

Queensland Government population projections, 2015 edition: Methodology and assumptions

Methodology

The Queensland Government produces projections of the total population by age and sex. The 2015 edition uses a 2011 base population, updated with population estimates to 2014, with time horizons to 2061 for Queensland and 2036 for sub-state areas. Data are released for the following geographic levels:

- State of Queensland
- Statistical area level 4 (SA4)
- Statistical area level 2 (SA2)
- Local government area (LGA).

These projections represent usual resident populations only and exclude visitors and temporary residents.

Caveats

Population projections should not be interpreted as precise point estimate forecasts or predictions. Rather, the projections reflect the outcomes of applying a set of assumptions about the future direction of fertility, mortality and migration to a base population. While past and current trends provide background to the possible demographic outlook, there is uncertainty around how these trends will develop over a 50-year projection horizon. For example, these population projections do not attempt to directly measure any future changes in economic, social and political implications that may influence future population growth and distribution. As a result, the accuracy of these projections is dependent on the extent to which assumptions about future fertility, mortality and migration trends hold true.

To account for this uncertainty, a range of possible outcomes rather than a single projection series provides a more realistic view of the possible future size, distribution and age structure of Queensland's population. As a consequence, three projection series (low, medium, high) have been produced.

Users should exercise caution in the interpretation and use of population projections, particularly sub-state level projections where there is a much greater degree of uncertainty involved in generating projections.

State and statistical area level 4 (SA4) projections

Population projections for Queensland and SA4s have been developed using a multi-regional cohort component model. A cohort-component model ages population cohorts over time to the next age group, taking into account births and deaths and inward and outward migration. The model calculates births by applying assumed fertility rates to the population of women of child-bearing age. Deaths are derived by applying age-specific death rates to the population, and these rates are calculated by fitting a mortality surface to assumed life expectancies at birth. A summary of the Queensland level assumptions is provided on page 3.

Projections for SA4s have been prepared using regionally-specific assumptions. Different fertility rates and life expectancies are used for each SA4, accounting for historical differentials between each SA4 and Queensland. Regional shares of overseas, interstate and intrastate migration have been set with regard to the 2001, 2006 and 2011 Censuses of Population and Housing conducted by the Australian Bureau of Statistics (ABS). Regional shares of interstate and intrastate migration have been updated in the 2015 edition by incorporating more recent information from the Regional Internal Migration Estimates (RIME) produced by the ABS. Projected births, deaths, and overseas and interstate migration for SA4s are scaled to the Queensland level, with projected intrastate migration scaled to zero by definition.

The cohort component model was used to generate projections for the Greater Brisbane Greater Capital City Statistical Area (GCCSA) rather than for each individual SA4 within this area (Brisbane-East, Brisbane-North, Brisbane-South, Brisbane-West, Brisbane Inner City, Ipswich, Logan – Beaudesert, Moreton Bay-North, Moreton Bay-South). This approach was taken as future population change in a number of these SA4s is expected to be principally driven by land supply availability and constraints rather than demographic factors alone.



Statistical area level 2 (SA2) projections

Projections for SA2s have been developed using two different approaches based on urban and non-urban categories.

SA2s have been classified as 'urban' where land supply availability and constraints are expected to impact on future population change and where these data are available. Projections for these SA2s have been developed using a housing-unit model. This model uses land supply capacities to allocate detached and attached dwellings to population based on:

- vacant lots
- assumptions about the likely location and timing of infill
- recent land subdivision and dwelling construction activity
- areas of greenfield land and their expected dwelling density and development timing.

SA2s classified as 'non-urban' have been projected using an averaging model based on two trend models:

- a constant share of the state's projected population, and
- a variable share of the state's projection population growth.

Local government area (LGA) projections

Projections for LGAs have not been modelled separately. Instead, these have been derived by concurring data from small area projections.



Assumptions

Summary table of assumptions—Queensland^(a)

Series	Fertility (TFR)	Mortality (life expectancy at birth)	Interstate migration	Overseas migration
Low	Queensland total fertility rate decreasing to 1.70 by 2018–19, then remaining constant.	Slowing rate of improvement in life expectancy at birth in Queensland, to reach 91.2 years for females and 88.6 years for males by 2060–61.	Net interstate migration increasing to 10,000 persons per annum by 2024–25, then remaining constant.	Net overseas migration for Australia increasing to 200,000 persons by 2019–20, then remaining constant. Queensland share increasing to 18.5% by 2024–25, then to 21.5% by 2060–61.
Medium	Queensland total fertility rate decreasing to 1.90 by 2018–19, then remaining constant.	Average of low and high series life expectancy at birth. Life expectancy is projected to reach 93.7 years for females and 91.3 years for males by 2060–61.	Net interstate migration increasing to 15,000 persons per annum by 2024–25, then remaining constant.	Net overseas migration for Australia increasing to 250,000 persons by 2019–20, then remaining constant. Queensland share increasing to 19.0% by 2024–25, then to 22.0% by 2060–61.
High	Queensland total fertility rate increasing to 2.10 by 2018–19, then remaining constant.	Constant rate of improvement in life expectancy at birth in Queensland, with 0.30 years per year for males and 0.25 years per year for females. Life expectancy is projected to reach 96.1 years for females and 94.0 years for males by 2060–61.	Net interstate migration increasing to 20,000 persons per annum by 2024–25, then remaining constant.	Net overseas migration for Australia increasing to 300,000 persons by 2019–20, then remaining constant. Queensland share increasing to 19.5% by 2024–25, then to 22.5% by 2060–61.

(a) Projections for SA4s have been prepared using regionally-specific assumptions. However, projected births, deaths, and overseas and interstate migration for SA4s are scaled to the Queensland level, with projected intrastate migration scaled to zero by definition.