

Department of Planning, Housing and Infrastructure

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Methods and assumptions

2024 NSW Population Projections

November 2024





Acknowledgement of Country

The Department of Planning, Housing and Infrastructure acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land, and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Published by NSW Department of Planning, Housing and Infrastructure

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First published: November 2024

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1 Introduction

The NSW Department of Planning, Housing and Infrastructure prepares population projections twice every Census cycle to give an up-to-date, shared evidence base to plan for housing, key services and infrastructure in the state, from schools and hospitals to roads and transport.

The projections form the NSW Common Planning Assumptions. The NSW Common Planning Assumptions are the agreed information assets (data sets, parameters and assumptions, models and analytical tools) that the NSW Government and external stakeholders use to prepare proposals, business plans and strategies that rely on projections.

This report provides an overview of the method and assumptions used to develop the 2024 population projections. In addition, it includes the method and assumptions underpinning implied dwelling demand projections for regional NSW.

2 Modelling approach

2.1 Method and data sources

The NSW population projections are based on assumptions about the drivers of population change: births, deaths, and migration (the movement of people within, to and from NSW). They are the best assessment of how the NSW population may change over time, including population size and age profiles across the state.

The population projections are developed using the cohort-component method, a model used worldwide. This method recognises that the life events that drive population change – such as having a baby, moving interstate or overseas, or dying – are more likely at certain stages of life.

The model starts with population by age and sex as of 30 June in the base year (see Section 2.3). We then advance each group of people (cohort) forward by one year, making assumptions about what demographic events (births, deaths or migration) will happen at each age. For each age-sex group, we add in births and in-migration, and subtract deaths and out-migration. The process is repeated to the end of the projection period (see Figure 1).

All projections refer to the population as at 30 June each year, and all assumptions are made on a financial year basis.

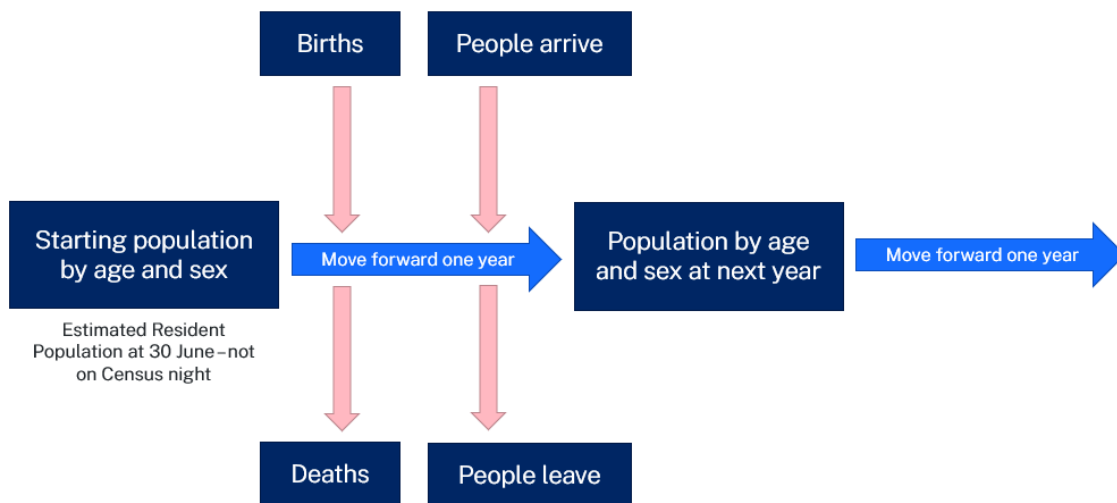


Figure 1. Simplified diagram of the cohort-component method

Demographic drivers

Table 1 lists the demographic drivers that inform the population projection model. It includes the key measure we use for each assumption, and the data sources we use to derive it.

Our assumptions about the drivers of population change are based on analysis of historical trends from a range of data sources, as well as policy announcements and local intelligence. We assess if the trends are likely to continue or if we should assume a different trend over time. The assumptions for the 2024 population projections are detailed in sections 3 and 4.

Table 1. Overview of demographic assumptions that inform the NSW population projections

Population driver	Assumption measure and definition	Data source(s)
Births	Total fertility rate <i>The average number of births each woman has over her lifetime.</i>	<ul style="list-style-type: none"> • Birth and fertility statistics (Australian Bureau of Statistics or ABS) • Data from NSW, ACT, Victoria and Queensland Perinatal Data Collections • Research published by the Commonwealth Centre for Population
Deaths	Life expectancy at birth <i>The average number of years a person is expected to live.</i>	<ul style="list-style-type: none"> • Life expectancy at birth estimates (ABS) • Life tables calculated using deaths data published by the ABS • The Human Mortality Database (University of California Berkeley) • Advice from NSW Health
Overseas migration	Net overseas migration <i>The net gain or loss of population through international migration to and from Australia.</i>	<ul style="list-style-type: none"> • Overseas migration estimates (ABS) • Overseas arrivals and departures data (ABS) • Census data on residential mobility (usual address one year ago and 5 years ago) (ABS) • Visa data (the Australian Government Department of Home Affairs) • Advice from Australian Government agencies such as the Centre for Population
Interstate migration	Net interstate migration <i>The net gain or loss of population through migration to and from other states and territories.</i>	<ul style="list-style-type: none"> • Interstate migration estimates (ABS) • Census data on residential mobility (usual address one year ago and 5 years ago) (ABS)

Population driver	Assumption measure and definition	Data source(s)
Intrastate migration (sub-state areas only)	Net intrastate migration <i>The net gain or loss of population through migration to and from other locations within the same state.</i>	<ul style="list-style-type: none"> Census data on residential mobility (usual address one year ago and 5 years ago) (ABS)

As mentioned above, the likelihood of having a baby, dying, or moving home varies with age. So, in addition to the summary measures listed in Table 1, we also make assumptions about the drivers of population change that are **specific to each age-sex group**, including how likely:

- women are to have a baby at each age (between 15 and 49 years)
- people are to die at each age
- people are to move into or out of an area at each age.

These age-specific assumptions ensure the projections reflect the age profile of a population. For example, an area with many people in their 20s and 30s is likely to see more births than an area with a high concentration of retirees.

2.2 Geographic areas

Using the cohort-component method, we create population projections for 3 types of geographic areas:

- NSW** as a whole
- Large regions** of the state called projection regions, based on the ABS Australian Statistical Geography Standard Edition 3. The boundaries of these regions fit neatly within NSW
- Smaller local areas** known as statistical areas level 2 (SA2), a geography defined by the ABS Australian Statistical Geography Standard Edition 3. The SA2 boundaries fit neatly within the broader projection regions.¹

We use both top-down and bottom-up methods to create the projections, which ensures projections for smaller geographic areas (bottom-up) are consistent with those for larger geographic areas (top-down):

- For NSW and each projection region and SA2, the model begins with a starting population and a set of assumptions about the drivers of population change over the projection period.

¹ Statistical areas level 2 (SA2) are medium-sized, general-purpose areas built to represent communities that interact together socially and economically. Most SA2s have a population range of 3,000 to 25,000 people. There are currently 644 SA2s in NSW. For more information see <https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026>.

2. The model runs the NSW projections first, then the projection regions. It then adjusts the results for the projection regions to ensure the projected population by age and sex, and drivers of population change, add to the state total.
3. This process is then repeated – the model runs the projections for SA2s, and then adjusts the results to ensure they add to the region totals.

To create projections for other types of boundaries, we take the SA2 projections and break them down into even smaller geographic areas called building bricks. We then take these building bricks and group them together to form larger boundaries such as:

- local government areas
- Department of Planning, Housing and Infrastructure planning regions
- local health districts.

Collapsed statistical area level 2

Where SA2s have very small populations, the regions are combined into collapsed SA2s. Table 2 shows the affected SA2s and the new names.

Table 2. List of collapsed SA2s used for the 2024 NSW Population Projections

Name of collapsed statistical area level 2	Component statistical area level 2 names
Austral–Greendale–Badgerys Creek	<ul style="list-style-type: none"> • Austral–Greendale • Badgerys Creek
Blackheath–Megalong Valley–Blue Mountains	<ul style="list-style-type: none"> • Blackheath–Megalong Valley • Blue Mountains–North • Blue Mountains–South
Botany–Airport–Industrial	<ul style="list-style-type: none"> • Banksmeadow • Botany • Port Botany Industrial • Sydney Airport
Bradbury–Wedderburn–Holsworthy Military Area	<ul style="list-style-type: none"> • Bradbury–Wedderburn • Holsworthy Military Area
Cooma Surrounds–Deua–Wadbilliga	<ul style="list-style-type: none"> • Cooma Surrounds • Deua–Wadbilliga
Greystanes South–Smithfield Industrial	<ul style="list-style-type: none"> • Greystanes South • Smithfield Industrial
Guildford West–Merrylands West–Yennora Industrial	<ul style="list-style-type: none"> • Guildford West–Merrylands West • Yennora Industrial
Heathcote–Waterfall–Royal National Park	<ul style="list-style-type: none"> • Heathcote–Waterfall • Royal National Park

Name of collapsed statistical area level 2	Component statistical area level 2 names
Helensburgh–Illawarra Catchment Reserve	<ul style="list-style-type: none"> • Helensburgh • Illawarra Catchment Reserve
Horsley Park–Kemps Creek–Wetherill Park Industrial	<ul style="list-style-type: none"> • Horsley Park–Kemps Creek • Wetherill Park Industrial
Lidcombe–Rookwood Cemetery	<ul style="list-style-type: none"> • Lidcombe • Rookwood Cemetery
Paddington–Moore Park–Centennial Park	<ul style="list-style-type: none"> • Centennial Park • Paddington–Moore Park
Port Kembla–Warrawong–Port Kembla Industrial	<ul style="list-style-type: none"> • Port Kembla–Warrawong • Port Kembla Industrial
Seven Hills–Prospect–Prospect Reservoir	<ul style="list-style-type: none"> • Prospect Reservoir • Seven Hills–Prospect
Singleton Surrounds–Wollangambe–Wollemi	<ul style="list-style-type: none"> • Singleton Surrounds • Wollangambe–Wollemi
Stockton–Fullerton Cove–Newcastle Port–Kooragang	<ul style="list-style-type: none"> • Newcastle Port – Kooragang, Stockton - Fullerton Cove
Ulladulla Surrounds - Ettrema - Sassafras - Budawang	Ettrema - Sassafras – Budawang, Ulladulla Surrounds

2.3 Starting population

The starting (or jump-off) population for the 2024 NSW Population projections is the final estimated resident population as of 30 June 2021 for:

- NSW
- projection regions
- SA2s.

We break down the estimated resident populations by single year of age and sex. All assumptions start from this base.²

Estimated resident population is the official measure of population for local areas, states and territories across Australia, and the data are available from the ABS in *Regional population by age and sex* (published 31 August 2023).³

² When the model was run, preliminary estimates for the components of change at the state level were available for the 2022 and 2023 financial years, in the ABS publication *National, state and territory population* (published 14 December 2023). Published preliminary estimates for net overseas migration and net interstate migration were included in the assumptions for those years.

³ For more information, refer to the ABS explanation of [how it calculates the official population figures](#).

The starting and projected populations are the number of people who will usually live at a location⁴. Babies are counted at the birth mother's usual place of residence, not where the birth takes place.

The projections do not include people who live at a location for less than 6 months. This group includes:

- visitors on short holidays
- business travellers
- people working longer shifts on mining and other infrastructure projects (typically fly-in-fly-out or drive-in-drive-out workers)
- seasonal workers
- in-patients receiving medical treatment.

2.4 Adjustments using the Housing Unit Method

The Housing Unit Method is used to adjust projected population growth in line with patterns of planned residential development. Applying the Housing Unit Method in Greater Sydney does not change the overall size of the population, but it adjusts the distribution of future growth between regions.

The key foundation of the Housing Unit Method is that everyone lives in some kind of housing structure and that new homes will be occupied by a household.⁵ This approach is particularly useful for understanding the implications of residential mobility on population growth in areas that currently have little or no residential development (for example, greenfield areas on Sydney's fringe), or in existing areas when planned residential development is much greater than seen in the past.

In Greater Sydney, the 2023 Sydney Housing Supply Forecast is used to redistribute small area projected populations in line with patterns of planned development. This annual forecast gives the latest estimates on where, when and how many new homes are likely to be built in Greater Sydney in the years ahead.

Outside of Greater Sydney, a combination of historical trends and local intelligence on large-scale housing developments is used to redistribute the population between local areas.

The Housing Unit Method is an approach that supplements the cohort-component method and is commonly adopted for small area population projections, such as in New York City and the City of London.

⁴ As per ABS definitions, where people 'usually live' means that people live at a location for 6 months or more each year.

⁵ Smith, S (1986) 'A Review and Evaluation of the Housing Unit Method of Population Estimation', *Journal of the American Statistical Association* 81:287-96.

3 Assumptions for NSW

For NSW in each financial year of the projection period, we make assumptions about:

- **births:** how many babies will be born to each woman (as measured by the total fertility rate)
- **deaths:** how many people will die and at what age (as measured by life expectancy at birth)
- **net overseas migration:** the net population gain or loss through migration flows to and from NSW and overseas
- **net interstate migration:** the net population gain or loss through migration flows to and from NSW and other Australian states and territories.

Table 3 shows the assumptions for NSW, summarised over 5-year periods

Table 3. NSW (state-level) assumptions for the 2024 NSW Population projections

5-year period	Total fertility rate*	Female life expectancy*	Male life expectancy*	Net overseas migration	Net interstate migration
	<i>Average number of children born per woman aged 15-49</i>	<i>Average number of years</i>	<i>Average number of years</i>	<i>Total number of net additional migrants</i>	<i>Total number of net additional migrants</i>
2021-26	1.66	86.7	83.1	530,200	-134,500
2026-31	1.66	87.6	84.2	376,500	-95,000
2031-36	1.63	88.3	85.2	376,500	-95,000
2036-41	1.63	88.9	86.0	376,500	-95,000

*Average over the 5-year period.

Assumptions about these drivers of population change are also set for each projection region and SA2 (see Section 4 for more detail). For these areas, we make more assumptions about the net population gain or loss through migration flows to and from other parts of NSW (net intrastate migration).

3.1 Births

Two factors determine how many babies will be born in the future: the number of women who are of the right age to have children, and how many babies they may have.

To estimate how many babies may be born in NSW in the future, we analyse births statistics to understand trends in NSW birth rates. We first calculate ‘age-specific fertility rates’, or the number of babies born to women of a certain age. We then use these rates to calculate the total fertility rate, or the average number of babies a woman in NSW will have.

Birth rates in NSW have followed the Australian pattern. Birth rates climbed during the baby boom after the Second World War, when mothers were young and had 3 children on average. Since the end of the baby boom, birth rates have declined for almost 6 decades.

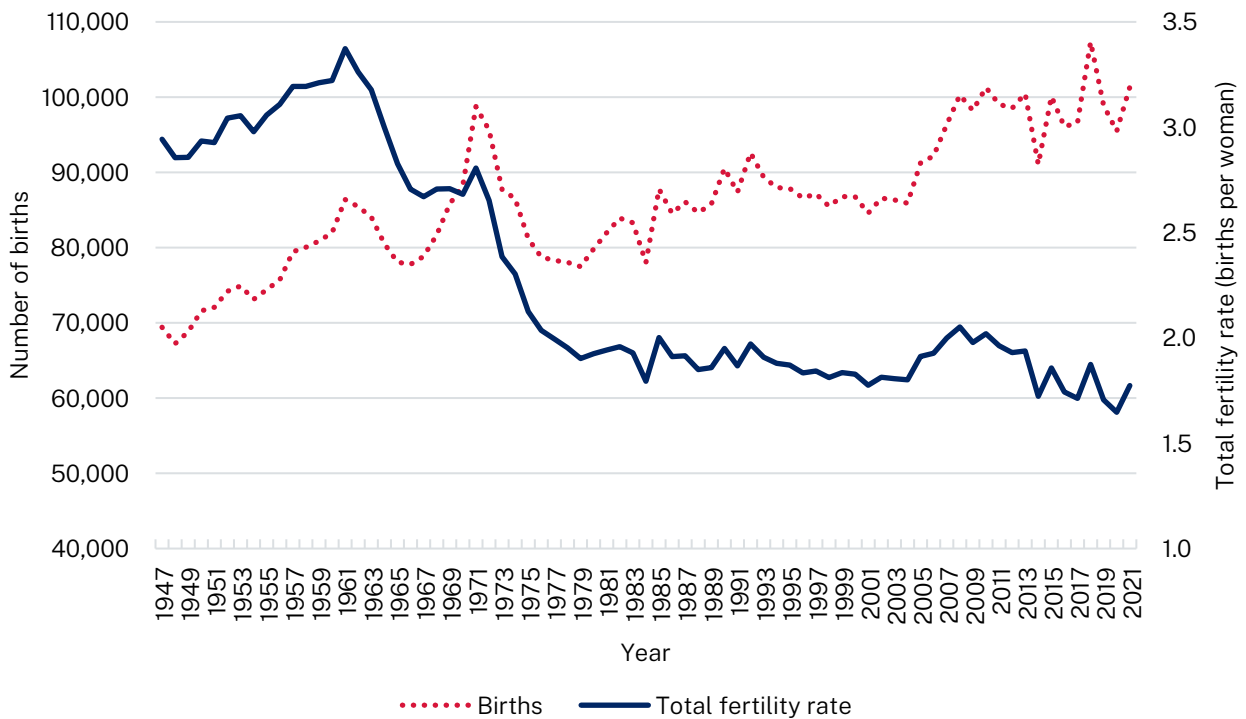


Figure 2. Annual live births and total fertility rate for NSW

Source: DPHI analysis based on Australian Bureau of Statistics (2021), *Historical Population*.

Current trends and outlook for births

Today, birth rates in NSW are at a record low. Women now have smaller families and have their children at an older age. A brief, unexpected upswing in fertility rates from 2004 happened when a greater proportion of births happened to women aged in their 30s. In a 2020 report prepared for the Australian Government, Peter McDonald noted that the recent increases in

birth rates were unlikely to continue.⁶ McDonald expects birth rates to remain close to current levels for some time because childbearing cannot be deferred indefinitely. Data from other countries with similar patterns show that the up and down trends seen in the past are likely to be less marked in the future.

Although birth rates are at an all-time low, we have a large population of women of reproductive age. So, we expect the number of babies born each year to continue to be high.

Assumptions about births for the 2024 NSW Population projections

There was no meaningful change in birth rates during the COVID-19 pandemic and there is no new evidence to suggest that future birth rates will be different from the outlook from McDonald (2020). So, we have adopted the birth assumptions used in the 2022 population projections. That is, that birth rates will continue to decline from current levels to stabilise at about 1.62 births per woman.

3.2 Deaths

Deaths contribute to natural population change as they offset the number of births. In some parts of NSW, deaths outnumber births, so the population has natural decline.

The number of deaths is easier to predict than births or migration and is less likely to change rapidly. Deaths are not the largest driver of population change, but trends over the last 150 years are closely linked to population aging in NSW.

The measure that summarises assumptions about death is life expectancy at birth. Since the late 1800s, people in NSW have been living longer. On average, women live longer lives than men, although the gap is slowly reducing. Children born at the beginning of the 21st century are expected to live 30 years longer than children born around 1900.⁷

While life expectancy is rising in NSW, the number of deaths is also increasing. This is because the population is growing and aging, so we have more older people.

⁶ McDonald, P (2020) *A Projection of Australia's Future Fertility Rates*, Centre for Population Research Paper, The Australian Government, Canberra.

⁷ Australian Institute of Health and Welfare (2024) *Deaths in Australia*, web report last updated 6 June 2024, Australian Government, Canberra <https://www.aihw.gov.au/reports/life-expectancy-deaths/deaths-in-australia/contents/life-expectancy>
Australian Bureau of Statistics (2011) *Life Expectancy Trends – Australia*, Australian Social Trends March 2011, ABS Catalogue no. 4102.0, Canberra <https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features10Mar+2011>

Current trends and outlook for deaths

Table 4 lists the latest available estimates of life expectancy at birth for NSW and Australia at the time the assumptions were set.

Table 4. Latest estimates for life expectancy at birth in NSW and Australia

Source	Year(s)	Geography	Life expectancy at birth (in years) for females	Life expectancy at birth (in years) for males
ABS	2019–2021	Australia	85.4	81.3
ABS	2019–2021	NSW	85.4	81.4
Australian Institute of Health and Welfare	2018–2020	Australia	85.3	81.2
United Nations	2022	Australia	85.5	81.7
Romo et al. (2022)	2020	Australia	85.8	81.8

Table 4 shows there is little difference between estimates of life expectancy at birth for Australia compared to those available for NSW.

Effect of COVID-19

Initially, when COVID-19 pandemic measures restricted the movement of people, there were fewer deaths in Australia than normal.⁸ The spread of communicable diseases was largely halted and deaths caused by influenza (flu) and pneumonia fell to almost zero during 2020 and 2021.⁹ This drop in deaths from flu and pneumonia more than offset the number of deaths from COVID-19 in the first 2 years of the pandemic. Australia was one of the few countries where life expectancy rose in the first 2 years of the pandemic.

However, when people were allowed to move about again, there were an estimated 20,000 more deaths in Australia in 2022 than we would have expected if there were no pandemic.¹⁰ More than half of these deaths were directly because of COVID-19 and another 15% were

⁸ Romo et al (2022) 'Quantifying impacts of the COVID-19 pandemic on Australian life expectancy', *International Journal of Epidemiology*, 2022, 1692–1695. <https://academic.oup.com/ije/article/51/5/1692/6506578>

⁹ Australian Institute of Health and Welfare (2021) *The first year of COVID-19 in Australia: direct and indirect health effects*. Online report. <https://www.aihw.gov.au/getmedia/a69ee08a-857f-412b-b617-a29acb66a475/aihw-phe-287.pdf.aspx?inline=true>

¹⁰ Actuaries Institute (2023) *How COVID-19 has affected Mortality in 2020 to 2022*, COVID-19 Mortality Working Group Research paper, July 2023. <https://www.actuaries.asn.au/Library/Opinion/2023/REPORTV2COVID19.pdf>

related to COVID-19. As a result, life expectancy is estimated to have fallen by 0.6 years for females and 0.7 years for males in 2022, the largest such declines in decades.¹¹ This decline was largely in the older age groups.

Recent outlooks for life expectancy

Recent work by Wilson (2022)¹², has shown declining gains in life expectancy over time and a closing of the gap between females and males. The research tracks well against the latest estimates for life expectancy at birth in NSW and in Australia.

Assumptions about deaths for the 2024 NSW Population projections

We used Wilson's model to develop the assumptions about death for the 2024 population projections. We adjusted assumptions for 2021–22 and 2022–23 to account for the effect of the excess deaths recorded in 2022, based on advice from Dr Tim Adair at the University of Melbourne.

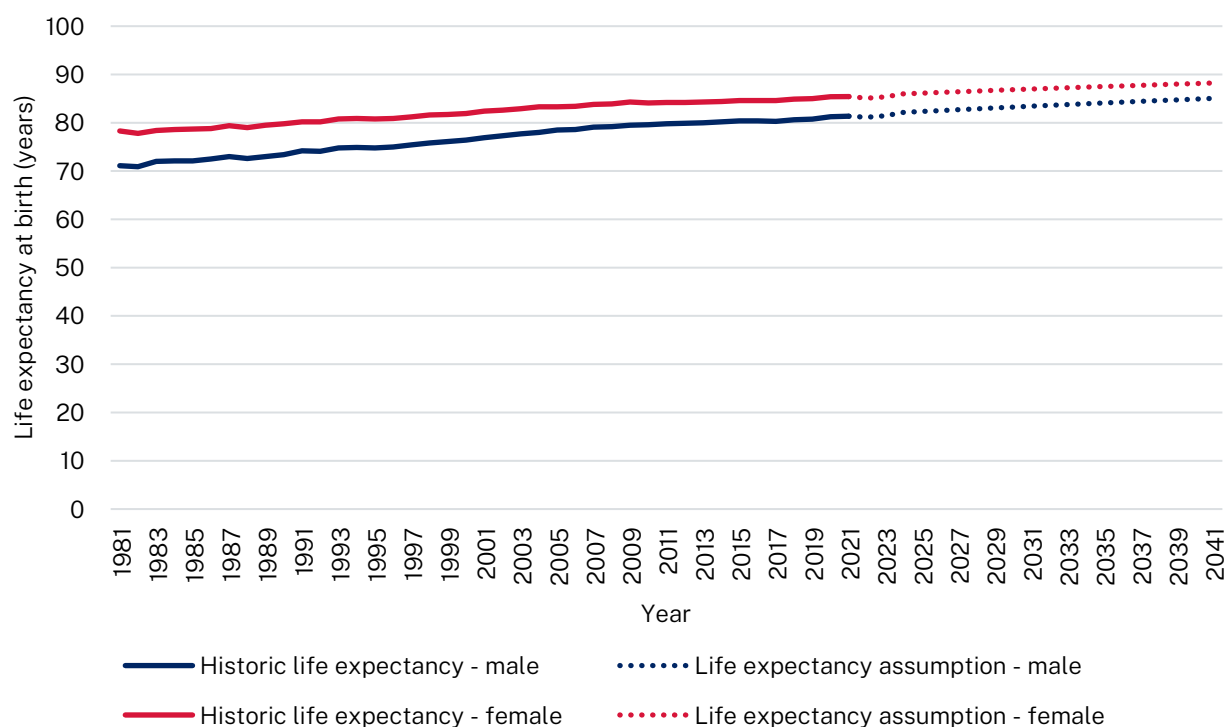


Figure 3. Historic life expectancy at birth for NSW and 2024 projection assumptions.

Source: DPHI analysis based on Australian Bureau of Statistics (2021), *Historical Population*.

We assume that gains in life expectancy at birth will continue, and the gap between female and male life expectancy will continue to close. The slight tapering off for gains to life

¹¹ Adair, T (2022) *How has COVID-19 impacted Australia's life expectancy*, University of Melbourne, <https://mbspgh.unimelb.edu.au/centres-institutes/nossal-institute-for-global-health/news-and-events/how-has-covid-19-impacted-australias-life-expectancy>.

¹² Wilson, T (2022) Unpublished life expectancy modelling analysis, University of Melbourne.

expectancy reflects the current uncertainty about the long-term effect of COVID-19. We also expect that life expectancy at birth is unlikely to continue to improve at the same rate indefinitely into the future.

These assumptions closely match current estimates for life expectancy in NSW and Australia, and with the assumptions adopted in the Australian Government's 2023 Intergenerational Report.¹³

3.3 Net overseas migration

Net overseas migration comprises overseas arrivals minus departures. Since 2006–07, the ABS has used a '12/16 rule' to decide if someone counts as an overseas migration arrival or departure.¹⁴ An incoming traveller is counted as an overseas arrival if they are not currently counted in the population, and they stay in Australia for at least 12 months over a 16-month period.

Similarly, overseas departures are outgoing travellers who are currently counted in the population but leave Australia for 12 out of 16 months. Under this definition, net overseas migration includes both permanent and temporary migrants, as well as New Zealand and Australian citizens.

The ABS publishes quarterly net overseas migration estimates in its *National, state and territory population series*.

Current trends and outlook for net overseas migration

Net overseas migration has been the main driver of population growth in NSW over the past 40 years. It is also the most volatile, as it rises and falls with changing migration policies and economic conditions.

During the 2010s, a boom in international student arrivals drove NSW net overseas migration to record levels, peaking at over 100,000 in 2016–17 (refer to Figure 4).

The COVID-19 pandemic heavily disrupted net overseas migration, as travel restrictions stopped overseas migration. Annual net overseas migration fell sharply in 2019–20. Then in 2020–21, NSW recorded its first annual net overseas migration loss (–7,200) since the Second World War. When travel restrictions were removed, net overseas migration rebounded quickly. International students drove a surge in overseas arrivals. Annual net overseas migration for 2021–22 recovered to 69,100, then soared to a record of 174,200 in 2022–23.

¹³ Australian Government (2023) *2023 Intergenerational Report*, <https://treasury.gov.au/publication/2023-intergenerational-report>.

¹⁴ Australian Bureau of Statistics (March 2023) *National, state and territory population methodology*.

Large inflows of international students have kept overseas arrivals at record levels. Meanwhile, departures have remained low because few temporary migrants arrived in the country during the pandemic, so there have been few due to depart. According to the ABS, 'This effect is expected to be temporary as the number of departures will increase in the future as students start departing in usual numbers.'¹⁵

Key migration policy announcement: the 2023 Migration Strategy

In December 2023, the Australian Government released its Migration Strategy, which outlines a new vision for Australia's migration system. Policy actions in the Migration Strategy are expected to dampen net overseas migration in the near-term, through:

- closing COVID-19 concessions such as the Pandemic Event Visa and uncapped working hours for international students
- tightening visa requirements for international students, including higher minimum English language requirements
- ending settings that drive long-term temporary stays, including shortening graduate visas
- tackling exploitation of the visa system
- targeting skilled migration to genuine shortages.¹⁶

Net overseas migration forecasts in the 2023 Population Statement

In December 2023, the Commonwealth Centre for Population released the 2023 Population Statement, which includes updated population projections for each state and territory up to 2033–34. These projections are the official Australian Government outlook for net overseas migration and were included in the updated 2023–24 Mid-Year Economic and Fiscal Outlook for the Federal Budget.

According to the projections, net overseas migration is expected to have peaked in 2022–23 before returning to pre-pandemic levels by 2024–25. By 2027–28, net overseas migration is assumed to settle at 74,800 and remain constant for the rest of the projection period up to 2033–34. These forecasts also account for the policy directions in the Migration Strategy, which are expected to reduce Australia's net overseas migration by around 180,000 people between 2023–24 and 2026–27.

Assumptions about net overseas migration for the 2024 NSW Population projections

Figure 4 shows our assumptions for net overseas migration for NSW. We have taken the assumptions for 2021–22 and 2022–23 from the ABS's December 2023 release of *National*,

¹⁵ Australian Bureau of Statistics (2023) *Overseas migration drives Australia's population growth*.

¹⁶ Australian Government (2023) *Migration Strategy*, <https://immi.homeaffairs.gov.au/what-we-do/migration-strategy>.

state and territory population.¹⁷ We share the Australian Government view that the record level of net overseas migration in 2022–23 is a short-term catch-up of migration flows that were curbed in 2020 and 2021. Our assumptions use the Centre for Population’s forecast for NSW during 2023–24 to 2025–26, with net overseas migration settling towards pre-pandemic levels.

The timing of the transition from the 2022–23 peak to a long-run average net overseas migration is based on the timing in the 2023 Population Statement, which has net overseas migration settling at around 75,000 from 2026–27 onwards.¹⁸ We assume a long-run (pre-pandemic) average of 75,300 per year in 2026–27. This is held constant for the remainder of the projection period.¹⁹

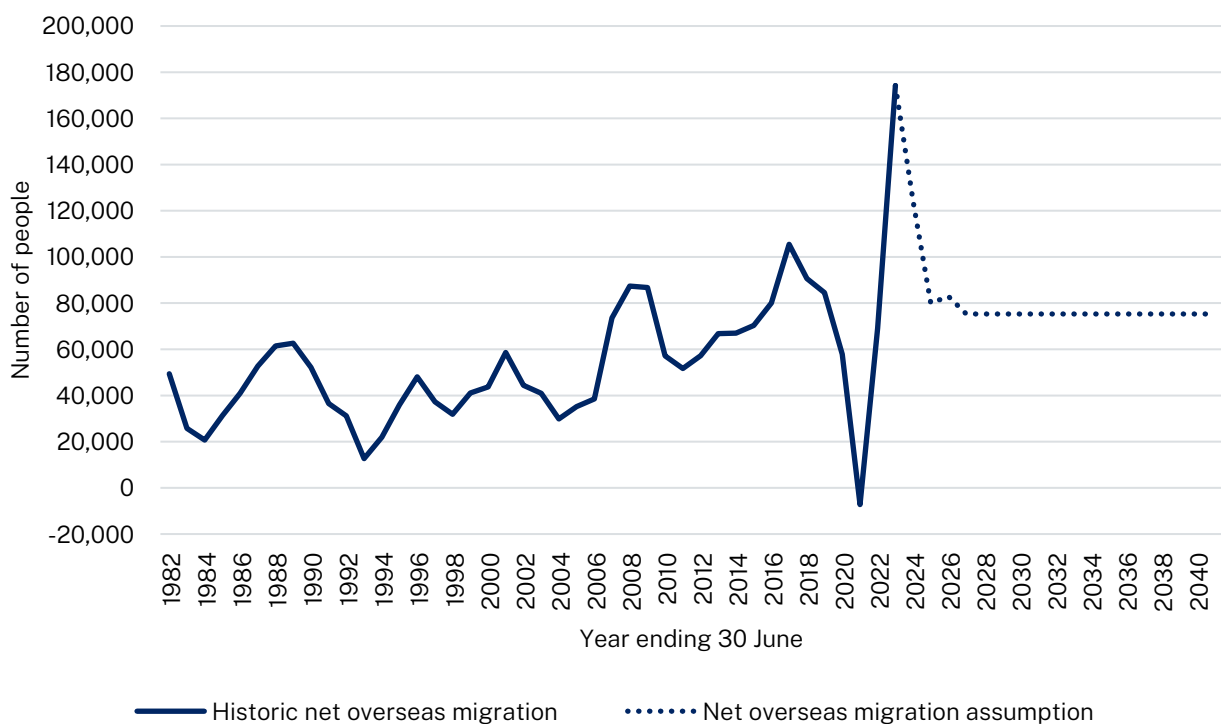


Figure 4. Historic net overseas migration estimates for NSW and 2024 projection assumptions.

Source: DPHI analysis based on Australian Bureau of Statistics (June 2023) *National, state and territory population*.

Age-specific assumptions about overseas migration

We also produce age-specific assumptions. These describe the number of males or females of a certain age:

¹⁷ Australian Bureau of Statistics (June 2023) *National, state and territory population*.

¹⁸ Centre for Population (2023) *Population Statement 2023, state and territory projections, 2021-22 to 2033-34*, <https://population.gov.au/publications/statements/2023-population-statement>.

¹⁹ Based on the 13 years from 2006–07 (when changes to the measurement of net overseas migration were introduced) to 2018–19 (the latest financial year unaffected by COVID-19).

- who will move into an area from overseas, or
- the likelihood that they will move out of the area to an overseas location.

These assumptions are based on an analysis of overseas migration data from the Census. For this update to the projections, we used 2016 Census data because migration data in the 2021 Census was heavily affected by COVID-19 travel restrictions.

3.4 Net interstate migration

Net interstate migration comprises interstate arrivals minus departures. Historically, net interstate migration has fluctuated across Australia. This is in response to economic and environmental conditions, and resource exploration across the different states and territories. NSW has long been a net exporter of people to the rest of Australia. This structural feature is driven by the strength or weakness of the NSW economy and labour market in relation to the rest of Australia. NSW is also Australia's key gateway for overseas migrants, many of whom later decide to move interstate.

The assumptions for net interstate migration are based on the analysis of 2 key data sources: quarterly interstate migration estimates from the ABS and internal migration data from the Census.²⁰

Current trends and outlook for net interstate migration

NSW has a well-established pattern of net interstate migration losses to other states and territories. More people leave NSW than the number moving here from other parts of Australia, and the strongest net outflow of people is northwards to Queensland. The average net interstate migration loss since 1972 has been around -17,500 people a year. Over the past 2 decades, the average is around -21,500. But the volume of this net loss has varied over time (Figure 5). Resources booms in the early 1990s and early 2000s resulted in large net outflows of more than 30,000 people from NSW. The years leading up to the COVID-19 pandemic saw increasing net losses, from -6,800 in 2014-15 to -23,800 in 2018-19.

The pandemic significantly disrupted patterns of interstate migration across Australia. The net outflow of people from NSW increased sharply in 2020-21 before reaching a new record of -39,300 in 2021-22. After pandemic restrictions were removed, NSW recorded a smaller net interstate migration loss in 2022-23.

²⁰ Published by the Australian Bureau of Statistics in *National, state and territory population*.

Assumptions about net interstate migration for the 2024 population projections

Figure 5 shows the assumptions for net interstate migration at the NSW level. Assumptions for 2021–22 and 2022–23 are based on the latest available ABS estimates at the time. We then assume a gradual return to the 20-year average net interstate migration of –19,000, which excludes the significant outliers in the pandemic years. This aligns with ABS expectations, as shown in their latest state-level population projections.²¹

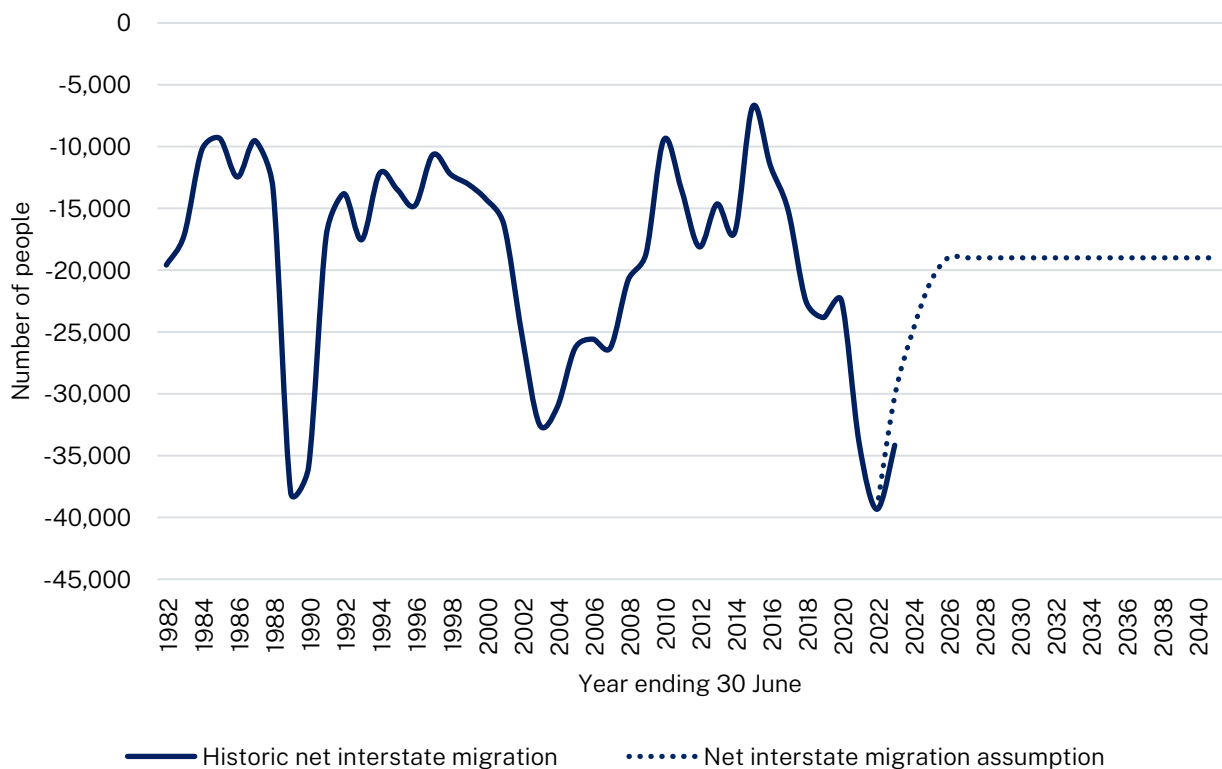


Figure 5. Historic net interstate migration estimates for NSW and 2024 projection assumptions.

Source: DPHI analysis based on Australian Bureau of Statistics (June 2023) *National, state and territory population*.

Assumptions about age profile of interstate migration

We also produce age-specific assumptions that describe the likelihood that a male or female of a certain age will move **into** an area from a different state or territory; or move out of the area to a location interstate. These assumptions are based on an analysis of internal migration data from the Census. For this update to the projections, we used 2016 Census data because migration data in the 2021 Census was heavily affected by COVID-19 travel restrictions.

²¹ Australian Bureau of Statistics (2023) *Population Projections, Australia*.

4 Assumptions for sub-state areas within NSW

In setting assumptions for **sub-state areas** (regions and SA2s), we recognise that there are geographic differences in the drivers of population change across the state.

For example, population growth in many inner-city areas is primarily driven by overseas migration. In outer suburban areas and some regional cities, natural increase (the difference between births and deaths) is often the key driver. In many coastal regional areas, the key driver is people moving from larger metropolitan areas seeking a 'sea-change'. Accounting for these geographic differences provides the 'bottom-up' input for our model and ensures that the projections reflect the unique characteristics of various places in NSW.

The state-level assumptions form the 'top-down' constraints for all sub-state assumptions. This means the net overseas migration and net interstate migration assumptions for these smaller areas must sum to the assumed net overseas migration and net interstate migration for NSW.

The NSW birth and death assumptions are also the benchmark against which sub-state assumptions are set. For example, in areas with higher life expectancy at birth compared to NSW, we assume that this difference is continued throughout the projection period. Births and deaths for sub-state areas must sum to the total births and deaths for NSW.

The rest of this section describes how we set the sub-state assumptions for each of the population drivers.

4.1 Births

Using the latest ABS data on births, we determine how fertility in each sub-state area compares to NSW as a whole. These differences are maintained across the projection period. This means if the birth rate for NSW is assumed to decline over time, then so will all local birth rates. It also means if an area has a higher birth rate than NSW at the start of the projection period, the birth rate will remain higher for all projections.

We use a similar approach to set the age profile at which women have children. If women in an area have children at younger ages than in other places, then this pattern is assumed to continue in the future.

The model ensures that the sum of projected births for all sub-state areas equals the projected number of births for all NSW.

4.2 Deaths

We set assumptions about deaths for sub-state areas in a similar way to births. Using the latest ABS data on life expectancy at birth, we determine how female and male life expectancy in each sub-state area compare to all NSW. These differences are maintained across the projection period.

This means if life expectancy for NSW is assumed to increase over time, then so will life expectancy in all sub-state areas. It also means if an area has a higher life expectancy than NSW at the start of the projection period, it will remain higher for all projections.

The model ensures that the sum of projected deaths for all sub-state areas equals the projected number of deaths for all NSW.

4.3 Overseas migration

We assume that places with higher levels of net overseas migration in recent history will continue to experience this throughout the projection period. To set these assumptions, we used Regional Overseas Migration Estimates data from the ABS to determine each area's likely **share** of the state's total net overseas migration.²² Given the disruption to typical overseas migration patterns during the COVID-19 pandemic, we used each area's share of NSW net overseas migration over the 3 most recent years before the pandemic (2016–17 to 2018–19).

For each projection year, we distribute the assumed NSW net overseas migration across SA2s and projection regions according to those shares. This means that each sub-state area maintains a consistent share of the state's net overseas migration, but its assumed net overseas migration level will rise or fall as the state's net overseas migration does so.

The model ensures that the sum of projected net overseas migration for all sub-state areas equals the net overseas migration assumption for all NSW.

²² The ABS publishes Regional Overseas Migration Estimates for all SA2s as part of its annual *Regional Population* series.

4.4 Interstate migration

We assume that places with higher levels of net interstate migration in recent history will continue to experience this throughout the projection period. To set net interstate migration assumptions, we use recent historic data on migration within Australia (internal migration) to determine each sub-state area's share of the state's total net interstate migration.²³

For each SA2 and projection region, we apply its assumed share to the NSW net interstate migration assumption. This means that each sub-state area maintains a consistent share of the state's net interstate migration, and any changes in the state-level assumption will change the sub-state assumptions. Like all NSW, most sub-state areas have an assumed net interstate migration loss each year. However, some areas have historically seen more people arriving from interstate than leaving, and these will have an assumed net interstate migration gain.

The model ensures that the sum of projected net interstate migration for all sub-state areas equals the net interstate migration assumption for NSW.

4.5 Intrastate migration

Net intrastate migration is the net population gain or loss through migration flows between an area and other parts of the state. This is an extra set of assumptions we need to make for sub-state areas, because people move not only in and out of NSW – they also move from one part of the state to another. Net intrastate migration for all sub-state areas sums to zero, because people moving within the state does not change the state's total population.

To set net intrastate migration assumptions, we analyse data from recent Censuses. We make an assumption about the total volume of people moving around the state in each year. We then use historic internal migration data to make an assumption about each area's share of those intrastate migration flows.²⁴ We assume the geographic distribution of net intrastate migration will continue.

Age-specific assumptions about intrastate migration

We also produce age-specific assumptions that describe the likelihood that a male or female of a certain age will move into an area from elsewhere in NSW; or move out of the area to somewhere else in NSW. These assumptions are based on an analysis of internal migration data from the Census. For this update to the projections, we used 2016 Census data because migration data in the 2021 Census was heavily affected by COVID-19 travel restrictions.

²³ We use the ABS series Regional Internal Migration Estimates, which tells us how many people moved into an SA2 from other parts of Australia, and how many moved out, in each financial year. The data is available from 2006–07 onwards.

²⁴ We use the ABS series Regional Internal Migration Estimates, as described in the above footnote.

4.6 Housing supply

As discussed in Section 2.4, we use the Housing Unit Method to ensure projected population growth aligns with patterns of planned residential development. This is based on assumptions about the number of new dwellings in each SA2 throughout the projection period.

For SA2s in Greater Sydney, these assumptions come from the 2023 Sydney Housing Supply Forecast. Outside Greater Sydney, assumptions about new housing supply are based on a combination of historical trends and local intelligence (see Section 4.7 below) on large-scale housing developments.

4.7 Local intelligence

When setting assumptions for sub-state areas, we consider information about factors that may change local population dynamics, such as new local housing developments or new employment opportunities in the area.

Local intelligence is gathered from councils and NSW Government agencies. We consider housing masterplans, local housing strategies and regional economic development strategies, among other sources.

We assess all the available information and adjust our migration and/or housing supply assumptions where appropriate. Only publicly announced and funded projects are used as evidence to adjust assumptions.

5 Projections for implied dwelling demand

In early 2024 the NSW Government released 5-year housing completion targets for 43 councils across Greater Sydney, Illawarra-Shoalhaven, Central Coast, Lower Hunter and Greater Newcastle, to help address the housing crisis. Regional NSW was also set a target of 55,000 new homes.

The 2024 NSW population projections include implied dwelling demand projections for regional areas that do not have a current housing target. These projections provide information to inform where new housing may be needed in the future.

5.1 Method

Implied dwelling demand is the estimated number of homes that would be needed to house a projected population.

To develop projections of implied dwelling demand, we first develop projections of households (refer to Figure 6). We start with the projected population over the next 20 years by age and sex, and then make assumptions about their living arrangements (for example, lone person; couple with kids) based on Census data. This transforms the population projections into household projections.

For example, an area with lots of young children will have fewer households because the model ensures that all children live with an adult. Conversely, there are more households in areas with many over 65s, since older people are more likely to live alone or as a couple.

Implied dwelling demand projections take the household projections and Census data on vacant dwellings to estimate the implied number of homes needed to house the growing and aging population over the next 20 years. We assume each household needs one home. It allows for a share of homes that are vacant before people move in or because they are a holiday home. Vacancy rates in some coastal areas are significantly higher than the NSW average because they have a high share of holiday homes.

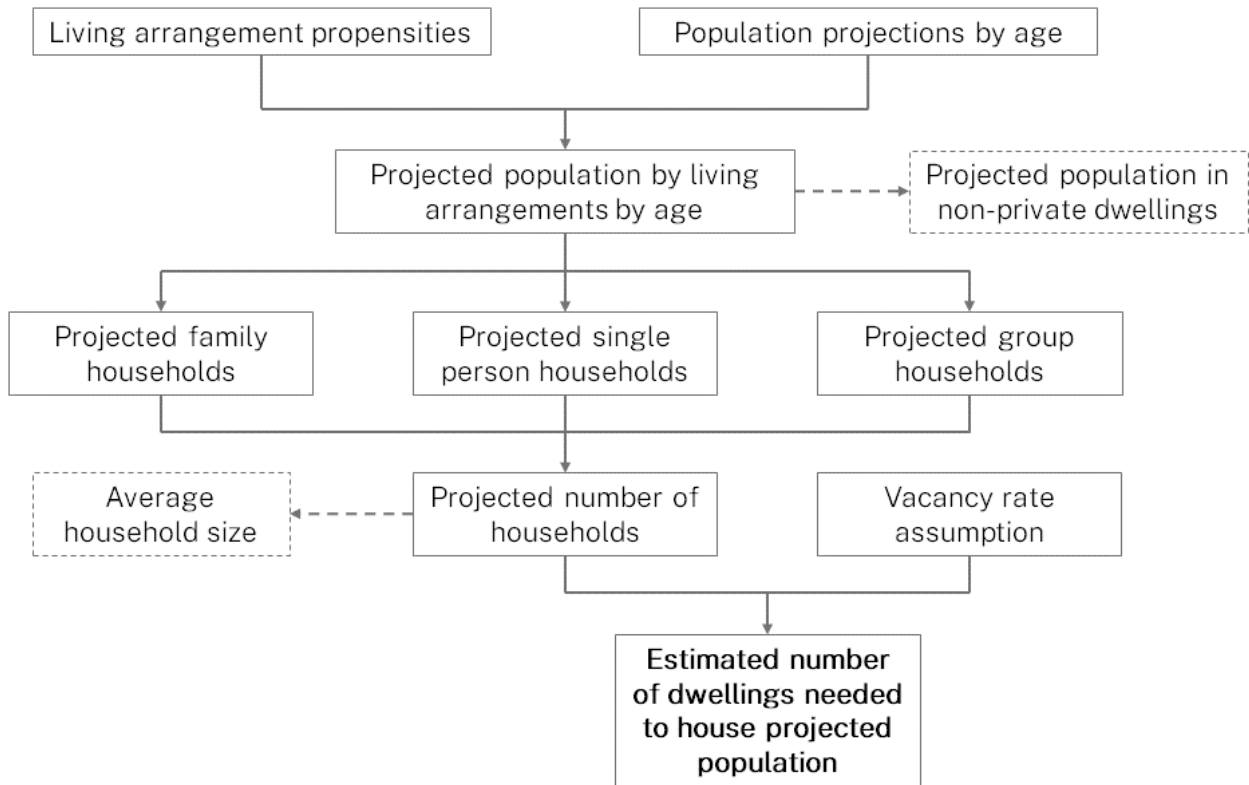


Figure 6. Method for producing implied dwelling demand projections

5.2 Assumptions

We used data from the 2016 Census to set assumptions about living arrangements by age. This is because the 2021 Census was taken during an atypical period affected by COVID-19 restrictions on both domestic and international travel. Many Australians adjusted their living arrangements in response to these restrictions. Our analysis of 2021 Census data on living arrangements found it contains short-term COVID-19 effects that do not represent longer-term shifts in how people in each age group form households.

We based assumptions about vacancy rates on historic rates for private dwellings from the 2011, 2016 and 2021 Censuses. These assumptions account for differences in vacancy rates across regional NSW.

6 Different views of future population growth

Future population behaviour is influenced by a range of economic, social and political factors both within Australia and overseas. This means there is some degree of uncertainty associated with all projections.

As well as the central projections, we produce a low and high series to show other potential future population, household and implied dwelling demand outcomes. We base these on what we can observe from the past, and other assumptions about possible futures.

The central projections are the most likely demographic future based on analysis of births, deaths and migration trends. This series forms part of the [NSW Government Common Planning Assumptions](#).

7 Reliability of the projections

We review projections every 5 years against Census results and final population estimates from the ABS. The margin of error for the projections at 20 years has been:

- plus or minus 2% at the NSW level
- plus or minus 3% for regional NSW
- plus or minus 4% for Greater Sydney.

These results indicate a high degree of confidence in the projections. Estimated resident populations are only 2% to 4% above or below the projected population from 20 years earlier.

8 More information

The 2024 NSW population projections data and insights are published on the Department of Planning Housing and Infrastructure's website at <https://www.planning.nsw.gov.au/research-and-demography/population-projections>

Please contact us via population.futures@planning.nsw.gov.au if you have any questions or would like more information.