

Assumptions and methods

Queensland Government population projections, 2025 edition

Background

The Queensland Government produces projections of the total population by age and sex, aiming to provide a view of the possible future size, distribution and age structure of the population of Queensland and its regions.

The Queensland Government population projections for the state of Queensland are generated using a multi-regional cohort component model. This methodology, which ages population cohorts over time, incorporates assumptions about the future levels of fertility, mortality, net overseas migration (NOM) and net interstate migration (NIM). This paper summarises the assumptions underpinning the state level projections and provides an overview of the methodologies used to model the state and sub-state projections. Sub-state regions include Greater Brisbane Greater Capital City Statistical Area (GCCSA) and Queensland's 10 remaining Statistical Areas Level 4 (SA4), in addition to Statistical Areas Level 2 (SA2), and Local Government Areas (LGA).

The Queensland Government population projections do not attempt to directly measure any future changes in economic, social and policy conditions that may influence future population change and distribution and 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 to a base population. As a result, the accuracy of these projections is dependent on the extent to which the underlying assumptions eventuate.

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. The uncertainty in future population change increases the further from the base year into the future. Users are advised to consider the combination of assumptions underpinning each series when using the population projections, as outlined in this report.

Assumptions

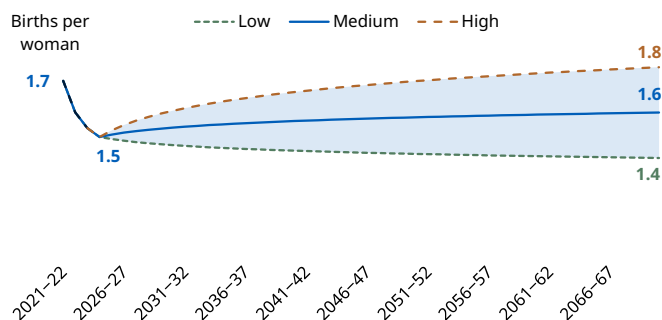
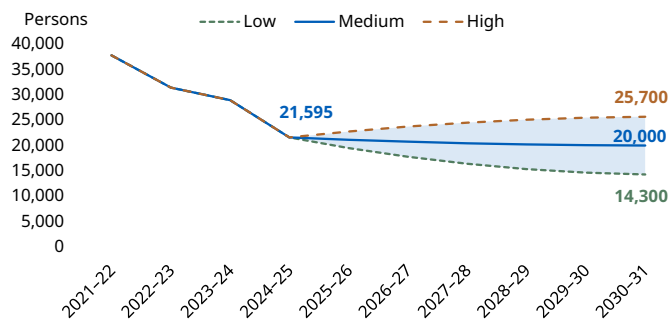
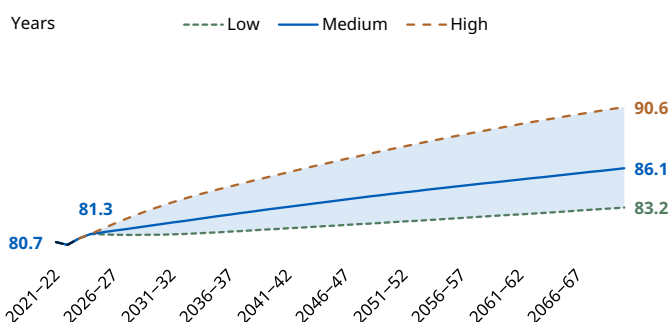
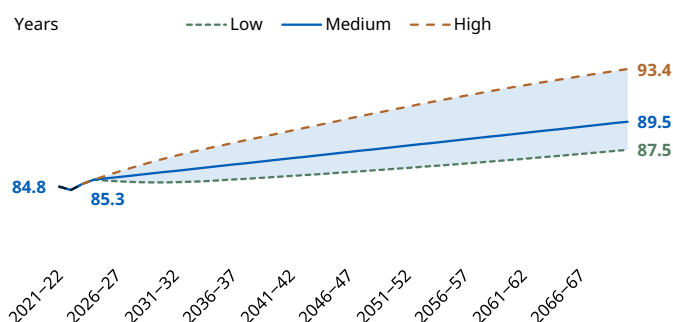
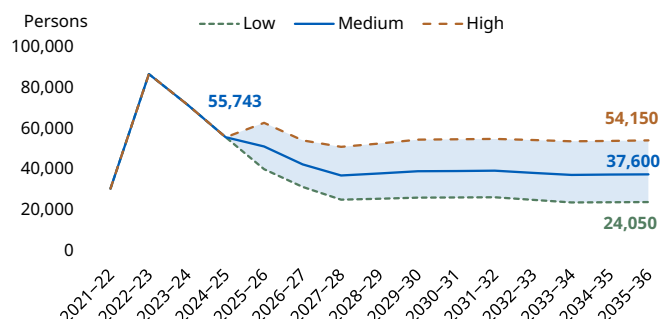
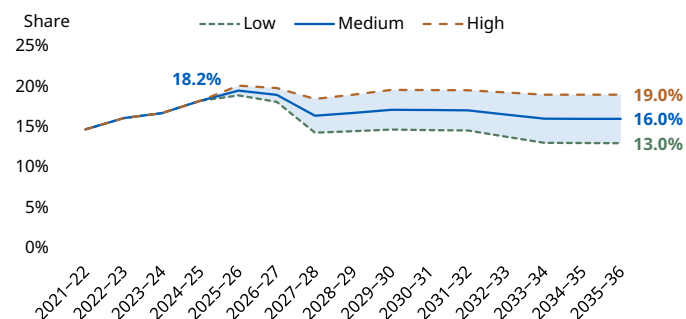
Three projections series are developed at the state level. Assumptions are made about the future levels of fertility, mortality, interstate migration and overseas migration over a 50-year horizon. Given the inherent level of uncertainty in future patterns in these components, three sets of assumptions are developed to inform a low, medium and high series projections.

Each of the low, medium and high series reflects a unique combination of assumptions about demographic components and other factors impacting population change and is one of many possible scenarios for future population change in Queensland and its sub-state regions.

At the state level, the high series assumption for each component of population change reflects the greatest magnitude of population growth of the three series in the long-term i.e., the highest fertility level, lowest mortality rates, and greatest net interstate (NIM) and net overseas migration (NOM), and the low series the least growth. For more detail on the range of state-level component assumptions, see Table 1, below and Figure 1 to Figure 6. Assumptions for the initial years follow published data with some minor adjustments to accommodate the modelling approach.

Table 1 **Queensland state level component assumptions**

Series	Fertility	Mortality	Interstate migration	Overseas migration
Low	Total fertility rate decreasing to 1.40 by 2070–71.	For females: Life expectancy to reach 87.5 years over 50 years to 2070–71. For males: Life expectancy to reach 83.2 years over 50 years to 2070–71.	NIM decreasing to 14,300 persons per annum by 2030–31, then remaining constant.	NOM for Australia reaching 185,000 persons per annum by 2035–36, then remaining constant. Queensland's annual share reaching 13.0% by 2035–36, then remaining constant.
Medium	Total fertility rate reaching 1.60 by 2070–71.	For females: Life expectancy to reach 89.5 years over 50 years, with annual improvements from 2022–23 to 2070–71. For males: Life expectancy to reach 86.1 years over 50 years, with annual improvements from 2022–23 to 2070–71.	NIM decreasing to 20,000 persons per annum by 2030–31, then remaining constant.	NOM for Australia reaching 235,000 persons per annum by 2035–36, then remaining constant. Queensland's annual share reaching 16.0% by 2035–36, then remaining constant.
High	Total fertility rate increasing to 1.80 by 2070–71.	For females: Life expectancy to reach 93.4 years over 50 years, with annual improvements from 2022–23 to 2070–71. For males: Life expectancy to reach 90.6 years over 50 years, with annual improvements from 2022–23 to 2070–71.	NIM decreasing to 25,700 persons per annum by 2030–31, then remaining constant.	NOM for Australia reaching 285,000 persons per annum by 2035–36, then remaining constant. Queensland's annual share reaching 19.0% by 2035–36, then remaining constant.

Figure 1 Total fertility rate, by projection series, Queensland**Figure 2** Net interstate migration, by projection series, Queensland**Figure 3** Life expectancy, males, by projection series, Queensland**Figure 4** Life expectancy, females, by projection series, Queensland**Figure 5** Net overseas migration, by projection series, Queensland**Figure 6** Queensland share of national net overseas migration

Projections for Greater Brisbane GCCSA and the 10 remaining SA4s have been prepared using region-specific assumptions. However, projected births, deaths, net overseas migration and net interstate migration for these regions are constrained to the Queensland level, with projected intrastate migration constrained to zero by definition.

Projections for SA2s are primarily informed by anticipated future housing supply sourced from local government planning schemes and datasets, as well as historical population trends, and are constrained to the region total in which the SA2s are located. LGA projections are generated by aggregating lower geographical level area projections, informed by historical population trends and constrained to the region projections.

Three projection series (low, medium and high) have been developed for Greater Brisbane GCCSA and the 10 remaining SA4s, as well as LGAs to illustrate a range of possible future outcomes. However, given there is uncertainty in the future housing supply, only a medium series projection is generated at the SA2 level, using future housing supply information drawn from local government planning schemes and datasets. More information can be found in the methodology section below.

Specifications

These projections represent usual resident populations only, as at 30 June each year, and exclude visitors and temporary residents. The 2025 edition uses the 2021 final estimated resident population as the base population, with a projection horizon to 2071 for Queensland and to 2046 for sub-state areas.

Projections are available for the State of Queensland, Greater Brisbane GCCSA, SA4s, SA2s, and LGAs.

Geographical boundaries align with the Australian Statistical Geography Standard (ASGS)¹ Edition 3 as defined by the Australian Bureau of Statistics (ABS). The 2021 version of the LGA boundaries in ASGS Edition 3 is used.

Population projections for the state of Queensland are available for single year intervals, by sex (male and female), and single year of age for persons aged 0–84 years and aggregated for persons aged 85 years or older.

Projections for Greater Brisbane GCCSA and the 10 remaining Queensland SA4s are available as per the same specifications as at the state level, except by age which are presented by five-year age groups between 0–4 and 80–84 years and aggregated for persons aged 85 years or older.

The SA2 and LGA-level projections are available for five-year projection intervals (i.e., 2026, 2031, 2036, 2041 and 2046), by sex, and five-year age groups (similar to Greater Brisbane GCCSA) for the medium series. Only LGA total population projections are available for the low and high series.

Projection specifications for the 2025 edition of the population projections are summarised in Table 2.

Table 2 Specifications of population projection outputs by geography^(a)

Geography	Series	Projection horizon	Projection interval	Age grouping
State of Queensland	Low, medium and high	2021 to 2071	Annual	Single year of age for 0–84 years, 85+ years
Greater Brisbane GCCSA and 10 remaining SA4s	Low, medium and high	2021 to 2046	Annual	Five-year age groups for 0–4 to 80–84 years, 85+ years
SA2s	Medium	2021 to 2046	Five-year	
LGAs ^(b)	Medium			

(a) All projection sets are available by sex (male and female), except for low and high series LGA projections.

(b) Total population projections for LGA are available for all three series, but projections disaggregated by age groups and/or sex are only available for the medium series.

Methodology

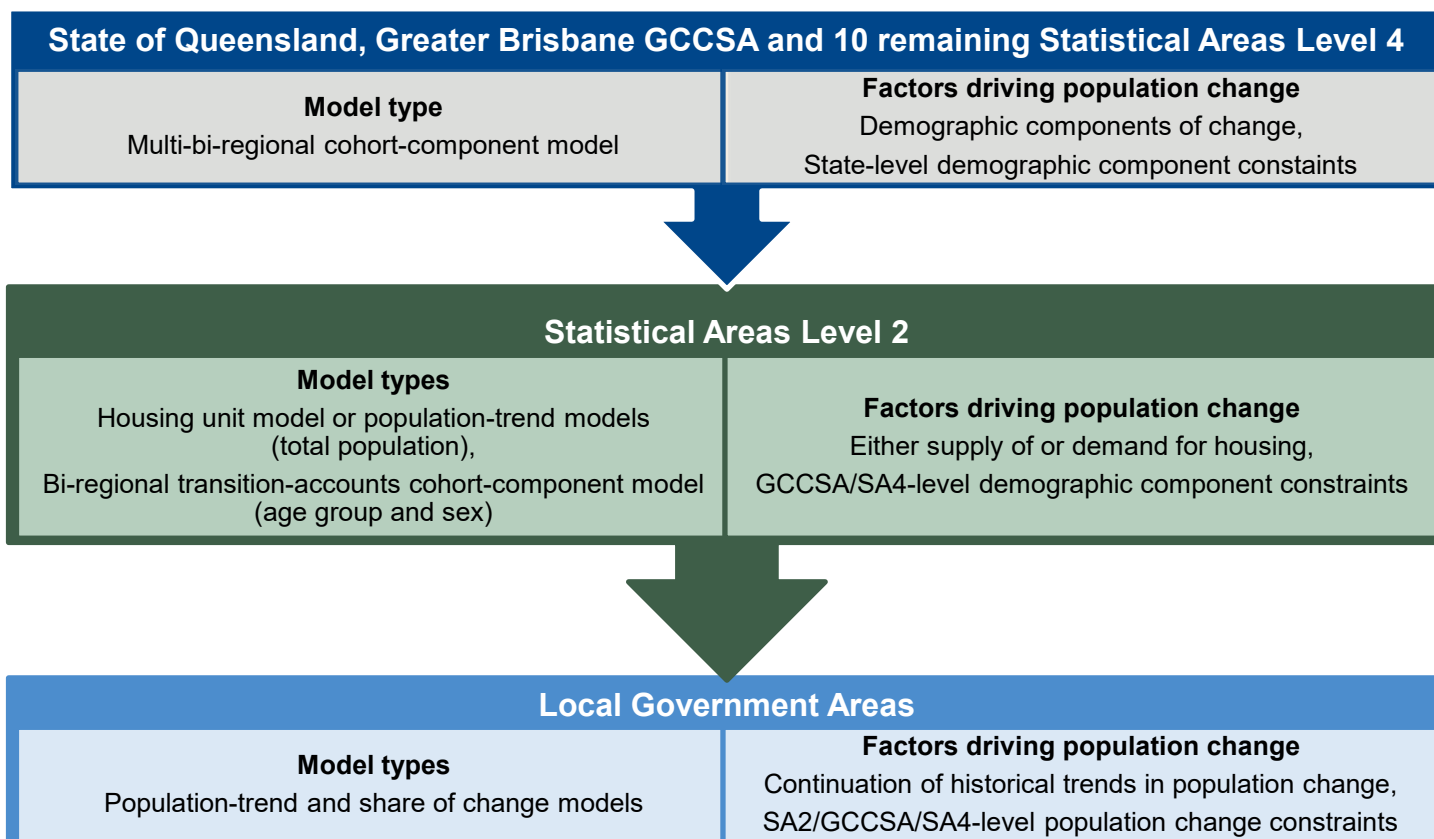
Queensland's state and sub-state population projections are generated in sequential stages, using several different models. The choice of methodology and techniques applied for different geographical areas and different geographical levels considered issues such as:

- assumptions about the components of population change (fertility and mortality rates, and overseas, interstate and intrastate migration)
- the principal determinants of population change (demand for housing versus supply of dwellings)
- data reliability and availability
- the rate of population change
- a region's share of overall state population.

¹ ABS Australian Statistical Geography Standard (ASGS) Edition 3, July 2021 – June 2026; (abs.gov.au)

Figure 7 summarises the sequential stages of modelling, types of models used and factors driving projected population change at different geographical levels, which are further explained in this report.

Figure 7 Sequential stages of modelling, model type and factors driving population change at different geographical levels



State, Greater Brisbane Greater Capital City Statistical Area, and Statistical Areas Level 4

Demographic component assumptions are the main drivers of projected population change and the future size, distribution and age structure of the population for the State of Queensland, Greater Brisbane GCCSA and the 10 remaining SA4s.

Projections were generated for Greater Brisbane GCCSA rather than for each of the nine individual SA4s 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 dwelling supply availability and constraints (which is considered at the SA2 level), rather than demographic factors alone.

Population projections for the State of Queensland, Greater Brisbane GCCSA and the 10 remaining SA4s were generated using a multi-bi-regional cohort-component model. This methodology ages population cohorts over time to the successive age groups, accounting for births and deaths, as well as inward and outward migration for each region.

Assumptions about the future levels of fertility, life expectancy, net overseas migration, net interstate migration and net intrastate migration are used to calculate the number of births, deaths and migrant flows by type. A summary of the Queensland-level component assumptions is provided in Table 1.

Each projection series for Greater Brisbane GCCSA and the 10 remaining SA4s is underpinned by region-specific assumptions for each of the demographic components, relative to the state-level assumption. Different fertility rates and life expectancies are used for each sub-state region, accounting for recent historical differentials

between each region and Queensland. However, the projected numbers of births, deaths, net overseas migration and net interstate migration for Greater Brisbane GCCSA and SA4s are scaled to the Queensland level, with net intrastate migration constrained to zero by definition.

Fertility and mortality

For these regions, the number of births each year is calculated by applying assumed age-specific fertility rates to the population of women of child-bearing age (15–49 years old for the purposes of the models). The set of age-specific fertility rates is consistent with the assumed total fertility rate for that annual period and region.

The number of deaths in each region is derived by applying age and sex-specific mortality rates to the population on an annual basis. For each sex and annual period, the corresponding set of age-specific rates is informed by the assumed life-expectancy at birth used, and a precalculated set of age and sex-specific mortality rates spanning different life-expectancies at birth that reflect historical and plausible future mortality age patterns (a mortality surface).

Migration

Net migration (inflows minus outflows) shares and/or levels for each of the migration components (overseas, interstate and, for sub-state regions, intrastate) were estimated for each region based on the relevant data sources. Region-specific migration profiles, reflecting migration propensities by sex and single year of age, were modelled to determine the sex and age pattern of inflows and outflows of overseas, interstate, and intrastate migrants for each region.

A range of data sources and information were used to inform intrastate, interstate, and overseas migration shares/levels and their respective age profiles for these regions:

- 2011, 2016 and 2021 Census of Population and Housing data published by the ABS
- Overseas and internal migration estimates prepared by the ABS
- methods in the paper 'Modelling Age Patterns of Internal Migration at the Highest Ages'².

The assumed future overseas and interstate migration profiles were based on combining estimated resident population data and historical regional migration estimates by age and sex produced by the ABS. Future intrastate migration profiles were calculated based on data from historical Censuses.

Due to the timing of the 2021 Census (August 2021), migration data from the 2021 Census were used judiciously as they may include contemporaneous impacts of the COVID-19 pandemic, which included significant short-term disruptions to typical traveller behaviour and residential mobility, both domestically and internationally.

Migration shares/levels and profiles were constructed for each region and annual period. For years early in the projection horizon, these inputs reflect recent observed outcomes. In successive years, these inputs were transitioned to constant longer-term shares/levels and profiles, reflective of a return to established, typical pre-pandemic trends.

Statistical areas level 2

Future population change at the SA2 level is not modelled primarily as the result of demographic factors, as it is at higher geographical levels. Instead, projected population change for each SA2 (categorised as either 'urban' or 'non-urban') is considered to be primarily driven by either the future supply of, or demand for, housing:

In the case of **future housing supply**, and where this information is available in sufficient detail, population change is considered a function of available dwelling supply and occupancy constraints, along with anticipated consequent dwelling construction.

² Wilson, T. 2020, *Modelling Age Patterns of Internal Migration at the Highest Ages*. Spatial Demography, 8, 175-192. <https://doi.org/10.1007/s40980-020-00062-7>

In the case of **future housing demand**, population change is informed by population trend-based models that reflect the demand for housing. Additional dwelling supply is not considered the chief limiting factor in population change.

A bi-regional transition-accounts cohort-component model is used to produce age-sex disaggregated projections for each SA2. Transition-accounts refers to how migration is conceptualised; where it is modelled as a change in the SA2 of usual residence between successive points in time, rather than as migration movements over a SA2 boundary during a period of time (movement-accounts). SA2 population projections are constrained to those for Greater Brisbane GCCSA and the 10 remaining SA4s.

'Urban' statistical areas level 2

Population change in 'urban' SA2s is considered a function of available dwelling supply and occupancy constraints, and future changes to this. For example, construction of many dwellings is projected to result in significant future population growth in SA2s such as Ripley, Flagstone (West) - New Beith, Rosewood, Coomera, and Caloundra West - Baringa.

A housing unit model (HUM) has been used to project the populations in such SA2s, where future dwelling supply data were available from local government councils. Using the HUM, projected population change within Greater Brisbane, and within other applicable SA4s, is distributed using the anticipated supply of dwellings (i.e., existing dwelling stock plus projected new dwellings) and assumptions about future occupancy rates at the SA2 level.

The HUM uses dwelling supply capacities to project the number of detached and attached dwellings, and the resulting population occupying those dwellings based on:

- the number of vacant lots (without dwellings)
- recent dwelling construction and dwelling approval activity
- assumed future timing of availability of detached and attached dwellings
- assumed future occupancy rates in detached and attached dwellings
- assumed number of people resident in non-private dwellings (such as nursing homes, residential colleges, or prisons) or temporary dwellings (such as caravans, houseboats or tents).

The spatial and temporal distribution of dwelling supply arises from local government planning schemes and datasets. These are subject to future change and may have been revised from similar information used to inform the 2023 edition of the Queensland Government population projections. The rate at which the available dwelling supply is taken up in the future is contingent upon a range of factors, including economic conditions and decisions made by the business community, and is subject to uncertainty.

The 2025 edition also incorporated information on estimated dwelling yields for several Priority Development Areas (PDAs), formerly known as Urban Development Areas, across Queensland. PDAs are parcels of land within Queensland that have been identified for specific accelerated development with a focus on economic growth. Data on PDAs were provided by Economic Development Queensland.

The short-term dwelling projections for the 2025 edition are notably influenced by the strong observed population growth over the period 2021 to 2025. Dwelling growth generally moderates over the projection horizon to align with the planning data available.

'Non-urban' statistical areas level 2

Trend-based models were used to project the population for SA2s where dwelling supply and occupancy constraints are not considered to be the main drivers of future population change, or where future dwelling supply data were not available. These SA2s were categorised as 'non-urban'.

The population in non-urban SA2s was projected as the weighted average of a constant share of the state's projected population, relative to the base year, and a variable share of the state's projected population growth, based on an exponential growth model.

Local government areas

Components of population change are not explicitly modelled for LGAs. Instead, population change at the LGA level is calculated as the aggregation of changes in lower geographical level areas that make up the LGA.

Medium series LGA projections are constructed from the medium series SA2 projections. Low and high series LGA projections are produced by scaling change at a lower geographical level and aggregating this change to the LGA level. LGA populations are constrained to those at the Greater Brisbane GCCSA and 10 remaining SA4s level.

General data sources

Australian Bureau of Statistics, *Births, Australia*, various editions

Australian Bureau of Statistics, *Census of Population and Housing*, various editions

Australian Bureau of Statistics, *Life expectancy*, various editions

Australian Bureau of Statistics, *National, state and territory population*, various editions

Australian Bureau of Statistics, *Regional population*, various editions

Australian Bureau of Statistics, *Regional population by age and sex*, various editions

Queensland Government, *Queensland Government population projections, 2025 edition*

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