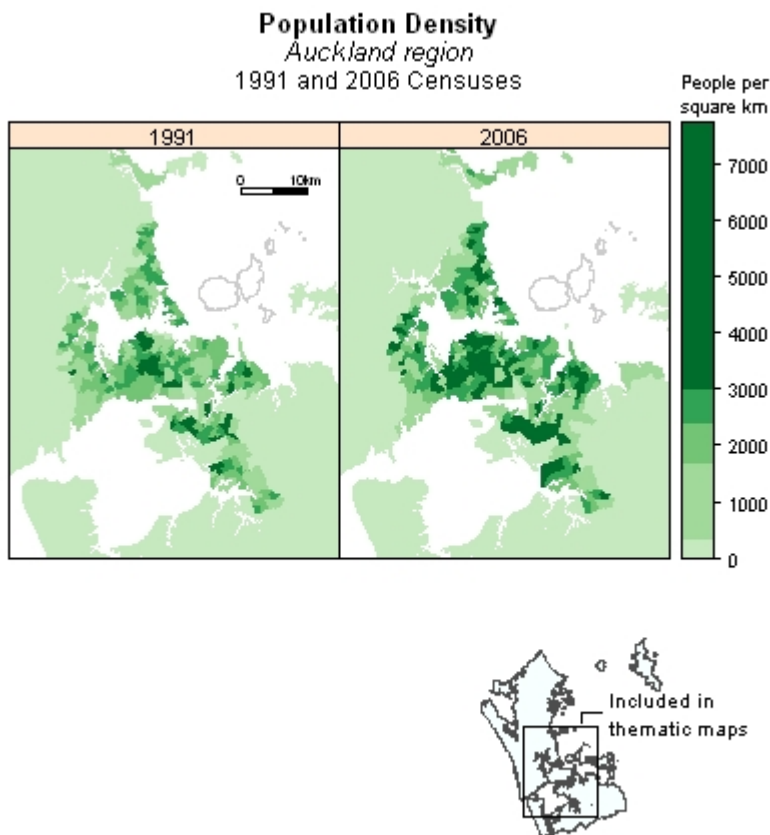
Notes and sources

Map groups and colours

Each area unit in each year is assigned a colour by:

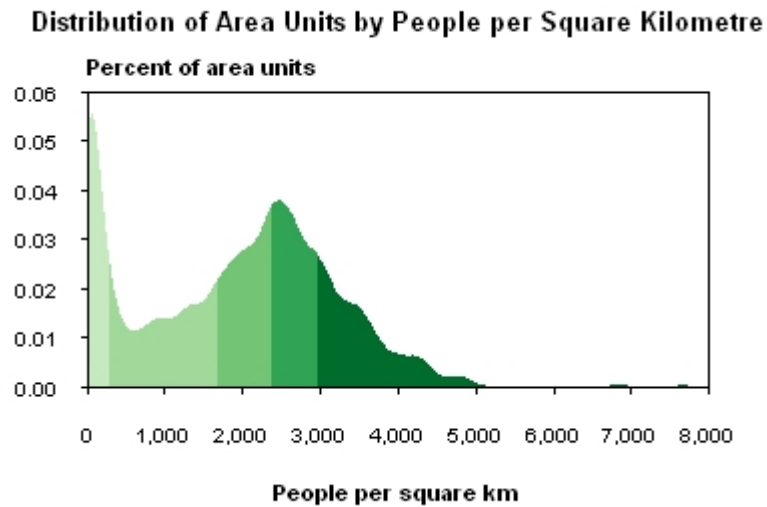
1. combining observations for all area units and all years
2. splitting the observations into quintiles – the bottom 20 percent of values, the next lowest 20 percent, and so on up to the highest 20 percent
3. choosing five shades, ordered from lightest to darkest
4. assigning the lightest shade to observations in the lowest quintile, the next lightest to the next lowest, and so on up to the highest quintile.

Figure 1.1 (reproduced)



The scale bar on the right of the maps shows the range of values represented by each colour. In figure 1.1, for instance, the lightest shade represents values from 0 to about 300, the next shade represents values from 300 to about 1,700, and so on up to the maximum of about 7,700. Whether a colour covers a narrow or wide range depends on the distribution of the values. Figure 1.3, a density plot, shows the distribution of values underlying figure 1.1. The lightest shade of green covers a narrow range because there is a large concentration of area units with small values; the darkest shade carries a wide range because high values are relatively rare.

Figure 1.3



Software

The analysis and mapping were carried out using the statistical programming language R (R Development Core Team, 2008). The thematic maps were constructed with a modified version of the function "spplot" in the package "sp" (Pebesma and Bivand, 2005). The colour palettes are from the package "RColorBrewer" (Neuwirth, 2006).

References

Neuwirth, E (2007). RColorBrewer: ColorBrewer palettes. R package version 1.0-2, www.r-project.org/.

Pebesma, E J & Bivand, R S (2005). Classes and methods for spatial data in R. *R News* 5(2), <http://cran.r-project.org/doc/Rnews/>

R Development Core Team (2008). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. www.r-project.org/.