Population & Housing Forecast Scenarios

UNDERSTANDING THE LOCAL IMPACTS OF COVID-19 ON POPULATION AND HOUSING IN MORELAND

Prepared for
City of Moreland

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1. Executive summary

Moreland's post COVID-19 future population is still uncertain and scenario-based thinking is required for future planning

The overarching objective of this study was to develop a preliminary estimate of the impacts of COVID-19 on population change in Moreland and its suburbs, to assist long-term planning of services.

There remains significant uncertainty around the timing of the eventual reopening of Australia's international borders, as well the pace of return of net overseas migration given different rates of infection and immunisation rollouts across the world. There has also been an impact on fertility rates and therefore the number of births. Consequently, a scenario-based approach is taken to understand the potential impacts around different potential circumstances of the key population drivers.

Three post COVID-19 population forecast scenarios have been developed using different assumptions, primarily differences in net overseas migration and internal migration, and the timing relating to these:

- The 'Moderate Recovery' scenario represents an optimistic scenario where population drivers are largely expected to revert to pre COVID-19 levels in a timely manner by 2025.
- The 'Long Term Recovery' scenario acknowledges that the COVID-19 impact on population growth could be prolonged, with an extended period of recovery in key population drivers.
- The 'COVID-19 Shift' scenario assumes that population drivers re-settle a little below the extremely elevated levels of the mid-to-late-2010s, and there is a permanent reduction in net overseas migration.

The post COVID-19 scenarios developed by Charter have also been compared to Moreland City Council's pre COVID-19 forecasts developed by forecast.id (consultants) in 2020, as a proxy pre COVID-19 baseline[1].

Overseas migration has been the primary driver of growth in Moreland and has been significantly impacted by COVID-19

Net overseas migration has been a key component of Moreland's population growth, accounting for over half of the municipality's increase in population in recent years. However, the outlook for net overseas migration remains unclear. There remains continued uncertainty around the timing of the eventual reopening of Australia's international borders, as well the pace of return of net overseas migration .

[1] Hereon referred to as 'forecast.id, 2020'

The overseas migration outlook will also influence residential market supply and demand, and flow on effects to internal migration. Moreland will be more influenced than most other municipalities by the uncertainty around net overseas migration. It is unlikely Victoria and Moreland will experience the factors that drove record population growth through the 2010s.

1.1. Moreland's post COVID-19 population forecast

There will be fewer people living in Moreland than previously forecast, with very slow growth up to 2026.

Moreland's annual average population growth rate will not return to what was forecast pre-COVID-19 and will likely be around 10,000 lower than that forecast pre COVID-19 for 2036 (245,200). In a long term COVID-19 recovery scenario, Moreland's 2036 population may end up nearly 15,000 lower than that previously forecast.

Based on the 'COVID-19 shift' scenario forecast, over the 2020–2026 period Moreland's population is forecast to grow at an average rate of 1.1% p.a., which is below the 2.1% p.a. forecast pre COVID-19 (forecast.id, 2020). Over this time period, Moreland's population is forecast to grow by 13,200 residents, well below the 25,500 previously forecast pre COVID-19. By 2036, Moreland's population is forecast to be 235,200, some 10,000 persons below the pre COVID-19 forecast of 245,200

While net overseas migration inflows are expected to resume in 2022, they are not expected to return to the levels seen recently until at least 2024 onwards. On this basis, Moreland is expected to effectively lose three years of population growth.

Births in Moreland are forecast to decline in the short term and then recover

Births rates in Moreland (as well as in Victoria and nationally) have declined in recent years. The COVID-19 pandemic is expected to result in a sharper short term decline in birth rates as households delay having children as a result of the uncertainty caused by the COVID-19 pandemic. This is expected to be followed by a recovery in the immediate subsequent years, although in the context of a continuation of the overall trend decline in birth rates expected through to 2029.

In all scenarios, births across Moreland are forecast to fall over the 2020–2022 period. This decline in births is expected to bottom out in 2022 at a forecast 2,350 births per year in Moreland.

A recovery in births is anticipated over the 2022–2024 period with a steady rise expected from around 2,650 births per annum in 2024 to 3,100 births per annum by 2036, reflecting the growing population within the municipality.

There will likely be fewer children under 15 years old than previously forecast

The adult population age profile of Moreland will likely remain similar, being most concentrated in the 20-44 year-old age cohorts. However, the population of children 0-14 years, as a proportion, will likely be smaller than pre COVID-19 forecasts.

Lower birth rates than those expected in the pre COVID-19 scenario (forecast.id, 2020) are reflected in a smaller expected population of 0-14 year-olds by 2036 across all post-COVID-19 scenarios.

Household growth will be slower than previously forecast

Population growth is expected to be reflected in the household forecasts, and the COVID-19 pandemic will see household growth across Moreland fall short of pre COVID-19 forecasts.

Over the 2020–2036 period the total number of households in Moreland is forecast to grow at an average rate of 1.5% per annum, which is below the 1.7% per annum forecast pre-COVID.

Overall, household structure across Moreland is expected to remain, with some changes in suburbs

Under the COVID-Shift scenario, Moreland is expected to maintain a relatively even split between couples with no children, couples with children and single person households. Despite changes in the household structure occurring at the suburb level, the impacts are expected to balance out across Moreland overall, with the split of households by household type expected to still be largely the same in 2036.

1.2. Moreland's post COVID-19 housing forecast

Future demand and supply for townhouses (infill) is likely to remain the same as pre COVID-19 forecast in the short to medium term

The level of infill development is expected to be largely the same post COVID-19, and is expected to diminish over time as the availability of sites diminishes.

Signs of scarcity are beginning to emerge, with an average of just over 1,000 infill dwellings produced annually over 2013 to 2018, compared to an average of 773 per annum over 2019-2020. Under both the COVID-19 Shift and Moderate scenarios infill development is expected to diminish from around 800 dwellings per year in the short term to just over 400 dwellings per year by 2036. By comparison, under the Long Term Recovery scenario, infill development is expected to be slightly lower in the short to medium term due to lower household growth.

Generally undertaken by small to medium sized builders, townhouses are far less speculative than high density apartment projects, are attractive to a much wider segment of the population, are increasingly available in a range of configurations, and remain relatively affordable compared to traditional detached dwellings.

Apartment (high density) development is expected to decline significantly in response to an oversupply

New apartment completions are on track to remain high in 2021 and 2022 as projects currently under construction are progressively completed. However, in the 2023–2026 period, high density dwelling supply is expected to be less than half pre COVID-19 annual averages. This expectation is based on current market conditions including a short-term oversupply of apartments across metropolitan Melbourne, a notable increase in vacancies observed in high-density locations with significant student populations, challenging development conditions, and the potential for changing housing preferences.

From around 2026 high density dwelling supply is then expected to increase over time through to 2036, as population and household growth returns to absorb excess stock and options for infill development being to diminish. However, supply is expected to not quite return to recent pre COVID-19 average levels. This recovery is expected to be different under different scenarios and overall result in high density supply rate of between 600–1,200 dwellings per year for the period 2029-2036. The level of high density supply in each scenario will reflect the differences in household growth expected.

1.3. Suburb-level post COVID-19 population and housing forecasts

Moreland's Southern suburbs of Brunswick, Brunswick East, Brunswick West, Coburg and Pascoe Vale South are expected to experience the greatest impacts from COVID-19 in terms of having fewer people, and in most cases fewer households, than previously forecast.

In particular, Coburg is forecast to have significantly less new housing supply and demand and therefore lower household growth. New dwelling supply within the Coburg Activity Centre zone is expected to be limited through the next cycle while there is still sufficient land for large-scale apartment development further south in higher-demand, and comparatively priced, apartment locations such as Brunswick, Brunswick East and Brunswick West. While some level of apartment development is likely to continue in Coburg in the medium term, supply is only expected to significantly pick up toward the turn of the decade when the most easily accessed apartment sites in the southern suburbs of Moreland are expected to be absorbed (See Section 5.8). Coburg North and Hadfield are also both forecast to have notably fewer people by 2036, albeit to a lesser extent.

Glenroy and Oak Park are forecast to experience a greater increase in population and households by 2036 compared to Council's pre COVID-19 forecast (forecast.id, 2020)

For the foreseeable future, recent volumes of new dwelling activity in Glenroy and Oak Park are expected to continue, albeit slightly reduced in the medium term. In the lead up to 2036, the availability of land for residential infill is expected to become increasingly scarce. It is however assumed that apartment development will accelerate in Glenroy, where there more land zoned for higher density development, beyond the next market cycle, although this is likely to initially be in smaller (up to 30 or so dwellings) projects.

Pascoe Vale, Fawkner and Gowanbrae are expected to very have very minimal change, with little difference between Council's pre COVID-19 and Charter's post COVID-19 forecasts.

1.4. Population and Housing models and monitoring performance

There are suburb-level differences between Council's pre COVID-19 forecast (forecast.id, 2020) and Charter's post COVID-19 forecast, that extend beyond the impacts of COVID-19

Charter developed forecast scenarios for Moreland based on a standard Cohort Component Method, and then brought in its expertise to also build in key assumptions around expected housing market conditions, residential property market cycles, and constraints to population growth, such as in available land supply for residential development. While all models have unique assumptions and limitations, there are some differences in Moreland's pre and post COVID-19 forecasts that are likely the result of a change in modelling methodology, in addition to the forecast impacts of COVID-19.

Ongoing monitoring of key population and housing indicators are fundamental to understand ongoing impacts from COVID-19

Monitoring of key population and housing indicators going forward will be crucial, both for monitoring model performance and to inform future forecasts as the impacts of COVID-19 on population and housing become clearer. This study provides recommendations on key population and housing datasets and indicators for Moreland to monitor (Section 7).

2. Introduction

2.1. Background

The overarching objective of this project is to develop a detailed understanding and a preliminary estimate of the prospective impacts (and/or likely scenarios of impact) of COVID-19 on population change and housing in the municipality of Moreland and its suburbs.

The outputs produced by the *Understanding the Local impacts of COVID-19 on Population and Housing in Moreland* project are as follows:

- A detailed scenario-based assessment of how COVID-19 restrictions will impact on components of population change in Moreland by suburb .
- An assessment of how COVID-19 restrictions will impact on demand for housing in Moreland, including by key housing typologies and sub-municipal geographies.
- Development of three relevant, real world scenarios of when COVID-19 restrictions will be lifted and their impacts on the population of Moreland City Council and each of its suburbs.
- New population and housing estimates by key age cohorts and based on different post COVID-19 scenarios at five-year time points 2021–2036 for Moreland and its suburbs.
- Recommendations on datasets and indicators for ongoing monitoring of key components of population change and housing demand and developments, and overall population forecast accuracy/performance.

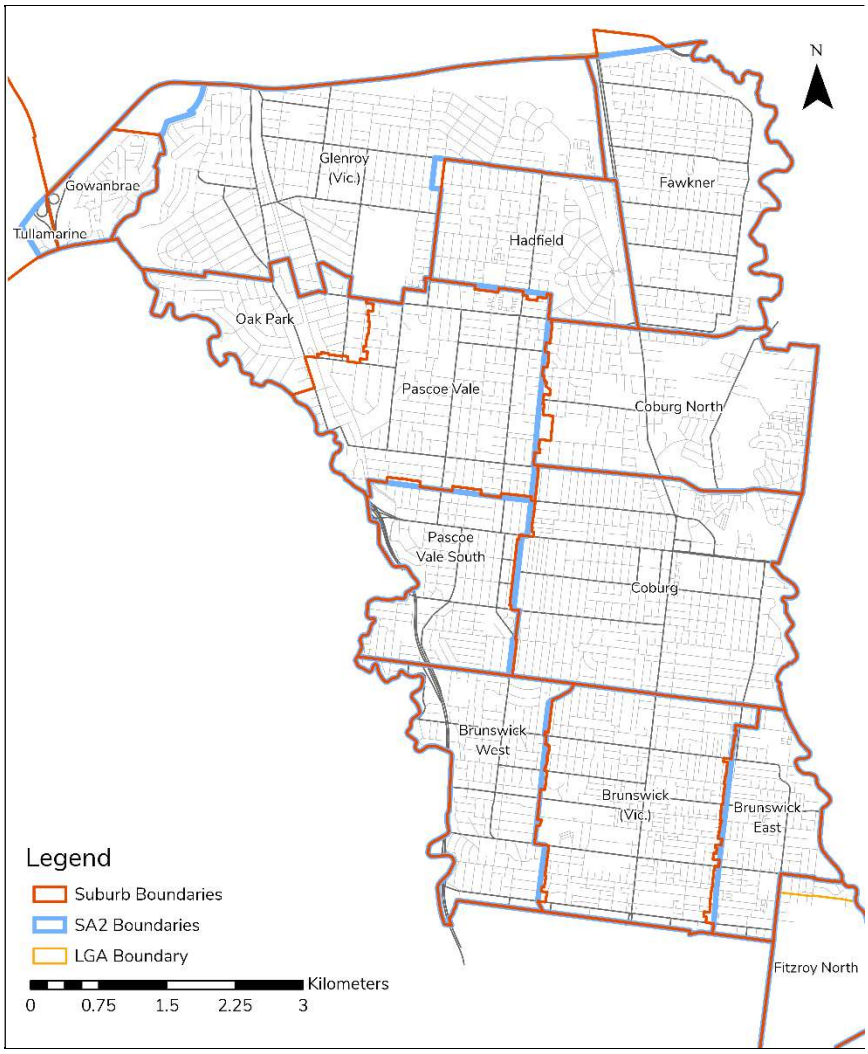
2.2. Study area and geographies

The population forecasts provided by Charter have largely been undertaken at the SA2 geographical level, with some allowances made to accommodate SA2 regions that contain multiple suburbs or where the Council boundaries extend beyond the SA2 boundaries.

As the SA2 regions defined by the Australian Bureau of Statistics largely align with the individual suburbs within the Moreland Local Government Area (LGA), the projections are based on the SA2 boundaries with allowances made in splitting the Pascoe Vale SA2 into its component suburbs of Pascoe Vale and Oak Park, while also incorporating the population of the small section of the suburb of North Fitzroy that sits within the Moreland LGA boundaries into the adjoining Brunswick East SA2 region.

The map below highlights the SA2 and suburb boundaries within City of Moreland. While the geographies used are an adaptation of suburb and SA2 boundaries, given their broad alignment with suburb boundaries in Moreland hereon throughout this report these boundaries are referred to as ‘suburbs’. The main implication for geographies in Moreland is that the suburbs of Pascoe Vale and Oak Park are covered by one SA2 unit, called ‘Pascoe Vale’ (see figure below).

Figure 1: Moreland Suburb and SA2 Area boundaries



Source: Moreland City Council, 2020

2.3. Methodology overview

2.3.1. Cohort Component Method

Charter has based its population forecasts on the *Cohort Component Method*, while also building in market-based assumptions around expected market conditions and the residential property market cycles, as well as incorporating the potential for any constraints to population growth, such as in available land supply for residential development.

The Cohort Component Method is a commonly used methodology (which is also used by the Australian Bureau of Statistics) for population estimates and forecasting. It involves the application of fertility, mortality and migration assumptions by age and sex to a base year population to derive a projected population for the next year. This then forms the base for projecting the population for the subsequent year).

The process can be summarised as follows:

- A base population by single year of age and by gender is derived;
- The population is aged one year, while applying a 'survivorship' rate, which effectively deducts population accounting for deaths based on age-specific mortality rates by gender;
- Births (by gender) are added to the population based on age specific fertility rates that are applied to the female population; and
- Population is added from net migration, which has been broken down by age and gender. In this instance, net migration will come from two sources, international migration and internal (within Australia) migration, which will be assessed separately.
- Note that fertility and mortality rates are also applied to net migration and incorporated into the projections for births and deaths.

A detailed explanation of this type of methodology is provided by the Australian Bureau of Statistics—Cat 3228.0 - *Demographic Estimates and Projections: Concepts, Sources and Methods, 1999.*

2.3.2. Other Considerations

Charter's forecasts are derived by undertaking separate population forecasts for each of its component suburbs based on individual assumptions for fertility, mortality and migration, and then aggregating them together to form a City of Moreland forecast.

Typically, the population forecasts for individual geographies within a larger geography would be constrained to ensure that they align with a forecast of the larger geography, as the larger geography is theoretically easier to forecast. For example, when forecasting state populations, the assumptions for each of Australia's states would be constrained to ensure they add up to the forecast for total of Australia.

However, in this instance the assumptions for each of the individual suburb forecasts are not always constrained to an overall City of Moreland assumption as the wide geographic variation in fertility rates, mortality rates and migration within Moreland makes it difficult to estimate aggregate Moreland-level assumptions for these components when projecting them forward.

Nevertheless, each of the suburb level assumptions have been tested to ensure they largely fit within a likely Moreland aggregate. In addition, a concurrent Moreland LGA forecast has been undertaken as a 'sense check' against the results provided by aggregating the forecasts for each of the component suburbs.

The suburb level population forecasts have also been undertaken with consideration of current and expected residential market conditions, as well as future supply potential.

2.4. Post COVID-19 Scenarios

The post COVID-19 population forecast scenarios, 'COVID-19 Shift', 'Moderate Recovery' and 'Long Term Recovery', have been prepared using different assumptions.

The assumptions recognise that Victoria (and Moreland) is unlikely to experience the same confluence of factors that drove record population growth via both record net overseas and net interstate migration inflows through the middle of the 2010s (with the logic for the assumptions highlighted later in this report):

- The 'Moderate Recovery' scenario represents a more optimistic scenario than 'COVID-19 Shift', where population drivers are largely expected to revert to pre COVID-19 levels.
- The 'Long Term Recovery' scenario acknowledges that the COVID-19 impact on population growth could be prolonged, with an extended period of recovery in population drivers.
- The 'COVID-19 Shift' scenario assumes that beyond the temporary impact of COVID, population drivers are expected to re-settle a little below the extremely elevated levels of the mid 2010s.

In modelling the scenarios, the key defining variables in each are the rate of change, in particular net overseas migration and internal migration, and the timing relating to these. Assumptions have been informed by published COVID-19 adjusted government forecasts, pre COVID-19 patterns of overseas and internal migration in Moreland, and government fertility modelling.

'COVID-19 Shift' represents Charter's most likely expected scenario. The key feature of the COVID-19 Shift model is a permanent reduction in net overseas migration, which returns to roughly 80% of that experienced in the pre COVID-19 period by the mid-2020s. The assumptions relating to each scenario are described in the following table.

Post COVID-19 Scenarios & Assumptions

Attribute	COVID-19 Shift	Moderate Recovery	Long Term Recovery
Fertility	The fertility rate dips but quickly returns to the expected long-term value.	The fertility rate dips but quickly returns to the expected long-term value.	The fertility rate decreases and eventually returns to the expected long-term value
Overseas migration	Moreland's net overseas migration falls into negative through 2021 before experiencing a small positive inflow in 2022. This gradually increases from 2023 to 2025. From 2026 onwards overseas migration levels are expected to stabilise at approximately 80% to 85% of pre COVID-19 levels with positive overseas migration of approximately 3,000 per annum.	Moreland's net overseas migration falls into negative through 2021 before experiencing a small positive inflow in 2022. This gradually increases from 2023 to 2026 before returning to a long-term positive average of approximately 3,500 overseas migrants - the same rate experienced in the pre COVID-19 period through to 2036.	Moreland's net overseas migration falls into negative through 2021 before gradually recovering (over 10 years) to the historic average. This gradually increases through to 2029. From 2030 onwards overseas migration levels are expected to stabilise at approximately 80% to 85% of pre COVID-19 levels with positive overseas migration of approximately 3,000 per annum.
Intra and inter-state migration (NIM)	Recent growth in the net outflow of people from Moreland is expected to pause through 2021 to 2025 due to better availability of dwelling supply, before steadily rising again as net overseas migration recovers to create supply pressures. Net outflows are expected to increase gradually, peaking at nearly 1,800 in 2036.	Recent growth in the net outflow of people from Moreland is expected to pause through 2021 to 2025 due to better availability of dwelling supply, before a sharp rise as net overseas migration recovers to create supply pressures. Net outflows are expected to increase to peak at 2,200 in 2036.	Recent growth in the net outflow of people from Moreland is expected to pause through 2021 to 2025 due to better availability of dwelling supply. Fewer supply pressures from lower net overseas migration results in a more gradual rise until reaching 1,000 per annum when net overseas migration fully recovers in 2030 , and then increasing to peak at 1,700 in 2036.
Mortality	Life expectancy at birth continues according to increase according to long run projections		
Dwellings	Infill development takes place at similar to recent levels in the short term but is increasingly constrained by available supply in selected suburbs through the forecast period. High density activity remains weak until vacant stock is absorbed, and rental growth returns to support investor purchaser demand sufficient to underwrite new high density projects.	Infill development takes place at similar to recent levels in the short term but is increasingly constrained by available supply in selected suburbs through the forecast period. Stronger population growth means vacancies tighten and rental growth returns, supporting investor purchaser demand and underwriting an earlier increase in new high density projects and supporting higher peaks in high density activity through the cycle.	Infill development takes place at similar to recent levels. However, lower demand means that activity is less constrained and infill accounts for a greater percentage of total new supply. Weaker population growth means vacancies and rental growth take longer to improve, thereby delaying the next round of high density projects and resulting in smaller peaks in high density activity through the cycles.

2.5. Structure of this report

This report is structured to provide a systematic approach to the assumptions applied to each of the components used in undertaking the demographic forecasts. Below is a guide to the content of the report to assist with reading:

Charter 1, Executive Summary—Provides a broad summary of the forecast output under each forecast scenario and relative to the pre COVID-19 forecasts undertaken for Council in 2020 (forecast id, 2020).

Chapter 2, Introduction—Provides a background to the purpose of this study, methodology and scenarios modelled.

Chapter 3, Demographic Components of Population Growth in Moreland—Provides context to the Moreland population forecasts and assumptions by highlighting historical and recent trends in population growth and migration (both overseas and internal), as well as fertility and mortality rate.

Chapter 4, Housing Components of Population Growth—Provides context to the assumptions for new dwelling supply that underpin the Moreland population forecasts by highlighting historical and recent trends in new dwelling activity, including volume of new supply, geographic distribution and changes in the composition of development (i.e. infill vs high density development).

Chapter 5, Post COVID-19 Population and Housing Scenario Development Assumptions—Goes through each of the key assumptions underpinning the population forecasts including overseas and internal migration, fertility and mortality rates, household formation rates, market conditions, and dwelling capacity and supply.

Chapter 6, Post COVID-19 Population and Housing Forecasts for Moreland—Outlines and compares forecasts under each of the three forecast scenarios and the pre COVID-19 forecasts (forecast id, 2020) for total population (and by age cohort), births, deaths, net migration, households (and by household type), and new dwellings.

Chapter 7, Forecast Monitoring and Evaluation—Outlines data sources that can be followed to help assist with both monitoring the post COVID-19 situation and potential impacts for Moreland, as well as evaluation against the assumptions used in the forecasts.

Chapter 8, Appendix A – Post COVID-19 Suburb Forecast—Provides individual forecasts (in the same format as Chapter 6) for each of Moreland's component suburbs.

Chapter 9, Appendix B List of Figures—An index of the tables and charts used in this study.

Chapter 10, Appendix C – List of Annexures—A list of additional annexures providing more detailed information that has been supplied separately to this study.

3. Demographic components of Population Growth in Moreland

This section covers historical trends and background information used as the basis of the cohort-component model development (Section 5).

Specifically, this section provides information on historical trends and early indications of COVID-19 impacts on the following key drivers of population growth in Moreland and its suburbs:

- Overseas migration (Section 3.1)
- Internal migration (Section 3.4)
- Birth rates (fertility rates – Section 3.5)
- Deaths (mortality rates – Section 3.6)

3.1. Net Overseas Migration

Net overseas migration (NOM) is the difference between overseas arrivals and overseas departures over a period.

- Overseas arrivals include both a 'permanent arrivals' component, which reflect a combination of Australian citizens and permanent residents entering the country to stay, and a 'long term visitor' component, which represents visitors who will stay in the country for an extended period—typically more than twelve months—although do not stay permanently. This latter group includes (but is not exclusive to) overseas students and arrivals on various temporary work visas.
- Conversely, the permanent component of overseas departures includes Australian citizens and residents leaving, while long term departures represent those long term arrivals who have returned to their country of origin.

The Australian Bureau of Statistics includes arrivals and departures in the NOM numbers if they have been in, or out of the country for twelve months within a sixteen-month period. A stay of twelve months is likely to be reflective of contributing to the economy via use of local services and housing, as well as potentially being part of the labour force.

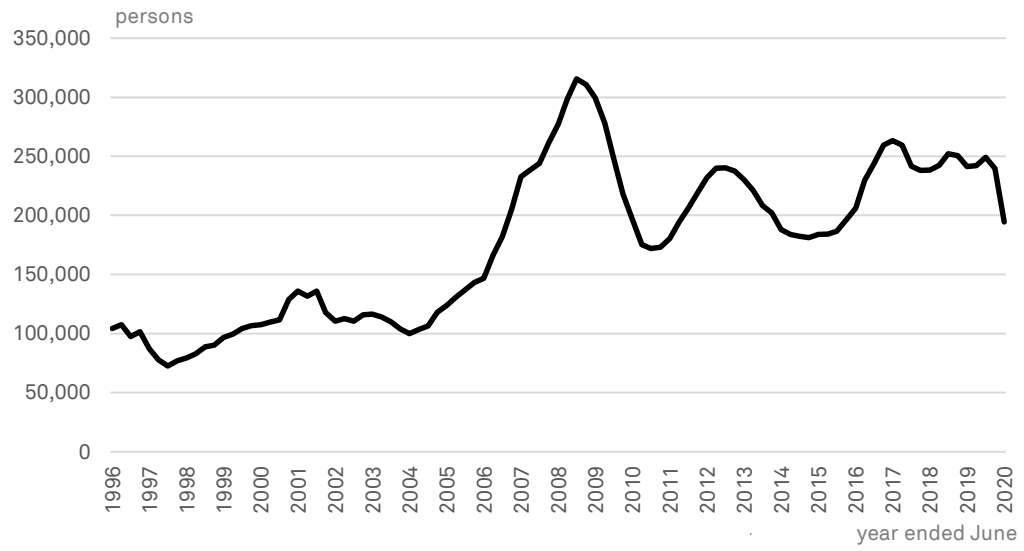
NOM is effectively governed by the Federal Government, who are responsible for international borders. As such, Charter's approach is to first consider NOM at the national level. A state forecast is the undertaken in the context of expected national NOM, which is in turn then distilled to a Moreland and then suburb forecast.

3.1.1. Australian Context and COVID-19 Impacts

NOM is driven by a number of factors, including Australia's economic performance. A tight employment market provides opportunities for overseas migrants (including skilled migrants, students looking to stay on after graduation, working holiday makers, and New Zealanders). A low Australian dollar relative to other countries also increases Australia's attractiveness to international students as a first point of entry for overseas migrants.

Australia has experienced a step change in NOM inflows since the 1990s. Over the thirteen year period of 1994 to 2006, Australia averaged a NOM inflow of 103,000 persons per annum. Over the following thirteen years (2007 to 2019), Australia's NOM inflow averaged 228,000 per annum, peaking at 300,000 in 2009.

Figure 2: Net overseas migration, Australia



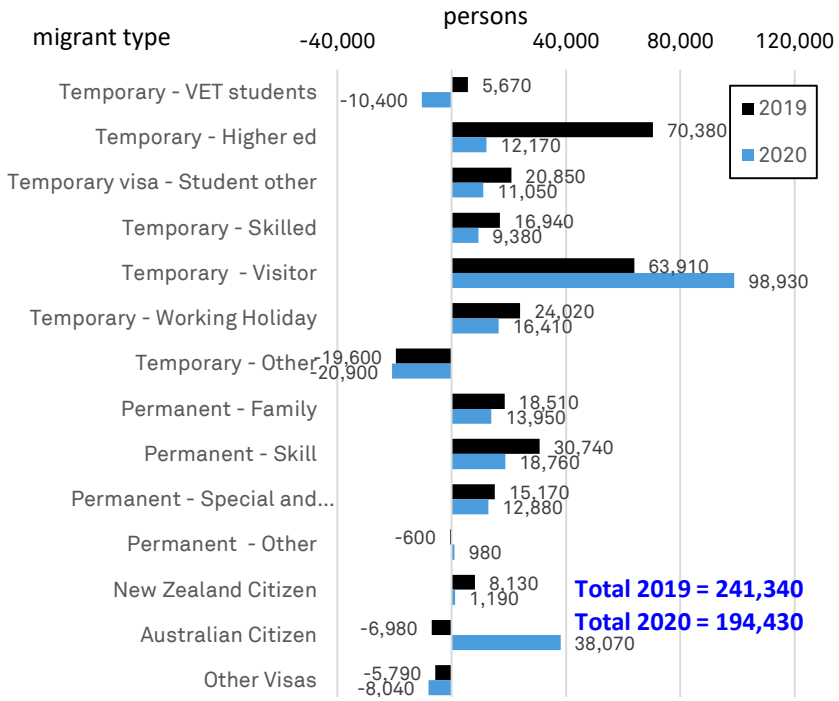
Source: ABS- 'National, state and territory population', prepared by Charter Keck Cramer

3.1.2. COVID-19 Impact on National Net Overseas Migration

The COVID-19 pandemic saw NOM fall from 241,340 in the year to June 2019 to 194,430 in the year to June 2020. The impact began to emerge in March quarter 2020. Prior to this NOM in the six months to December 2019 were 7% up on the same period a year earlier before being 12% down on the previous year in March quarter 2020.

Notably, a decline in NOM occurred in almost all visa types, with the largest drop being in higher education students whose numbers fell from 70,380 in 2019 to 12,170 in 2020. Offsetting some of the declines however was the rise in Australian citizens, increasing from a net loss of 6,980 in 2019 to a net inflow of 38,070. There was also an increase in NOM of people on temporary visitor visas. Visitor visas are largely tourist arrivals, although they are included in the NOM numbers if they have remained in the country for 12 of 16 months. This suggests that there were a number of people who arrived on a visitor visa but have turned this into longer-term visa option.

Figure 3: Net overseas migration by visa arrivals type, (Australia, 2019 & 2020)



Source: ABS- 'Migration Australia', prepared by Charter Keck Cramer

The full impact of border closures took effect in the June quarter 2020, with Australia recording a net outflow of 7,011 people. This was Australia's first quarterly outflow since the recession of the early 1990s. The September 2020 quarter (which is the most recent data at the time of writing) showed a further NOM outflow of 34,804. This was exacerbated by the second lockdown in Victoria and the temporary closure of its quarantine program which reduced arrivals capacity.

Recent net overseas migration insights can be gained via the ABS publication, '*Overseas Arrivals and Departures, Australia'*. This is not entirely compatible with the NOM data provided in 'National, state and territory population'. It counts 'movements' rather than persons and therefore can multiple-count migrants who travel in and out of the country more than once. The data is also based on status at entry or exit from the country. A migrant can potentially arrive on a short term tourist visa (and be classified as a short term visitor), but then stay on as a long term visitor (or even permanent resident), which would then ultimately be counted in NOM.

Nevertheless, the '*Overseas Arrivals and Departures, Australia'* publication is monthly, and although is only calculated at the national level, provides a timelier indication of international migration trends than the official NOM numbers. Analysis of this data suggests that permanent and long-term net outflows reduced in the December 2020 quarter before increasing again in the March quarter 2021 (Figure 4). This coincided with further international border closures in Victoria due to the suspension of its quarantine program after an outbreak early in the year. Assuming some improvement to net arrivals in June quarter 2021, net overseas migration in 2020/21 is expected to end at a national net outflow in the 65,000 to 70,000 range.

Figure 4: Net overseas migration estimate, year to June 2021

Quarter	ABS reported Net Overseas Migration	Permanent & Long Term Net Movements
Jun-20	-7,011	-2,760
Sep-20	-34,804	-13,160
Dec-20	-7,484*	-2,830
Mar-21	-16,185*	-6,120
Jun-21	-7,484*	-2,830*
2020/21 NOM estimate	**-65,958**	

Source: ABS – '*Overseas Arrivals and Departures*', prepared by Charter Keck Cramer
* Charter Keck Cramer estimate

3.1.3. Temporary Visa Holders

Overall, the total number of temporary visa holders in Australia has decreased from 2.31 million in March 2019 to 1.74 million in March 2021. Notably, there have been large differences across visa types. These are described as follows:

- The decline in visitor visas, who are nearly all tourist visas, is due to the closure of borders and reduced travel.
- Student visas have also shown a significant decline. While there was a small annual decrease in March 2020, there has been a substantial decrease in the year to March 2021 as the intake for the 2021 academic year would have been extremely limited. There has been an increase in temporary graduate visas as students already in the system graduate and move on to work within Australia.
- Working holiday-maker visas have also dropped significantly as have, to a lesser extent, skilled employment visas. Reduced employment opportunities through the pandemic would have reduced demand for these visas.
- 'Special Category' visas comprise New Zealanders, who can travel freely and have employment rights in Australia. The number of New Zealanders has reduced only slightly.
- Bridging visas, however, have increased significantly. While they had already been trending upward over 2017 to 2019, this increased substantially in 2020 and 2021. Bridging visas are issues while a visa holder transitions to another type of visa or residency. The data does not show the previous type of visa held, but it is understood that a large proportion have included persons waiting for a spouse visa (if for example an Australian citizen marries an overseas student) and outstanding applications for permanent residency.
- The reduction in Australia's permanent migration intake (i.e. the issuing of permanent residency) has decreased from around 190,000 to 160,000 since 2018, which has resulted in a backlog of outstanding applications. It is also expected that the rise in bridging visas reflects applications by temporary holders already in the country unable to return or seeking to prolong their stay due to COVID-19 risks in their own country.

Figure 5: Number of temporary visa holders by visa type, Australia, 2017 to 2021

Visa Category	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21
Bridging	120,237	166,239	202,916	256,529	359,981
Crew and Transit	21,451	20,452	24,636	26,252	10,455
Special Category	666,324	669,115	676,084	672,432	659,254
Student	502,712	535,811	612,825	567,924	377,785
Visitor	329,543	394,889	348,162	206,025	28,741
Working Holiday Maker	150,059	148,124	149,143	119,266	38,630
Other Temporary	3,965	4,662	5,419	5,392	3,944
Temporary Resident (Other Employment)	37,205	45,068	41,773	40,805	39,334
Temporary Resident (Skilled Employment)	170,701	151,596	154,205	139,331	104,333
Temporary Protection	5,584	11,359	14,736	17,223	18,108
Temporary Graduate	43,934	65,246	80,754	96,819	100,325
Grand Total	**2,051,715**	**2,212,561**	**2,310,653**	**2,147,998**	**1,740,890**

Source: Department of Home Affars - 'Temporary Visa Holders'

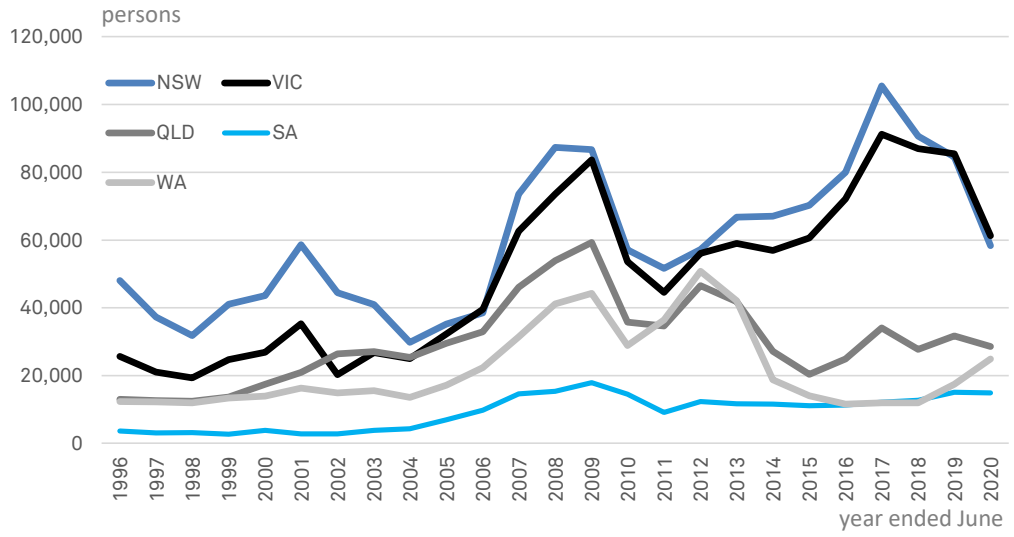
3.1.4. The Victorian Context

NOM into Victoria peaked at a net inflow of 91,200 in 2017, although peaked at the national level in 2009. Victoria (and New South Wales) have benefited from a period of economic outperformance relative to the other states in the latter half of the 2010s, which has attracted a greater share of international migrants.

Both Queensland and Western Australia attracted significant NOM inflows through the resource investment boom at the start of the decade, with NOM in these states approaching the levels of Victoria and New South Wales by 2012. Through the resources 'bust' in the following years, NOM then fell in these states, with Victoria and New South Wales picking up the difference. However, as the economic outlook in Queensland and Western Australia improved by the end of the decade and state performance across the country began to return to long term relativities, NOM into Victoria (and NSW) eased over 2017 to 2019.

Net overseas migration into Victoria fell from 85,476 in 2019 to 61,335 in 2020, slightly less than the fall in New South Wales. However, Victoria suffered more broadly as a result of its second wave of COVID-19 outbreaks in 2020. The suspension of its quarantine system and international arrivals saw the state record a net outflow of 18,438 persons in September quarter 2020, which was more than half of the national net outflow of 34,804.

Figure 6 : Net overseas migration, major states



Source: ABS- 'National, state and territory population', prepared by Charter Keck Cramer

3.2. Moreland and Overseas Migration

3.2.1. Census Profile 2016

The section considers population at the 2016 Census that was living overseas five years earlier (i.e. in 2011).

Note that this analysis of Census data is not strictly compatible with annual arrivals and departures subsequently estimated by the ABS over 2017 to 2020 in its *Regional Population* publication. There are a number of differences.

- Firstly, as the Census is a count of the population in Australia, the Census can only count arrivals. The Census is unable to estimate departures. However, as a comprehensive count of the population, the Census allows a more detailed analysis of this group, allowing a profile by student status, country of birth, etc.
- As overseas migrants could have potentially arrived and departed within the 2011 to 2016 period, this group would also not be included in the Census count of arrivals.
- Overseas arrivals may have also potentially lived elsewhere in Australia when first arriving before subsequently moving into Moreland. They would therefore be counted in Moreland arrivals by the Census as they were living overseas five years earlier. However, the ABS annual NOM in *Regional Population* will include them in overseas arrivals in the location of the year of arrival. They would then be subsequently counted in the internal migration estimate the in the year they moved into Moreland.

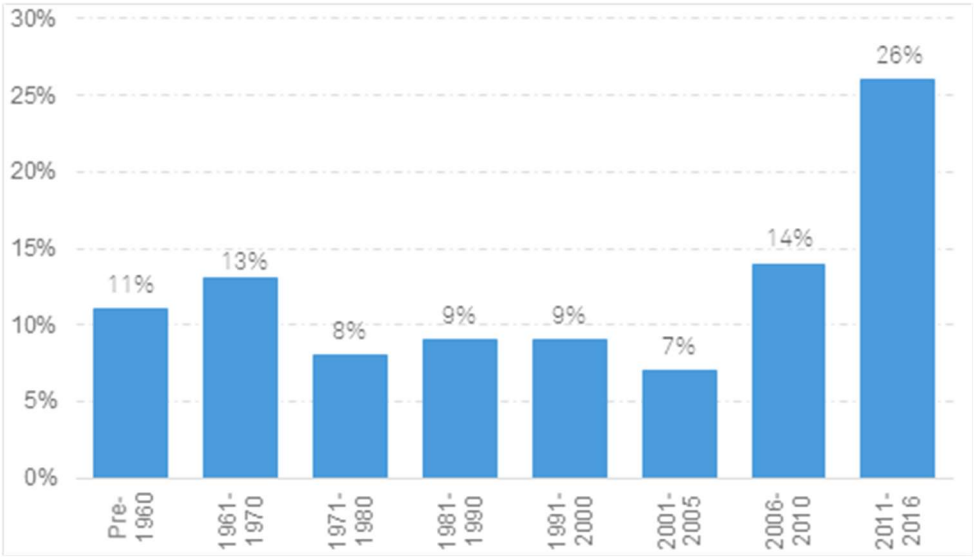
In light of these differences, Charter has provided the Census analysis covering the 2011-2016 period in this section, with a focus on disaggregating overseas arrivals, while there is a further analysis covering the 2017 to 2020 period and *net* overseas migration in the following section.

Migrants by year of arrival

The significance of overseas migration to Moreland is highlighted by the fact that net overseas migration has become the leading driver of population change, just ahead of natural increase.

By 2016, a significant 10% of Moreland's population had moved there from overseas. Of its total overseas born population, 26% arrived in the 2011-2016 period – a significant increase on the 14% that arrived in the 2006–2011 period.

Figure 7: Overseas Arrivals to Moreland by Year of Arrival (% of Persons Born Overseas)

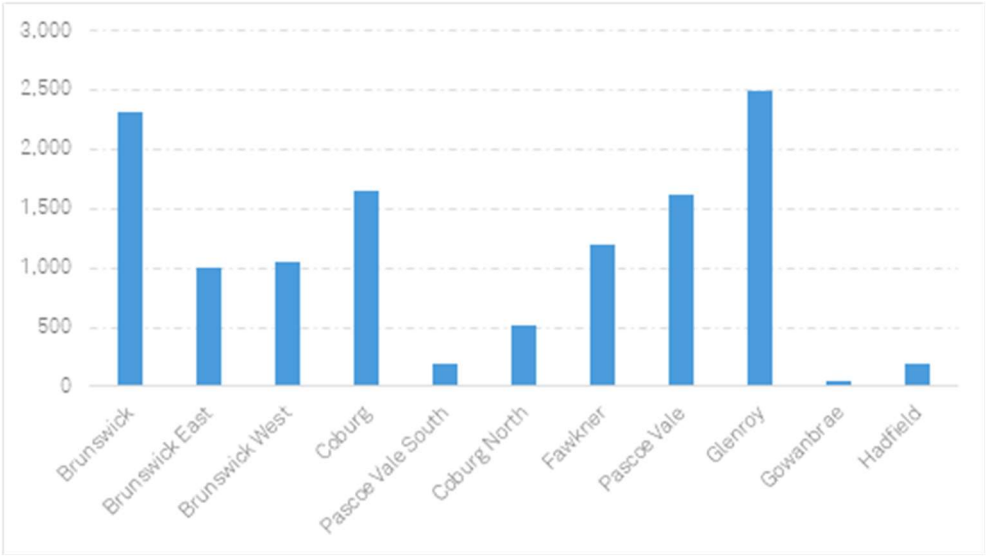


Source: ABS Census 2016, prepared by Charter Keck Cramer

Overseas Arrivals by SA2 (2011-2016)

Overseas arrivals into Moreland between 2011 and 2016 totalled 13,331 people. Glenroy, Brunswick and Coburg each had the highest number of overseas arrivals with Gowanbrae, Hadfield and Pascoe Vale South the fewest.

Figure 8: Moreland Overseas Arrivals by SA2 (2011-2016), total



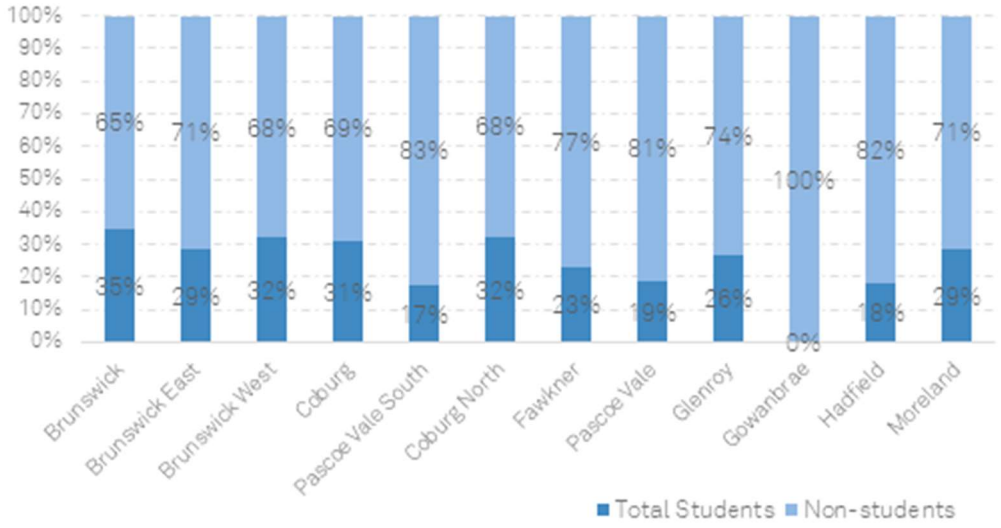
Source: ABS Census 2016, prepared by Charter Keck Cramer

Overseas Arrivals – Students vs Other

Overseas arrivals within Moreland can be broken into two categories: students and non-students. Across all SA2's, the vast majority of overseas arrivals are non-students.

The areas in Moreland with the highest proportion of non-student overseas arrivals are Gowanbrae (100%), Pascoe Vale South (83%), Hadfield (82%) and Pascoe Vale (81%). Conversely, the SA2s with the highest percentage of overseas arrivals that are students are Brunswick (35%), Brunswick West and Coburg North (32% each) and Coburg (31%).

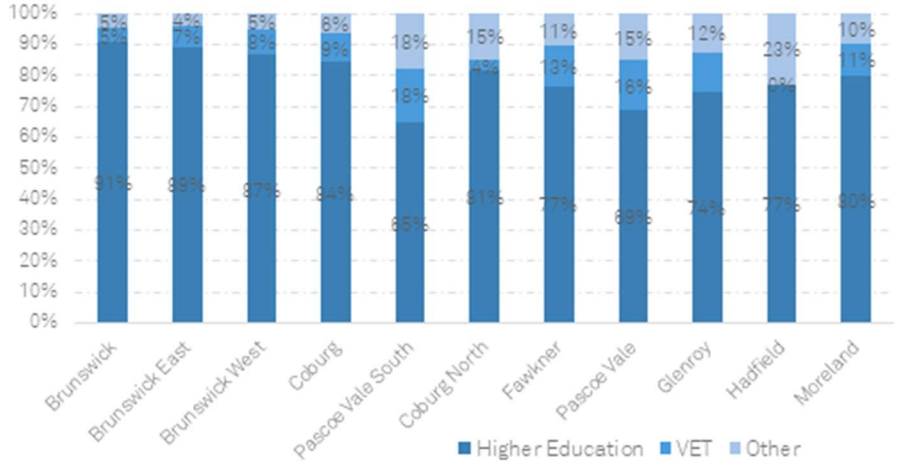
Figure 9: Student (Higher Ed and VET) Share of Overseas Arrivals



Source: ABS Census 2016, prepared by Charter Keck Cramer

Of the different student types (Higher Education, VET and Other), Higher Education students represent nearly all students in the SA2s in the southern section of Moreland. Though the vast majority of students in the other SA2s are also Higher Education, there is considerably greater representation of VET and Other student types in these locations.

Figure 10: Student Type (Higher Ed and VET) Share Student Arrivals

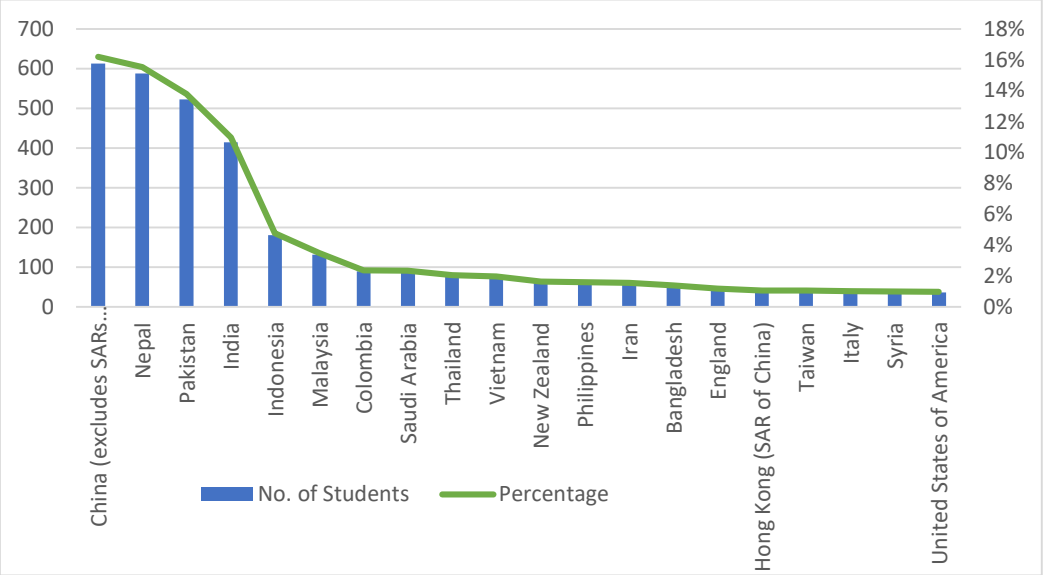


Source: ABS Census 2016, prepared by Charter Keck Cramer

Of all overseas (2011-2016) arrivals into Moreland, just under 3,800 were full time students in 2016. Students were classified as attending a higher educational institution, vocational education or other post-secondary education. Of these, 613 (16%) were from China, 588 (16%) from Nepal, 522 (14%) from Pakistan and 414 (11%) from India. All other nationalities represented less than 5% of the full time student population.

China, Nepal and Indonesia had the highest representation of students to the south of Moreland, while India, Pakistan as well as Nepal were more highly represented in central and northern Moreland.

Figure 11: Moreland Overseas Arrivals – Students (2011-2016) , total and percentage share



Source: ABS Census 2016, prepared by Charter Keck Cramer

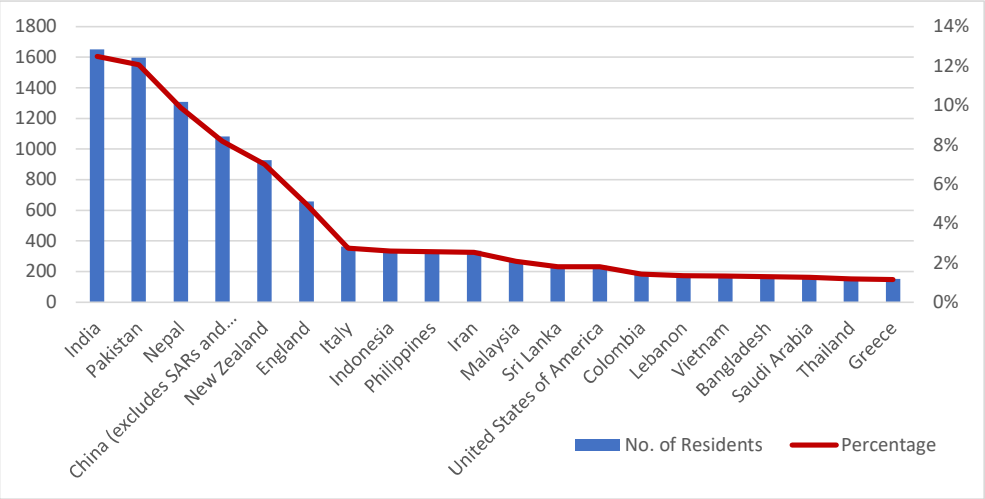
Overseas Arrivals – Country of Birth

Arrivals into Moreland by country of origin are shown below. Equivalent data by suburb is shown in Appendix B.

There were 13,237 overseas arrivals in Moreland over 2011-2016. Of these, 1,605 (12.5%) were from India, while a further 1,595 (12.0%) were from Pakistan. Nepal (10%), China (8%), New Zealand (7%) and England (5%) were also well represented.

The top three source countries for suburbs in southern Moreland (Brunswick, Brunswick East and Brunswick West) were largely from China, New Zealand and England, while in central and northern Moreland suburbs, overseas arrivals were more likely to come from India, Pakistan and Nepal.

Figure 12: Brunswick Overseas Arrivals (2011-2016), total and percentage share



Source: ABS Census 2016, prepared by Charter Keck Cramer

3.2.2. Net Overseas Migration (2017-2020)

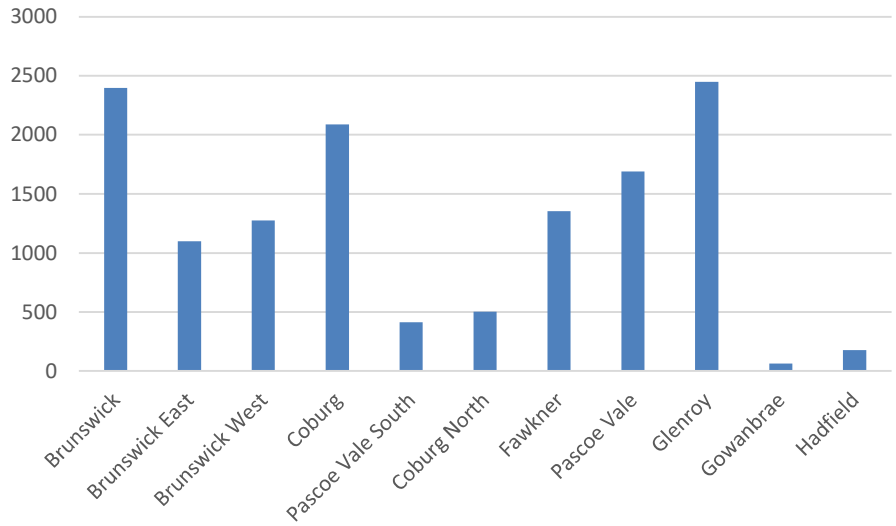
The section considers ABS data for net overseas migration published since the 2016 Census and is largely derived from its '*Regional Population'* publication. In comparison with the Census data, this dataset measures both arrivals and departures to provide a net overseas migration figure. Differences between the 'Regional Population' data and the Census are outlined in Section 3.2.1.

Net Overseas Migration by SA2 (2017-2020)

Between June 2016 and June 2020, there were 13,514 net overseas arrivals in Moreland. Glenroy attracted the highest number of these with 2,449 (18%), followed by Brunswick with 2,399 (18%) and Coburg with 2,090 (15%).

Conversely, the SA2s attracting the lowest number of overseas arrivals were Gowanbrae with only 63 net overseas arrivals (0.5%), Hadfield 178 (1%) and Pascoe Vale South 415 (3%).

Figure 13: Destination of Overseas Arrivals by SA2 (2016-2020) persons



Source: ABS '*Regional Population'*, prepared by Charter Keck Cramer

Net Overseas Migration by Age Cohort and SA2 (2017-2019)

While total net overseas migration data at the SA2 level is available for the 2017 to 2020 period, data for net overseas migration by age is currently only available for the 2016 to 2019 period. Of net overseas migration into Moreland, 44% were in the 25-44 year old age cohort and 42% aged 15-24. Those aged 45+ represent only 3% of net overseas migration into Moreland.

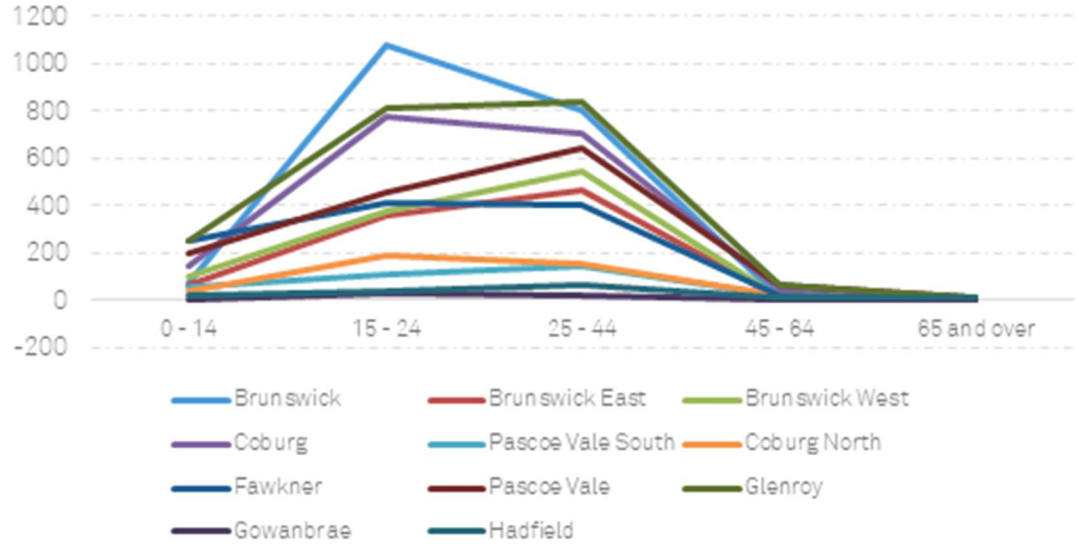
Figure 14: Net Overseas Migration – City of Moreland by Age (2016-2019), percentage of total net overseas migration

Source: ABS '*Regional Population*', prepared by Charter Keck Cramer

Brunswick attracted the highest number of younger (15-24) overseas arrivals (1,073), followed by Glenroy (808) and Coburg (773).

Of 25-44 year old overseas arrivals, 830 located in Glenroy, followed by Brunswick (800), Coburg (706) and Pascoe Vale (639). In the 45+ age cohorts, there were far fewer overseas arrivals with Glenroy (64), Pascoe Vale (61) and Coburg (46) accommodating the highest numbers.

Figure 15: Net Overseas Migration by SA2 by Age Cohort (2016-2019), persons



Source: ABS '*Regional Population*', prepared by Charter Keck Cramer

Net Overseas Migration - Moreland (2017-2020)

LGA and SA2 level overseas arrivals and departures data has only been published by the ABS since 2017. A comparison between Moreland and Victorian migration shows that Moreland accounts for a relatively steady 4.0% of Victorian overseas arrivals and 3.8% of Victorian overseas departures, which nets out at around 4.2% of Victoria's total net overseas migration.

With the closure of borders due to COVID-19, Moreland reported a fall in net overseas migration from 3,593 in 2018/19 to 2,580 in 2019/20. Using 2018/19 net overseas migration as a benchmark for net overseas migration in the nine months to March 2020, Charter has estimated that Moreland experienced a net overseas migration outflow of 442 persons in June quarter 2020.

In assessing the COVID-19 impact on net overseas migration in Moreland in 2020/21, Charter has annualised the June quarter 2020 net outflow, over four quarters. This results in a net overseas migration outflow of 1,768 for the year.

Net Overseas Migration by Suburbs

The share of Moreland's overseas arrivals into each suburb has been relatively consistent between 2017 and 2020. Brunswick has attracted the largest share of arrivals (around 22.5%), followed by Glenroy (just over 16%) and Coburg (a little under 14%).

Figure 16: Share of Moreland's overseas arrivals by Suburb/SA2

Y/E June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield
2017	22.4%	10.2%	9.9%	13.6%	2.7%	3.3%	8.8%	8.1%	3.1%	16.2%	0.4%	1.3%
2018	22.4%	10.1%	9.8%	13.8%	2.7%	3.3%	9.0%	8.1%	3.1%	16.1%	0.4%	1.1%
2019	22.5%	10.1%	9.7%	13.9%	2.7%	3.3%	9.1%	8.0%	3.1%	16.0%	0.4%	1.1%
2020	22.5%	10.1%	9.7%	13.9%	2.7%	3.3%	9.1%	8.0%	3.1%	16.0%	0.4%	1.1%

Source: ABS '*Regional Population*', prepared by Charter Keck Cramer

Similarly, the share of Moreland's overseas departures accounted for by each suburb has also been relatively steady over 2017 to 2019.

However, there has been a slight variation in COVID-affected 2020. Brunswick, Brunswick East and Brunswick West have all recorded a slight decrease in their share of departures, while Coburg, Coburg North, Fawkner and Glenroy have all recorded a slight increase in their share.

Figure 17: Share of Moreland's overseas departures by Suburb/SA2

Y/E June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield
2017	28.8%	12.8%	10.2%	11.6%	2.2%	2.7%	7.6%	6.7%	2.5%	13.5%	0.4%	1.0%
2018	28.5%	12.8%	10.2%	11.7%	2.3%	2.8%	7.7%	6.7%	2.6%	13.5%	0.4%	0.9%
2019	28.0%	12.6%	10.2%	11.9%	2.3%	2.8%	7.8%	6.8%	2.6%	13.6%	0.4%	1.0%
2020	26.2%	11.8%	10.1%	12.6%	2.4%	3.0%	8.2%	7.2%	2.8%	14.4%	0.4%	1.0%

Source: ABS '*Regional Population*', prepared by Charter Keck Cramer

In assessing the COVID-19 impact on net overseas migration and population growth, it will be the suburbs that are most exposed to net overseas migration flows that will be most affected.

Overseas Migrants - Age Profile

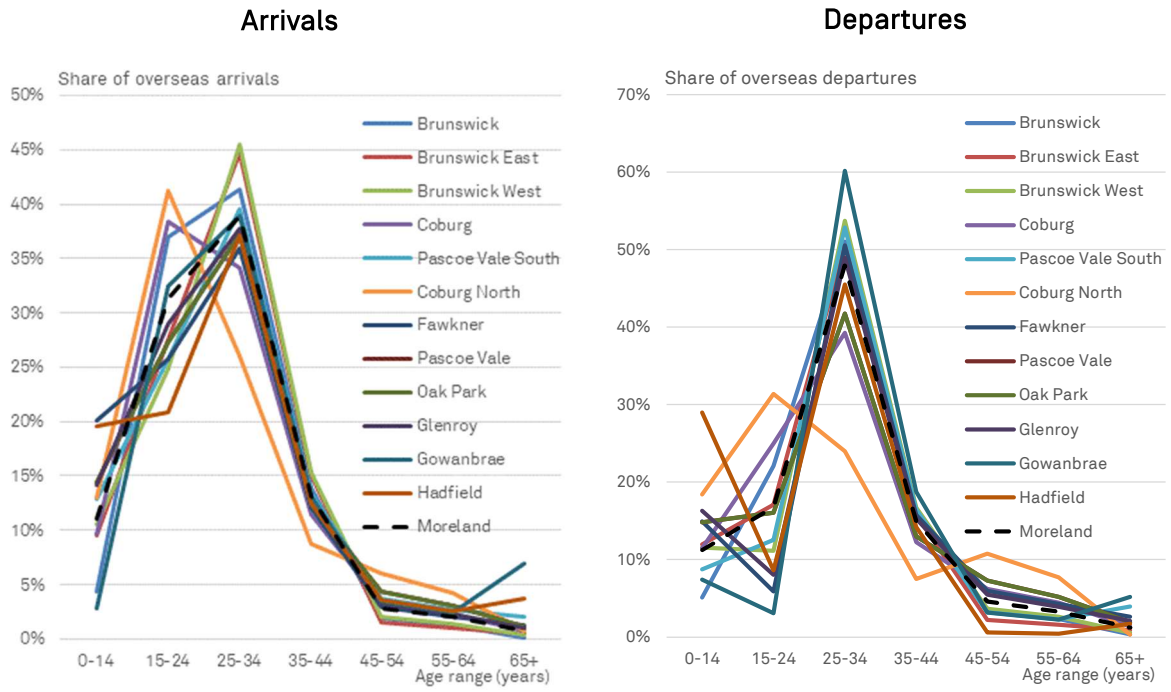
The age profile of overseas arrivals and departures has been drawn from ABS data using both the 2016 Census (from those who answered 'living overseas' to the Census question relating to where they were living twelve months ago, and who were born overseas), as well as 'Regional Population by Age and Sex' release, which shows overseas arrivals and departures at the SA2 level by selected age (albeit broader) cohorts.

These sources were combined to derive a profile of arrivals and departures by single year of age (and sex) for each SA2. The results are shown in the charts and tables below. Ages have been aggregated for simplicity, although single year ages have been derived for the arrivals and departures profile to apply to the net overseas migration component of the population forecast.

Key findings relating to the analysis of the age profile of overseas migrants to Moreland are outlined as follow:

- 15-24 year olds account for the largest share of overseas arrivals in Coburg and Coburg North, while 25-34 year olds account for the largest share of overseas arrivals in the other SA2s, with Brunswick the highest at 41.3% of total overseas arrivals.
- Overseas departures are dominated by 25-34 year olds, with the exception being Coburg North, where 15-24 year olds account for the largest share of overseas departures.

Figure 18: Share of overseas arrivals and departures by age cohort by Moreland Suburb - chart



Source: Charter Keck Cramer, based on ABS Census 2016 and '*Regional Population*'

Figure 19: Share of overseas arrivals and departures by age cohort by Moreland Suburb - table

Age (years)	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland
Arrivals													
0-14	4.4%	9.5%	10.5%	9.7%	12.9%	13.0%	20.1%	14.5%	14.5%	14.1%	2.8%	19.6%	11.0%
15-24	37.0%	27.6%	24.8%	38.3%	25.8%	41.3%	25.7%	27.3%	27.3%	29.0%	32.4%	20.9%	31.3%
25-34	41.3%	44.7%	45.5%	34.1%	39.6%	26.0%	35.9%	37.2%	37.2%	37.7%	39.0%	37.1%	39.0%
35-44	13.9%	15.1%	15.3%	11.5%	13.3%	8.7%	12.1%	12.5%	12.5%	12.7%	13.1%	12.5%	13.1%
45-54	1.9%	1.5%	2.0%	3.3%	3.7%	6.1%	2.9%	4.3%	4.3%	3.2%	3.4%	3.6%	2.8%
55-64	1.3%	1.0%	1.4%	2.3%	2.6%	4.3%	2.0%	3.1%	3.1%	2.3%	2.4%	2.6%	2.0%
65+	0.2%	0.5%	0.4%	0.7%	2.0%	0.7%	1.2%	1.1%	1.1%	1.0%	6.9%	3.7%	0.8%
Departures													
0-14	5.1%	12.0%	11.6%	11.5%	8.8%	18.4%	14.9%	14.8%	14.8%	16.3%	7.4%	29.0%	11.2%
15-24	22.1%	17.1%	11.2%	25.0%	12.5%	31.4%	5.9%	16.0%	16.0%	8.0%	3.1%	8.6%	16.8%
25-34	51.0%	50.5%	53.7%	39.3%	52.8%	24.0%	50.5%	41.8%	41.8%	49.0%	60.2%	45.5%	47.9%
35-44	15.9%	15.7%	16.7%	12.2%	16.5%	7.5%	15.7%	13.0%	13.0%	15.2%	18.7%	14.2%	14.9%
45-54	3.3%	2.2%	3.6%	6.2%	3.2%	10.8%	6.0%	7.3%	7.3%	5.5%	3.2%	0.6%	4.6%
55-64	2.3%	1.6%	2.6%	4.4%	2.3%	7.7%	4.3%	5.2%	5.2%	3.9%	2.3%	0.4%	3.3%
65+	0.4%	0.9%	0.6%	1.4%	3.9%	0.3%	2.6%	1.9%	1.9%	2.1%	5.2%	1.7%	1.2%

Source: Charter Keck Cramer, based on ABS Census 2016 and '*Regional Population*'

3.3. Internal Migration

3.3.1. Drivers of Internal Migration

Net internal migration refers to migration from within Australia. This can be from elsewhere within Melbourne, Regional Victoria, or interstate. Internal movements are represented by a person's change of address. For the purposes of measuring net internal migration at the suburb level, the change of address needs to be into or out of the suburb rather than within the SA2.

Internal migration can be typically explained by two key factors:

- Churn – residents departing dwellings (for various reasons including affordability, change in life circumstances, etc) and freeing up a dwelling for someone to move into.
- New supply – which provides a dwelling for someone to move into. This can also induce churn if someone vacates a nearby dwelling to move into the new dwelling, thereby freeing up another dwelling for a new arrival.

As the dwelling stock in an area increases, the rate of churn is likely to increase as more movement takes place. However, if new supply is limited or diminishing, then this can reduce movement within the SA2, particularly if the demographic profile has a lower propensity to depart.

3.3.2. Moreland and Internal Migration

Internal Migration Origin and Destination Suburbs

Net internal migration data at the suburb level has been derived from profiling current and previous address information based on those who answered 'living elsewhere in Australia' to the Census question relating to where they were living twelve months ago.

The largest share of arrivals in Moreland suburbs generally come from suburbs across Greater Melbourne. Roughly equal shares come from other suburbs within Moreland as well as the adjacent and surrounding SA2s. A limited share of arrivals (less than 5%) come from regional Victoria (all SA2s), while there is a greater number of arrivals from interstate overall, ranging from 0% in Gowanbrae to 16.6% in Brunswick.

Similarly, the greatest share of internal departures relocate to the broader Greater Melbourne area, with a slightly smaller share, moving to adjacent and surrounding SA2s or other SA2s within Moreland. The share of departures to regional Victoria is slightly higher than the share of arrivals. The share of departures to interstate is lower than the interstate share of arrivals.

Figure 20: Internal arrivals and departures Moreland Suburbs, as per Census 2016 place of usual residence one year earlier data

Age (years)	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Morland
Arrivals from													
Elsewhere Moreland*	14.8%	16.8%	24.2%	27.1%	42.8%	36.0%	36.5%	27.2%	27.2%	27.4%	18.9%	60.0%	25.0%
Surrounds	25.2%	22.1%	22.5%	22.6%	22.2%	22.7%	22.9%	26.1%	26.1%	32.4%	45.1%	20.0%	24.9%
Rest of Melb	39.3%	42.0%	33.7%	32.8%	28.9%	27.5%	27.6%	33.6%	33.6%	29.4%	36.0%	17.0%	34.1%
Regional VIC	4.2%	4.0%	4.6%	3.8%	1.6%	4.2%	0.6%	3.0%	3.0%	3.1%	0.0%	0.0%	3.5%
Interstate	16.6%	15.1%	15.0%	13.8%	4.4%	9.6%	12.5%	10.1%	10.1%	7.6%	0.0%	3.0%	12.4%
Departures to													
Elsewhere Moreland*	25.2%	27.9%	28.9%	31.4%	36.9%	34.0%	18.6%	25.3%	25.3%	17.5%	1.7%	47.7%	26.7%
Surrounds	26.0%	23.5%	24.3%	24.0%	35.3%	27.6%	38.8%	28.6%	28.6%	40.7%	57.6%	28.4%	28.9%
Rest of Melb	34.0%	35.2%	33.6%	31.4%	23.7%	28.8%	34.6%	35.4%	35.4%	31.2%	35.5%	20.8%	32.6%
Regional VIC	5.2%	5.0%	5.0%	5.3%	2.9%	3.8%	0.4%	4.7%	4.7%	3.2%	3.4%	1.8%	4.4%
Interstate	9.5%	8.5%	8.3%	7.9%	1.2%	5.8%	7.6%	6.0%	6.0%	7.5%	1.7%	1.3%	7.5%

Source: Charter Keck Cramer, based on ABS Census 2016
* Locations within Moreland but outside of suburb

Total annual internal arrivals and departures in Moreland are shown in Figure 23 below. At the net level, Moreland has experienced a net loss to regions outside the municipality over 2017 to 2020. Notably, net internal migration for the 2020 financial year was little changed on the previous year, despite being impacted by COVID-19 lockdowns in its final months.

Figure 21: Internal arrivals and departures Moreland Suburbs

Yr end June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland*
Internal Arrivals													
2017	3,027	1,894	1,410	2,295	879	817	971	1,626	621	2,112	234	480	16,366
2018	3,552	1,852	1,795	2,625	914	916	1,050	1,965	750	2,374	245	605	18,643
2019	3,688	1,880	1,797	2,795	857	898	1,149	1,859	710	2,267	249	582	18,731
2020	3,643	2,121	1,791	2,677	823	897	1,030	1,832	700	2,209	257	623	18,603
Internal Departures													
2017	3,100	1,474	1,628	2,613	752	718	1,168	1,527	583	2,313	234	510	16,620
2018	3,420	1,491	1,806	3,006	878	834	1,308	1,912	730	2,581	265	643	18,874
2019	3,680	1,781	1,849	3,022	895	895	1,309	1,961	749	2,670	281	577	19,669
2020	3,744	1,713	1,790	3,016	925	892	1,345	1,978	755	2,565	255	622	19,600
Net internal Migration													
2017	-73	420	-218	-318	127	99	-197	99	38	-201	0	-30	-254
2018	132	361	-11	-381	36	82	-258	53	20	-207	-20	-38	-231
2019	8	99	-52	-227	-38	3	-160	-102	-39	-403	-32	5	-938
2020	-101	408	1	-339	-102	5	-315	-145	-56	-356	2	1	-997

Source: ABS '*Regional Population*', prepared by Charter Keck Cramer
* Moreland arrivals and departures include movement across suburbs but within Moreland. Net migration reflects total net internal migration in and out of Moreland

Age Profile of Internal Migrants

Figure 22 highlights the age profile of internal arrivals for Moreland and its component suburbs. The age profile for arrivals has been drawn from ABS data using both the 2016 Census (from those who answered 'living elsewhere in Australia' to the Census question relating to where they were living twelve months ago), as well as 'Regional Population by Age and Sex' release, which shows internal arrivals and departures at the SA2 level by selected age cohorts. These sources were combined to derive a profile of arrivals by single year of age (and sex) for each SA2, with the results by selected aggregated age cohorts shown below.

The arrivals age profile is broadly similar across all suburbs in the 25 year old and over age cohorts. However, the suburbs to the middle and north of Moreland (Pascoe Vale South, Fawkner, Pascoe Vale, Oak Park, Gowanbrae and Hadfield) have a greater share of children (0-14 year olds), while the suburbs to the south (Brunswick, Brunswick East, Brunswick West, Coburg and Coburg North) have a greater share of 15-24 year olds.

Figure 22: Share of internal arrivals by age cohort, Moreland Suburbs, table

Suburb/SA2	0-14	15-24	25-34	35-44	45-54	55-64	65+
Brunswick	3.0%	28.9%	48.7%	13.9%	3.4%	1.5%	0.5%
Brunswick East	2.8%	24.8%	52.2%	15.0%	2.9%	1.3%	1.0%
Brunswick West	6.2%	29.7%	45.6%	12.9%	3.1%	1.4%	1.1%
Coburg	6.3%	23.8%	45.1%	16.5%	5.2%	2.2%	0.9%
Pascoe Vale South	14.4%	15.8%	47.5%	14.0%	5.6%	2.6%	0.1%
Coburg North	7.2%	23.4%	43.2%	15.8%	6.6%	2.8%	1.1%
Fawkner	21.9%	11.3%	45.1%	14.6%	4.0%	2.2%	0.8%
Pascoe Vale	14.9%	16.3%	43.3%	16.0%	5.3%	2.3%	2.0%
Oak Park	14.9%	16.3%	43.3%	16.0%	5.3%	2.3%	2.0%
Glenroy	14.1%	18.7%	42.9%	13.7%	4.9%	2.8%	2.8%
Gowanbrae	10.1%	8.0%	48.8%	16.0%	6.5%	3.8%	6.7%
Hadfield	20.0%	20.9%	40.4%	12.8%	3.7%	2.1%	0.0%

Source: Charter Keck Cramer, based on ABS Census 2016 and '*Regional Population'*

Departures are likely to reflect a change of life circumstances, where the current dwelling/tenure/location does not suit any more. This will vary from location to location as different demographic groups may have different propensities to leave in different locations. In addition, the age profile of departures in any one year is likely to change over time as its demographics change. For example, if population is rising rapidly within an age cohort that has a high propensity to leave, then there will be a rise in departures from that location.

Consequently, the age profile of internal departures will vary over time as the age/demographic profile of a location changes. Charter's population model applies different rates of departure to the corresponding age cohorts in each suburb to derive departures. These are outlined in Section 5 of this report. However, for the purposes of outlining the age profile of departures, the table below shows the age profile of estimated departures in 2021. Departures are most prevalent in the 25-34 year old age cohort in all suburbs, followed by 35-44 year olds. Population aged 45 years old and over accounts for a relatively low proportion of internal departures.

Figure 23: Share of internal departures by age cohort, Moreland Suburbs (based on 2021 estimated departures), table

Suburb/SA2	0-14	15-24	25-34	35-44	45-54	55-64	65+
Brunswick	8.0%	15.5%	51.7%	19.2%	3.6%	1.6%	0.4%
Brunswick East	4.8%	12.0%	56.9%	22.2%	2.6%	1.2%	0.1%
Brunswick West	11.2%	17.3%	47.3%	16.8%	4.2%	1.9%	1.2%
Coburg	11.5%	15.5%	41.7%	19.1%	7.3%	3.1%	1.7%
Pascoe Vale South	11.9%	16.0%	46.9%	13.8%	6.7%	3.8%	0.9%
Coburg North	11.3%	19.1%	39.0%	17.9%	6.7%	3.2%	2.7%
Fawkner	26.4%	10.3%	36.2%	19.5%	4.4%	2.5%	0.8%
Pascoe Vale	20.2%	12.8%	37.5%	18.9%	6.1%	2.9%	1.6%
Oak Park	20.0%	13.9%	37.3%	18.6%	5.8%	2.6%	1.8%
Glenroy	21.1%	14.4%	35.1%	18.2%	5.4%	3.5%	2.3%
Gowanbrae	14.1%	9.7%	42.8%	15.3%	7.8%	4.3%	5.9%
Hadfield	23.3%	17.7%	36.6%	15.1%	4.4%	2.6%	0.3%
Moreland	14.2%	14.7%	43.5%	18.6%	5.1%	2.5%	1.3%

Source: Charter Keck Cramer, based on ABS Census 2016 and '*Regional Population'*

3.4. Births (Fertility Rates)

The total fertility rate (TFR) is measured as the total expected number of babies born per woman and represents the aggregate of the annual age specific fertility rates (i.e. – it provides an indication of the number of children a woman would have over the course of her life if she experienced the age-specific fertility rates for that year over her lifetime). The TFR required for replacement is currently considered to be around 2.1 babies per woman to replace herself and her partner.

3.4.1. Australian Context

In forecasting future fertility rates in Moreland, Charter has had consideration for the work undertaken for the Federal Government's *Centre for Population* by Professor Peter McDonald in his paper '*A Projection of Australia's Future Fertility Rates'*. The paper underpinned the Centre's long term fertility projections, with an additional set of assumptions about the potential impact on fertility of the COVID-19 pandemic.

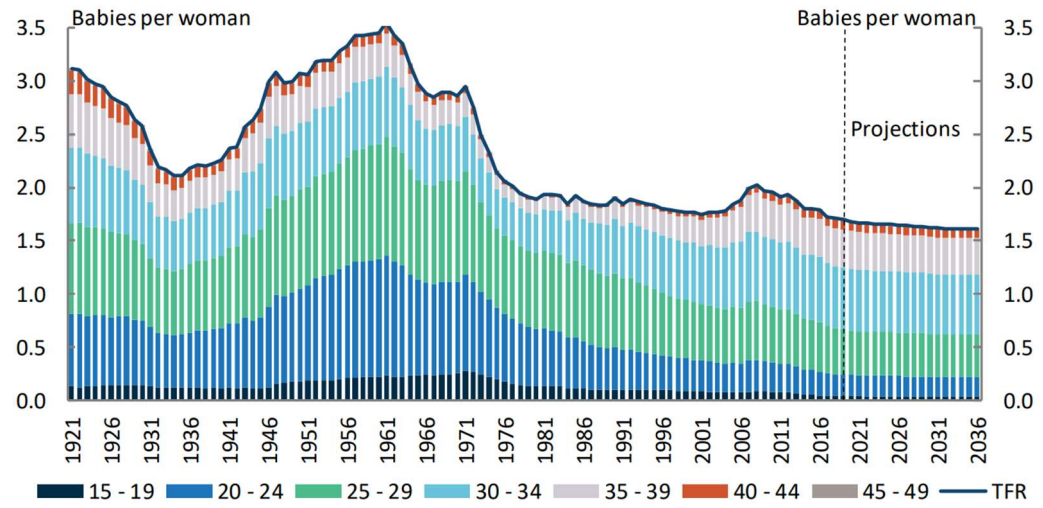
There has been a steady decline in fertility rates since the 1950s (Figure 24), driven by various factors including increased access to contraception, improved educational opportunities, increased participation in the workforce by women, high house prices, and the age at which women chose to have children having increased over time. These have all resulted in women having fewer children.

Outside a brief increase over 2002-2008, the TFR continued its downward trend to fall to a record low of 1.66 in 2019. Subsequent demographic publications by the Australian Bureau of Statistics indicates the TFR fell further to 1.65 in 2020.

In assessing projected fertility rates, Professor McDonald has considered the impact of trends across individual age cohorts. In general, there has been a steady decline in total fertility rates amongst 15-19, 20-24 and 25-29 year olds since the early 1970s.

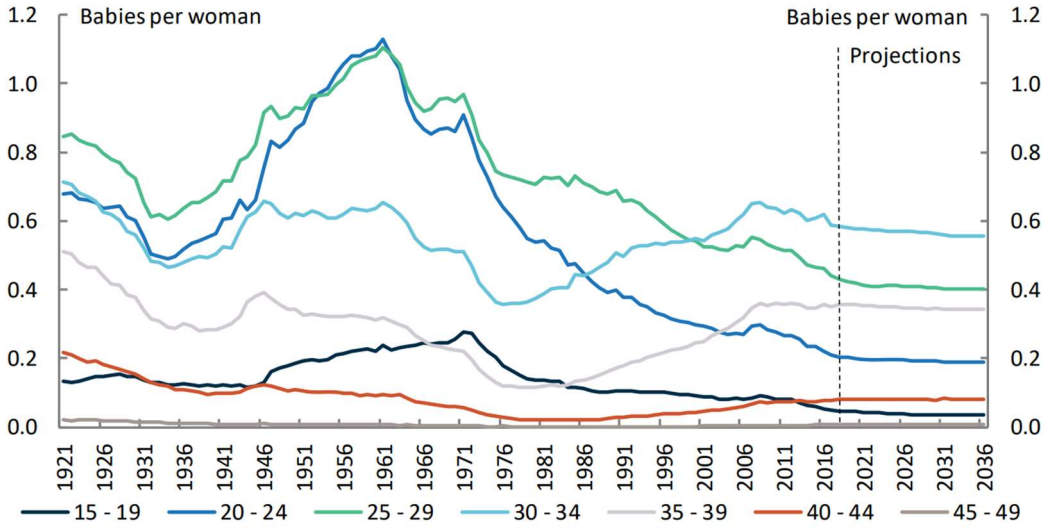
This reflects various factors including increased access to contraception, improved educational opportunities and increased participation in the workforce by women. As a result, the age at which women choose to have children increased in the older 30+ year old age cohorts, although the total fertility rate began to decrease amongst 30-34 year olds from around 2007, while fertility rates amongst 35-39 year olds have stabilised and continued to increase in the 40+ year old age cohorts (although are at very low levels). The net effect is that there has been a steady decline in the TFR which is expected to stabilise at 1.62 by 2031.

Figure 24: Total fertility rate decomposed into births per women within 5 year age brackets, Australia



Source: McDonald, P 2020, 'A Projection of Australia's Future Fertility Rates', Centre for Population Research Paper, The Australian Government, Canberra.

Figure 25: Number of births per woman by 5 year age cohort, Australia



Source: McDonald, P 2020, 'A Projection of Australia's Future Fertility Rates', Centre for Population Research Paper, The Australian Government, Canberra.

3.4.2. Predicted Impact of COVID-19 on Fertility Rates

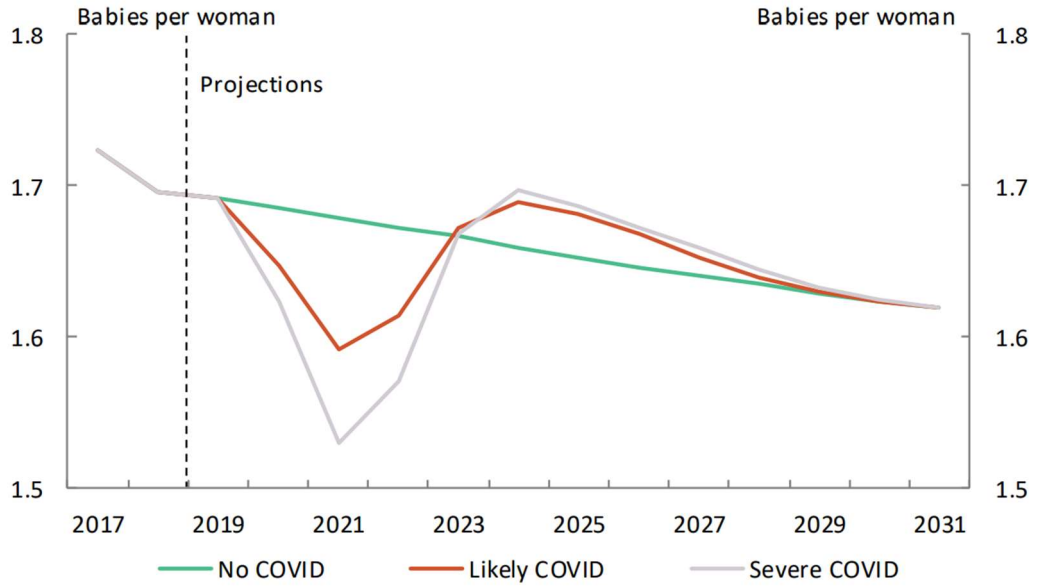
In considering the likely impact of the COVID-19 pandemic on fertility rates, Professor McDonald's paper considers the impact on fertility rates of previous periods of economic uncertainty, including the depression years of the early 1930s, the early-mid 1960s, early-mid 1970s, 1981-1984, 1991 and 2008-2011.

- The paper's 'likely COVID' scenario involves the TFR falling to 1.58 in 2021as household delay having children, before rebounding to 1.69 by 2024-2025 as the delays are recuperated, and then slowly returning to trend (i.e. TFR of 1.62) by 2031.
- In the 'severe COVID' scenario, the TFR is projected to fall to 1.53 in 2021. The rebound is stronger to 2024 due to more births being delayed, with the TFR again then slowly returning to trend (i.e. TFR of 1.62) by 2031.

- Note that these projected fertility rates are based on calendar year assumptions, and the 'likely COVID' scenario was adopted by the Centre for Population and converted to a financial year fertility rate, which forms the national fertility rate highlighted in the fertility chart in Section 2.2.4.

Professor McDonald has projected that fertility rates across each of the states will experience the same proportional changes to fertility rates through to 2031 on the assumption that COVID-19 effects are derived from the uncertainty and activity restrictions induced by COVID-19 rather than directly by the severity of the disease itself.

Figure 26: Total fertility rates, short term projections, Australia



Source: McDonald, P 2020, 'A Projection of Australia's Future Fertility Rates', Centre for Population Research Paper, The Australian Government, Canberra.

3.4.3. Victorian Context

The Victorian Department of Births Deaths and Marriages provides up to date monthly data of birth that are registered with the state (by month of registration). Monthly birth registrations since September 2019 are shown in Figure 29.

As the number of births is recorded at the date of registration, the impact of working from home, temporary business closures, as well as social distancing measures may have influenced the timing of registration and the month-to-month birth numbers. This is likely to be reflected in the very low number of births registered in July 2020 (4,508) when Victoria's second lockdown commenced, followed by larger numbers recorded by September 2020 as the state economy began to reopen. It should also be noted that births through to October/November 2020, are likely to have been barely affected by COVID-19, as most pregnancies would have commenced prior to the onset of the pandemic.

Nevertheless, it appears that a declining trend in births is now occurring, with monthly births registered since December 2020 showing consistent declines relative to their corresponding months a year earlier. While a 6.3% year-on-year rise in births was recently recorded in May 2021 (to 6,559 births), this was after a low 5,079 births were recorded in April 2021 and is likely to reflect delayed registrations due to the Easter/Anzac Day/School Holidays period in April.

In aggregate, births registered in Victoria between December 2020 and May 2021 are 11.2% below their levels a year earlier. This is generally consistent with births notification data provided by City of Moreland for Maternal Child Health Centres in the LGA to January 2021, with notifications over December 2020/January 2021 down by 13.4% on the same period a year earlier. Using Victoria's birth registration data as a benchmark, the falls in Victoria suggest that national TFR in 2021 is likely to fall almost in the middle of the 'Likely-COVID' and 'Severe COVID' assumptions provided in the Centre for Population document.

It is also important to note that the lower level of births may not just be due to lower fertility rates, but also potentially lower female population. Victoria has experienced both net overseas and net interstate migration outflows since the start of the COVID-19 pandemic, so some of the reduction in births may also reflect potential mothers having left the state or country. If this is the case, it is also likely to be prevalent to some extent in Moreland, where net overseas and internal migration is most prevalent in the 25-34 year old age cohorts, which also incorporate the highest fertility rates.

Figure 27: Registered births, Victoria, Monthly

Month	Registered Births	Change on same month previous year
Sep-19	5,976	
Oct-19	8,091	
Nov-19	6,372	
Dec-19	6,069	
Jan-20	5,975	
Feb-20	6,685	
Mar-20	6,710	
Apr-20	6,399	
May-20	6,168	
Jun-20	7,392	
Jul-20	4,508	
Aug-20	6,011	
Sep-20	7,075	18.4%
Oct-20	6,648	-17.8%
Nov-20	6,267	-1.6%
Dec-20	5,180	-14.6%
Jan-21	5,000	-16.3%
Feb-21	5,452	-18.4%
Mar-21	6,479	-3.4%
Apr-21	5,079	-20.6%
May-21	6,559	6.3%

Source: Births Deaths and Marriages Victoria, '*Births Registered per Month*'

3.4.4. Moreland and Fertility Rates

Fertility rates vary widely across each of the suburbs comprising City of Moreland, reflecting the differences across the demographic profile of each.

Figure 28 highlights the differences in the TFR across Moreland's component SA2s, compared to City of Moreland overall and Victoria. The data comes from the ABS 'Births, Australia' publication, with births being represented over a calendar year and at the date of registration (rather than date of birth), and the TFR being an average over the prior three years. TFRs in Moreland in 2019 range from a low of 0.82 in Brunswick East SA2, to a high of 2.34 in Hadfield. This compares with a TFR of 1.46 for total Moreland.

Note that the ABS do not publish births by age of mother below the state level. Age specific fertility rates are likely to be volatile at the suburb level given the relatively low number of births, and this is evident in the year to year variations in TFR within some SA2s despite the TFR being averaged over three years.

Figure 28: Total Fertility Rates, births per adult female, Moreland LGA, Moreland SA2s and Victoria

Year	Moreland	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Glenroy	Gowanbrae	Hadfield	VIC (Births Publication)	VIC (Population Publication)*
2013	1.62	1.22	0.96	1.30	1.67	1.93	1.93	2.39	1.78	2.20	2.07	2.18	1.81	1.84
2014	1.60	1.16	0.94	1.25	1.64	1.84	1.98	2.46	1.80	2.13	2.05	2.19	1.79	1.79
2015	1.54	1.13	0.89	1.24	1.55	1.75	1.92	2.46	1.79	1.93	1.76	2.35	1.71	1.75
2016	1.56	1.11	0.96	1.25	1.57	1.78	2.06	2.45	1.83	1.95	1.84	2.27	1.73	1.75
2017	1.57	1.11	0.98	1.28	1.56	1.78	2.03	2.47	1.79	2.09	1.99	2.23	1.73	1.67
2018	1.54	1.08	0.92	1.15	1.48	1.67	1.96	2.45	1.80	2.23	2.03	2.29	1.72	1.62
2019	1.46	1.02	0.82	1.08	1.39	1.56	1.75	2.41	1.70	2.16	2.17	2.34	1.63	1.56
2020	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.54

Source: ABS '*Births, Australia'*

* Source: ABS '*National, state and territory population'*: Year to June TFR

There is also a discrepancy in the Victorian TFR published in 'Births, Australia' and that published in "National, State and Territory Population". The latter TFR represents a year to June figure and is also a single year TFR, rather than a three year average.

Nevertheless, this does not account for the differences. In particular, the Victorian TFR in the 'State and Territory Population' publication has been notably lower than that in the 'Births, Australia' publication over 2017 to 2019, while also falling lower in 2020 (Births data for 2020 has not yet been published in 'Births, Australia', although the ABS has published an estimate in its 'Regional Population' publication as part of its June 2020 SA2 level population estimates).

LGA-level births data provided by the ABS is also inconsistent with birth notifications provided to City of Moreland for servicing by its Maternal Child Health service. City of Moreland birth notifications have been consistently higher than indicated by the ABS. Discussions with City of Moreland have been unable to shed light on any reasons for this discrepancy.

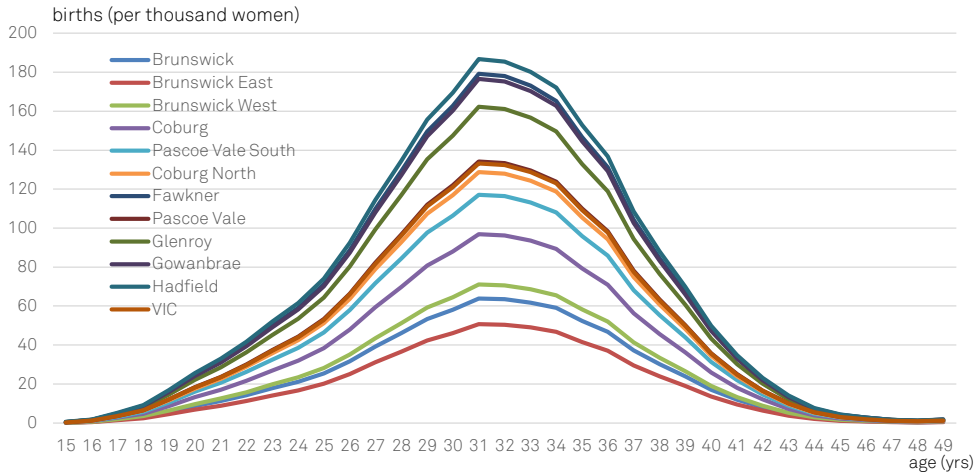
On this basis, Charter 'reverse engineered' the number of births over 2017 to 2020 inclusive in each of the Moreland SA2s to derive a TFR for each year. This involved varying Series B (Medium Series) age-specific birth rates provided in the ABS 'Population Projections, Australia, 2017 (base) - 2066' publication and

applying to 2017 to 2020 age-specific population to match derived births and the SA2 actual births provided over the period in 'Regional Population'. The results over 2017-2020 are shown in the table below and show slight differences with those published in 'Births, Australia'. Charter has elected to use these TFRs as the starting base as Charter is confident that they align with births that have been published over 2017-2020.

3.4.5. Age-specific Fertility Rates

Figure 29 shows the age-specific fertility rates for each of the Moreland SA2s used at 2019 as a benchmark year. The age of highest fertility is 31. The age profile of mothers at birth reflects Hadfield with the highest TFR and Brunswick East with the lowest TFR.

Figure 29: Age-specific Fertility Rates, Moreland SA2s, as at 2019



Source: Charter Keck Cramer, based on ABS 'Births, Australia', Population Projections, Australia, 2017 (base) - 2066

3.5. Deaths (Mortality Rates)

Deaths at the suburb level is sourced from the ABS in its *Regional Population* publication, as well as its *Deaths* publication. The data is published annually and within the *Deaths* publication also includes a 'Standardised Deaths Rate' for comparison (see later in this section for definition).

The ABS do not publish deaths by age of death below the state level. Mortality rates will also be volatile from year to year to some extent at the suburb level given the relatively low number of deaths. For example, a particularly bad influenza season may cause mortality rates to temporarily increase, while a benign winter or summer may see a lower number of deaths.

3.5.1. Moreland Mortality Rates

Mortality varies widely across each of the suburbs comprising City of Moreland, reflecting the differences across the demographic profile of each.

To estimate mortality rates, Charter 'reverse engineered' the number of deaths over 2017 to 2020 inclusive in each of the Moreland suburbs to derive age-specific mortality rates across each suburb. This involved using the age-specific mortality rates provided in the ABS 'Population Projections, Australia, 2017 (base) - 2066' (Series B or medium assumptions) and matching up derived deaths against the SA2 actual deaths over 2017 to 2020 provided in '*Regional Population'*.

The results over 2018-2020 are shown in the table below as the 'Standardised Death Rate'. This is the number of deaths per 1,000 persons in each SA2 assuming their age-specific mortality rates but applied across a consistent population profile that is the same each year. The Standardised Death Rate allows comparison of mortality across regions and over time and highlight the differences across suburb regions.

Figure 30: **Estimated Standardised Death Rates, Moreland SA2s, 2018-2020**

Y/E June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland	VIC
2018	5.6	3.4	4.7	4.3	4.5	5.4	5.3	4.2	4.3	6.8	3.8	4.1	4.9	5.3
2019	5.5	3.5	4.8	4.2	4.5	5.3	5.0	4.1	4.1	6.8	3.6	3.9	4.8	5.2
2020	5.4	3.5	4.6	4.2	4.4	5.3	5.0	4.1	4.1	6.7	3.2	3.9	4.8	5.2

Source: Charter Keck Cramer, based on ABS 'Deaths, Australia'

4. Housing Components of Population Growth

This section covers historical trends and background information used as the basis of the housing component of the forecast model development .

Specifically, this section provides information on historical trends and early indications of COVID-19 impacts on the following:

- Trends in development rates (new dwellings)
- Housing market

4.1. Rate of Development (New Dwellings), Historical Trends in Moreland

This section refers to new dwelling 'supply', which is defined as a completed dwelling. Completed dwellings are used as it is only when a dwelling is completed and can be occupied that it can contribute to population growth.

The density definitions applied to categorise new dwellings referred to in the following section are outlined as follows:

- 1-2 Dwellings: Low Density
- 3-9 Dwellings: Medium Density
- 10+ Dwellings: High Density

4.1.1. Methodology

New dwelling supply at the detailed spatial level has been aggregated by the Department of Environment, Land, Water and Pinning (DELWP) and published as *Housing Development Data*. This information has been collected up to 2016. Due to the absence of any HDD information beyond 2016, Charter extended the dataset for housing supply to cover the 2017 to 2020 period using the following methodology:

Projects >=10 Dwellings

Supply data for larger scale developments of 10 or more dwellings was taken from Charter's proprietary supply database. Dwelling totals were calculated using projects with any combination of 10 or more apartments, townhouses or detached dwellings.[2]

Projects <10 Dwellings

Building Approval data was obtained from the Victorian Building Authority (VBA) for projects comprising nine or fewer final dwellings *'after work'*.[3] With all new dwelling construction projects effectively requiring a dwelling approval, this data should be comprehensive, although it should be noted that a small percentage of building approvals do not proceed to construction. However, in the context of estimating supply within Moreland, this is likely to be negligible.

[2] https://charterkc.com.au/property-services/market-research/national-apartment-database/
[3] https://www.vba.vic.gov.au/about/data

All Projects

Final supply figures for 2017-2020 were calculated by combining the above two datasets (Building Approvals and Charter's Supply Database). The following table outlines dwelling supply estimates from Charter's Supply Database for apartments in projects greater than or equal to 10 dwellings, as well as Charter's estimate for dwelling supply in projects of less than 10 dwellings. The table includes for comparison an additional row that highlights annual supply as per DELWP's Urban Development Program (UDP).

Figure 31: Dwelling Supply Estimates (2017-2020)

	2017	2018	2019	2020
Projects >=10 dwellings				
Charter's Supply Database (2021)	938	1,151	921	938
UDP Redevelopments (2019)	1,438	1,169	824	-
Charter VBA analysis of <10 dwellings				
VBA-derived supply	1,253	1,049	751	796
Total Charter Dwelling Supply	**2,191**	**2,200**	**1,672**	**1,734**

Source: Charter Keck Cramer based on Victorian Building Authority (VBA) '*Building permit activity data*'; DELWP '*Urban Development Program'*

The above table indicates differences between Charter's estimate of supply and that indicated by the UDP. The UDP Redevelopment report includes information on residential projects of 10 or more dwellings. Data is constructed using Core Logic, Urban Melbourne, LGA Planning Registers, PPARS (DELWP), Developer Websites, Address Points (DELWP), Cadastre (DELWP) and Aerial Photography (DELWP). [4]

Charter Keck Cramer utilises all of the above resources in addition to enhanced media monitoring and the utilisation of trusted industry contacts through Charter's broader property business.

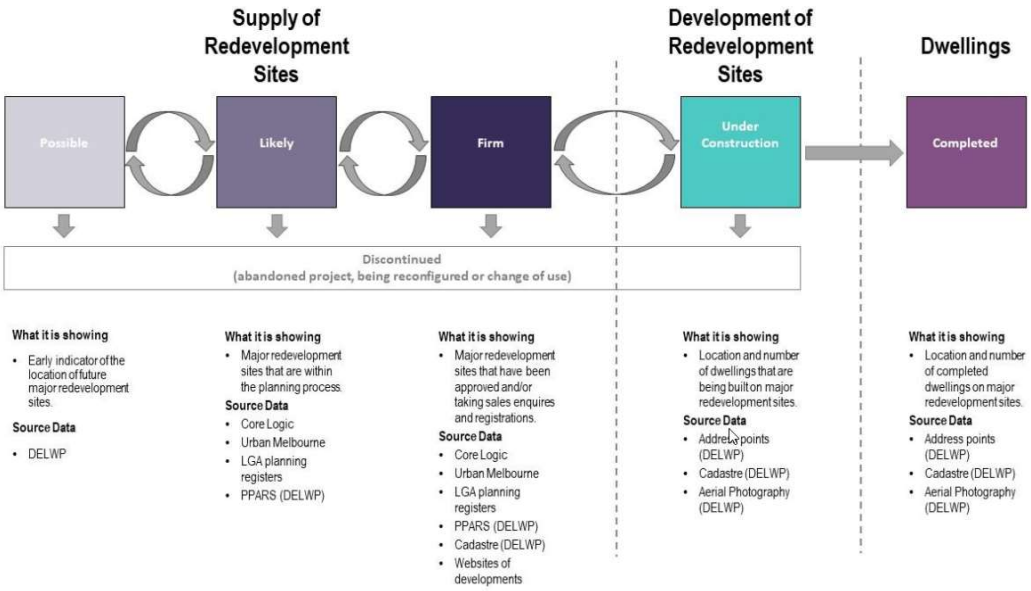
Furthermore, Charter's database is a 'live' dataset that is maintained by a team of analysts with regular, quarterly audits to ensure accuracy and timeliness of data. Figure 34 below highlight DELWP's and Charter Keck Cramer's development classifications. The main differences are in the early supply stages. DELWP characterises sites that are being marketed or with development approval as 'Firm'.

However, although Charter tracks sites in the planning process or that have development approval, there is significant uncertainty around whether if or when these projects will proceed, so only those sites with projects that are actively being marketed are considered in future supply potential.

[4] Urban Development Program – Metropolitan Melbourne Redevelopment 2019

Figure 32: Charter Keck Cramer - Development Status Definitions

Department of Environment, Land Water and Planning Definitions



Source: DELWP '*Urban Development Program*' 2019

Charter Keck Cramer Definitions

Development Status	Definition
Completed	Construction works are completed and settlement has occurred
Under Construction	When obvious construction work has commenced - footings are in / basement is dug / basement walls are built
Marketed	Project is available for purchase off-the-plan (local or off-shore market). Including registrations & pre-sales

Source: Charter Keck Cramer

4.1.2. Limitations on supply assessment and reconciliation with UDP data

Projects <10 dwellings

Data from the VBA does not include precise street address information, instead providing only street names and suburbs. As a result, dwelling estimates in Activity Centres using this data, were estimated by matching street names within each Activity Centre boundary. Some margin of error may exist where specific streets extend beyond the boundaries of the Activity Centre. There is also potential for some permits to be 'double counted' if a project does not go ahead and an amended scheme is then sought. However, the impact is unlikely to be material, with developers/builders in most instances only seeking a building permit once they are ready to commence construction.

Projects >=10 dwellings

Analysis of the provided spatial layers from the 2019 UDP reveal some differences regarding the timing of project completions compared to Charter's database. These timing differences explain the annual discrepancies exhibited earlier.

To highlight the differences, Charter has undertaken a reconciliation between its own database and the UDP output for the 2017 year, which contains the largest discrepancy between the Charter database and UDP. The reconciliation is highlighted below.

The biggest differences are in the timing of completions, which is likely to be due to differences in the way they are being accounted for. Charter has some of these being completed in 2016 or 2018. Charter has also accounted for differences in the timing of separate stages within larger projects of multiple stages, whereas the UDP has them all being completed at the same time. There are also some projects recorded by Charter that have been missed in the UDP or that initially appear in the UDP but that aren't progressed to completion.

The net difference in completions in 2017 after the reconciliation is only 7 apartments, suggesting that the source data (of dwellings in projects of 10 or more dwellings) used in the UDP aligns with Charter's data. However, Charter believes its estimates are more robust in that large projects have been staged to better reflect the timing of supply and that Charter are tracking some projects that have been missed by the UDP.

Figure 33: Charter Keck Cramer and UDP supply reconciliation

UDP Completion	Proj Name	Dwellings	Dwellings not completed 2017	Charter Completion	Comment
UDP completions in 2017 included not incorporated by Charter					
2017	Adam and Eve	24	24	2016	
2017	Mayor Anderson Apartments	100	100	2018	
2017	Park Street Apartments	13	13	*N/A*	Redevelopment with net increase of 7 dwellings so not counted by Charter
2017	Hope Street Apartments	14	14	2016	
2017	Brunswick Road Mixed Use Development	20	20	2016	
2017	Austin Crescent Townhouses	15	15	2018	
2017	Bell Street And Mitchell Parade Dwellings	25	25	2016	
2017	Pascoe Vale Road Townhouses	12	12	2016	
2017	Tinning Street Apartment Building	23	23	2016	
2017	Nightingdale	20	20	2018	
2017	Becket Street North Townhouses	25	25	2018	
2017	Moreland Road Townhouses	21	21	2016	
2017	*The York*	*315*		*2016-17*	*Project completed in four stages*
	The Hudson	*119*	*119*	*2016*	
	The Royal	*56*	*56*	*2016*	
	The Lincoln	*109*		*2017*	
	The Barkly	*31*		*2017*	
2017	Station Road Townhouses	36	36	2018	
2017	*Kodak Site Redevelopment- Coburg hill*	*142*			*Project completed in three stages*
	Stg 6	*30*		*2017*	
	Treetops	*40*		*2017*	
	Stg 7	*75*	*75*	*2016*	
			598		
Charter completions in 2017 included not incorporated by UDP					
N/A	80 Devon Road, Oak Park	16	16	2017	Listed as UC in 2017 then disappears
2016	23 - 35 Cumberland Road, Pascoe Vale Soutl	32	32	2017	UDP completion 2016
N/A	1 Plymouth Avenue, Pascoe Vale	11	11	2017	Pre construction then disappears
2018	2 - 6 Duckett Street, Brunswick	36	36	2017	UDP completion 2018
2019	20 - 34 Duranta Drive, Gowanbrae	10	10	2017	Completed 2019 (40 dwellings), Charter has project recorded in stages. This completion reflects one stage of 10 dwellings
			105		

Net difference calculation			
UDP completions in 2017 included not incorporated by Charter			**Reconciled completions**
	UDP 2017 estimate (as per Figure 31)	1438	
	less Charter completions in other years	598	840
Charter completions in 2017 included not incorporated by UDP			
	Charter 2017 estimate (as per Figure 31)	938	
	less allowance for UDP stock not included	105	833
	Net difference in reconciled stock		**7**

Source: DELPW 'Urban Development Program', Charter Keck Cramer

Two notable examples include:

Coburg Hill, 173-199 Elizabeth Street, Coburg North

UDP lists 142 dwellings completed in 2017 with additional supply delivered in up to 2016. Charter lists 70 dwelling completions in 2017, with the balance of an additional 462 dwellings completed over 8 additional stages in prior years.

The York, 8-10 Olive York Way, Brunswick West

UDP lists 315 completions in 2017. Charter lists 140 completions in 2017 with a further 175 completed in 2016.

4.2. Suburb & Activity Centre Historical Trends

4.2.1. Total New Dwelling Supply Historical Trends

In the period between 2017 and 2020, there were a total of approximately 7,800 new dwellings completed in Moreland. The majority of these occurred in the 2017 and 2018 period (4,391).

Of the 7,800 new dwellings, 640, or 8% of all new dwellings were developed in the Activity Centres of Brunswick, Coburg and Glenroy, while the remaining 7,160 (92%) dwellings were dispersed across the municipality.

Of all new dwellings, Brunswick East (1,417), Brunswick (1,293) and Glenroy (1,018) had the greatest number. In terms of Activity Centres, the Brunswick Activity Centre had the highest number of new dwellings (336) followed by Coburg (182) and Glenroy (119).

2018 had the highest number of new dwelling completions with 2,200. In 2019 and 2020, dwelling completions were substantially less with 1,672 and 1,734 respectively. 2018 saw the highest number of new dwellings completed in Activity Centre dwellings with 355.

Figure 34 New Dwellings by Suburb & Activity Centre (City of Moreland) 2017-2020)

	2017	2018	2019	2020	TOTAL	% Share
Brunswick	328	451	381	133	**1,293**	**17%**
Brunswick East	259	452	247	459	**1,417**	**18%**
Brunswick West	233	134	125	378	**870**	**11%**
Coburg	253	199	110	96	**658**	**8%**
Coburg North	117	27	42	33	**219**	**3%**
Fawkner	115	87	65	96	**363**	**5%**
Fitzroy North	3	45	2	17	**67**	**1%**
Glenroy	254	302	247	215	**1,018**	**13%**
Gowanbrae	16	4	18	5	**43**	**1%**
Hadfield	107	125	141	45	**418**	**5%**
Oak Park	151	146	60	55	**412**	**5%**
Pascoe Vale	234	187	181	163	**765**	**10%**
Pascoe Vale South	121	41	53	39	**254**	**3%**
TOTAL	**2,191**	**2,200**	**1,672**	**1,734**	**7,797**	**100%**

Activity Centre (Dwellings)

	2017	2018	2019	2020	TOTAL	% Share
Brunswick AC	528	702	419	411	**2,060**	**26%**
Coburg AC	84	20	33	45	**182**	**2%**
Glenroy AC	46	43	48	28	**165**	**2%**
Moreland Balance	*1,533*	*1,435*	*1,172*	*1,250*	***5,390***	***69%***
TOTAL	**2,191**	**2,200**	**1,672**	**1,734**	**7,797**	**100%**

Source: Charter Keck Cramer Proprietary Apartments Database and based on Victorian Building Authority (VBA) '*Building permit activity data*'

4.2.2. High Density Development Historical Trends

Between 2017 and 2020, there were 3,948 new high-density dwellings completed in Moreland. Of these, 1,257 were in Brunswick East, 1,091 in Brunswick and 645 in Brunswick West. The other 955 high-density dwellings were dispersed across the remaining ten suburbs. Within Activity Centres, the Brunswick Activity Centre had the highest number of new high-density dwellings with 1,883, of which 667 were completed in 2018.

Figure 35: New Dwellings – High Density (2017-2020)

	2017	2018	2019	2020	TOTAL	% Share
Brunswick	265	408	340	78	**1,091**	**28%**
Brunswick East	196	424	191	446	**1,257**	**32%**
Brunswick West	151	73	86	335	**645**	**16%**
Coburg	103	100	14	0	**217**	**5%**
Coburg North	70	0	22	0	**92**	**2%**
Fawkner	10	0	12	0	**22**	**1%**
Fitzroy North	0	42	0	17	**59**	**1%**
Glenroy	22	36	51	26	**135**	**3%**
Gowanbrae	10	0	15	0	**25**	**1%**
Hadfield	0	0	99	0	**99**	**3%**
Oak Park	16	41	25	14	**96**	**2%**
Pascoe Vale	35	27	66	22	**150**	**4%**
Pascoe Vale South	60	0	0	0	**60**	**2%**
TOTAL	**938**	**1,151**	**921**	**938**	**3,948**	**100%**

Major Activity Centre (Dwellings)

	2017	2018	2019	2020	TOTAL	% Share
Brunswick AC	461	667	377	378	**1,883**	**48%**
Coburg AC	53	0	14	0	**67**	**2%**
Glenroy AC	12	11	0	0	**23**	**1%**
Moreland Balance	*412*	*473*	*530*	*560*	***1,975***	***50%***
TOTAL	**938**	**1,151**	**921**	**938**	**3,948**	**100%**

Source: Charter Keck Cramer Proprietary Apartments Database and based on Victorian Building Authority (VBA) '*Building permit activity data'*

4.2.3. Low – Medium-Low Density Development Historical Trends

Between 2017-2020, there were 3,849 new low-medium density dwellings developed in Moreland. Notably, the 2017 and 2018 period saw almost the double number of dwellings developed than in 2019 and 2020.

- The highest level of low-medium density dwelling supply occurred in Glenroy (883 dwellings), Pascoe Vale (615) Coburg (441), Fawkner (341), Hadfield (319) and Oak Park (316). With the exception of Gowanbrae (18), which is a small suburb with few developable sites, these suburbs represent the northernmost suburbs of the City of Moreland area.
- Conversely, Coburg North (127), Brunswick (202), Brunswick East (160), Brunswick West (225) and Pascoe Vale South (194) represent the southernmost suburbs of Moreland and had the lowest number of low-medium density dwellings developed in the 2017-2020 period.

As well as the high level of detached housing on larger lots that can support multi unit development on a detached house site, new house values are lower and cannot yet support a price point for apartments that can make large scale high density apartment development viable.

The Coburg and Glenroy Activity Centres had 115 and 142 low-medium density dwellings developed respectively. The Brunswick Activity Centre had 177 low-medium density dwellings.

Figure 36: Low – Medium Density Development (2017-2020)

	2017	2018	2019	2020	TOTAL	% Share
Brunswick	63	43	41	55	**202**	**5%**
Brunswick East	63	28	56	13	**160**	**4%**
Brunswick West	82	61	39	43	**225**	**6%**
Coburg	150	99	96	96	**441**	**11%**
Coburg North	47	27	20	33	**127**	**3%**
Fawkner	105	87	53	96	**341**	**9%**
Fitzroy North	3	3	2	0	**8**	**0%**
Glenroy	232	266	196	189	**883**	**23%**
Gowanbrae	6	4	3	5	**18**	**0%**
Hadfield	107	125	42	45	**319**	**8%**
Oak Park	135	105	35	41	**316**	**8%**
Pascoe Vale	199	160	115	141	**615**	**16%**
Pascoe Vale South	61	41	53	39	**194**	**5%**
TOTAL	**1,253**	**1,049**	**751**	**796**	**3,849**	**100%**

Activity Centre (Dwellings)

	2017	2018	2019	2020	TOTAL	% Share
Brunswick AC	67	35	42	33	**177**	**5%**
Coburg AC	31	20	19	45	**115**	**3%**
Glenroy AC	34	32	48	28	**142**	**4%**
Moreland Balance	*1,121*	*962*	*642*	*690*	***3,415***	***89%***
TOTAL	**1,253**	**1,049**	**751**	**796**	**3,849**	**100%**

Source: Charter Keck Cramer Proprietary Apartments Database and based on Victorian Building Authority (VBA) '*Building permit activity data*'

4.3. Housing Market Historical Trends and COVID-19 Impacts

4.3.1. Victorian Context: Historical Market Trends and COVID-19 Impacts

The impacts of COVID-19 on the Victorian housing market have been profound with numerous, direct effects spilling over to Moreland. In understanding these impacts, it is important to acknowledge the various segments of the residential market and the different ways in which each has been impacted, with the apartment market suffering the most significant effects.

COVID-19 related industry shutdowns stopped the normal function of new residential sales campaigns (both off-the-plan apartments and greenfield) with the limitations on individual movement through the introduction of the 5km limit from one's place of residence as well as the eventual closure of sales suites. These acted to limit the marketing and sales process broadly across the market. Impacts from this with regard to the rental market (due to occupancy and vacancy increases), rental softening and broader market uncertainty will likely impact investor sentiment and participation in the off-the-plan market over the coming years.

Within the apartment sector, any strength in the build-to-sell market is currently for owner-occupier apartment product. Typically, these have been larger and offer more internal amenity that than the tenant/investor driven product that has a feature of the apartment market over the past decade.

Owner occupier demand is being driven by demographic changes that were already emerging pre COVID-19 . The oldest Millennials (generally aged 25 to 40 years old) are now well into their 30s and entering the couple and family-forming life stages. The second largest age cohort, the Baby Boomers (57 to 75 years old) are now moving well into retirement age, with many looking to downsize. Improved affordability via low interest rates is helping Millennials enter the market, while rising house prices have provided a platform for Baby Boomers to downsize to a smaller dwelling.

The change in housing circumstances associated with these life stage changes are to some extent independent of the broader economic environment. Moreover, as these demographic groups continue to age through the decade owner occupier demand within the apartment sector has the potential to continue to grow in the coming years and drive greater off-the-plan demand.

However, this segment of the market has less depth for new apartments (compared to investors).

- While Moreland has a significant population of Millennials in particular, the stock that is typically sought by this cohort as they enter family formation is detached dwellings and townhouses, which can offer more internal and external space (relative to apartments) for a family or soon-to-be-family. Suitable detached housing (and to a lesser extent townhouses) within Moreland does not offer an affordable price point for most Millennial renters of apartments, particularly in the southern suburbs of Moreland.
- Similarly, the majority of Baby Boomers are still showing a preference to age in place—i.e. within their existing dwelling. Downsizer demand for apartments is expected to increase more so by dint of the continued movement of this group into older age cohorts than by any significant increase in their propensity to downsize into smaller dwellings.

Nevertheless, some of this demand will still be expressed for suitable apartment stock within Moreland (whether for affordability reasons or personal preferences). This should support further demand for ‘owner occupier’ apartments, although a recovery in investors will be required to drive stronger volumes of off-the-plan apartment sales that have been seen previously.

4.3.2. Moreland Housing Market Historical Trends and COVID-19 Impact

Apartment Market Historical Trends in Moreland

Heavily concentrated in the southern suburbs of Brunswick, Brunswick East and Brunswick West, Moreland’s apartment market has been characterised by larger scale, investor-oriented projects comprising mostly one and two bedroom apartments. These have been sold off the plan, often in large volumes through investment channels both locally and off-shore.

Examples of this product include:

- 8 Lygon Street Brunswick East, 192 apartments, (launched September quarter 2015 and completed September quarter 2018).
- Rima Apartments at 22 Lygon St, Brunswick East, 102 apartments (launched June quarter 2016 and completed September quarter 2018).
- Victory Apartments at 98 Nicholson St, Brunswick East, 104 apartments, (launched September quarter 2015 and completed June quarter 2019).

As such these projects are built to a standard specifically for the investor market. The 2016 Census reports that 70% of occupied apartments in buildings four storeys and above in Moreland were occupied by rental tenants, and therefore investor owned. Larger, investor-oriented projects are likely to have an even higher share of investor purchasers with the remainder purchased by owner occupiers.

Over the past decade, during which time apartments have become a popular financial product, particularly for 'mum and dad' investors, the scale and volume of projects delivered, particularly across the CBD and inner suburbs, has been unprecedented.

The extent to which Moreland, in particular its southern suburbs, has accommodated new apartment projects is reflected in the fact that Brunswick East has had the third highest number of apartment completions (outside of the CBD) of any suburb in metropolitan Melbourne with almost 3,000 completed, while Brunswick has had the eleventh highest with almost 2,150. Additionally, Brunswick West has had almost 1,100.

Figure 37: Top Apartment Completions by Suburb (2010 to March 2021)

Suburb	Apartment Completions
South Yarra	5,700
Richmond	3,400
Brunswick East	2,980
West Melbourne	2,910
Box Hill	2,830
Abbotsford	2,820
Doncaster	2,575
Footscray	2,460
St Kilda	2,350
Brunswick	2,150

Source: Charter Keck Cramer Proprietary Apartments Database

Exacerbated by the onset of COVID-19, together with declining investment activity in Melbourne's apartment market in recent years, the delivery of new, large scale investor-oriented apartment projects in Moreland is expected to remain muted until the fundamentals of the rental market, including a return to strong levels of population growth, improve.

The reduction in investor participation from the market has challenged the viability of projects of scale as increased demand for an owner-occupier apartment product now underpins the apartment market.

This has been characterised by a shift to larger dwellings and away from one bedroom investor-oriented apartment stock. As a result, overall sales volumes have declined with the marketing process being a longer and slower process in addition to projects, especially within the middle suburbs, taking the form of a comparatively smaller boutique project scale to that observed through the supply boom of the mid-2010s.

At present however, many of Melbourne's middle suburbs remain relatively untapped from an apartment market perspective. With redevelopment sites in the CBD and inner suburbs becoming scarcer, there is potential for apartment development in the middle suburbs to increase significantly in the coming years, subject to certain conditions being met.

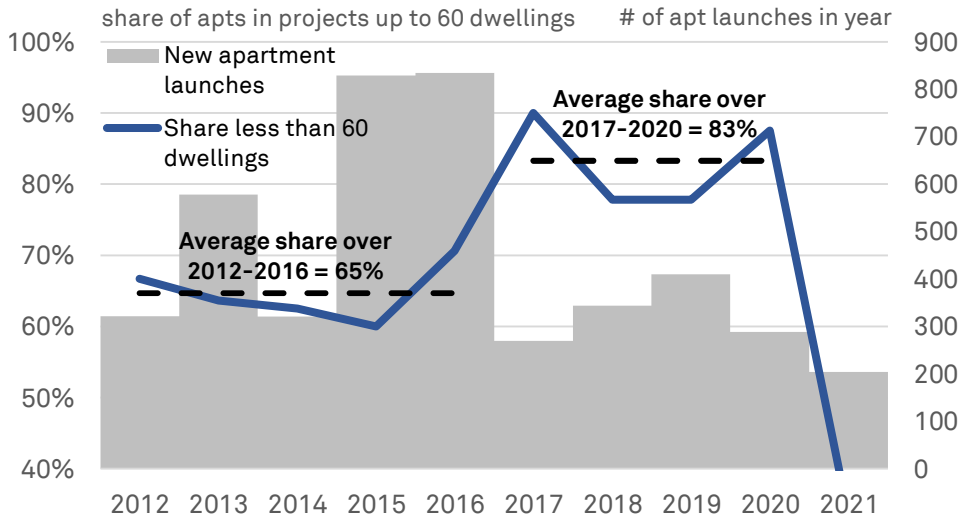
While there has been a reduction in demand from the investor segment of the market, owner-occupiers, generally older and upgraders and/or downsizers from other housing forms, are now being observed to be participating in greater volumes across the apartment market than historically observed. With strong forecast growth in older households over the coming decade, the appetite for apartments by this cohort likely to continue.

This increased participation by owner occupiers has already been evidenced for larger apartments in higher quality buildings, in sought after locations that tend to be in higher value suburbs. There is some evidence of this having occurred in Moreland, largely in its southern suburbs, where well marketed, architecturally designed and often environmentally themed projects (e.g. Nightingale) have been able to attract purchasers, often younger first home buyers. Nonetheless, within Moreland this represents a niche segment of the market and does not suggest a widespread trend that will necessarily translate broadly across Moreland's central and northern suburbs.

This is evidenced in Figure 40. Smaller scale apartment developments of less than 60 dwellings (typically more favoured by owner occupiers) accounted for 65% of apartments in new apartment projects that were launched onto the market in Moreland over 2012–2016. This share increased to 83% over 2017–2020, highlighting the greater resilience of owner occupier apartment demand.

However, investors were supporting over 800 new apartments coming onto the market in Moreland over each of 2015 and 2016. It should be noted that, while smaller projects are now accounting for a larger share of total new supply, the total pie is smaller without investors, with an average of only 325 apartments per annum launched onto the market for sale over 2017 to 2020. Charter does not yet have a full year of data for year to June 2021. However, in the financial year to March 2021, only three projects were launched for sale totalling 204 apartments and dominated by two larger projects totalling 192 apartments.

Figure 38 : Total annual apartment launches and share of apartments in projects less than 60 dwellings



Source: Charter Keck Cramer Proprietary Apartments Database
Note 2021 year to June is incomplete

The likelihood of Moreland experiencing significant owner occupier demand for apartments will be in large part due to the ongoing performance of the residential market and house prices more broadly, together with demand generated from population growth. At present, the ability of Moreland's suburbs to attract and support a significant increase in the number of owner occupier apartment projects in the foreseeable future, is considered marginal.

4.4. Moreland Townhouse/Infill Market

4.4.1. Vacancy and Occupancy Rates in Moreland

The impact of COVID-19 has been most evident in the rental market as the closure of international borders resulted in the collapse of overseas migration and tourism inflows. As a result, both traditional and short-stay rental demand suffered at a time when apartment completions remained relatively robust.

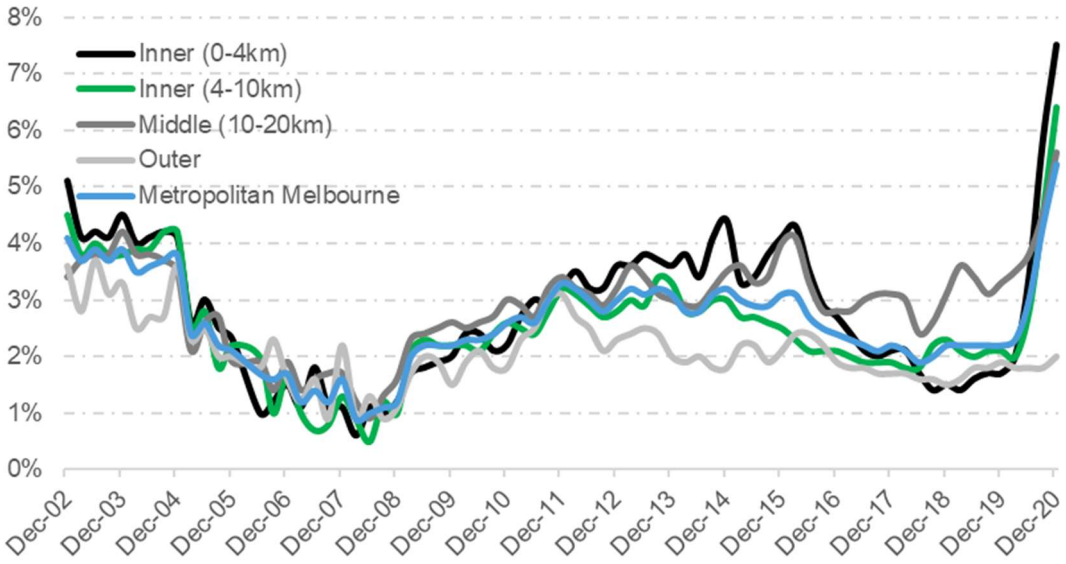
The COVID-19 pandemic and subsequent low levels of population growth have brought about a dramatic increase in residential rental vacancy rates with metropolitan Melbourne's vacancy rate increasing from 2.3% in March 2020 to 5.4% in December 2020.

Notably, the detached housing market and the outer suburbs have experienced significantly lower vacancy rates, in part supported by the moratorium on tenant evictions (which expired at the end of March 2021). Together with the winding down of JobKeeper and JobSeeker, the end to the moratorium may put additional downward pressure on rental markets in the immediate short-term, particularly if further lockdowns occur.

The Real Estate Institute of Victoria measures rental vacancy rates via survey of its member agencies. The survey counts the number of vacant rental dwellings as a proportion of the total number of rental dwellings managed by the member agents.

Increases in vacancy rates have been most pronounced across inner suburbs which have historically housed greater proportions of overseas residents. Vacancy rates in Inner (4-10 km) Melbourne, the zone in which Moreland is located) were above 6% at December 2020. Vacancy rates across metropolitan Melbourne will likely remain elevated in the short term with significant reductions unlikely until the international border is fully reopened. Furthermore, given the reduction in net overseas migration, those markets most exposed to such occupiers, have recorded the highest vacancy and will likely remain impacted until overseas migration normalises over the coming years.

Figure 39 : Vacancy Rates -[by Distance from Melbourne CBD]



Source: REIV, prepared by Charter Keck Cramer

The Real Estate Institute of Victoria does not provide vacancy rate data below the limited number of regions in Melbourne. However, more granular data within Moreland is provided by SQM Research, where vacant dwellings are calculated as the number of dwellings advertised on online portals, such as realestate.com.au and domain.com.au.

The impact of COVID-19 on the Moreland rental market has been significant with the number of vacancies more than doubling from just over 500 in March 2020 to in excess of 1,500 in March 2021. Brunswick, Brunswick East and Brunswick West have experienced the greatest concentration of vacancies over this time, increasing from a collective 420 to 910. The vacancy rate in each of these suburbs rose from 1.4% prior to the pandemic to between 5.3 and 6.2%, with Brunswick the hardest hit.

Figure 40 Number of Vacancies by Suburb (March 2020 – March 2021)

	Mar-20	Dec-20	Feb-21	Mar-21
Brunswick	92	425	431	379
Brunswick East	64	288	247	234
Brunswick West	54	228	232	234
Pascoe Vale (plus south)	64	150	170	171
Coburg (plus north)	65	188	169	156
Gowanbrae	34	37	42	43
Oak Park/Glenroy/Hadfield	108	191	237	264
Fawkner	26	46	51	57
TOTAL	**507**	**1553**	**1579**	**1538**

Source: SQM Research *Residential Vacancy Rates*

4.5. State Government Policy

The onset of COVID-19 saw unprecedented government spending required to moderate the fallout from industry shutdowns. Despite this support, unemployment rose significantly and impacted younger and non-permanent workers that traditionally represent a local renter cohort.

Policies protecting renters from eviction through the lockdown were put in place in addition to mortgage repayment deferrals. These have been progressively unwound for owner occupiers with additional unwinding for investor mortgages to occur through 2021 with the potential to underpin additional stock on market to compete with off-the-plan projects. Ultimately this has significantly impacted investor sentiment as uncertainty with regard to their unwinding remains.

In response to the anticipated major impacts of COVID-19 on the residential development sector, Governments have initiated demand-side policies introduced to support new residential supply, namely HomeBuilder, targeting the construction of “ready to build” projects.

As such, the program offers limited benefit to the off-the-plan apartment market which has a far lengthier sales and construction period. Though some apartment projects are advertising eligibility for HomeBuilder grants, the program’s relatively short timeframes indicate this is not without risk, as eligibility requires certain timeframes to be achieved.

Announced by the Victorian Government in 2020, Victoria’s Big Housing Build is planned to transform the social housing system by delivering the largest single increase in social and affordable housing in Victoria’s history.

Planned to deliver approximately 12,300 dwellings across metropolitan Melbourne between 2020/21 and 2024/25, the Big Housing Build aims to provide 9,300 new social housing properties and an additional 2,900 affordable and market housing properties.

Twenty-one priority local government areas across metropolitan Melbourne, including the City of Moreland, have been identified as part of the Big Housing Build program. During 2020, Homes Victoria ran a Request for Proposals for projects that:

- are under construction and / or ready for construction; and
- are able to be delivered as completed new social housing dwellings by the end of 2023.

Proposals for projects were sought from across Victoria, with 21 priority local government areas, including the City of Moreland, identified. It also launched a Rapid Grants of the Social Housing Growth Fund for the community housing sector which will target projects capable of construction commencing before 2 December 2021. The potential development impact of the Big Housing Build project upon Moreland's housing market will ultimately be determined by the scale and volume of projects delivered within the municipality. Not currently one of the municipalities in which the first six Big Housing Build projects are being undertaken, the likelihood of a significant number of dwellings provided by this program in Moreland is currently unclear.

5. Post COVID-19 Population and Housing Scenario Development Assumptions

This section describes the assumptions applied in the development of the population forecasts for each suburb and for each post COVID-19 scenario (see Section 2.4).

Specifically, this section describes assumptions for:

- Overseas migration
- Internal migration
- Fertility rates
- Mortality rates
- Household formation rates
- Housing capacity assumptions
- Residential market conditions and expected outlook
- Anticipated future supply (new dwellings) assumptions

5.1. Overseas Migration Assumptions

Net Overseas Migration (NOM) is governed by the Federal Government, who are responsible for international borders. As such, Moreland's net overseas migration will be dependent and related to the national net intake. Consequently, Charter's approach is to first consider NOM at the national level. A state forecast is then undertaken in the context of expected national NOM, which is in turn then distilled to a Moreland and then suburb forecast.

5.1.1. Australia's National-level Changes in Net Overseas Migration

As the rollout of COIVD vaccinations continues worldwide, international travel movements are expected to increase and result in an improvement to Australia's net overseas migration.

Australia has already opened a 'travel bubble' with New Zealand. Australia has the potential to open up to other countries where the vaccine rollout is sufficiently advanced for broader immunity within their population. States are also putting forward plans for managing the entry of international students via a quarantine system. The Federal Government has already signalled that it expects a return to previous net overseas migration inflows to be a key plank of its economic recovery plan.

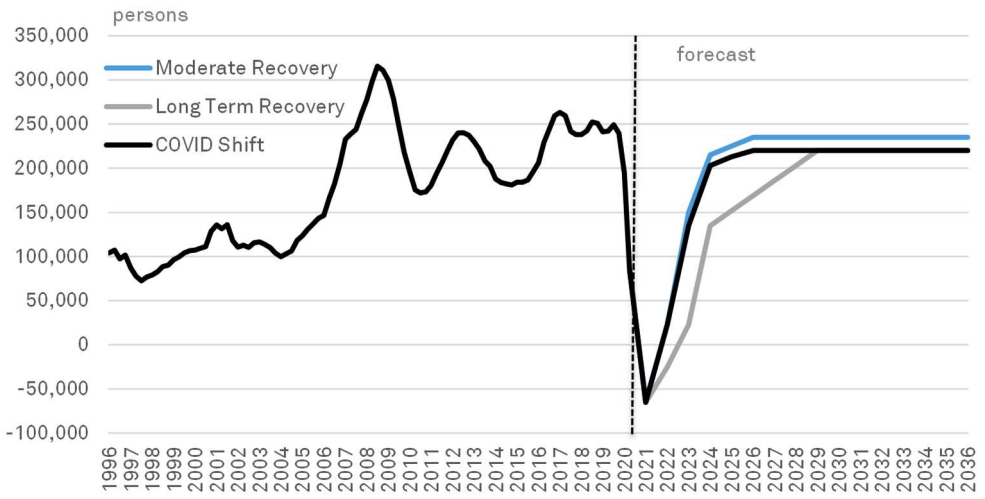
On this basis, under the COVID-Shift scenario, Charter expects Australia to return to a limited NOM inflow in the 2022 financial year (+23,000), and steadily rising to a long term level of 220,000 per annum by 2026 as the impact of COVID-19 dissipates and international travel returns to normal. This is slightly under the 228,000 per annum average over 2017 to 2019.

The more optimistic 'Moderate Recovery' scenario assumes a similar level of NOM in 2022 before a stronger recovery to a long term NOM inflow averaging 235,000 per annum from 2026 onwards. This higher level of NOM is on par with the more recent average NOM recorded over the four years to 2019.

Charter's 'Long Term Recovery' scenario assumes an additional negative NOM in 2022 (-25,000) and a slower recovery to a long term average of 220,000 per annum by 2029. This assumes that international movement worldwide continues to remain stifled for some time, while a slower economic recovery reduces employment opportunities and therefore overseas migration inflows.

National NOM in each of the three scenarios are outlined in the chart below.

Figure 41: Forecast net overseas migration, Australia



Source: ABS 'National state and territory population', forecasts Charter Keck Cramer year ended June

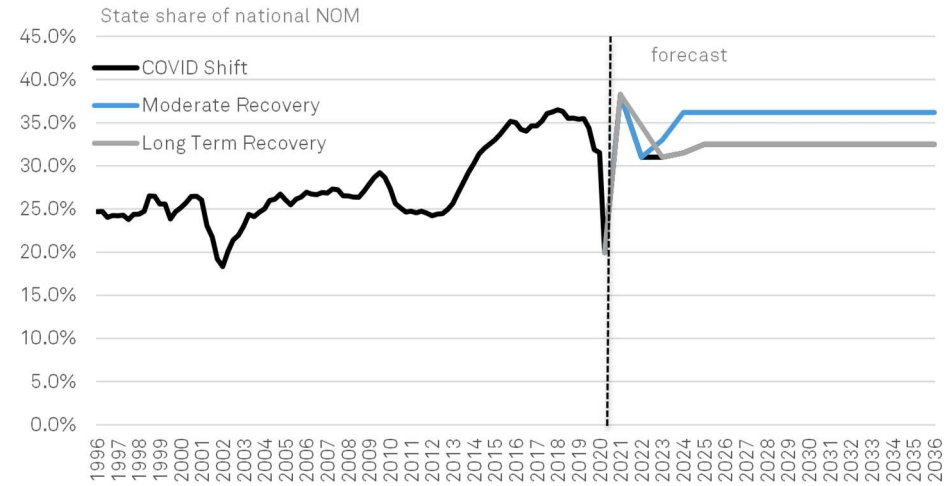
5.1.2. Victoria State-level Changes in Net Overseas Migration

Due to further suspension of arrivals and the status of the quarantine program in Victoria as of March quarter 2021, Victoria is expected to continue to account for an outsized share of the national NOM outflow in the remaining quarters of 2021. Based on the estimated national net outflow estimate of 65,958, Charter expects Victoria's NOM share of the national total to have ended at 38% in 2020/21. This is higher than its historical share of the national net inflow and is expected to be temporary, reflecting the prolonged lockdown in the state. Beyond 2021, Victoria's share of national net overseas migration is expected to subsequently return closer to historical norms as a net inflow returns.

Under the 'COVID-19 Shift' Scenario, Charter assumes Victoria's share of national net overseas migration reverts to a long term average of 32.5%, which is a little below the 2015 to 2019 average of just under 35%. A similar share to the COVID-19 Shift scenario is expected under the 'Long Term Recovery' scenario, which is based on a longer recovery to the eventual COVID-19 Shift assumptions.

The more optimistic 'Moderate Recovery' scenario assumes Victoria's long term share of the national net overseas migration inflow is higher, at 36.2%. This assumes that international students will be the source of the higher national forecast under this scenario, with Victoria's higher share of international students resulting in a higher overall share.

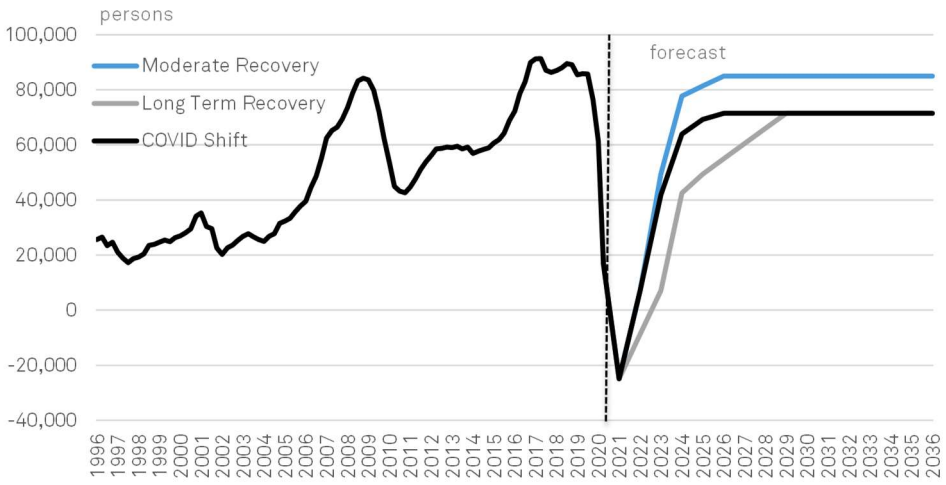
Figure 42 : Victoria Share of National Net Overseas Migration



Source: ABS 'National state and territory population', forecasts Charter Keck Cramer year ended June

State NOM for Victoria under each of the three scenarios is shown below. Under the 'COVID-19 Shift' Scenario, the state's NOM settles at 71,500 per annum by 2026, and by 2029 under the 'Long Term Recovery' scenario. Under the more optimistic 'Moderate Recovery' scenario, Victoria's NOM reaches a higher long term average of 85,000 per annum by 2026.

Figure 43: Victoria Net Overseas Migration



Source: ABS 'National state and territory population', forecasts Charter Keck Cramer year ended June

5.1.3. Moreland post COVID-19 Overseas Migration Scenarios and Assumptions

Given the relatively high share of overseas migration accounted for by overseas students in Moreland (see previous chapter), Charter has assumed that Moreland will account for 80% of its historical share of Victorian overseas arrivals, at 3.18% in 2021 rather than 3.99%. This takes total arrivals of 2,236.

Under the COVID-shift scenario Moreland is expected to continue to attract a decreased share of Victoria's overseas arrivals in the short term, before returning to the recent average of 3.98% by 2024. Departures are expected to be similar to the historical ratio of departures to arrivals relative to that expected for Victoria. This is expected to take Moreland's net overseas migration inflow to just under 3,000 per annum by 2026.

Figure 44: Victoria and Moreland Net Overseas Migration Forecast 2021-2036, COVID-Shift scenario

Year ended June	VIC NOM Arrivals	Moreland NOM Arrivals	Moreland Arrivals Share	VIC NOM Departures	Moreland NOM Departures	Moreland Departures Share	VIC NOM Net	Moreland NOM Net	Moreland Net Share
2014	122,250			65,350			56,900		
2015	128,170			67,480			60,690		
2016	140,220			68,000			72,220		
2017	159,630	6,298	3.95%	68,380	2,532	3.70%	91,250	3,766	4.13%
2018	161,170	6,408	3.98%	74,200	2,792	3.76%	86,970	3,616	4.16%
2019	168,310	6,722	3.99%	82,840	3,129	3.78%	85,470	3,593	4.20%
2020	151,800	6,060	3.99%	90,460	3,480	3.85%	61,340	2,580	4.21%
2021	14,718	468	3.18%	39,588	2,236	5.65%	-24,870	-1,768	7.11%
2022	45,000	1,432	3.18%	37,870	1,622	4.28%	7,130	-191	-2.67%
2023	85,000	2,975	3.50%	43,150	1,455	3.37%	41,850	1,520	3.63%
2024	115,000	4,573	3.98%	51,055	1,957	3.83%	63,945	2,617	4.09%
2025	145,000	5,766	3.98%	75,775	2,904	3.83%	69,225	2,862	4.14%
2026	150,000	5,965	3.98%	78,500	3,008	3.83%	71,500	2,957	4.14%
2027	151,500	6,025	3.98%	80,000	3,066	3.83%	71,500	2,959	4.14%
2028	153,015	6,085	3.98%	81,515	3,124	3.83%	71,500	2,961	4.14%
2029	154,545	6,146	3.98%	83,045	3,183	3.83%	71,500	2,963	4.14%
2030	156,091	6,207	3.98%	84,591	3,242	3.83%	71,500	2,966	4.15%
2031	157,652	6,269	3.98%	86,152	3,302	3.83%	71,500	2,968	4.15%
2032	159,228	6,332	3.98%	87,728	3,362	3.83%	71,500	2,970	4.15%
2033	160,820	6,396	3.98%	89,320	3,423	3.83%	71,500	2,973	4.16%
2034	162,429	6,459	3.98%	90,929	3,485	3.83%	71,500	2,975	4.16%
2035	164,053	6,524	3.98%	92,553	3,547	3.83%	71,500	2,977	4.16%
2036	165,693	6,589	3.98%	94,193	3,610	3.83%	71,500	2,980	4.17%

Source: ABS 'National state and territory population', 'Regional Population', forecasts Charter Keck Cramer

Charter's 'COVID-19 Shift' scenario assumption for net overseas migration for Victoria results in net overseas migration into Moreland at just under 3,000 per annum by 2026. This compares with net overseas migration rising to just under 3,500 by 2026 in the 'Moderate Recovery Scenario', while there is a much longer recovery period in the 'Long Term Recovery' scenario.

Figure 45: Moreland net overseas migration scenarios

	COVID Shift		Moderate Recovery		Long Term Recovery	
Year ended June	VIC NOM Net	Moreland NOM Net	VIC NOM Net	Moreland NOM Net	VIC NOM Net	Moreland NOM Net
2014	56,900		56,900		56,900	
2015	60,690		60,690		60,690	
2016	72,220		72,220		72,220	
2017	91,250	3,766	91,250	3,766	91,250	3,766
2018	86,970	3,616	86,970	3,616	86,970	3,616
2019	85,470	3,593	85,470	3,593	85,470	3,593
2020	61,340	2,580	61,340	2,580	61,340	2,580
Forecast						
2021	-24,870	-1,768	-24,870	-1,768	-24,870	-1,768
2022	7,130	-191	7,130	-191	-8,656	-213
2023	41,850	1,520	49,500	1,778	7,130	349
2024	63,945	2,617	77,766	3,146	42,525	1,796
2025	69,225	2,862	81,383	3,328	49,400	2,103
2026	71,500	2,957	85,000	3,474	54,925	2,322
2027	71,500	2,959	85,000	3,476	60,450	2,536
2028	71,500	2,961	85,000	3,479	65,975	2,749
2029	71,500	2,963	85,000	3,481	71,500	2,963
2030	71,500	2,966	85,000	3,483	71,500	2,966
2031	71,500	2,968	85,000	3,485	71,500	2,968
2032	71,500	2,970	85,000	3,488	71,500	2,970
2033	71,500	2,973	85,000	3,490	71,500	2,973
2034	71,500	2,975	85,000	3,492	71,500	2,975
2035	71,500	2,977	85,000	3,495	71,500	2,977
2036	71,500	2,980	85,000	3,497	71,500	2,980

Source: ABS 'National state and territory population', 'Regional Population', forecasts Charter Keck Cramer

The suburb level assumptions for overseas migration flows are made with reference to the forecasts for Victoria provided earlier in this report (see previous chapter). The suburb assumptions assume that Moreland will attract the same share of Victoria's net overseas migration inflows outlined earlier. At the same time, Moreland's suburbs are also assumed to continue to attract their respective historical shares of Moreland's overseas migration.

Given that the distribution of overseas arrivals into Moreland has been relatively consistent across each of its suburbs over 2016-2020, Charter has assumed each suburb's share of arrivals will be the average of the 2017 to 2020 period for all scenarios.

Figure 46: Share of Moreland's overseas arrivals by Suburb

Y/E June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield
2017	22.4%	10.2%	9.9%	13.6%	2.7%	3.3%	8.8%	8.1%	3.1%	16.2%	0.4%	1.3%
2018	22.4%	10.1%	9.8%	13.8%	2.7%	3.3%	9.0%	8.1%	3.1%	16.1%	0.4%	1.1%
2019	22.5%	10.1%	9.7%	13.9%	2.7%	3.3%	9.1%	8.0%	3.1%	16.0%	0.4%	1.1%
2020	22.5%	10.1%	9.7%	13.9%	2.7%	3.3%	9.1%	8.0%	3.1%	16.0%	0.4%	1.1%
Forecast												
2021-2036	22.4%	10.1%	9.8%	13.8%	2.7%	3.3%	9.0%	8.0%	3.1%	16.1%	0.4%	1.2%

Source: ABS Regional Population', forecasts Charter Keck Cramer

The share of Moreland's net overseas departures from each of its component suburbs has changed slightly in 2020 after being relatively consistent over 2016-2019. The reason for this variation is unclear although is likely to reflect the composition of overseas students, for example:

- Coburg, Coburg North, Fawkner and Glenroy all have the highest share of overseas students in VET and 'other' courses, which are typically shorter, and it is likely that this has allowed these students to return upon the completion of their course.
- Brunswick, Brunswick East and Brunswick West all have the highest share of overseas students in higher education, where courses are longer, and students are more likely to be obliged to stay until the completion of their course.

For all scenarios Charter has assumed that each suburb will maintain their 2020 share of departures in 2021, before returning to the 2017-2020 average by 2023. However, as there remains some uncertainty around the reasons for the variation in share from prior years in 2020 future monitoring of overseas departures via the annual *Regional Population* publication (see Section 7 of this report) will be important to determine whether this variation becomes entrenched.

Figure 47: Share of Moreland's overseas departures by Suburb

Y/E June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield
2017	28.8%	12.8%	10.2%	11.6%	2.2%	2.7%	7.6%	6.7%	2.5%	13.5%	0.4%	1.0%
2018	28.5%	12.8%	10.2%	11.7%	2.3%	2.8%	7.7%	6.7%	2.6%	13.5%	0.4%	0.9%
2019	28.0%	12.6%	10.2%	11.9%	2.3%	2.8%	7.8%	6.8%	2.6%	13.6%	0.4%	1.0%
2020	26.2%	11.8%	10.1%	12.6%	2.4%	3.0%	8.2%	7.2%	2.8%	14.4%	0.4%	1.0%
Forecast												
2021	26.2%	11.8%	10.1%	12.6%	2.4%	3.0%	8.2%	7.2%	2.8%	14.4%	0.4%	1.0%
2022	27.0%	12.1%	10.1%	12.2%	2.4%	2.9%	8.0%	7.0%	2.7%	14.1%	0.4%	1.0%
2023-2036	27.9%	12.5%	10.2%	11.9%	2.3%	2.8%	7.8%	6.9%	2.6%	13.8%	0.4%	1.0%

Source: ABS Regional Population', forecasts Charter Keck Cramer

5.2. Internal Migration Assumptions

Charter's assumptions for internal arrivals and departures have been based on an analysis of historical trends and relationships that have been evident in Moreland and its component suburbs (see previous chapter).

Moreland's net internal migration assumptions have been based on separate approaches to developing assumptions for arrivals and departures, with the difference representing the net internal migration.

5.2.1. Internal Migrant Arrivals to Moreland

In forecasting arrivals, Charter has considered a combination of total population and dwelling stock, the current pipeline of new supply and an assessment of future supply based on the current market cycle and future expected cycle. The supply outlook is outlined elsewhere in this report.

However, building new dwellings does not necessarily mean that they will be immediately occupied, particularly in the current environment of weaker net overseas and internal migration combined with a number of large apartment projects nearing completion.

To assess the impact of COVID-19 on internal migration arrivals in 2021, Charter has considered the 2017-2020 arrivals provided in the ABS 'Regional Migration' release, as well as the sources of arrivals indicated in this report. Further adjustments have also been made to account for changes to dwelling stock.

Charter has also considered the short term impact of the COVID-19 pandemic on internal migration as primarily being a reduction in internal arrivals into Moreland suburbs based the following:

- The ABS 'Regional Population' release showing components of SA2 level population growth in the year to June 2020. A comparison of internal migration arrivals and departures shows little change between year to June 2020 and year to June 2019, despite the impact of the commencement of the COVID-19 lockdown in March 2020. This data is reported using change of address associated with Medicare registration and the timing of any move versus the reporting of the change of address may have potentially been impacted by the lockdown.
- The ABS 'Regional Internal Migration Estimates, Provisional' reports that arrivals into Greater Melbourne from Regional Victoria over the COVID-19 impacted period from June quarter 2020 to December quarter 2020 inclusive were down by 16% on the corresponding period a year earlier. Arrivals from interstate were down by 29%.
- The Victorian Department of Human Services 'Rental Report' indicates that the number of new rental bonds registered in the year to December 2020 in suburbs within City of Moreland were down by 4.8% on year to June 2020 bonds registered.—indicating fewer rental dwellings occupied.

To estimate the impact on internal arrivals in each suburb, arrivals from interstate and regional Victoria in each suburb have been proportionately marked down based on their share of arrivals coming from these sources. While arrivals from within Melbourne have been marked down by the reduction in rental bonds held. Based on this above, arrivals in each suburb are estimated to have declined by between 5% and 11% in 2021, depending on the historical and relative proportion of arrivals in each suburb from local, regional Victoria and Interstate. Figure 50 shows an estimate of the possible reduction of internal arrivals for each suburb in 2021, based on their source of arrivals.

Figure 48: Estimated reduction in internal arrivals in 2021 based on distribution of arrivals sources, suburb

Source of internal arrivals	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowan-brae	Hadfield	Total	Est % Reduction from Source
Share of internal arrivals from source														
Surrounds	30%	27%	30%	31%	39%	36%	36%	36%	36%	45%	56%	50%	33%	-5%
Rest of Melb	46%	50%	45%	45%	51%	43%	43%	46%	46%	41%	44%	43%	46%	-5%
Regional VIC	5%	5%	6%	5%	3%	7%	1%	4%	4%	4%	0%	0%	5%	-16%
Interstate	19%	18%	20%	19%	8%	15%	20%	14%	14%	10%	0%	7%	17%	-29%
Estimated overall reduction in arrivals based on source reduction														
	89.9%	90.2%	89.7%	90.0%	93.0%	90.8%	90.3%	91.3%	91.3%	92.1%	95.2%	93.3%	90.6%	

Source: Charter Keck Cramer

Arrivals in 2022 are also expected to be impacted due to a weaker jobs market and potential for further state border closures. Charter has assumed that the reduction will be half the impact in 2021 before internal migration arrivals resume their 'normal' trend from 2023 onwards for all scenarios. As Australia's second largest state capital city, Melbourne is expected to remain a key employment centre and therefore attractor of migration. This has been evident during other economic shocks, where a pause in arrivals has been followed be a recovery as younger population is drawn into the major cities.

Also impacting arrivals, selected suburbs are expected to become supply constrained over the medium to longer term and the rate of growth in arrivals into these locations is expected to slow. The outlook for supply in each suburb is covered in Section 6.

The age profile applied to internal arrivals is based on the methodology identified in Section 3 of this report, which was derived from a combination of Census analysis and subsequent ABS published data in *Regional Population by Age and Sex*.

5.2.2. Internal Departures from Moreland

Internal migration departures have been forecast by applying a 'departure rate' for each age cohort in each suburb. This assumes that different ages are associated with life stage changes that equate to different dwelling requirements (and potentially locational preferences). These changes may also be at different ages in different locations, reflecting the demographic differences across Moreland.

The age profile for departures used a similar process as arrivals to derive departures by age. However, as the profile was largely based on extractions from the 2016 Census, the departure rate was calculated by comparing the number of departures against the 2016 population (subtracted by one to reflect the age profile one year earlier), which provided a percentage of population in each age cohort expected to leave the suburb annually.

Any COVID-19 shock to internal migration appears to have mostly occurred on the arrivals side, with a more modest rise in departures occurring. The ABS 'Regional Internal Migration Estimates, Provisional' reports that departures from Greater Melbourne into Regional Victoria over the COVID-impacted period from June quarter 2020 to December quarter 2020 inclusive were up by 12% on the corresponding period a year earlier. Departures to interstate were up by 7%.

Given the more limited change in departures that has already been evident and the expectation that less stringent lockdowns in Melbourne will be in place in the future, Charter has not adjusted departure rates in 2021 to account for any potential increase in departures.

The table below shows rates of departure for 2021 by aggregated age cohorts. This will have changed slightly at the aggregated level from the initial rates derived from the Census due to the changing age structure of the population, and changes at the single year level within that aggregation. Similarly, departure rates for the aggregated ages will continue to change slightly from year to year as the population age profile evolves.

In addition, selected suburbs are expected to become supply constrained over the medium to longer term. Furthermore, there will also be tension in individual suburbs between overseas migration and internal migration where there is finite supply of dwellings. In these instances, Charter has scaled internal outflows up to accommodate the impact of any supply constraints, with total departures depicted in Figures 52-54.

Figure 49: 'Departure Rates' – percentage of population leaving Suburb by age each year using 2020 as a sample year

Suburb/SA2	0-14	15-24	25-34	35-44	45-54	55-64	65+
Brunswick	9.5%	13.9%	19.6%	12.8%	4.2%	2.3%	0.5%
Brunswick East	5.1%	10.5%	20.6%	14.1%	3.2%	2.0%	0.2%
Brunswick West	10.3%	15.9%	20.7%	11.5%	4.5%	2.5%	1.2%
Coburg	7.4%	13.1%	19.3%	11.2%	5.8%	3.4%	1.3%
Pascoe Vale South	4.9%	10.0%	27.4%	7.4%	3.5%	2.7%	0.5%
Coburg North	6.1%	16.9%	19.8%	9.9%	5.0%	3.4%	2.1%
Fawkner	10.3%	6.9%	19.0%	11.7%	3.7%	2.6%	0.5%
Pascoe Vale	11.1%	11.6%	18.7%	10.6%	4.9%	3.0%	1.1%
Oak Park	11.7%	12.9%	19.6%	11.1%	5.3%	2.5%	1.5%
Glenroy	12.0%	12.9%	16.4%	12.1%	5.9%	4.5%	1.8%
Gowanbrae	5.9%	7.0%	27.6%	7.9%	4.1%	3.9%	3.4%
Hadfield	11.4%	15.7%	22.5%	11.3%	3.7%	2.6%	0.2%
Moreland	9.2%	12.5%	19.7%	11.5%	4.7%	3.0%	1.1%

Source: Charter Keck Cramer based on ABS Census 2016 and 'Regional Population'
Note: Annual departures by suburb by Age are contained in Annexure

The table highlights how some suburbs such as Brunswick, Coburg and Glenroy have a high rate of population leaving, while other such as Pascoe Vale South, Coburg North, Gowanbrae and Hadfield are more stable.

5.2.3. Net internal migration scenarios

Moreland has experienced a net loss to regions outside the municipality over 2017 to 2020 and this is expected to increase overall as the population increases, with some allowances for the housing supply cycle when additional new stock is expected to result in an increase in arrivals.

The following three tables show the assumed forecast for internal migration arrivals and departures for total Moreland and by SA2 and scenario.

Under the COVID-shift scenario, net internal migration outflows from Moreland are expected to rise from just under 1,000 per annum over 2017 to 2020, to nearly 1,800 by 2036, with most suburbs losing population to elsewhere in Australia by the 2030s. In general, compared to the 'COVID-19 Shift Scenario', departures are higher under the more optimistic 'Moderate Recovery' scenario (with the net outflow reaching 2,200 by 2035) as the additional net overseas arrivals under this scenario displace some of the existing population, particularly as the ability to meet the pace of population growth is constrained by supply. Within the 'Long Term Recovery' departures are slightly lower over the long term, with less net overseas migration inflows reducing the level of housing churn and encouraging more population stability.

Further information on net migration trends by age are shown in the Moreland forecasts in Section 6 and for each suburb in Appendix A.

Figure 50: Moreland internal arrivals and departures by SA2, 'COVID-19 Shift' Scenario

Yr end June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland*
Internal Arrivals													
2017	3,027	1,894	1,410	2,295	879	817	971	1,626	621	2,112	234	480	16,366
2018	3,552	1,852	1,795	2,625	914	916	1,050	1,965	750	2,374	245	605	18,643
2019	3,688	1,880	1,797	2,795	857	898	1,149	1,859	710	2,267	249	582	18,731
2020	3,643	2,121	1,791	2,677	823	897	1,030	1,832	700	2,209	257	623	18,603
2021	3,001	2,023	2,005	3,330	830	823	1,029	1,785	668	2,178	226	591	18,489
2022	3,919	2,198	1,910	2,808	872	874	1,097	1,898	710	2,214	238	620	19,358
2023	3,412	1,664	1,784	2,931	931	857	1,224	1,998	780	2,444	239	678	18,942
2024	3,221	1,659	1,807	3,254	942	886	1,444	2,019	794	2,482	240	677	19,426
2025	3,249	1,706	1,832	2,946	996	882	1,431	2,079	811	2,524	241	700	19,397
2026	3,285	1,832	1,826	3,032	965	895	1,374	2,142	808	2,533	241	688	19,622
2027	3,381	1,917	1,854	3,098	974	946	1,381	2,117	800	2,542	242	695	19,946
2028	3,494	2,044	1,926	3,131	915	920	1,350	2,163	795	2,553	243	701	20,235
2029	3,577	2,143	1,997	3,130	1,040	1,001	1,336	1,976	791	2,562	244	695	20,492
2030	3,676	2,248	2,064	3,222	942	1,096	1,355	1,991	782	2,572	244	697	20,889
2031	3,854	2,106	2,136	3,319	985	1,137	1,308	2,059	775	2,583	245	700	21,206
2032	3,855	2,097	2,221	3,362	960	1,000	1,320	2,025	788	2,613	246	703	21,190
2033	4,039	2,073	2,312	3,499	969	1,011	1,353	2,131	798	2,641	246	704	21,776
2034	4,233	2,014	2,425	3,610	974	1,049	1,342	2,217	812	2,674	247	714	22,310
2035	4,113	1,976	2,430	3,728	970	1,041	1,354	2,104	823	2,690	247	713	22,190
2036	4,126	1,991	2,366	3,720	942	1,051	1,362	2,121	832	2,705	248	723	22,187
Internal Departures													
2017	3,100	1,474	1,628	2,613	752	718	1,168	1,527	583	2,313	234	510	16,620
2018	3,420	1,491	1,806	3,006	878	834	1,308	1,912	730	2,581	265	643	18,874
2019	3,680	1,781	1,849	3,022	895	895	1,309	1,961	749	2,670	281	577	19,669
2020	3,744	1,713	1,790	3,016	925	892	1,345	1,978	755	2,565	255	622	19,600
2021	3,591	1,755	1,833	2,904	878	871	1,334	1,947	751	2,676	264	607	19,410
2022	3,572	1,852	1,906	3,078	855	852	1,287	1,899	728	2,599	264	611	19,504
2023	3,520	1,844	1,894	3,036	857	855	1,276	1,897	725	2,570	260	622	19,357
2024	3,524	1,809	1,891	3,062	875	865	1,308	1,936	744	2,625	262	644	19,544
2025	3,536	1,796	1,917	3,170	899	887	1,381	1,991	768	2,706	264	666	19,981
2026	3,555	1,796	1,950	3,216	929	907	1,443	2,051	794	2,793	266	688	20,389
2027	3,649	1,857	1,977	3,272	949	924	1,491	2,112	815	2,870	269	705	20,889
2028	3,678	1,887	2,004	3,330	964	949	1,532	2,159	831	2,938	271	719	21,262
2029	3,723	1,936	2,040	3,383	966	963	1,564	2,204	843	2,998	275	732	21,627
2030	3,840	2,012	2,083	3,427	993	988	1,589	2,215	854	3,051	273	743	22,068
2031	3,888	2,074	2,128	3,479	992	1,026	1,614	2,228	862	3,099	274	752	22,417
2032	3,958	2,099	2,179	3,540	1,003	1,065	1,629	2,251	866	3,142	274	759	22,765
2033	4,015	2,118	2,234	3,597	1,007	1,073	1,645	2,264	874	3,184	276	766	23,053
2034	4,020	2,107	2,297	3,668	1,009	1,082	1,665	2,293	882	3,225	276	772	23,296
2035	4,129	2,109	2,366	3,745	1,014	1,096	1,680	2,332	890	3,266	274	780	23,681
2036	4,194	2,104	2,422	3,827	1,017	1,107	1,695	2,347	900	3,305	275	786	23,980
Net internal Migration													
2017	-73	420	-218	-318	127	99	-197	99	38	-201	0	-30	-254
2018	132	361	-11	-381	36	82	-258	53	20	-207	-20	-38	-231
2019	8	99	-52	-227	-38	3	-160	-102	-39	-403	-32	5	-938
2020	-101	408	1	-339	-102	5	-315	-145	-56	-356	2	1	-997
2021	-590	268	171	427	-47	-48	-304	-163	-83	-498	-38	-15	-921
2022	347	346	3	-270	17	22	-191	-1	-17	-385	-26	9	-146
2023	-108	-181	-110	-105	74	2	-52	102	55	-126	-21	56	-415
2024	-303	-149	-84	192	67	22	136	84	50	-143	-22	32	-118
2025	-287	-90	-85	-223	96	-5	51	89	42	-182	-24	34	-584
2026	-270	35	-124	-183	36	-11	-69	91	13	-260	-25	0	-767
2027	-268	61	-123	-174	25	22	-110	4	-15	-328	-27	-10	-943
2028	-184	156	-78	-199	-48	-28	-182	4	-36	-385	-28	-18	-1,027
2029	-146	208	-43	-253	74	38	-227	-228	-53	-436	-31	-38	-1,135
2030	-164	236	-19	-205	-51	108	-234	-223	-72	-479	-29	-46	-1,179
2031	-34	32	8	-160	-8	110	-306	-169	-87	-516	-29	-52	-1,211
2032	-103	-2	42	-178	-43	-65	-310	-226	-78	-529	-29	-56	-1,574
2033	24	-45	78	-98	-37	-63	-292	-133	-75	-543	-30	-62	-1,278
2034	213	-93	128	-57	-35	-33	-323	-77	-70	-551	-29	-59	-986
2035	-16	-133	64	-17	-43	-55	-326	-229	-67	-576	-27	-67	-1,491
2036	-67	-112	-56	-107	-75	-55	-333	-227	-69	-600	-28	-63	-1,793

Source: ABS Regional Population', forecasts Charter Keck Cramer

* Moreland arrivals and departures include movement across suburbs but within Moreland. Net migration reflects total net internal migration in and out of Moreland

Figure 51: Moreland internal arrivals and departures by SA2, 'Moderate Recovery' Scenario

Yr end June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland*
Internal Arrivals													
2017	3,027	1,894	1,410	2,295	879	817	971	1,626	621	2,112	234	480	16,366
2018	3,552	1,852	1,795	2,625	914	916	1,050	1,965	750	2,374	245	605	18,643
2019	3,688	1,880	1,797	2,795	857	898	1,149	1,859	710	2,267	249	582	18,731
2020	3,643	2,121	1,791	2,677	823	897	1,030	1,832	700	2,209	257	623	18,603
2021	3,001	2,023	2,005	3,330	830	823	1,029	1,785	668	2,178	226	591	18,489
2022	3,919	2,198	1,910	2,808	872	874	1,097	1,898	710	2,214	238	620	19,358
2023	3,412	1,664	1,784	2,931	931	857	1,224	1,998	780	2,444	239	678	18,942
2024	3,221	1,659	1,807	3,254	942	886	1,444	2,019	794	2,482	240	677	19,426
2025	3,249	1,706	1,832	2,946	996	882	1,431	2,079	811	2,524	241	700	19,397
2026	3,285	1,832	1,826	3,032	965	895	1,374	2,142	808	2,533	241	688	19,622
2027	3,381	1,917	1,854	3,098	974	946	1,381	2,117	800	2,542	242	695	19,946
2028	3,557	2,105	1,953	3,143	915	920	1,350	2,163	796	2,554	243	704	20,403
2029	3,657	2,221	2,036	3,155	1,064	1,031	1,336	1,976	792	2,563	244	695	20,772
2030	3,763	2,344	2,108	3,261	944	1,113	1,355	2,005	783	2,575	244	698	21,192
2031	3,972	2,179	2,184	3,374	987	1,170	1,308	2,060	776	2,587	245	701	21,543
2032	3,970	2,165	2,282	3,421	962	1,006	1,320	2,026	790	2,619	246	704	21,511
2033	4,186	2,144	2,387	3,563	971	1,018	1,373	2,159	802	2,648	246	705	22,202
2034	4,391	2,069	2,507	3,691	976	1,056	1,343	2,246	815	2,681	247	715	22,738
2035	4,268	2,043	2,519	3,826	996	1,048	1,355	2,109	827	2,699	247	713	22,650
2036	4,265	2,032	2,453	3,825	946	1,060	1,363	2,127	836	2,714	248	723	22,591
Internal Departures													
2017	3,100	1,474	1,628	2,613	752	718	1,168	1,527	583	2,313	234	510	16,620
2018	3,420	1,491	1,806	3,006	878	834	1,308	1,912	730	2,581	265	643	18,874
2019	3,680	1,781	1,849	3,022	895	895	1,309	1,961	749	2,670	281	577	19,669
2020	3,744	1,713	1,790	3,016	925	892	1,345	1,978	755	2,565	255	622	19,600
2021	3,591	1,755	1,833	2,904	878	871	1,334	1,947	751	2,676	264	607	19,410
2022	3,572	1,852	1,906	3,078	855	852	1,287	1,899	728	2,599	264	611	19,504
2023	3,520	1,844	1,894	3,036	857	855	1,276	1,897	725	2,570	260	622	19,357
2024	3,537	1,814	1,896	3,067	876	866	1,311	1,938	746	2,630	262	645	19,586
2025	3,643	1,847	1,969	3,216	912	908	1,417	2,038	779	2,739	269	674	20,410
2026	3,666	1,848	2,001	3,263	941	927	1,481	2,097	805	2,832	270	696	20,828
2027	3,767	1,911	2,028	3,322	961	944	1,530	2,158	827	2,913	273	712	21,347
2028	3,802	1,944	2,056	3,382	975	968	1,572	2,204	844	2,986	275	726	21,733
2029	3,862	2,005	2,097	3,439	978	981	1,604	2,249	856	3,050	278	740	22,140
2030	3,997	2,095	2,147	3,488	1,009	1,012	1,630	2,259	867	3,156	277	750	22,688
2031	4,059	2,171	2,199	3,547	1,008	1,052	1,656	2,273	875	3,200	277	760	23,078
2032	4,146	2,203	2,257	3,616	1,018	1,095	1,671	2,295	880	3,241	277	766	23,464
2033	4,216	2,225	2,319	3,680	1,021	1,102	1,687	2,308	888	3,282	279	773	23,780
2034	4,255	2,218	2,390	3,758	1,023	1,109	1,709	2,341	896	3,321	279	779	24,079
2035	4,377	2,220	2,468	3,844	1,028	1,122	1,724	2,384	905	3,362	277	787	24,497
2036	4,451	2,216	2,532	3,936	1,036	1,132	1,739	2,397	915	3,400	278	793	24,826
Net internal Migration													
2017	-73	420	-218	-318	127	99	-197	99	38	-201	0	-30	-254
2018	132	361	-11	-381	36	82	-258	53	20	-207	-20	-38	-231
2019	8	99	-52	-227	-38	3	-160	-102	-39	-403	-32	5	-938
2020	-101	408	1	-339	-102	5	-315	-145	-56	-356	2	1	-997
2021	-590	268	171	427	-47	-48	-304	-163	-83	-498	-38	-15	-921
2022	347	346	3	-270	17	22	-191	-1	-17	-385	-26	9	-146
2023	-108	-181	-110	-105	74	2	-52	102	55	-126	-21	56	-415
2024	-315	-155	-88	188	65	21	133	81	49	-148	-22	32	-160
2025	-393	-142	-137	-269	84	-26	14	41	31	-215	-28	26	-1,013
2026	-381	-16	-175	-231	24	-31	-107	44	2	-299	-29	-7	-1,206
2027	-387	6	-174	-224	13	2	-149	-42	-27	-371	-31	-18	-1,401
2028	-245	162	-103	-239	-60	-48	-222	-41	-47	-432	-32	-22	-1,330
2029	-205	217	-62	-284	86	50	-268	-273	-64	-487	-35	-45	-1,368
2030	-235	249	-40	-227	-65	101	-275	-254	-84	-582	-32	-53	-1,496
2031	-87	8	-15	-173	-21	118	-347	-213	-100	-613	-32	-59	-1,535
2032	-176	-38	26	-194	-56	-89	-351	-269	-89	-623	-31	-62	-1,953
2033	-30	-81	69	-118	-50	-84	-314	-149	-86	-634	-33	-68	-1,578
2034	135	-149	117	-67	-47	-53	-366	-95	-81	-640	-32	-65	-1,341
2035	-109	-177	51	-17	-32	-74	-369	-275	-78	-663	-30	-73	-1,847
2036	-186	-184	-80	-111	-90	-73	-376	-271	-79	-685	-30	-70	-2,235

Source: ABS Regional Population', forecasts Charter Keck Cramer

* Moreland arrivals and departures include movement across suburbs but within Moreland. Net migration reflects total net internal migration in and out of Moreland

Figure 52: Moreland internal arrivals and departures by SA2, 'Long Term Recovery' Scenario

Yr end June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland*
Internal Arrivals													
2017	3,027	1,894	1,410	2,295	879	817	971	1,626	621	2,112	234	480	16,366
2018	3,552	1,852	1,795	2,625	914	916	1,050	1,965	750	2,374	245	605	18,643
2019	3,688	1,880	1,797	2,795	857	898	1,149	1,859	710	2,267	249	582	18,731
2020	3,643	2,121	1,791	2,677	823	897	1,030	1,832	700	2,209	257	623	18,603
2021	3,001	2,023	2,005	3,330	830	823	1,029	1,785	668	2,178	226	591	18,489
2022	3,919	2,198	1,910	2,808	872	874	1,097	1,898	710	2,214	238	620	19,358
2023	3,412	1,664	1,784	2,931	931	857	1,224	1,998	780	2,444	239	678	18,942
2024	3,220	1,658	1,798	3,228	940	874	1,419	1,981	793	2,478	240	682	19,313
2025	3,241	1,676	1,821	2,941	983	880	1,405	2,038	808	2,515	241	697	19,247
2026	3,267	1,745	1,814	3,001	962	893	1,369	2,097	804	2,521	241	685	19,400
2027	3,297	1,812	1,832	3,104	970	955	1,357	2,077	796	2,526	242	690	19,658
2028	3,370	1,911	1,903	3,092	911	918	1,342	2,121	790	2,533	243	697	19,831
2029	3,409	1,969	1,963	3,100	1,027	989	1,328	1,933	785	2,537	243	695	19,977
2030	3,470	2,049	2,027	3,178	936	1,083	1,327	1,946	775	2,545	244	697	20,277
2031	3,609	1,945	2,096	3,260	971	1,123	1,299	2,011	768	2,551	245	699	20,577
2032	3,607	1,936	2,169	3,298	955	995	1,309	2,013	781	2,583	245	702	20,592
2033	3,725	1,923	2,246	3,457	963	1,005	1,326	2,086	790	2,606	246	703	21,076
2034	3,875	1,910	2,364	3,531	968	1,035	1,332	2,169	803	2,633	246	712	21,579
2035	3,809	1,878	2,356	3,632	982	1,034	1,344	2,084	814	2,654	247	712	21,544
2036	3,807	1,891	2,296	3,617	937	1,044	1,351	2,100	823	2,673	247	721	21,506
Internal Departures													
2017	3,100	1,474	1,628	2,613	752	718	1,168	1,527	583	2,313	234	510	16,620
2018	3,420	1,491	1,806	3,006	878	834	1,308	1,912	730	2,581	265	643	18,874
2019	3,680	1,781	1,849	3,022	895	895	1,309	1,961	749	2,670	281	577	19,669
2020	3,744	1,713	1,790	3,016	925	892	1,345	1,978	755	2,565	255	622	19,600
2021	3,591	1,755	1,833	2,904	878	871	1,334	1,947	751	2,676	264	607	19,410
2022	3,572	1,852	1,906	3,078	855	852	1,287	1,899	728	2,599	264	611	19,504
2023	3,518	1,844	1,894	3,035	857	855	1,276	1,896	725	2,569	260	622	19,350
2024	3,464	1,783	1,868	3,036	869	859	1,292	1,919	738	2,597	261	641	19,327
2025	3,373	1,774	1,878	3,123	889	875	1,350	1,957	757	2,657	262	661	19,558
2026	3,378	1,757	1,899	3,157	914	893	1,400	2,002	779	2,727	263	679	19,848
2027	3,460	1,794	1,919	3,202	932	908	1,442	2,053	797	2,791	266	694	20,259
2028	3,484	1,809	1,944	3,261	947	934	1,478	2,095	813	2,852	268	706	20,592
2029	3,528	1,844	1,982	3,313	951	948	1,512	2,138	825	2,911	272	719	20,944
2030	3,643	1,906	2,028	3,361	978	973	1,542	2,150	836	2,966	271	731	21,385
2031	3,686	1,954	2,075	3,414	979	1,011	1,567	2,164	845	3,016	271	741	21,722
2032	3,745	1,973	2,128	3,473	989	1,048	1,585	2,187	850	3,061	272	747	22,057
2033	3,792	1,987	2,181	3,527	994	1,058	1,603	2,206	858	3,106	274	755	22,340
2034	3,781	1,977	2,239	3,600	997	1,067	1,622	2,234	866	3,148	274	762	22,565
2035	3,864	1,985	2,306	3,672	1,002	1,080	1,640	2,272	874	3,189	272	769	22,924
2036	3,918	1,986	2,357	3,747	1,009	1,091	1,656	2,290	884	3,228	273	776	23,215
Net internal Migration													
2017	-73	420	-218	-318	127	99	-197	99	38	-201	0	-30	-254
2018	132	361	-11	-381	36	82	-258	53	20	-207	-20	-38	-231
2019	8	99	-52	-227	-38	3	-160	-102	-39	-403	-32	5	-938
2020	-101	408	1	-339	-102	5	-315	-145	-56	-356	2	1	-997
2021	-590	268	171	427	-47	-48	-304	-163	-83	-498	-38	-15	-921
2022	347	346	3	-270	17	22	-191	-1	-17	-385	-26	9	-146
2023	-107	-180	-110	-104	74	2	-51	102	55	-125	-21	56	-408
2024	-244	-125	-70	192	72	16	127	62	55	-119	-21	41	-14
2025	-132	-98	-57	-182	94	5	55	81	51	-142	-22	36	-311
2026	-111	-11	-85	-155	48	0	-31	95	25	-206	-22	5	-447
2027	-163	18	-88	-97	38	47	-86	24	-1	-264	-24	-3	-600
2028	-114	102	-41	-169	-37	-17	-136	26	-22	-319	-25	-9	-761
2029	-120	124	-19	-213	76	41	-184	-205	-39	-374	-29	-24	-967
2030	-173	142	-1	-183	-42	110	-215	-204	-61	-421	-27	-34	-1,108
2031	-77	-9	21	-154	-8	112	-268	-153	-77	-465	-27	-41	-1,145
2032	-138	-37	41	-174	-34	-54	-276	-174	-69	-478	-26	-45	-1,464
2033	-67	-64	66	-71	-30	-53	-277	-120	-68	-500	-28	-52	-1,264
2034	94	-67	125	-68	-29	-32	-290	-65	-63	-514	-27	-50	-986
2035	-55	-107	50	-40	-20	-46	-296	-188	-61	-535	-25	-58	-1,380
2036	-111	-95	-62	-130	-72	-47	-306	-190	-61	-555	-26	-55	-1,709

Source: ABS Regional Population', forecasts Charter Keck Cramer

* Moreland arrivals and departures include movement across suburbs but within Moreland. Net migration reflects total net internal migration in and out of Moreland

5.3. Fertility Rate Scenarios and Assumptions

5.3.1. Victorian Fertility Rates Scenarios

Charter's fertility forecast for Victoria forms the basis of forecasting the trend in fertility rates for City of Moreland and its component suburbs. Notably, the total fertility rate (TFR) for females in Victoria has consistently been lower than that of total Australia.

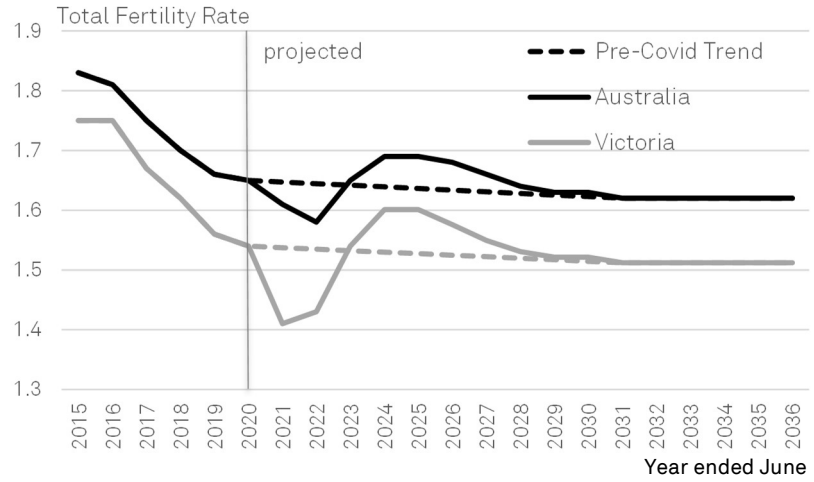
'National, state and territory population', published by the ABS, indicates that the TFR for Victoria was 1.54 in 2019/20, compared to the national TFR of 1.65. Victoria's TFR has been similarly proportionately lower than Australia's TFR over time, although the gap has widened slightly over the past two years.

Victorian fertility rates look to have had a bigger setback that that envisaged by the 'likely COVID' projections in the publication *McDonald, P 2020, 'A Projection of Australia's Future Fertility Rates', Centre for Population*. However, it also appears that Australia's success in managing the pandemic means that the economic fallout is likely to be less pronounced than originally envisaged as well. This suggests a potential earlier and stronger rebound in fertility rates than what this study originally forecast for Victoria.

Charter estimates that Victoria will have experienced an 8% decline in its TFR in 2020/21, which assumes that the current trend decline in number of registered births carries through to June 2021. However, instead of a further decline in the TFR in 2021/22, a slight pick-up is forecast. This reflects the expected more positive economic outlook, although fertility is likely to still remain weaker than pre COVID-19 levels due to continued uncertainty resulting from periodic outbreaks and state-based border closures impacting pregnancies and births into that year.

For the 'COVID-shift' scenario Charter predicts that Victoria's TFR will recover to 2019/20 levels in 2022/23 as the effects of the immunisation program (both locally and internationally in a number of countries) see borders begin to reopen, broader economic activity picks up and the unemployment rate decrease further. Households that have delayed having children are expected to temporarily take fertility rates back up over 2019/20 levels, before steadily lowering back to the long-term forecast of 1.51 by the end of the decade, which is derived from Victoria's current TFR relative to the national TFR and the national forecast in 'A Projection of Australia's Future Fertility Rates'. Charter's fertility rate scenarios for Victoria are shown below.

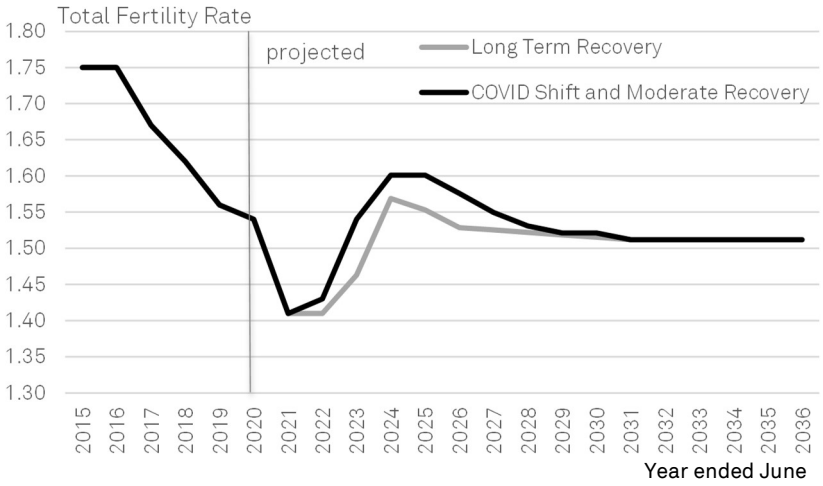
Figure 53 Forecast total fertility rates, Victoria and Australia – COVID-shift scenario



Source: ABS '*National state and territory population*', McDonald, P 2020, 'A Projection of Australia's Future Fertility Rates', Centre for Population Research Paper, The Australian Government, Canberra. Charter Keck Cramer Forecasts

For the state-level scenarios, Charter has assumed the 'Moderate Recovery' scenario is the same as its 'COVID-19 Shift' scenario, while the 'Long Term Recovery' scenario assumes a prolonged period of lower birth rates and less 'bounce back' before fertility rates gradually return to the long-term trend by the end of the decade.

Figure 54: Forecast total fertility rate scenarios, Victoria

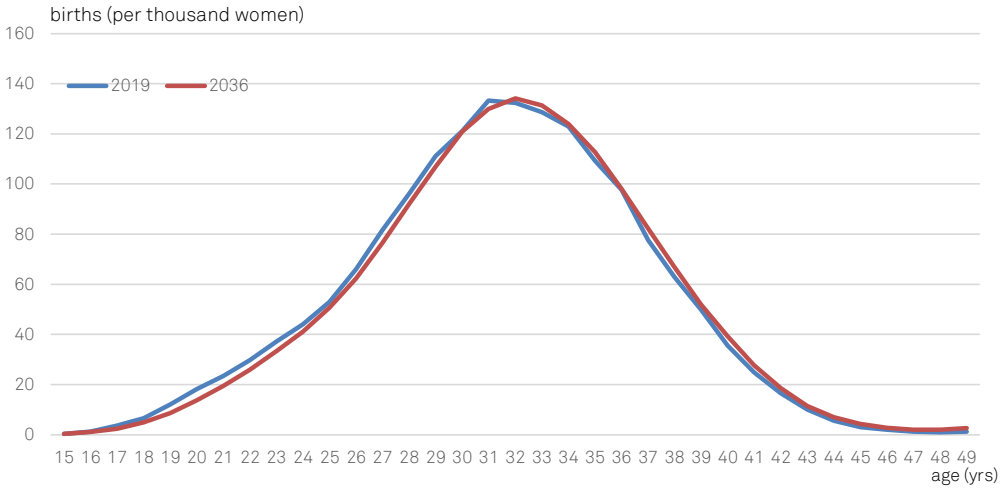


Source: ABS '*National state and territory population*', Charter Keck Cramer Forecasts

With the average age of females at birth increasing over time, the age profile of mothers has been steadily (albeit slowly) increasing. This has been accounted for in Charter's forecasts to 2036. In forecasting the shift in the age profile of mothers, Charter has used the age-specific fertility rates underpinning the medium assumption of population projections in the ABS 'Population Projections, Australia, 2017 (base) - 2066' publication as a benchmark, with each of the SA2 age specific fertility rates scaled accordingly.

The chart below shows at the Victorian level the shift in the age profile of mothers at birth in 2019 and 2036 as a guide to the magnitude of change across the Moreland SA2s.

Figure 55: Age-specific Fertility Rates, Victoria, 2019 and 2036



Source: Charter Keck Cramer based on ABS '*Births, Australia'* and *'Population Projections, Australia, 2017 (Base) - 2016*

5.3.2. Moreland Fertility Rate Scenarios

At this stage there has been little reliable births data provided below the state level since the onset of the COVID-19 pandemic. Consequently, TFRs for each of the suburbs in the three future post COVID-19 scenarios are made with reference to the future scenarios outlined for Victoria above

Specifically, Charter has scaled the TFRs for each of the Moreland SA2s to that of the forecast for Victoria, with a reduction in fertility rate expected in the short term as households delay having children, followed by a 'catch up' of higher fertility in subsequent years, before easing again to a long term trend.

TFRs for each suburb increase or decrease proportionately with that of the year to year change expected for Victoria relative to the corresponding post COVID-19 scenario.

The same TFRs underpin the fertility assumptions in the COVID-19 Shift and Moderate Recovery scenarios, while under the Long Term Recovery scenario, the TFR is assumed to be lower for longer before reaching the same long term trend as the other scenarios by the end of the decade.

Note that in preparing the population projections, Charter applied the TFR for Brunswick East for the entire Brunswick East region that includes the small part of North Fitzroy. Charter has also used the same Pascoe Vale SA2 TFR for both of its component suburbs that are forecast – Pascoe Vale and Oak Park.

It will be important to continue to monitor timely data to measure the COVID-19 impacts (as outlined in Section 7).

Figure 56: Charter estimated Total Fertility Rates, births per adult female, Moreland SA2s, COVID-19 Shift and Moderate Recovery Scenarios

Y/E June	Moreland	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Glenroy	Gowanbrae	Hadfield	VIC
2017	1.41	0.90	0.78	1.09	1.40	1.73	1.93	2.37	1.83	2.03	2.09	2.30	1.67
2018	1.39	0.87	0.74	0.98	1.33	1.62	1.86	2.35	1.84	2.16	2.13	2.36	1.62
2019	1.31	0.83	0.66	0.92	1.25	1.51	1.66	2.31	1.73	2.10	2.28	2.41	1.56
2020	1.30	0.82	0.65	0.91	1.24	1.50	1.65	2.29	1.72	2.07	2.26	2.39	1.54
Forecast													
2021		0.75	0.59	0.83	1.13	1.37	1.51	2.10	1.57	1.57	1.90	2.06	1.41
2022		0.76	0.60	0.84	1.15	1.39	1.53	2.13	1.59	1.59	1.93	2.09	1.43
2023		0.82	0.65	0.91	1.24	1.50	1.65	2.29	1.72	1.72	2.07	2.26	1.54
2024		0.85	0.67	0.94	1.29	1.56	1.71	2.38	1.78	1.78	2.16	2.34	1.60
2025		0.85	0.67	0.94	1.29	1.56	1.71	2.38	1.78	1.78	2.16	2.34	1.60
2026		0.84	0.66	0.93	1.27	1.53	1.68	2.34	1.76	1.76	2.12	2.31	1.58
2027		0.82	0.65	0.91	1.25	1.51	1.66	2.30	1.73	1.73	2.09	2.27	1.55
2028		0.81	0.65	0.90	1.23	1.49	1.64	2.28	1.71	1.71	2.06	2.24	1.53
2029		0.81	0.64	0.90	1.22	1.48	1.63	2.26	1.70	1.70	2.05	2.23	1.52
2030		0.81	0.64	0.90	1.22	1.48	1.63	2.26	1.70	1.70	2.05	2.23	1.52
2031		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2032		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2033		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2034		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2035		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2036		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51

Source: Charter Keck Cramer based on ABS '*Births, Australia' and 'Population Projections, Australia, 2017 (Base) - 2016, Series B assumptions*

Figure 57: Charter estimated Total Fertility Rates, births per adult female, Moreland SA2s, Long Term Recovery Scenarios

Y/E June	Moreland	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Glenroy	Gowanbrae	Hadfield	VIC
2017	1.41	0.90	0.78	1.09	1.40	1.73	1.93	2.37	1.83	2.03	2.09	2.30	1.67
2018	1.39	0.87	0.74	0.98	1.33	1.62	1.86	2.35	1.84	2.16	2.13	2.36	1.62
2019	1.31	0.83	0.66	0.92	1.25	1.51	1.66	2.31	1.73	2.10	2.28	2.41	1.56
2020	1.30	0.82	0.65	0.91	1.24	1.50	1.65	2.29	1.72	2.07	2.26	2.39	1.54
Forecast													
2021		0.75	0.59	0.83	1.13	1.37	1.51	2.10	1.57	1.57	1.90	2.06	1.41
2022		0.75	0.59	0.83	1.13	1.37	1.51	2.10	1.57	1.57	1.90	2.06	1.41
2023		0.78	0.62	0.86	1.18	1.42	1.56	2.18	1.63	1.63	1.97	2.14	1.46
2024		0.83	0.66	0.93	1.26	1.53	1.68	2.33	1.75	1.75	2.11	2.30	1.57
2025		0.82	0.65	0.92	1.25	1.51	1.66	2.31	1.73	1.73	2.09	2.27	1.55
2026		0.81	0.64	0.90	1.23	1.49	1.63	2.27	1.70	1.70	2.06	2.24	1.53
2027		0.81	0.64	0.90	1.23	1.48	1.63	2.27	1.70	1.70	2.05	2.23	1.53
2028		0.81	0.64	0.90	1.22	1.48	1.63	2.26	1.70	1.70	2.05	2.23	1.52
2029		0.81	0.64	0.90	1.22	1.48	1.62	2.26	1.69	1.69	2.04	2.22	1.52
2030		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.69	1.69	2.04	2.22	1.52
2031		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2032		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2033		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2034		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2035		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51
2036		0.80	0.64	0.89	1.22	1.47	1.62	2.25	1.68	1.68	2.04	2.21	1.51

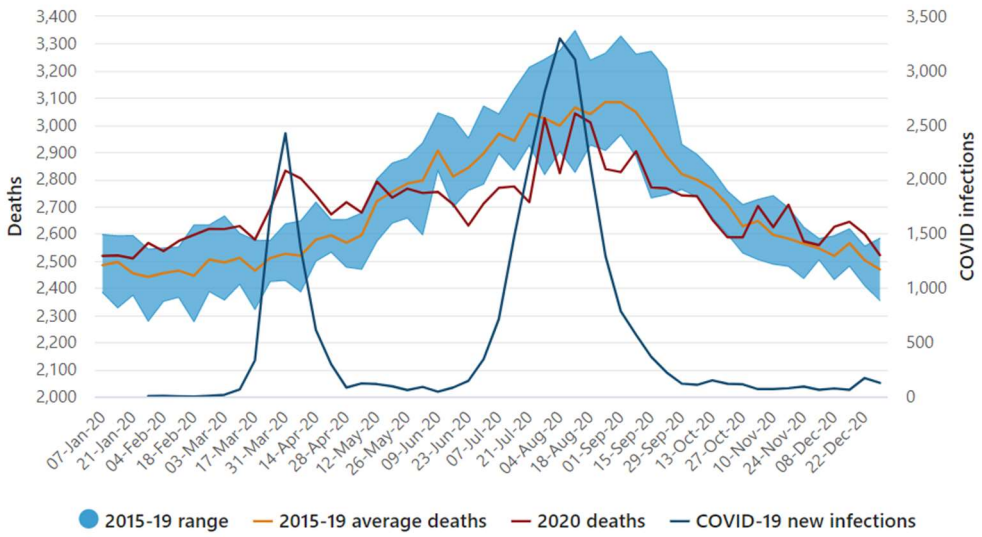
Source: Charter Keck Cramer based on ABS '*Births, Australia' and 'Population Projections, Australia, 2017 (Base) - 2016, Series B assumptions*

5.4. Mortality Scenarios and Assumptions

5.4.1. Australian Mortality Rate

Deaths nationwide through 2020 have largely been in line with the average over the past five years. Provisional mortality data provided by the Australian Bureau of Statistics suggests that the number of deaths in 2020 have largely fallen within the range of the prior five years (see chart below). This reflects Australia's success in managing the COVID-19 pandemic and the limited impact that it has had on Australia's mortality overall.

Figure 58: Doctor certified deaths, COVID-19 infections, Australia, 1 Jan–29 Dec 2020 vs 2015-2019 benchmarks



Source: ABS – '*Provisional Mortality Statistics*'

5.4.2. Moreland Mortality Rate Assumptions

Based on national data above, the mortality rates used for forecasting post COVID-19 deaths in Moreland have not had any adjustments made resulting from to the COVID-19 pandemic and are benchmarked against the age-specific mortality rates and life expectancies provided by the ABS in its 'Series B' (medium) mortality assumptions for Victoria in its 2018 release of 'Population Projections, Australia'. This includes consideration that mortality rates have been declining over time and life expectancy has been increasing.

Given the unforeseen nature of any influences that may significantly affect mortality rates overall, Charter has also only used a single scenario for mortality rates to apply to the Moreland population forecasts.

Note that in preparing the population projections, Charter applied the age specific mortality rates for Brunswick East SA2 for the entire Brunswick East region that includes the small part of North Fitzroy. Charter has also used the same Pascoe Vale SA2 mortality rate for both of its component suburbs that are forecast – Pascoe Vale and Oak Park.

Charter notes that there were 45 COVID-related deaths at St Basils aged care home in Fawkner through Victoria's second wave of COVID-19 in 2020. These will fall into 2021 financial year deaths and represent just over a third of the average annual 132 deaths for the suburb over the four years to 2020. Given that Charter does not have any details of the age of death to apply to the population, and the 'one off' nature of the increase and its limited impact relative to total population of Moreland, deaths for 2021 have not been adjusted to build in the St Basils fatalities.

Figure 59: Charter estimated Standardised Death Rates, deaths per 1,000 persons, Moreland SA2s

Y/E June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	VIC
2018	5.6	3.4	4.7	4.3	4.5	5.4	5.3	4.2	4.3	6.8	6.5	4.1	5.3
2019	5.5	3.5	4.8	4.2	4.5	5.3	5.0	4.1	4.1	6.8	3.7	3.9	5.2
2020	5.4	3.5	4.6	4.2	4.4	5.3	5.0	4.1	4.1	6.7	3.6	3.9	5.2
Forecast													
2021	5.4	3.4	4.6	4.1	4.3	5.2	5.0	4.1	4.1	6.6	3.7	3.9	5.1
2022	5.3	3.4	4.6	4.1	4.3	5.2	4.9	4.0	4.1	6.6	3.6	3.8	5.1
2023	5.3	3.4	4.5	4.1	4.2	5.2	4.9	4.0	4.0	6.5	3.6	3.8	5.1
2024	5.2	3.4	4.5	4.0	4.2	5.1	4.8	4.0	4.0	6.5	3.6	3.8	5.0
2025	5.2	3.3	4.5	4.0	4.2	5.1	4.8	4.0	4.0	6.4	3.6	3.8	5.0
2026	5.2	3.3	4.5	4.0	4.2	5.1	4.8	3.9	4.0	6.4	3.6	3.7	5.0
2027	5.2	3.3	4.4	4.0	4.2	5.1	4.8	3.9	3.9	6.4	3.6	3.7	4.9
2028	5.1	3.3	4.4	4.0	4.1	5.0	4.7	3.9	3.9	6.3	3.6	3.7	4.9
2029	5.1	3.3	4.4	3.9	4.1	5.0	4.7	3.9	3.9	6.3	3.5	3.7	4.9
2030	5.1	3.3	4.4	3.9	4.1	5.0	4.7	3.9	3.9	6.3	3.5	3.7	4.9
2031	5.1	3.3	4.4	3.9	4.1	5.0	4.7	3.9	3.9	6.3	3.5	3.7	4.9
2032	5.1	3.3	4.4	3.9	4.1	5.0	4.7	3.9	3.9	6.3	3.5	3.7	4.8
2033	5.1	3.2	4.3	3.9	4.1	5.0	4.7	3.8	3.9	6.2	3.5	3.7	4.8
2034	5.0	3.2	4.3	3.9	4.1	4.9	4.7	3.8	3.8	6.2	3.5	3.7	4.8
2035	5.0	3.2	4.3	3.9	4.0	4.9	4.6	3.8	3.8	6.2	3.5	3.6	4.8
2036	5.0	3.2	4.3	3.9	4.0	4.9	4.6	3.8	3.8	6.2	3.5	3.6	4.8

Source: Charter Keck Cramer based on ABS '*Deaths, Australia' and 'Population Projections, Australia, 2017 (Base) – 2016, Series B assumptions*

5.5. Household Formation Assumptions

Household forecasts are derived from a combination of the population growth forecasts and relevant 'household formation' assumptions derived from Census data.

In forecasting households, Charter has applied a 'propensity' model.

- The model firstly looks at the number of 'household reference persons' (who are, broadly speaking, the household head) by five year age cohort relative to the total population in those age cohorts. The 'household reference person ratio' indicates the propensity of the population in each cohort to be in separate households.
- Household reference persons within each age cohort are then further analysed by their household type. The analysis derives a ratio for different household types (i.e. lone persons, couples with children, etc) to total households headed by household reference persons within each age cohort. The ratio indicates the propensity for households headed by household reference persons in each age cohort to be in different household types.

These 'propensity rates' are then projected forward and applied to the forecast population in each age cohort to estimate the number of households and then type of household.

The household reference persons in each age cohort has been determined by cross tabulating 2016 and 2011 Census data across each age cohort, which is further cross-tabulated by household type.

As the Census does not capture all households (a certain percentage of households do not provide a response or may not adequately answer questions), adjustments are also made to ensure that the number of households line up with the number of occupied dwellings.

Analysis of the propensity rates was undertaken for both the 2011 and 2016 Censuses, to determine any potential changes that may have occurred over time. Charter has assumed that propensity rates will remain relatively steady at 2016 levels in most instances, unless the change in estimated propensity rates between 2011 and 2016 was of a magnitude that suggested that a different rate should be projected forward.

The aggregate effect is shown in the table below, which compares average household size estimated at the 2016 Census and change forecast over time based on changes to household ratios and the age profile. Moreland's average household size is expected to decline slightly over 2016 to 2036, with modest declines also felt across all suburbs, except for Coburg North, Fawkner, Pascoe Vale, and Hadfield.

Note; the same household formation rates/propensities have been applied across all post COVID-19 scenarios. However, as the total population will vary, this will result in a different number of households under each scenario.

A number of factors are at play that result in the changing household size over time. The largest factor is the ageing of the population, which results in more single person households in the oldest age cohorts, thereby bringing the overall average household size down. However, depending on the level of in-migration and the composition of that migration, there may be a corresponding upward impact on average household sizes if, for example, families with children were moving in at a significant rate.

Given the lack of timely data to provide any evidence of changes, Charter has not factored in any COVID-19 impacts to household sizes. A detailed assessment of household trends, particularly at the smaller geographic level, can only be made through an analysis of Census data, with little reliable information available below the state level. Many COVID-related changes are in any event likely to be temporary with average household sizes likely to return to trend over the medium to longer term. It will be important to check household formation and propensity assumptions after data from the next population Census (2021) becomes available (see Section 7).

Figure 60: Average Household Size, Moreland Suburbs

	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland
2016	2.28	2.17	2.24	2.61	2.81	2.64	3.02	2.48	2.69	2.72	2.70	2.58	2.52
2017	2.28	2.16	2.23	2.59	2.81	2.66	3.01	2.50	2.71	2.72	2.68	2.55	2.52
2018	2.27	2.16	2.21	2.59	2.81	2.67	3.02	2.50	2.71	2.70	2.68	2.55	2.51
2019	2.25	2.15	2.20	2.59	2.81	2.68	3.01	2.49	2.70	2.69	2.67	2.58	2.50
2020	2.27	2.17	2.22	2.61	2.81	2.72	3.00	2.50	2.70	2.68	2.67	2.58	2.51
2021	2.27	2.18	2.23	2.61	2.80	2.74	2.96	2.50	2.70	2.65	2.66	2.58	2.51
2022	2.24	2.15	2.20	2.58	2.80	2.72	2.95	2.50	2.69	2.64	2.65	2.58	2.49
2023	2.21	2.11	2.17	2.55	2.80	2.70	2.96	2.50	2.69	2.64	2.65	2.59	2.47
2024	2.21	2.11	2.17	2.56	2.81	2.71	2.99	2.51	2.69	2.65	2.65	2.61	2.48
2025	2.20	2.10	2.17	2.56	2.82	2.72	3.02	2.51	2.69	2.66	2.65	2.62	2.48
2026	2.20	2.10	2.17	2.57	2.82	2.73	3.04	2.51	2.69	2.67	2.65	2.63	2.49
2027	2.20	2.10	2.16	2.57	2.81	2.74	3.05	2.52	2.69	2.68	2.65	2.64	2.49
2028	2.20	2.09	2.16	2.57	2.81	2.75	3.06	2.52	2.69	2.68	2.65	2.65	2.49
2029	2.19	2.09	2.16	2.57	2.81	2.76	3.07	2.52	2.69	2.69	2.64	2.65	2.49
2030	2.19	2.09	2.16	2.57	2.81	2.76	3.08	2.52	2.69	2.69	2.63	2.65	2.49
2031	2.19	2.08	2.15	2.57	2.80	2.77	3.08	2.52	2.68	2.69	2.62	2.65	2.48
2032	2.18	2.07	2.15	2.57	2.80	2.77	3.08	2.51	2.67	2.69	2.62	2.65	2.48
2033	2.18	2.07	2.15	2.57	2.80	2.77	3.08	2.51	2.66	2.69	2.62	2.65	2.48
2034	2.18	2.06	2.15	2.57	2.79	2.77	3.08	2.51	2.66	2.69	2.62	2.65	2.48
2035	2.18	2.06	2.15	2.57	2.79	2.78	3.08	2.50	2.65	2.69	2.63	2.65	2.47
2036	2.17	2.05	2.15	2.57	2.79	2.78	3.08	2.50	2.64	2.69	2.64	2.65	2.47
Change 2016-2036	-0.11	-0.11	-0.09	-0.04	-0.02	0.14	0.06	0.02	-0.05	-0.03	-0.07	0.07	-0.05

Source: Charter Keck Cramer based on ABS Census 2016 and '*Regional Population Age and Sex*'

5.6. Housing Capacity Assumptions

Housing capacity refers to the potential to supply dwellings at a sufficient level to accommodate the rate of expected population and household growth. Housing capacity is considered both in terms of:

- the pace that development can happen (for example, large apartment building first required pre-sales and then construction needs to take place, so it may take some time); and
- the quantity of development that can take place (for example, where a rezoning may allow increased development, or conversely the progressive absorption of sites means fewer dwellings can be built).

The ability to house additional population in a timely manner and in sufficient quantities will also play a part in determining population growth at the geographic level.

In preparing the housing supply forecast, two classifications of future land supply are identified: 'Residential Infill' and 'High Density'. These classifications are based on the assessment of potential total dwelling capacity:

- Residential Infill supply is based on dwellings that are expected to be built on land located in the various Residential zones (which will be typically less than ten dwellings – but not always), Residential Infill refers to all potential development sites in Moreland that are zoned residential (Neighbourhood, General or Residential Growth).
- High Density supply will typically be multi-storey developments and refers to all identified potential development sites in Moreland located within a Commercial 1, Activity Centre or Mixed-Use Zone.

These definitions differ slightly from the historical analysis in Section 4 in which Low-Medium Density has been more clearly and strictly defined as dwellings in developments of less than 10 dwellings and High Density as dwellings in developments of 10 or more dwellings.

In establishing the potential to accommodate the forecast population scenarios at the suburb level across Moreland, it is imperative to determine what, if any constraints there are to delivering the required dwelling supply. Unless the supply conditions are able to support the number of dwellings forecast, the expected future population growth will not be able to be accommodated.

In understanding Moreland's ability to accommodate the population growth forecast, consideration has been given to two key factors: land supply capacity (described in the sub-sections sections below) and residential housing market conditions (see next Section).

5.6.1. Residential Infill Capacity in Moreland from 2021

In establishing the potential capacity of infill sites, a review of historic patterns of development by site area and average project size over the past five years has been undertaken. The results of this have been applied to inform future dwelling yield and overall capacity based on site area and zone.

The review involved the following:

- Matching the dwelling development data in Section 4 (from a combination of HDD, VBA and Charter data) to individual sites.
- Dividing development projects by site size ranges: 200-499 square metres, 500-999 sqm , 1,000-2,500 sqm and 2,500+ sqm.
- Calculating the average dwelling yield (in terms of net additional dwellings) for each site size range by suburb and zone.

The average yield was applied to all residential zoned land within each size range to estimate the total potential yield (infill capacity) across suitable residential sites.

Figure 61: Infill development capacity, Residential Zones, Moreland Suburbs

		Land Supply & Ave Dw No. Sites												
	SA2	200-499	Av Dw	Total	500-999	Av Dw	Total	1000-2500	Av Dw	Total	2500+	Av Dw	Total	Grand Total
General Res	Brunswick	65	3	195	37	6	222	4	15	60	2	35	70	547
	Brunswick East	14	3	42	10	6	60	-	18	0	-	26	0	102
	Brunswick West	43	3	129	13	4	52	5	13	65	1	40	40	286
	Coburg	308	2	616	28	3	84	5	13	65	29	40	1160	1,925
	Coburg North	80	2	160	27	3	81	7	8	56	12	30	360	657
	Fawkner	60	2	120	42	3	126	8	4	32	7	15	105	383
	Glenroy	205	2	410	37	3	111	9	6	54	5	25	125	700
	Gowanbrae	-	-		-	-		-	-		-	-	0	0
	Hadfield	51	2	102	20	3	60	2	4	8	2	15	30	200
	Pascoe Vale	297	3	891	93	4	372	28	4	112	5	-	0	1,375
	Pascoe Vale South	82	2	164	25	3	75	2	4	8	3	25	75	322
Total Zone Capacity				**2,829**			**1,243**			**460**			**1,965**	**6,497**
Res Growth	Brunswick	8	15	120	4	25	100	1	40	40	1	60	60	320
	Brunswick East	8	15	120	6	25	150	5	40	200	3	60	180	650
	Brunswick West	23	15	345	6	20	120	5	30	150	1	50	50	665
	Coburg	2	12	24	5	15	75	3	20	60	-	0	0	159
	Coburg North	1	8	8	13	12	156	-	0	0	1	25	25	189
	Fawkner	3	6	18	7	10	70	-	0	0	-	0	0	88
	Glenroy	19	10	190	28	15	420	34	20	680	2	40	80	1,370
	Gowanbrae	-	0	0	-	0	0	-	0	0	-	0	0	0
	Hadfield	6	6	36	4	10	40	-	0	0	-	0	0	76
	Pascoe Vale	50	10	500	24	15	360	-	0	0	1	40	40	900
	Pascoe Vale South	8	6	48	1	10	10	1	20	20	2	30	60	138
Total Zone Capacity				**1409**			**1501**			**1150**			**495**	**4,555**
		200-499	**Av Dw**	**Total**	**500-999**	**Av Dw**	**Total**	**1000-2500**	**Av Dw**	**Total**	**2500+**	**Av Dw**	**Total**	
Neighbourhood Res	Brunswick	199	1	199	42	4	84	18	15	270	3	20	60	613
	Brunswick East	98	1	98	25	4	**50**	**1**	**15**	**15**	**2**	**20**	**40**	**203**
	Brunswick West	126	1	126	60	3	**120**	**23**	**8**	**184**	**2**	**18**	**36**	**466**
	Coburg	256	1	256	68	3	136	15	6	90	6	15	90	572
	Coburg North	39	1	39	8	3	16	5	6	30	2	12	24	109
	Fawkner	89	1	89	42	2	84	28	6	178	60	10	600	951
	Glenroy	**304**	**1**	**304**	**89**	**2**	**178**	**9**	**6**	**54**	**11**	**15**	**165**	**701**
	Gowanbrae	51	1	51	22	2	44	6	6	36	5	8	40	171
	Hadfield	42	1	42	9	2	18	2	6	12	1	10	10	82
	Pascoe Vale	**380**	**1**	**380**	**147**	**2**	**294**	**58**	**6**	**348**	**50**	**15**	**750**	**1,772**
	Pascoe Vale South	160	1	160	27	2	54	20	6	120	-	0	0	334
Total Zone Capacity				**1744**			**1078**			**1337**			**1815**	**5,974**
Total Residential Zone Capacity				**5,982**			**3,822**			**2,947**			**4,275**	**17,026**

Source: Charter Keck Cramer based on Charter Keck Cramer Proprietary Database, VBA *Building Permit Activity Data*, and DELWP '*Urban Development Program'*

Based on the above-outlined methodology, the following table outlines the potential future supply for residential infill development across each of Moreland's SA2s. Overall, Charter estimates that undeveloped residential zoned land that offers potential for infill development within Moreland is able to accommodate approximately 17,000 additional infill dwellings. Pascoe Vale (3,034), Glenroy (2,771) and Coburg (2,656) have the greatest estimated capacity to accommodate future residential infill growth.

Figure 62 Residential Infill: Potential Future Supply

Suburb/SA2	Dwelling capacity (dwellings)
Brunswick	1,480
Brunswick East	955
Brunswick West	1,417
Coburg	2,656
Pascoe Vale South	794
Coburg North	955
Fawkner	1,422
Pascoe Vale	3,034
Oak Park	1,013
Glenroy	2,771
Gowanbrae	171
Hadfield	358
Moreland	17,026

Source: Charter Keck Cramer based on Charter Keck Cramer Proprietary Database, VBA *Building Permit Activity Data*, and DELWP '*Urban Development Program'*

5.6.2. High Density Housing Capacity of Moreland from 2021

In assessing supply capacity for high density residential dwellings, Charter has adopted a similar methodology to that undertaken for infill capacity. This involved undertaking an assessment of the number of sites in each of the commercial and other zones that allow for development of residential dwellings. These have been split into various size ranges and using previous supply derived from the HDD and Charter's database (see Section 4.1), an average project size (by number of apartments) has been derived for each site to determine additional dwelling potential.

In establishing the potential capacity of these sites, a review of historic patterns of development by site area and average project size over the last five years has been undertaken. The results of this have been applied to inform future dwelling yield and overall capacity based on site area and zone and are shown below for Commercial zoned land.

Figure 63: High Density development capacity, Commercial Zones, Moreland Suburbs

		Land Supply & Ave Dw No. Sites												
	SA2	200-499	Av Dw	Total	500-999	Av Dw	Total	1000-2500	Av Dw	Total	2500+	Av Dw	Total	Grand Total
Commercial	Brunswick	459	20	9,180	190	40	7,600	85	60	5,100	11	150	1,650	23,530
	Brunswick East	64	20	1,280	34	40	1,360	7	60	420	3	150	450	3,510
	Brunswick West	28	15	420	24	25	600	3	40	120	17	125	2,125	3,265
	Coburg	32	10	320	11	20	220	5	30	150	1	125	125	815
	Coburg North	35	2	70	9	5	45	5	10	50	-	0	0	165
	Fawkner	35	1	35	10	3	30	1	8	8	1	20	20	93
	Glenroy	124	10	1,240	26	15	390	51	25	1,275	5	50	250	3,155
	Gowanbrae	-	0	0	-	0	0	0	0	0	-	0	0	0
	Hadfield	23	4	92	7	6	42	9	8	72	1	20	20	226
	Pascoe Vale	93	10	930	8	15	120	3	25	75	1	50	50	1,175
	Pascoe Vale South	44	5	220	9	10	90	4	20	80	-	0	0	390
Total Zone Capacity				13,787			10,497			7,350			4,690	36,324

Source: Charter Keck Cramer based on Charter Keck Cramer Proprietary Database, VBA *Building Permit Activity Data*, and DELWP '*Urban Development Program'*

In total, Charter estimates that Commercial zone land in Moreland contains a capacity for 36,324 high density dwellings. In addition, Charter estimates a further capacity of 5,074 dwellings in other zones, including Activity Centre and Multi Use zones. In total, more than 41,000 potential future dwellings have been identified. This provides an indication of the total high-density dwelling capacity of land in Moreland. Charter considers that Brunswick has a significantly larger potential development capacity than other suburbs in Moreland, on the basis of both the higher number of non-residential zoned sites that facilitate apartment development and the higher density development that is assumed (based on historical activity) to be able to be achieved on each site.

Figure 64: High Density – Potential Future Supply

Suburb/SA2	Dwelling capacity (dwellings)
Brunswick	25,358
Brunswick East	4,769
Brunswick West	3,265
Coburg	2,684
Pascoe Vale South	390
Coburg North	283
Fawkner	93
Pascoe Vale	1,175
Oak Park	0
Glenroy	3,155
Gowanbrae	0
Hadfield	226
Moreland	41,398

Source: Charter Keck Cramer based on Charter Keck Cramer Proprietary Database, VBA *Building Permit Activity Data*, and DELWP '*Urban Development Program'*

5.7. Residential Housing Market assumptions

Assumptions on Moreland's housing market and its outlook are one of the factors governing new dwelling supply, which in turn is an input into the population forecasts as a potential enabling/constraining factor.

Charter Keck Cramer's market outlook for Moreland is drawn from an analysis of available data sources, as well as insights gathered over years of operation in the property market.

In summary, Charter's market outlook for Moreland comprises of the following underlying assessment and assumptions:

- With negative net overseas migration, a current oversupply is expected to continue to rise and peak in 2021/22.
- Modest rental growth is then expected to resume and accelerate as the market moves back to balance (i.e. oversupply reduces) toward 2025-2026.
- Broadly speaking, investors are expected to remain in retreat until the fundamentals of the rental market improves (i.e. around 2025-2026).
- The timing of recovery in the 'build to sell' market will be influenced by the timing of recovery in net overseas migration and population growth, both of which vary between the post COVID-19 scenarios and will in turn will influence the rate of absorption of excess stock.

5.7.1. Demand and Supply

Charter Keck Cramer regularly undertakes a demand and supply analysis of the Melbourne residential market, to help inform its assessment of the dwelling balance (oversupply or undersupply) and future residential market outlook.

Charter's demand and supply analysis is based on various population drivers and construction data as well as its experience in the housing market. Broadly speaking, in a conducive economic environment, a dwelling undersupply is typically reflected in tight vacancy rates, rising rents and prices, as well as in new dwelling construction. Conversely, an oversupply would normally result in rising vacancy rates and impacts to rents, prices and new dwelling activity.

Specifically, to analyse and assess housing **demand** Charter incorporates the following:

- **Historical and forecast population growth** by age cohort, which is translated to new households using age-specific household formation rates (see Section 5.5).
- **An allowance for dwelling demolitions and unoccupied dwellings,** whereby demolitions remove dwellings from the total stock, necessitating a replacement. Within the dwelling stock there are also a level of unoccupied dwellings, whether vacant and available for rent or sale, or being held by an owner living elsewhere (such as a holiday home).
- **Calculation of an annual 'underlying' requirement for new dwellings**, ultimately the sum of annual household growth, demolitions and change in unoccupied dwellings. This can also be defined as 'equilibrium' demand or the effectively the number of dwellings that would be required to be built in 'normal' circumstances. This 'underlying demand' is compared against historical supply (dwelling completions) to determine the prevailing dwelling balance.

To forecast new housing **supply** Charter incorporates the following factors;

- Forecast underlying demand and the prevailing dwelling balance and construction pipeline;
- The expected economic and employment outlooks; and
- The performance through previous cycles in the residential market.

Over the long run, Charter assumes that underlying demand and supply should more or less balance out. However, there will be imbalances at various times based on the timing of market cycles, economic conditions and market confidence and sentiment. There may also be an aggregate oversupply while segments of the market are in deficiency or vice versa.

5.7.2. Victorian Housing Market

The following section provides a summary based on Charter's housing market analysis, including demand and supply, at the State-level (Victoria).

With net overseas and interstate migration expected to be negative in 2021, Victoria's population growth is expected to fall steeply from its peak of 151,000 in FY2016 to approximately 15,000 in FY2021. Charter expects that while population growth is falling, household formation will continue to occur, and underlying demand is expected to decline from a peak of 57,000 new dwellings in FY2017 to an estimated 30,000 new dwellings in FY2021.

Note that as well as population growth, Charter considers there to be broader changes within the population occurring that will influence demand for new dwellings, including the age profile and the various life stages of households within the population. As such, a rise or drop in population growth does not result in a corresponding change in new dwelling demand and activity of the same magnitude.

The reduction in underlying demand and a solid construction pipeline pointing to elevated supply is expected to drive an oversupply of dwellings in Greater Melbourne (as defined by the ABS definition for the Melbourne Greater Capital City Area) for the short to medium term. With underlying demand for dwellings across Greater Melbourne reducing significantly, the housing market has shifted into an oversupply situation in 2021 for the first time in many years.

At the conclusion of 2021 financial year, Charter has estimated there to be an oversupply of approximately 23,700 dwellings. This is being reflected in higher rental vacancy rates in Melbourne. The excess supply provides options in the market for both tenants and owner occupiers, which in turn will impact demand for new dwellings, which will be able to some extent be met by existing stock.

In the current market, Charter considers that there is also likely to be a mismatch between the demand/supply balance of detached houses vs multi-unit dwellings, in particular;

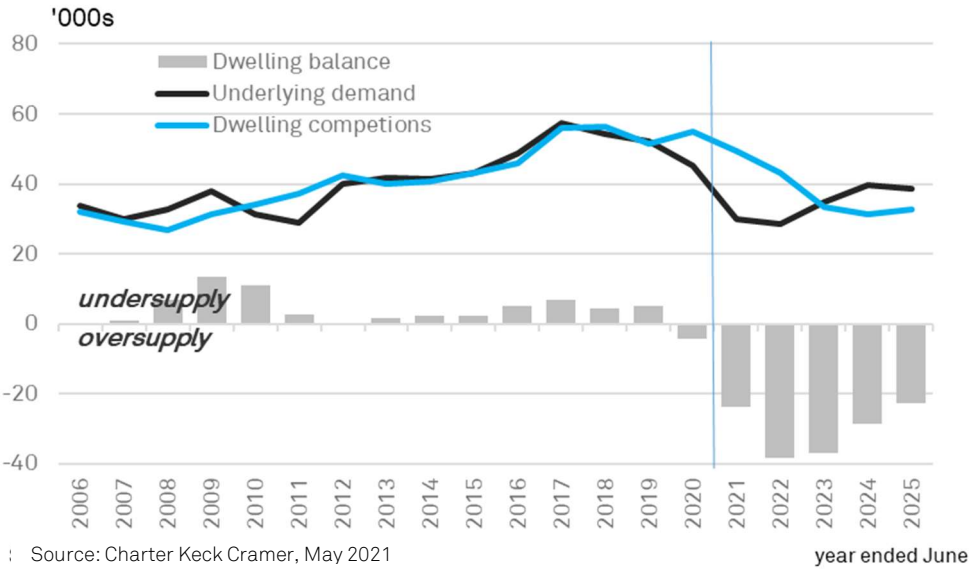
- The negative impact to net overseas migration (who will typically favour apartments) is expected to have resulted in any oversupply being concentrated in the apartment sector.
- At the same time, the greater internal space requirements to accommodate the increase in the ability for employees to work from home is likely to have shifted the preference from smaller apartment and townhouse options into larger detached houses.

Charter's assessment is that the net effect of this is being seen in the market now, with new house dwelling demand rising, while the number of new apartment projects coming to the market has been low. As this plays out through over 2021, there is likely to be a subsequent moderation in residential construction particularly in the apartment sector though reduced levels of underlying demand. Further, offsetting the lower new dwelling construction activity will be continued

reduced demand due to lower population growth and this is expected to see the oversupply situation persist through 2022 and 2023.

However, Charter expects the oversupply to be uneven across Melbourne. Vacancy rates have been concentrated in inner and middle Melbourne suburbs (see section 4.4.1). This is where Melbourne's apartment stock is most concentrated and it is expected that apartments have borne the brunt of excess supply, particularly given that inner Melbourne apartments have been the main destination for many of Melbourne's overseas migrants.

Figure 65 : Greater Melbourne – Dwelling Balance



Source: Charter Keck Cramer, May 2021

5.7.3. Melbourne Housing Market

The following section provides a summary based on Charter's housing market analysis, including demand and supply for metropolitan Melbourne.

Melbourne Residential Apartment Market Conditions

Charter considers that the impacts of COVID-19 on the local apartment market have been both immediate and significant, as social distancing policies acted to effectively shut down the functioning of multiple aspects of the local economy. It has had an unprecedented, material impact on the functioning of the local real estate market, including the new off-the-plan apartment market.

With 16,400 apartments forecast for completion in metropolitan Melbourne 2021, Charter expects that the apartment market will remain soft in the short to medium-term, with downward pressure on rents expected to continue. Further, new apartment project launches, and the future supply pipeline will remain challenged in the short to medium term as investors remain cautious, rents and vacancy rates remain under pressure while border closures continue, and overseas migration is materially impacted. Charter also expects there will also be recently completed unsold stock competing for sales with projects of scale still at the pre-selling stage. An earlier return to high net overseas migration with a rapid rollout of a COVID-19 vaccine may see vacancy rates tighten quicker than expected, placing upward pressure on rents, yields and prices, in turn igniting off-the-plan (OTP) demand.

Melbourne Residential Apartment Market Outlook

Charter considers that the low level of apartments currently pre-selling means that restarting the apartment construction pipeline to add new rental supply will take some time. Firstly, investor demand will need to accelerate with time still required for larger projects to achieve required presale hurdles. Then there is the lag from construction commencement to completion and the delivery of the new rental stock. Consequently, a material pick-up in apartment completions will take a number of years. Ant downside to the term net overseas migration inflow and/or elevated net outflow of people from metropolitan Melbourne will likely delay recovery in the already struggling apartment market.

Melbourne's Changing Dwelling Demand

It is difficult to ascertain how applicable the impact of the increase in net internal migration from Melbourne to regional Victoria and interstate is to Moreland as comprehensive small area migration data is not yet available. In seeking to understand the outlook for the Melbourne residential market and its implications for Moreland, it is important to consider that the potential for the change in housing preferences prompted by the pandemic could well be an ongoing reality.

Understanding the volume and the demographic composition of underlying demand will therefore be fundamental if the type of housing sought by the population is to be provided through the 2020s. Simply duplicating the quantity and type of dwellings delivered across Melbourne over the past decade will not satisfy the needs of the significantly different occupier and purchaser profile that will soon be a feature of the local housing market.

Following a survey of property professionals across Australia, the National Australia Bank has reported on the extent to which COVID-19 has changed the importance of a range of key factors for home buyers. [5]

The top response was the need for a work or study area, while greater value is also being placed on having good local amenities and the (increased) size of a property. In contrast, the survey found that the greatest decline in importance is the need to be in a metropolitan area, with 57% saying this is now less important. Notably, interest in apartments and the desire to be close to the CBD has also weakened.

Perhaps unsurprisingly, the survey found that Victorians are the most willing to move away from metropolitan areas on the back of Melbourne's longer lockdown. It also found that the size of the property, buying a house over an apartment and having a dedicated work area have all increased significantly in importance over the past 12 months.

[5] NAB Residential Property Insight How has COVID-19 changed the perceptions of what is important to Australian home buyers"" (April 2021)

Other key findings relating to Victoria found that:

- Buying a house instead of an apartment is now more important for 69% of respondents.
- The importance of the home having a work/study area is more important for 85% of respondents; and
- Buying in a regional area is now more important for 86% of respondents.[6]

While potentially an influence across the broader market if these shifts in dwelling preferences play out, the impact on Moreland's internal migration flows is likely to be more limited. Internal migration arrivals into Moreland (particularly southern Moreland) have been characterised by younger adults moving into rental dwellings. This group is expected to still display a preference to be at work for mentoring, advancement and social connection, as well as to live in a high amenity location. Similarly, affordability challenges in Moreland has meant that there is already a net internal outflow as residents moving through various life stages seek more (affordable) space.

As such, Charter has assumed that outside of the short term impact to population movement through the COVID-19 pandemic, internal migration arrivals and departures will largely revert to expectations based on historical norms as post COVID-19 conditions 'normalise'. These assumptions have been highlighted earlier in Section 5.2.

5.7.4. Moreland Housing Market Outlook and Assumptions

The following sub-sections provide a summary based on Charter's in house housing market analyses and expertise, including key housing assumptions that were integrated into the post COVID-19 forecasts.

General observations

Until the onset of COVID-19, Moreland's housing market was heavily reliant on overseas migration, both students and non-students. This is evident in the numbers of overseas arrivals and the extent, and type, of development that has occurred in those suburbs experiencing the greatest amount of population growth.

The indefinite closure of international borders resulting in significantly less overseas migration is expected to see a delay of the ongoing pipeline of demand (particularly for rental dwellings) that has underpinned Moreland's growth over the last decade.

The increase in vacancies, concentrated in apartment projects in the southern section of the municipality, will put further downward pressure on the local apartment market. Together with weaker population growth in the younger age cohorts and the broader constraints to delivering investor-grade apartment projects, this will further restrict the prospects for larger scale new apartment projects in Moreland. However, smaller scale projects that are more likely to

[6] NAB Residential Property Insight How has COVID-19 changed the perceptions of what is important to Australian home buyers"" (April 2021)

attract owner occupiers and not be exposed to higher vacancy rates and the downturn in investor demand have a greater potential to achieve the pre-sale hurdles to underwrite the finance to proceed.

Moreland Apartment Market Outlook and Assumptions for Moreland

Charter considers that the ability to feasibly develop large numbers of apartment dwellings including within Activity Centres, will be heavily constrained in the short to medium (0 to 5 years). Combined with the declining residential apartment market conditions that were already underway, the additional challenges arising due to the onset of COVID-19 will deeply impact the ability to deliver Activity Centre objectives where these contemplate high-density residential outcomes.

Charter expects to see a significant reduction in the number of new high-density residential projects delivered once the current pipeline of projects under construction is completed over 2021 and 2022 (i.e. over 2023 to 2025) due to a confluence of factors including the existing oversupply in apartments across metropolitan Melbourne, the notable increase in vacancies observed in high-density locations with significant student populations (e.g. Brunswick), challenging development conditions, the potential for changing housing preference and a decrease in population growth including overseas students.

According to Charter's in house database, the reduced volume of apartment supply compared to recent years is already evident in the fact that across Moreland, there are less than 600 apartments in new projects that are currently being marketed, but not yet under construction. Of these, 510 are in Brunswick, Brunswick West or Brunswick East. Notably, there are less than one thousand new apartments currently under construction in Moreland. This is a significant reduction on recent years when Moreland's apartment supply pipeline had considerably higher volumes being delivered to the market.

Charter considers that many Moreland suburbs, particularly those in the central and northern sections of the municipality lack the market characteristics to support significant apartment supply. Established house prices in Moreland's suburbs are an important consideration and effectively act as a proxy for overall apartment market viability. House prices reflect the relationship between supply and demand within a given submarket and reflect the market value of the local amenity within that submarket compared to other sub-markets. Therefore, an important function of apartments as a dwelling typology within the context of the local housing market hierarchy, is to provide an affordable price point for potential purchasers into suburbs that they would otherwise be priced out of.

Purchasers of apartments often trade off dwelling type and size to be able to access local established amenities within a suburb (such as retail, location and transport nodes). Higher median house prices occur, in part, due to the capitalised value of local amenities and accessibility relative to the available supply within a particular submarket. Accordingly, there should be a strong and direct relationship between house values within a suburb and apartment supply. In Moreland this is reflected by apartment activity in Brunswick, Brunswick East

and Brunswick West, where realestate.com.au reports a median house price of $1,205,000, $1,452,000, $1,250,000 respectively in May 2021. These suburbs have both the highest median house prices in Moreland, as well as the highest level of new apartment supply.

The potential to deliver owner-occupier and higher quality apartment product in middle suburban markets is limited where the local established house price has yet to place enough price pressure to support higher quality owner occupier apartment product. This is the case across many of Moreland's suburbs, particularly in the north, where the price differential between the median house price and an apartment would generally not be large enough to attract a sufficient critical mass of purchasers to sustain a local apartment market. These markets also face significant competition from existing medium density townhouse development which are more attractive to a much wider segment of the population in both price and typology.

Despite the significant reduction in apartment activity, Charter expects that apartments will likely continue to play an increasing role in the broader Melbourne housing market, and in an increasing number of suburbs, over the longer term given that detached houses have become increasingly unaffordable, and many prospective buyers likely to consider apartments and townhouses as a viable alternative. Charter also expects this trend will be apparent in Moreland, with the pace of 'densification' dependent upon a range of external variables in particular population growth, the performance of the housing market, acceptance of apartment living by older households, lifestyle preference and broader economic conditions.

However, in the next three years or so, the retreat from investors from the market due to higher vacancy rates and rental challenges will impact the ability to deliver larger scale projects that are typically underwritten by a significant portion of presales to investors. There is an owner occupier apartment market supporting boutique apartment projects in numerous high value suburbs, such as Brunswick, although Charter considers there to be few locations within Moreland that are likely to support a premium owner occupier market in the short to medium to term (1 to 3 years). This trend can be monitored over time, with sources of data outlines in Section 7.

Moreland Townhouse Market Outlook and Assumptions

Based on evidence of trends over the past decade, Charter considers there to be significant residential demand within Moreland for medium density dwellings and a buoyant market for new townhouses. This has resulted the proliferation of a variety of medium density dwelling typologies developed across the municipality, particularly in Glenroy, Pascoe Vale and Coburg.

Comprising both two and three bedroom dwellings, medium density townhouse product remains comparatively affordable against detached dwellings, ranging in price (as at first half of 2021) from approximately $550,000 to $650,000 and $700,000 to $850,000 respectively. With its own street address, larger internal

living areas and separate, private open space and garage, this dwelling format is an attractive living option for a wide variety of household types.

According to Charter's data, unlike many other parts of metropolitan Melbourne, medium density townhouses in Moreland are primarily two storey, especially in its northern suburbs. As land values increase in these locations, Charter expects that a shift towards a more three storey townhouses on smaller lots is likely to occur, where zoning permits. Given the broader challenges impacting the ability to feasibly deliver apartments in many of Moreland's suburbs together with the preference for townhouse living over apartments by many, Charter expects Moreland's townhouse market to define the evolving residential character of the municipality.

Recent trends in townhouse development are anticipated to continue, especially in the northern suburbs of the municipality, although the extent to which townhouses will be provided will ultimately be determined by the level of population growth. Nevertheless, given it is a typology that is far less exposed to the narrow set of drivers and risk considerations that has thus far underpinned much of Moreland's apartment stock over the last decade and that townhouse development is generally undertaken by small to medium sized builders, Charter considers that townhouses are far less speculative than high density apartment projects. They are also attractive to a much wider segment of the population, are increasingly available in a range of configurations, and remain relatively affordable compared to traditional detached dwellings.

5.8. Forecast Development (New Dwellings) assumptions

The population growth forecast and housing supply forecast developed through an iterative process, assessing whether initial population growth assumptions can be met or whether housing supply considerations will impact the rate of population growth.

The capacity analysis (described previously) plays an important part in determining whether that population growth can be achieved. If a suburb is constrained by capacity to supply new dwellings, then this will place a ceiling on population growth. Conversely, the capacity to supply dwellings at a greater rate than historical supply may attract population from a neighbouring suburb where supply is constrained.

The forecasts are also placed in the context of market conditions. In particular, Charter considers that high vacancy rates in parts of Moreland have resulted in reduced demand from investors to purchase off-the-plan. This investment by developers will make it difficult to achieve the level of pre-sales required to underwrite the finance for development of projects of scale to be delivered before 2024-2025.

This section highlights Charter's logic and assumptions for the post COVID-19 housing supply forecast in Moreland.

5.8.1. Infill Development Scenarios and Assumptions for Moreland

For the purposes of this study, Charter's estimate of infill development refers to dwellings (that will typically be townhouses) that can be developed in existing residential zones (Neighbourhood Residential, General Residential and Residential Growth zones).

From Charter's experience and property market perspective, the type and scale of residential infill development that has and is anticipated to continue to occur in Moreland's residential zones, is generally characterised by a variety of townhouse formats and is less vulnerable to changes in market conditions compared to the high-density apartment market.

There are various reasons for Charter's view. A lack of greenfield land in Moreland means that townhouses have become increasingly attractive to a wide variety of household types and remain a relatively affordable larger dwelling option within Moreland. Being smaller developments, townhouses are also more likely to be developed by a range of smaller builders or developers and are less reliant on obtaining significant pre-sales to proceed.

As a result, Charter considers that the historic rate and type of development in the Residential Infill areas across Moreland can generally be expected to continue in accordance with the levels of demand to be generated by forecast household growth.

However, as highlighted in the capacity assessment earlier in this report (see Section 5.6), the supply of land suitable for infill development is limited in Moreland. Charter has recognised this by applying a scarcity factor to the infill development forecast. This scarcity factor assumes a lower rate of development over the forecast period as the number of sites suitable for development diminish. Or in other words the less land available, the more difficult it becomes for developers to acquire and redevelop sites at historic rates.

Charter has scaled down annual supply of infill housing in each suburb as the corresponding remaining supply capacity reaches 80%, 60%, 50%, 40% and 30% of the 2021 identified capacity (see Section 5.6). In Charter's experience, available sites rarely fall below 60% of initial capacity, as there will be some long term holders of land, and the rate of sites becoming available for sale and redevelopment typically and progressively slow.

For these reasons, Charter expects infill development, relative to recent levels, to decline most in Hadfield, Glenroy and Pascoe Vale. Through Moreland overall, infill development by 2036 is forecast to fall to just over half the levels seen over 2019 and 2020. The infill supply forecast and remaining capacity is shown in Figure 67 below for the COVID-19 Shift and Moderate Recovery scenarios. While the Moderate scenario is more optimistic from a population and household perspective, infill development is expected to have minimal difference between these two scenarios, being constrained by the ability to keep turning over sites for redevelopment. The Long Term recovery scenario infill supply forecast is shown in Figure 68.

Figure 66: Infill Development and Remaining Supply – COVID-19 Shift Scenario and Moderate Scenario

Year end June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland
Historical/forecast infill development (no. of dwellings)													
2010	53	27	25	39	23	30	71	117	52	187	23	18	665
2011	56	14	26	60	37	20	62	109	36	185	18	27	650
2012	41	39	36	51	31	17	49	140	33	184	13	25	659
2013	50	30	26	79	32	60	53	157	46	213	14	41	801
2014	70	23	18	84	26	99	48	197	44	205	14	35	863
2015	77	22	61	101	43	91	73	268	77	343	4	51	1,211
2016	54	27	46	104	47	99	71	182	61	251	1	39	982
2017	63	63	82	150	61	47	105	199	135	232	6	107	1,250
2018	43	28	61	99	41	27	87	160	105	266	4	125	1,046
2019	41	56	39	96	53	20	53	115	35	196	3	42	749
2020	55	13	43	96	39	33	96	141	41	189	5	45	796
2021	51	37	54	109	48	40	75	141	45	165	4	40	810
2022	51	37	54	109	48	40	75	141	45	165	4	40	810
2023	51	37	54	109	48	40	75	141	45	165	4	40	810
2024	51	37	54	109	48	40	75	141	45	165	4	32	802
2025	51	37	54	109	48	40	75	141	45	165	4	32	802
2026	51	37	54	109	39	40	60	141	45	132	4	28	740
2027	51	37	54	87	39	32	60	113	36	132	4	28	673
2028	41	30	43	87	39	32	60	113	36	132	4	20	637
2029	41	30	43	87	39	32	60	113	36	132	4	12	629
2030	41	30	43	87	34	32	60	113	36	116	4	12	607
2031	41	30	43	87	34	32	53	113	36	116	3	12	599
2032	41	30	43	87	24	32	53	99	36	83	3	4	534
2033	41	30	43	76	24	28	53	99	32	83	3	4	515
2034	41	26	38	76	24	28	38	99	32	83	3	4	491
2035	36	26	38	76	14	28	38	71	32	50	3	4	415
2036	36	26	38	76	14	28	38	71	23	50	3	4	406
Estimated remaining infill capacity (no. of dwellings)													
2021	1,480	955	1,417	2,656	794	955	1,422	3,034	1,013	2,771	171	358	17,026
2022	1,429	918	1,363	2,547	746	915	1,347	2,893	968	2,606	167	318	16,216
2023	1,378	880	1,309	2,438	698	875	1,272	2,752	923	2,441	163	278	15,406
2024	1,326	843	1,254	2,329	649	835	1,197	2,611	878	2,276	160	246	14,605
2025	1,275	805	1,200	2,220	601	795	1,122	2,470	833	2,111	156	214	13,803
2026	1,224	768	1,146	2,111	563	755	1,062	2,329	788	1,979	152	186	13,063
2027	1,173	731	1,092	2,024	524	723	1,002	2,217	752	1,847	148	158	12,389
2028	1,132	701	1,048	1,937	486	691	942	2,104	716	1,715	144	138	11,753
2029	1,091	671	1,005	1,849	447	659	882	1,991	680	1,583	141	126	11,124
2030	1,050	641	962	1,762	413	627	822	1,878	644	1,468	137	114	10,517
2031	1,009	611	918	1,675	379	595	770	1,765	608	1,352	134	102	9,918
2032	968	581	875	1,588	355	563	717	1,667	572	1,270	131	98	9,384
2033	927	551	832	1,512	331	535	665	1,568	540	1,187	128	94	8,869
2034	886	525	794	1,435	307	507	627	1,469	509	1,105	125	90	8,378
2035	850	499	756	1,359	293	479	590	1,399	477	1,055	122	86	7,963
2036	814	473	718	1,283	278	451	552	1,328	455	1,006	119	82	7,558

Source: Charter Keck Cramer based on Charter Keck Cramer Proprietary Database, VBA *Building Permit Activity Data*, and DELWP '*Urban Development Program'*, forecasts Charter Keck Cramer

Figure 67: Infill Development and Remaining Supply – Long Term Scenario

Year end June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland
Historical/forecast infill development (no. of dwellings)													
2010	53	27	25	39	23	30	71	117	52	187	23	18	665
2011	56	14	26	60	37	20	62	109	36	185	18	27	650
2012	41	39	36	51	31	17	49	140	33	184	13	25	659
2013	50	30	26	79	32	60	53	157	46	213	14	41	801
2014	70	23	18	84	26	99	48	197	44	205	14	35	863
2015	77	22	61	101	43	91	73	268	77	343	4	51	1,211
2016	54	27	46	104	47	99	71	182	61	251	1	39	982
2017	63	63	82	150	61	47	105	199	135	232	6	107	1,250
2018	43	28	61	99	41	27	87	160	105	266	4	125	1,046
2019	41	56	39	96	53	20	53	115	35	196	3	42	749
2020	55	13	43	96	39	33	96	141	41	189	5	45	796
2021	51	37	54	109	48	40	75	141	45	165	4	40	810
2022	51	37	54	109	48	40	75	141	45	165	4	40	810
2023	51	37	54	109	48	40	75	141	45	165	4	40	810
2024	46	34	49	98	43	36	68	127	41	149	3	36	729
2025	46	34	49	98	43	36	68	127	41	149	3	29	722
2026	46	34	49	98	35	36	54	127	41	119	3	25	666
2027	46	34	49	98	35	36	54	102	32	119	3	25	633
2028	46	27	39	78	35	29	54	102	32	119	3	18	582
2029	37	27	39	78	35	29	54	102	32	119	3	18	573
2030	37	27	39	78	30	29	54	102	32	119	3	11	561
2031	37	27	39	78	30	29	54	102	32	104	3	11	547
2032	37	27	39	78	30	29	47	102	32	104	3	4	532
2033	37	27	39	78	22	29	47	89	28	74	3	4	477
2034	37	27	39	69	22	25	47	89	28	74	3	4	463
2035	37	24	34	69	22	25	34	89	28	74	3	4	442
2036	37	24	34	69	13	25	34	63	28	74	3	4	408
Estimated remaining infill capacity (no. of dwellings)													
2021	1,480	955	1,417	2,656	794	955	1,422	3,034	1,013	2,771	171	358	17,026
2022	1,429	918	1,363	2,547	746	915	1,347	2,893	968	2,606	167	318	16,216
2023	1,378	880	1,309	2,438	698	875	1,272	2,752	923	2,441	163	278	15,406
2024	1,332	847	1,260	2,340	654	839	1,205	2,626	882	2,293	160	242	14,678
2025	1,285	813	1,211	2,242	611	803	1,137	2,499	842	2,144	157	213	13,956
2026	1,239	779	1,162	2,144	576	767	1,083	2,372	801	2,025	153	188	13,290
2027	1,193	746	1,113	2,046	541	731	1,029	2,270	769	1,906	150	163	12,657
2028	1,147	719	1,074	1,967	507	702	975	2,169	736	1,788	146	145	12,075
2029	1,110	692	1,035	1,889	472	673	921	2,067	704	1,669	143	127	11,502
2030	1,073	665	996	1,810	442	645	867	1,966	671	1,550	139	116	10,941
2031	1,037	638	957	1,732	411	616	813	1,864	639	1,446	136	105	10,394
2032	1,000	611	918	1,653	381	587	766	1,763	607	1,342	133	102	9,862
2033	963	584	879	1,575	359	558	719	1,674	578	1,268	131	98	9,385
2034	926	557	840	1,506	338	533	671	1,585	550	1,194	128	94	8,922
2035	889	534	806	1,437	316	508	638	1,496	522	1,119	125	91	8,480
2036	852	510	772	1,369	303	483	604	1,433	493	1,045	122	87	8,073

Source: Charter Keck Cramer based on Charter Keck Cramer Proprietary Database, VBA *Building Permit Activity Data*, and DELWP '*Urban Development Program'*, forecasts Charter Keck Cramer

5.8.2. High Density Development Scenarios and Assumptions for Moreland

Forecasts of high density development have been undertaken within the constraints of potential future capacity (Section 5.6). Charter has assumed that once the supply potential (capacity) in commercial and other zoned land within a suburb reaches 60% below its current levels estimated for 2021, the more tightly held and difficult sites will increasingly remain. This will constrain the rate of new high-density housing supply within and potentially shift development into an adjoining suburb if land is available.

In areas where there has been significant infill development and available land for infill development has diminished, Charter has assumed that some high density development will move into commercial and other zones.

When forecasting future high density housing supply, Charter has also incorporated considerations for the following:

- Population and household forecasts: The forecasts for broader population and household growth will govern the aggregate level of new dwellings that will be required over time.
- Historical and current high density development rates: Historical to current development rates provide a guide as to the maximum rate of development that could potentially take place in the future, and whether development rates are currently adequately servicing population and household growth.
- Cyclical market factors: In particular, Charter's assessment is that tenant demand has fallen in the Moreland market, while new housing supply has remained elevated (i.e. vacancy rates have risen and rents have fallen). Ultimately this will result in slower sales rates by investors for new apartments and impact the time taken from project launch to dwelling completion, creating delays until new supply in major projects is physically completed. Future cycles would also be expected over a 15 year period.

The COVID-19 Shift Scenario high density supply forecast and remaining supply is shown in Figure 69 below. Brunswick is expected to experience few land constraints with development likely to remain elevated over the longer term. Commercial zoned land suitable for residential development in Brunswick East is expected to run down through the decade with High Density development moving into Brunswick West and Coburg. High Density activity is also expected to be picking up in Pascoe Vale and Glenroy by the end of the forecast period as infill opportunities in those locations dry up. Dwelling values by this point are expected to become more supportive of higher density development.

Despite the current capacity for a high level of apartment supply within the Coburg Activity Centre, new apartment activity in Coburg is not expected to ramp up while there is still sufficient land for large-scale apartment development further south in higher-demand, and comparatively priced, apartment locations such as Brunswick, Brunswick East and Brunswick West.

Further upside and higher peaks in high density dwelling supply is expected in the Moderate Recovery Scenario to accommodate the stronger population growth, while lower high density supply is forecast in the Long Term Recovery Scenario as there will be less demand for new dwellings due to lower forecast population growth.

Figure 68: High Density – Potential Future Supply, COVID-19 Shift Scenario

Year end June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland
Historical/forecast high density development (no. of dwellings)													
2010	424	158	0	124	0	0	0	16	0	0	0	0	722
2011	261	191	10	359	0	0	0	22	11	0	40	0	894
2012	166	29	180	0	0	46	12	48	0	0	0	0	481
2013	249	217	0	0	0	82	0	19	0	0	0	0	567
2014	236	431	68	0	0	24	0	28	0	10	0	0	797
2015	262	303	10	0	0	20	0	85	0	0	0	0	680
2016	210	446	11	98	138	38	10	12	0	18	19	0	1,000
2017	265	196	151	103	60	70	10	35	16	22	10	0	938
2018	436	396	73	100	0	0	0	27	41	36	0	0	1,109
2019	340	191	86	14	0	22	12	66	25	51	15	99	921
2020	78	446	335	0	0	0	0	22	14	26	0	0	921
2021	128	111	11	515	0	0	0	0	0	0	0	0	765
2022	438	125	25	75	0	0	0	0	0	0	0	0	663
2023	192	75	10	50	0	20	0	15	8	10	0	0	380
2024	50	50	15	170	0	25	10	10	12	0	0	0	342
2025	75	75	20	0	20	0	0	20	20	15	0	12	257
2026	100	125	30	40	0	15	0	30	10	10	0	0	360
2027	125	150	35	75	0	40	6	35	0	15	0	0	481
2028	165	200	75	65	0	0	0	40	15	25	0	8	593
2029	180	225	100	50	60	50	0	30	18	20	0	0	733
2030	200	250	120	75	0	75	10	25	0	45	0	0	800
2031	250	175	140	100	30	80	0	40	12	50	0	0	877
2032	225	150	165	100	0	0	0	30	25	55	0	8	758
2033	275	120	190	150	20	15	14	60	15	45	0	0	904
2034	325	80	230	175	0	40	0	80	30	65	0	20	1,045
2035	250	75	200	200	50	30	20	30	20	25	0	12	912
2036	230	60	135	170	0	15	0	15	15	20	0	20	680

Source: Charter Keck Cramer based on Charter Keck Cramer Proprietary Database, VBA *Building Permit Activity Data*, and DELWP '*Urban Development Program',* forecasts Charter Keck Cramer

Figure 69: High Density – Potential Future Supply, Moderate Scenario

Year end June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland
Historical/forecast high density development (no. of dwellings)													
2010	424	158	0	124	0	0	0	16	0	0	0	0	722
2011	261	191	10	359	0	0	0	22	11	0	40	0	894
2012	166	29	180	0	0	46	12	48	0	0	0	0	481
2013	249	217	0	0	0	82	0	19	0	0	0	0	567
2014	236	431	68	0	0	24	0	28	0	10	0	0	797
2015	262	303	10	0	0	20	0	85	0	0	0	0	680
2016	210	446	11	98	138	38	10	12	0	18	19	0	1,000
2017	265	196	151	103	60	70	10	35	16	22	10	0	938
2018	436	396	73	100	0	0	0	27	41	36	0	0	1,109
2019	340	191	86	14	0	22	12	66	25	51	15	99	921
2020	78	446	335	0	0	0	0	22	14	26	0	0	921
2021	128	111	11	515	0	0	0	0	0	0	0	0	765
2022	438	125	25	75	0	0	0	0	0	0	0	0	663
2023	192	75	10	50	0	20	0	15	8	10	0	0	380
2024	50	50	15	170	0	25	10	10	12	0	0	0	342
2025	75	75	20	0	20	0	0	20	20	15	0	12	257
2026	100	125	30	40	0	15	0	30	10	10	0	0	360
2027	125	150	35	75	0	40	6	35	0	15	0	0	481
2028	190	230	90	70	0	0	0	40	20	30	0	10	680
2029	210	260	120	60	70	60	0	30	20	20	0	0	850
2030	230	290	140	90	0	80	10	30	0	50	0	0	920
2031	290	200	160	120	30	90	0	40	10	60	0	0	1,000
2032	260	170	190	120	0	0	0	30	30	60	0	10	870
2033	320	140	220	170	20	20	20	70	20	50	0	0	1,050
2034	370	90	260	200	0	40	0	90	30	70	0	20	1,170
2035	290	90	230	230	60	30	20	30	20	30	0	10	1,040
2036	260	70	160	200	0	20	0	20	20	20	0	20	790

Source: Charter Keck Cramer based on Charter Keck Cramer Proprietary Database, VBA *Building Permit Activity Data*, and DELWP '*Urban Development Program',* forecasts Charter Keck Cramer

Figure 70: High Density – Potential Future Supply, Long Term Scenario

Year end June	Brunswick	Brunswick East	Brunswick West	Coburg	Pascoe Vale South	Coburg North	Fawkner	Pascoe Vale	Oak Park	Glenroy	Gowanbrae	Hadfield	Moreland
Historical/forecast high density development (no. of dwellings)													
2010	424	158	0	124	0	0	0	16	0	0	0	0	722
2011	261	191	10	359	0	0	0	22	11	0	40	0	894
2012	166	29	180	0	0	46	12	48	0	0	0	0	481
2013	249	217	0	0	0	82	0	19	0	0	0	0	567
2014	236	431	68	0	0	24	0	28	0	10	0	0	797
2015	262	303	10	0	0	20	0	85	0	0	0	0	680
2016	210	446	11	98	138	38	10	12	0	18	19	0	1,000
2017	265	196	151	103	60	70	10	35	16	22	10	0	938
2018	436	396	73	100	0	0	0	27	41	36	0	0	1,109
2019	340	191	86	14	0	22	12	66	25	51	15	99	921
2020	78	446	335	0	0	0	0	22	14	26	0	0	921
2021	128	111	11	515	0	0	0	0	0	0	0	0	765
2022	438	125	25	75	0	0	0	0	0	0	0	0	663
2023	192	75	10	50	0	20	0	15	8	10	0	0	380
2024	50	50	15	170	0	25	10	10	12	0	0	0	342
2025	50	50	20	0	20	0	0	20	20	10	0	12	202
2026	70	90	30	40	0	15	0	30	10	10	0	0	295
2027	90	110	30	70	0	40	6	35	0	10	0	0	391
2028	120	150	70	60	0	0	0	40	15	20	0	8	483
2029	130	160	90	50	60	50	0	30	18	10	0	0	598
2030	140	180	110	70	0	75	10	25	0	30	0	0	640
2031	180	130	130	90	30	80	0	40	12	40	0	0	732
2032	160	110	150	90	0	0	0	30	25	40	0	8	613
2033	190	90	170	140	20	15	14	60	15	30	0	0	744
2034	230	60	210	160	0	40	0	80	30	50	0	20	880
2035	180	50	180	180	50	30	20	30	20	20	0	12	772
2036	160	40	120	150	0	15	0	15	15	10	0	20	545

Source: Charter Keck Cramer based on Charter Keck Cramer Proprietary Database, VBA *Building Permit Activity Data*, and DELWP '*Urban Development Program'*, forecasts Charter Keck Cramer

6. Post COVID-19 Population and Housing Forecasts for Moreland

This section presents a summary of post COVID-19 population and housing forecasts for each of the scenarios modelled, together with a comparison with Council's pre COVID-19 forecasts (forecast.id, 2020). The comparison serves to highlight the COVID-19 impact on the previously expected population outcome.

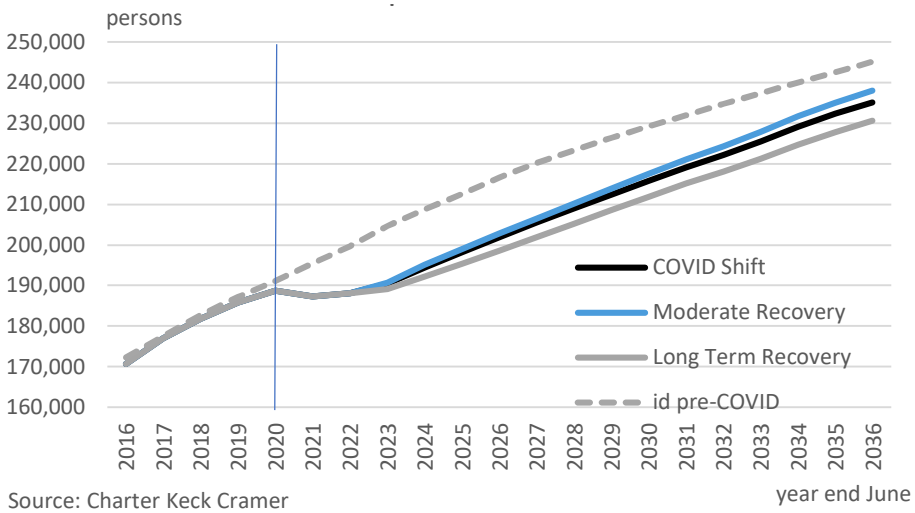
Individual suburb forecasts are shown in Appendix A.

6.1. Population Comparison

Under the COVID-Shift scenario, the COVID-19 pandemic will see population growth across Moreland fall short of pre COVID-19 forecasts (forecast.id, 2020). A net overseas migration outflow, together with Moreland's net internal migration outflow is expected to have resulted in a fall in population in 2021. Over the 2020–2026 period Moreland's population is forecast to grow at an average rate of 1.1% p.a., which is below the 2.1% p.a. forecast pre-COVID. Over this time period Moreland's population is forecast to grow by 13,200 residents, well below the 25,500 forecast pre COVID-19 (forecast.id, 2020). By 2036, Moreland's population is forecast to be 235,200, some 10,000 persons below the pre COVID-19 forecast of 245,200.

Higher net migration flows under the Moderate Scenario are forecast to provide upside to the forecast, taking total population to 238,100 in 2036, or 3,000 higher than the COVID-19 Shift Scenario. Population by 2036 is forecast to be 230,600 under the Long Term Recovery Scenario, or 4,600 below the COVID-19 Shift forecast.

Figure 71 Total Population Comparison – Moreland



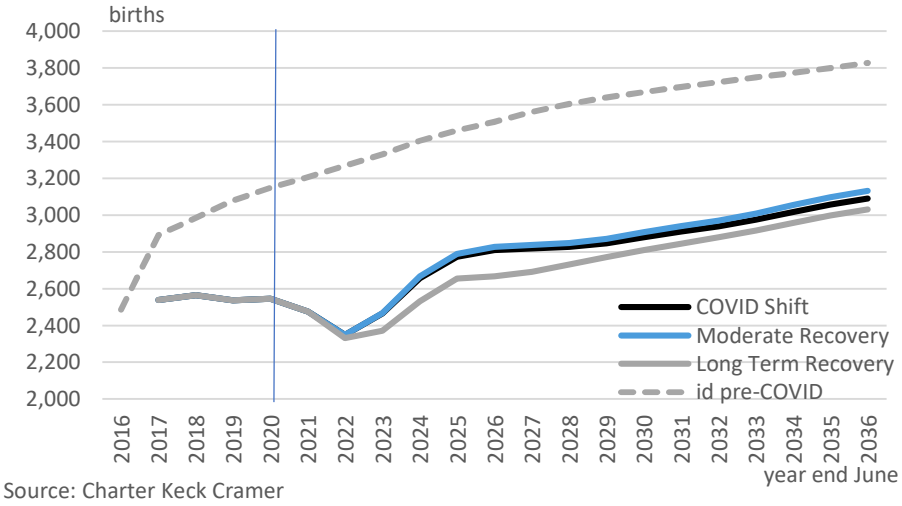
Source: Charter Keck Cramer

6.2. Births

Under the COVID-19 Shift scenario, births across Moreland are forecast to fall slightly over 2020–2022, as households delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A recovery in births is anticipated over 2022–2024 as couples that delayed their decision start to have children, with a steady rise expected from around 2,650 births per annum in 2024 to 3,100 births per annum by 2036, which also reflect the growing population within the municipality.

Net overseas and internal migration into Moreland is concentrated in the adult sub 35 year old age cohorts. With fertility peaking at 31-32 years old age, this group incorporates the most fertile age groups or those about to move into their most fertile ages. The higher net migration assumption under the Moderate scenario will result in a modest upside to the births forecast. There is more downside to births in the Long Term Recovery scenario, which incorporates both a lower level of net migration, as well as a longer recovery to trend total fertility rates after the current COVID-19 setback.

Figure 72 Forecast Births – Moreland,



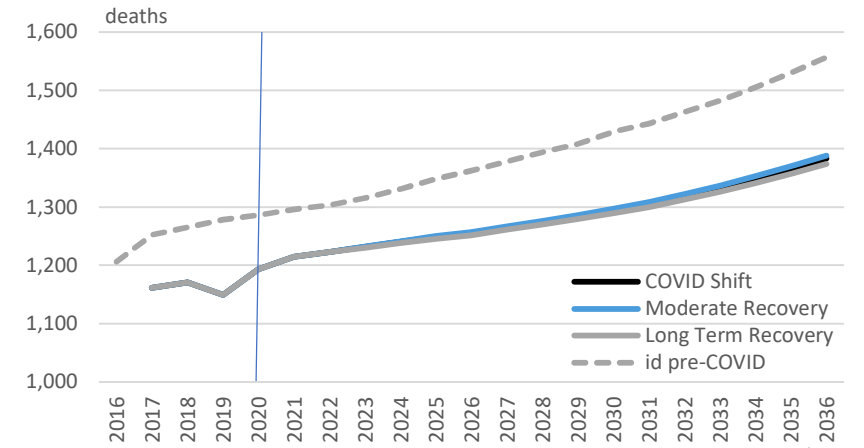
Source: Charter Keck Cramer

6.3. Deaths

With Australia managing the spread of the COVID-19 pandemic relatively well, the mortality rate across Moreland is expected to be relatively unaffected, notwithstanding specific outbreaks at nursing homes within the municipality. The total number of annual deaths in Moreland in the COVID-Shift scenario is forecast to increase in line with population growth following a similar trajectory to that forecast pre COVID-19 (forecast.id, 2020), albeit at a lower level as reflected by the lower than anticipated level of mortality seen in recent years.

Age-specific mortality rates are unchanged under each of the three forecast scenarios. As a result, the number of deaths will vary only slightly between each of the scenarios based on their respective population forecasts.

Figure 73 Forecast Deaths – Moreland, COVID-Shift Scenario



Source: Charter Keck Cramer

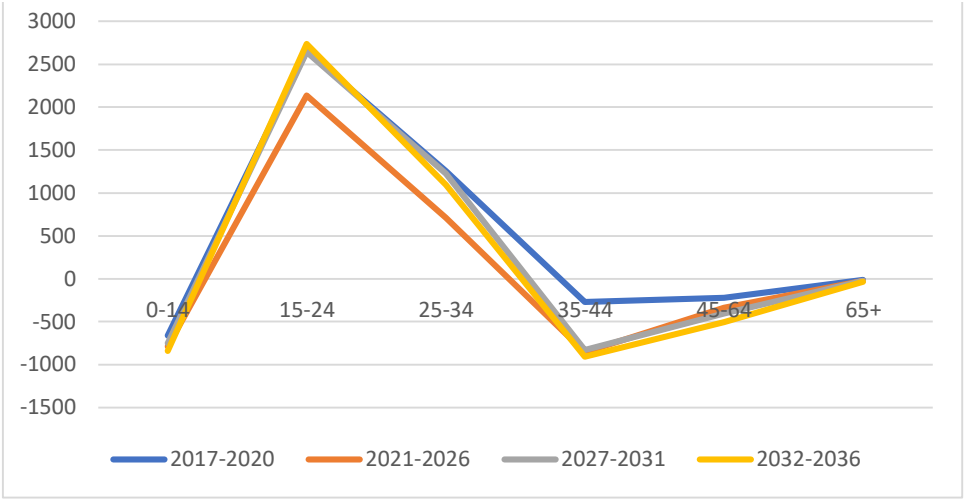
6.4. Net Migration by Age

Net migration by age brings together the assumptions of the overseas and internal arrivals and departures, as well as their respective age profiles, that were outlined in Chapter 5.

Under the COVID-19 Shift Scenario, migration into Moreland is predominantly driven by residents aged 15-24 years. Over 2017–2036, Moreland is forecast to record a net outflow of residents aged 35-44 years old or older. The closed international border as a result of the COVID-19 pandemic is forecast to result in lower net migration aged 15-24 years and 25-34 years over 2021–2026.

A similar pattern in net migration is evident in the other modelled scenarios. Under the Moderate scenario, age cohorts with a net outflow experience a lower exodus than under the COVID-19 Shift scenario, while in age cohorts with a net inflow, the figure is higher. With a lower level of overall movement under the Long Term scenario, net inflows of 0-14 year olds and 35-44 year olds are lower than under the COVID-Shift scenario, as well as in each of the 15-34 year old cohorts. However, the net outflows of 45-64 and 65+ year olds are slightly higher, albeit from low numbers.

Figure 74 Net Migration by Age – Moreland, COVID-Shift Scenario

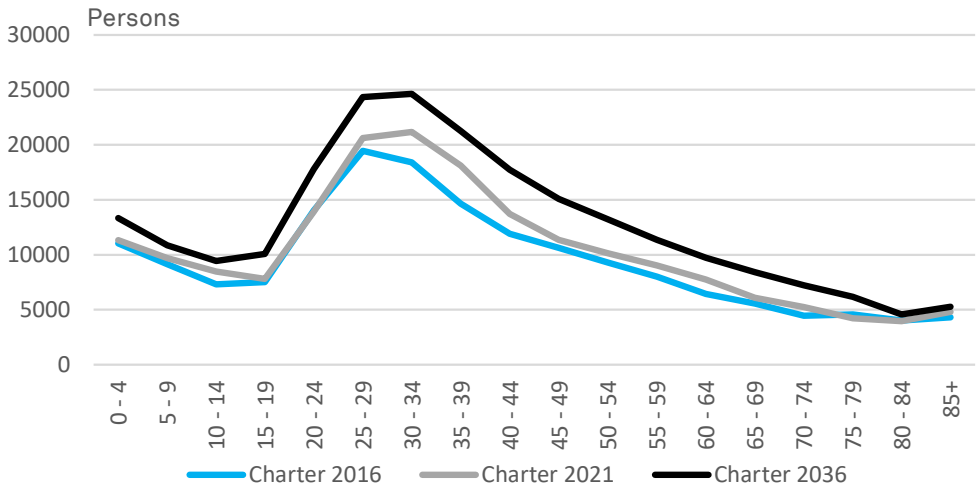


Source: Charter Keck Cramer

6.5. Age Profile

The 20-39 years age cohort accounted for 39% of total residents in Moreland in 2016. With this demographic group being the main source of arrivals (both overseas an internal) into the municipality, the share of 20-39 year olds is expected to be largely sustained, declining only slightly in the COVID-19 Shift scenario to 38% by 2036. Meanwhile, the ageing of the existing population is expected to see the 40+ year old population increase slightly from 40.5% of the total in 2016, to 42.6% by 2036.

Figure 75 Age Profile Over Time – Moreland, COVID-19 Shift Scenario



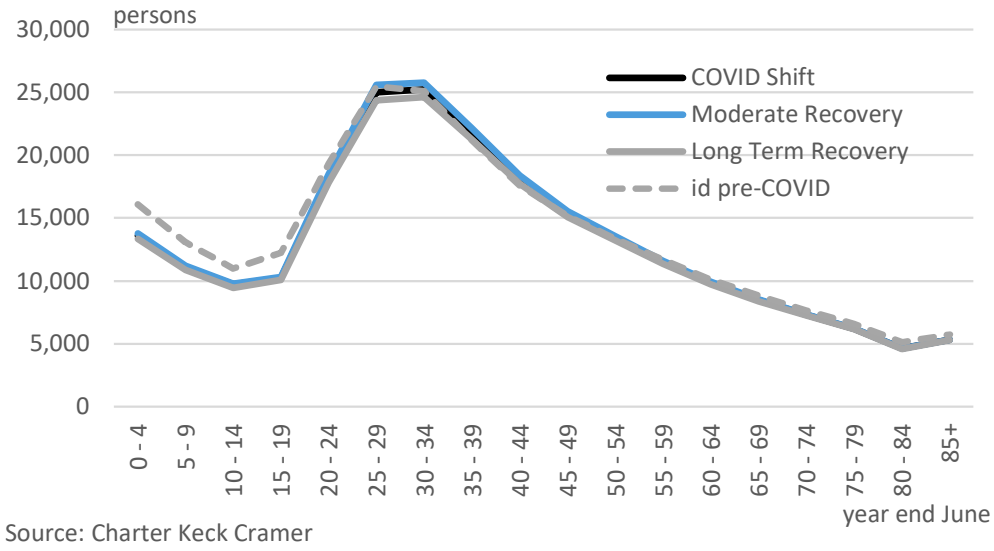
Source: Charter Keck Cramer

6.5.1. Age Profile Comparison (at 2036)

Moreland's age profile at 2036 is likely to be slightly different than that forecast pre COVID-19 (forecast.id, 2020). Current forecasts suggest that by 2036 the lower level of births in Moreland will result in fewer 0-14 year olds than indicated pre-COVID. There is less variation in the older age cohorts. Charter has projected a slightly higher number of 30-49 year olds than the pre COVID-19 forecast, while projecting a slightly lower number of residents aged 50+ years old.

Under the Moderate scenario, there are bigger differences in the 2036 population in the sub 35 year old age cohorts (all being higher) than the 35+ year old cohorts, while in the Long Term Recovery scenario, population in these cohorts is lower. This reflects that most of the migration changes that underpin these scenarios are concentrated in the young adult age cohorts, which in turn will affect births.

Figure 76 Age Profile Comparison by 2036 – Moreland



Source: Charter Keck Cramer

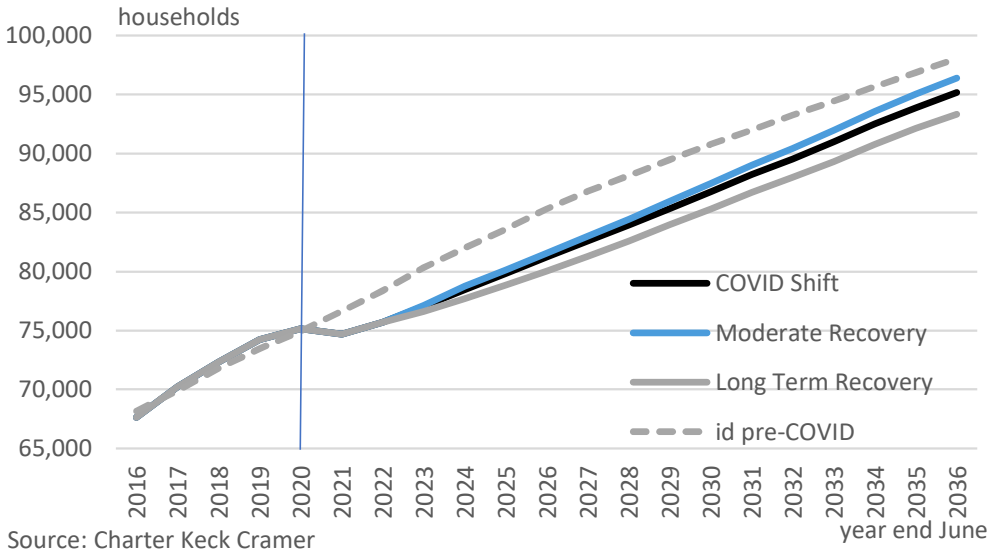
6.6. Total Households

Under the COVID-Shift scenario, the COVID-19 pandemic will see household growth across Moreland fall short of pre COVID-19 forecasts. In line with the expected fall in population in 2021, the number of households is also expected to fall over the year, with growth is expected to resume in 2022. Over 2020–2036 the total number of households in Moreland is forecast to grow at an average rate of 1.5% per annum, which is below the 1.7% per annum forecast pre COVID-19 (forecast.id, 2020). This will result in 2,900 fewer households being established in Moreland over 2020–2036.

The number of households under the Moderate and Long Term Recovery scenarios reflect the differences in population, with households by 2036 being 1,200 higher and 1,800 lower than under the COVID-Shift scenario respectively.

As each additional household will typically occupy a new dwelling, household growth is a driver of new dwelling demand. If new dwelling supply exceeds household growth, then excess supply results and causes higher vacancy rates. This in turn will delay new supply until the excess stock is absorbed.

Figure 77 Total Household Comparison - Moreland



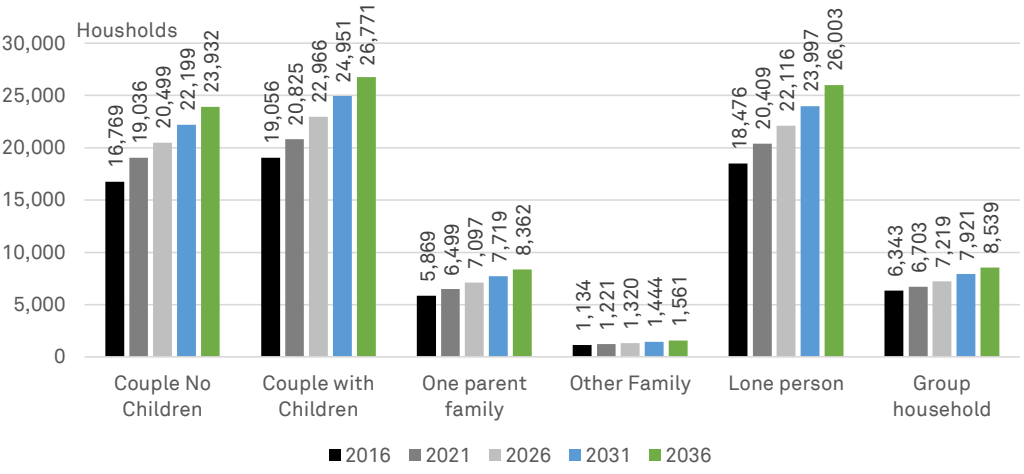
Source: Charter Keck Cramer

6.6.1. Growth in Households by Household Type

Under the COVID-Shift scenario, Moreland is expected to maintain a relatively even split between couples with no children, couples with children and single person households, which in 2021 are estimated to have accounted for 25%, 28% and 27% of total households respectively, or 81% of the total. Despite changes in the household structure occurring at the suburb level, the impacts are expected to balance out across Moreland overall, with the split of households by household type expected to still be largely the same at 2036.

Under the Moderate scenario, the higher level of net overseas migration inflows is expected to result in a slightly higher proportion of household growth coming from couples without children, lone persons and group households relative to the COVID-Shift scenario. Under the Long Term Recovery scenario, the slightly older age profile by 2036 means that couple without children, one parent families and lone persons will account for a higher percentage of household growth, albeit from a lower increase in the number of households relative to the COVID-Shift scenario.

Figure 78 Growth by Household Type – Moreland, COVID-19 Shift Scenario



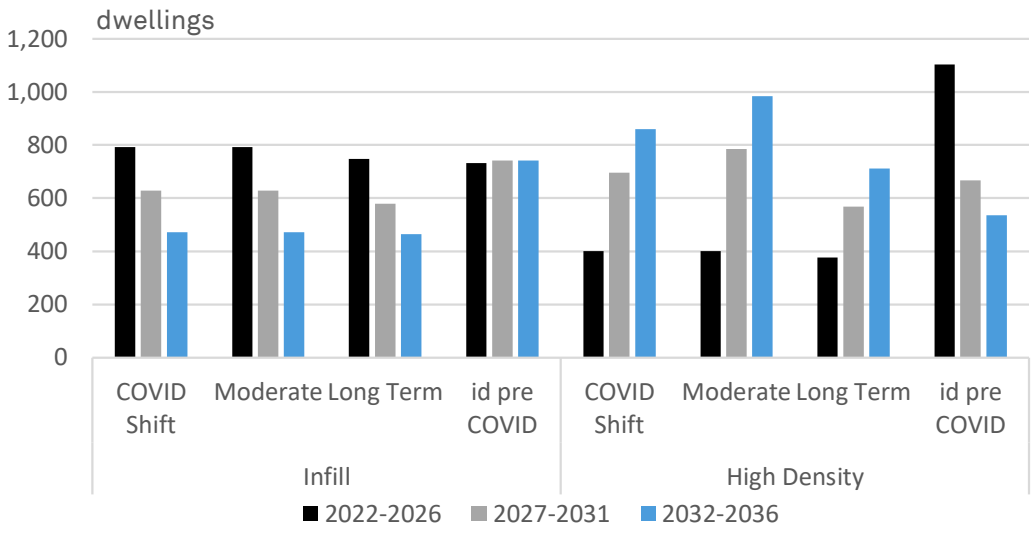
6.7. Dwellings (housing)

New dwelling supply will vary based on the population and household forecasts. The level of infill development is expected to be largely the same under the COVID-19 Shift and Moderate scenarios. Infill supply is expected to be close to capacity, which will steadily diminish as the availability of sites diminishes. Under the Long Term Recovery scenario, infill development is expected to be slightly lower due to lower household growth. Pre COVID-19 forecasts (forecast id, 2020) have assumed a consistent level of infill development through to 2036 without an allowance for diminishing supply availability.

High Density dwelling supply is expected to increase through to the end of the forecast period. Through to 2026, high density supply will be lower, influenced by current market conditions. However, supply is expected to reach higher levels in the back half of the decade and through of the end of the forecast period as population and household growth returns and options for infill development diminish. The level of high density supply in each scenario will reflect the differences in household growth expected.

While the pre COVID-19 forecasts undertaken for Council (forecast id, 2020) were derived prior to the COVOID-19 shock, they incorporate a high level of high density supply over 2022 to 2026 despite the significant reduction to off the plan sales in recent years that has already occurred and that will cause a material reduction in high density supply from 2023 once the current construction pipeline is worked through. Conversely, the pre COVID-19 forecasts assume a reduction in high density supply through to 2036, while Charter's forecast has assumed an increase, albeit from a much lower 2022 to 2026 starting point. In aggregate, Charter has forecast a supply of 9,800 new high density dwellings over 2022 to 2036 compared to the pre COVID-19 forecast of 11,500 dwellings.

Figure 79 Average Annual New Dwelling Supply, Infill and High Density, Moreland, Selected Time Periods



Source: Charter Keck Cramer, forecast id, 2020

7. Forecast Monitoring and Evaluation

The following provides an outline of various datasets that Charter Recommends for Moreland City Council to monitor to help keep a watching brief on population outcomes within Moreland and its component suburbs.

Dataset	Content/Frequency	Why is it useful?
ABS National, state and territory population	Quarterly data showing state level population growth and components of population growth including births, deaths, net interstate migration and net overseas migration. This is published with a six month lag.	This will provide an indication of the return and pace of net overseas migration inflows, as well as whether Victoria's share is recovering. Births can also be monitored to help confirm the expected post COVID-19 impact on fertility rates (or otherwise).
ABS Regional Population	Annual release showing SA2 level population growth in the year to June, as well births, deaths, NOM arrivals and departures, and NIM arrivals and departures. There is, however, lag with this data which is published in March each year to indicate the population at the prior June.	New releases will allow a comparison with population and each of the population growth components with the assumptions of Charter's forecasts.
ABS Regional Migration by Age and Sex	Published around six months after Regional Migration with further information including age by five year age cohorts and age profile of NOM and NOM arrivals and departures.	As above. This can be used to compare against the forecast data for the year of the published data.
ABS Regional internal migration estimates, provisional	Shows population movements (arrivals and departures) on a quarterly basis between capital cities, their state regional areas and interstate. Arrivals and departures for capital city/rest of state locations are also provided by broad age cohorts, albeit not by source or destination and is produced with a 4-5 month lag.	This publication is useful for tracking the permanency of the current city/regional migration trends
ABS Overseas Arrivals and Departures	Monitors monthly overseas movements by type, including permanent and long term arrivals and departures The data is only provided at the national level but is produced each month with only a two month lag, so it is relatively timely.	Being more timely than the ABS *National, state and territory population* data, albeit at a national level, it will provide a more immediate indication of the pace and return of net overseas migration, particularly the long term visitor component, which is a key source of NOM into Moreland, and the best indicator for the components that would reflect population growth and housing demand.
ABS Births	Registered births for the prior calendar year at the SA2 level published around November/December the following year. Age-specific (or mother) births are provided at the state level as well as age-specific fertility rates.	Births can be measured against the assumptions provided in the forecasts. Fertility rates can be compared against the assumptions, particularly as to whether the post COVID-19 trends that were expected are actually taking place.

Dataset	Content/Frequency	Why is it useful?
ABS Deaths	Registered deaths for the prior calendar year at the SA2 level published around November/December the following year. Age-specific deaths births are provided at the state level as well as standardised death rates.	Deaths can be measured against the assumptions provided in the forecasts. Standardised death rates and mortality rates can be compared against the assumptions to highlight whether expected trends are continuing.
ABS Building approvals, Australia	Published monthly with a two month lag at the SA2 level and split into housing, townhouses and apartments. Building approvals are an early indicator of future dwelling supply as the developer/builder would typically not seek a building approval unless they intend to commence construction.	This data will allow the monitoring of infill and apartment development within each SA2. House/townhouse approvals will provide a guide to infill activity, while apartment development will reflect future high density supply. The high density approvals will also indicate if any large sized developments are about to enter the construction pipeline. While monthly variations in the data will be too inconsistent to confirm a trend, a review every six months or so will be useful to check against the modelling.
ABS Census of Population and Housing	The next population census will be conducted in August 2021, with data expected to become available from mid-2022.	The Census results will help to confirm current assumptions and inform a range of assumptions in future including: ▪ Household formation and propensity rates to help forecast number and type of households. ▪ Overseas arrivals age profile and internal migration arrivals and departures age profiles (and source and destination locations) ▪ Insights into potential COVID-19 impacts. The ABS will also follow the release of the Census data with updated estimated resident populations for the 2016 to 2021 inter-Censal period, which will then provide a new population base for forecasting.
Department of Home Affairs – Visa statistics, student visa and temporary graduate visa program reports (Pivot Tables)	Provides monthly data of student visas lodged and granted by destination state, as well as total stock of temporary visa holders by visa type at the national level. Reports are published for the prior months is published every six months in June and December. More up to date Pivot Tables of data only provide monthly information with a 1-2 month lag.	As much of NOM enters first as students, this data is a useful lead indicator of future NOM arrivals. A review every 3-6 months, particularly around the middle to latter half of the year when visa applications are lodged, may provide some indication of what the following year's student arrivals might look like.

Dataset	Content/Frequency	Why is it useful?
Department of Education, Skills and Employment – Monthly summary of international student enrolment data	Publishes monthly international student commencements and enrolments at the state level via its 'International Education' portal. Note that the data may be overstated to some extent as there is some double counting if a student is enrolled in more than one course or transitions from one form of education to another. The data will also include international students who may have already arrived on other visas and transitioned to education	This provides a guide to international student arrivals in Victoria. While a direct translation into numbers for Moreland may be difficult, changes in the magnitude of commencements should reflect international student movements into Moreland, while changes to total enrolments should reflect the total international student population.
Department of Births Deaths and Marriages – births data	The web site shows births in Victoria as registered by a hospital or midwife and is updated monthly up to the previous month.	At the macro level, the monthly data can be used to follow both the impact to births from COVID-19 as well as the timing of any improvement. Charter understands specific requests can also be made for more granular data, which could be used for timelier SA2 births data than the ABS publishes, as well as confirm number of births by age of mother.
City of Moreland – birth notifications	Birth notifications are provided to City of Moreland Maternal Child Health Centres.	This is timely (should be up to the most recent month), although preliminary analysis of the data suggests that it is slightly higher than the data published by the ABS births. Further analysis will be required to account for discrepancies with ABS data but could potentially be disaggregated to look at age of mother to confirm and support future age-specific fertility assumptions.
SQM Research	Provides a range of free property-related data on its web site, including the number of dwellings being advertised for rent on a monthly basis in each postcode.	As with the DHHS data above, analysis of the data will not provide a quantifiable result, but more an indication of the direction and magnitude of change. i.e. decrease in available properties for rent would be expected to be consistent with greater inward movement of population (although it could also reflect some level of owner occupier purchase activity taking rental dwellings out of the stock).
Charter Keck Cramer - proprietary apartments database as well as its supply methodology for projects under 10 dwellings	Charter keeps a live database of projects in the development pipeline of 10 or more dwellings. Projects under construction or being actively marketed are also given an indicative completion date to show when they will add to supply. Charter has also developed a methodology for estimating supply of dwellings in projects of less than 10 dwellings based in VBA data.	A six monthly or annual review of the Charter data will help to update the short term supply/completions pipeline and identify any major changes, such as major new high density projects coming to the market.

Dataset	Content/Frequency	Why is it useful?
Department of Health and Human Services, Publications, Reports, Reviews & Data, 'Rental Report', Rental Report Time Series Data *(a) Moving annual rents by suburb – new rental bonds registered* *(b) Moving annual rents by suburb – quarterly median rents* *(c) Tables from rental report (Table 14) active bonds by local government area*	a) This shows quarterly number of new rental bonds registered for suburbs within Moreland b) Change in median rents for new bonds registered with DHHS at the suburb level. c) DHHS also publishes the number of 'active' rental bonds in each LGA on a quarterly basis.	While the DHHS data does not provide any data that allows a quantifiable measurement against any of the population assumptions, it provides a useful 'sense check' to see whether the expected trends are holding or something else is going on, including: • Changes to the number of new rental bonds registered may provide some indication of new arrivals, although it would also reflect people switching between properties as well. • The rate of rental growth will provide an indication of demand for rental stock in locations within Moreland and may reflect absorption and potentially population growth. Rents reaching a sufficient threshold may also underpin higher values and an uptick in the rate of new development. • The number of active bonds is a useful proxy for the total number of rental dwellings occupied and provide an indication of people moving into the municipality (although could also reflect some change in tenure – i.e. active bonds are decreasing because owner occupiers are purchasing rental dwellings).
Department of Environment, Land, Water and Planning – urban development program (UDP data	DELWP monitors development in Melbourne via the Urban Development Program. The development pipeline is updated annually, with the latest update for 2019.	This provides an alternate source of dwelling data that can be cross referenced against Charter's assumptions, although an audit has shown that it is not quite as comprehensive.
Victorian Building Authority	The VBA publishes detailed building permit activity data which will identify new dwelling building permits by location (street name and suburb) and type of dwelling project.	This data can be cross referenced against data provided by ABS *Building Approvals*, to help identify large projects that will contribute to short term supply.
City of Moreland – development applications	• Development applications and approvals will provide an indicator of potential supply and developer supply intentions as well as short term higher density capacity – i.e. permitted sites should be able to proceed to development quickly in a rising market. However, it should be noted that not all permitted sites proceed through to development.	Development applications and approvals can help better inform supply capacity. Charter applies an indicative dwelling density to estimate the capacity of a site, whereas a development approval will provide an actual dwelling capacity. This can be reviewed to coincide with any review of capacity.

Dataset	Content/Frequency	Why is it useful?
City of Moreland – Certificate of Occupancy data	The issuing of a Certificate of Occupancy effectively classifies a building as inhabitable, which is a useful definition of when stock is completed and therefore adding to supply.	Certificate of occupancy data can be compiled as means of comparing against the dwelling forecasts to ensure they are on track.

8. Appendix A – Post COVID-19 Suburb Forecasts

This Appendix provides an overview of key results of post COVID-19 forecast population and housing by suburb and scenario. Commentary focusses on the 'COVID-shift' scenario, as the most likely scenario. However consideration is also given to the prospect of a medium and long-term recovery. The datasets presented in this Appendix are also provided as an Annex to this report (see Appendix C).

8.1. Brunswick

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 80 Total Population and Household Comparison - Brunswick

Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	30,506	29,593	31,333	33,678	36,812	6,306
Moderate Recovery	30,506	29,593	31,606	34,338	37,828	7,322
Long Term Recovery	30,506	29,593	30,678	32,871	35,543	5,037
id Pre-COVID	29,541	30,287	34,247	36,930	38,770	9,229
	Households					
COVID Shift	13,455	13,053	14,234	15,413	16,932	3,478
Moderate Recovery	13,455	13,053	14,352	15,699	17,379	3,924
Long Term Recovery	13,455	13,053	13,964	15,073	16,385	2,931
id Pre-COVID	12,769	13,090	14,810	16,096	17,030	4,261

Source: Charter Keck Cramer, id

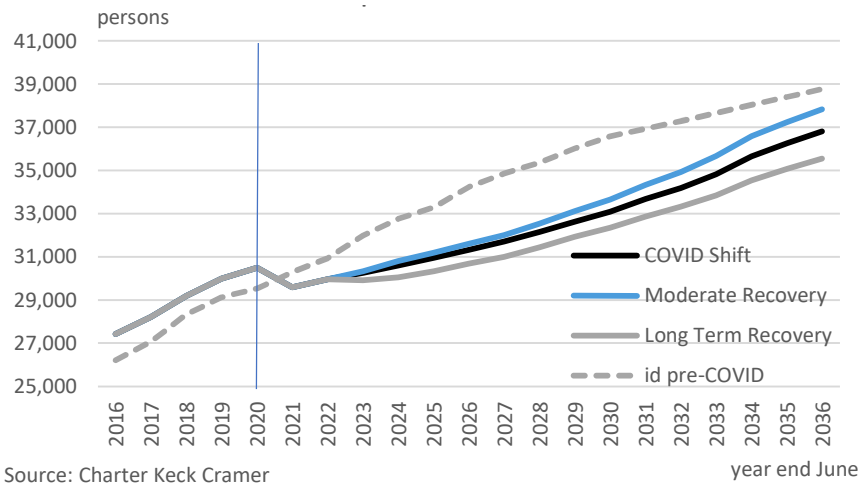
8.1.1. Population change

Under the COVID-Shift scenario, the COVID-19 pandemic will see population growth across Brunswick fall short of pre COVID-19 forecasts. Over 2020–2026 Brunswick's population is forecast to grow at an average rate of 0.4% p.a., below the 2.1% p.a. forecast pre COVID-19 (forecast.id, 2020). This translates to a total forecast increase in Brunswick's population of only 830 residents, which is 82% below the level of growth forecast pre COVID-19 through this time period.

Over the full 2020-2036 period, Brunswick's population is forecast to grow by 6,300 residents, well below the 9,200 previously forecast pre COVID-19 through this time period. By 2036, Brunswick's population is forecast to be 36,800, some 2,100 persons below the pre COVID-19 forecast of 38,800.

Higher net migration flows under the Moderate Scenario are forecast to provide upside to the forecast, taking total population to 37,800 in 2036, or 1,000 higher than the COVID-19 Shift Scenario. Conversely, population by 2036 is forecast to be 35,550 under the Long Term Scenario, or 1,300 below the COVID-19 Shift forecast.

Figure 81 Total Population Comparison - Brunswick

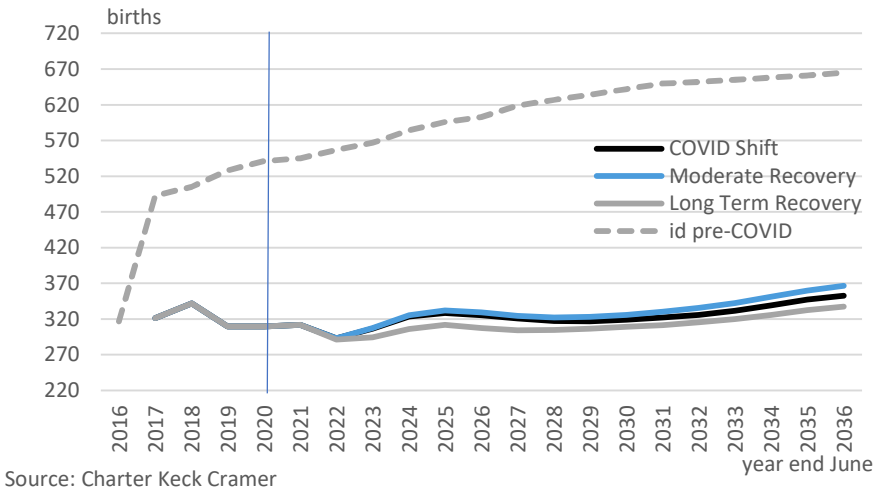


Source: Charter Keck Cramer

8.1.2. Births

Under the COVID-Shift scenario, births across Brunswick are forecast to fall over 2020–2022 as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A slight increase in births is anticipated over 2022–2024 as couples that previously delayed birth start to have children. Over the following decade, the number of births in Brunswick is forecast to be around 330 births per annum, rising to 350 per annum by 2036. Under the Moderate scenario, the higher population in the child bearing age cohorts will result in slightly higher births, while in the Long Term Recovery scenario, births will remain longer for lower.

Figure 82 Forecast Births - Brunswick

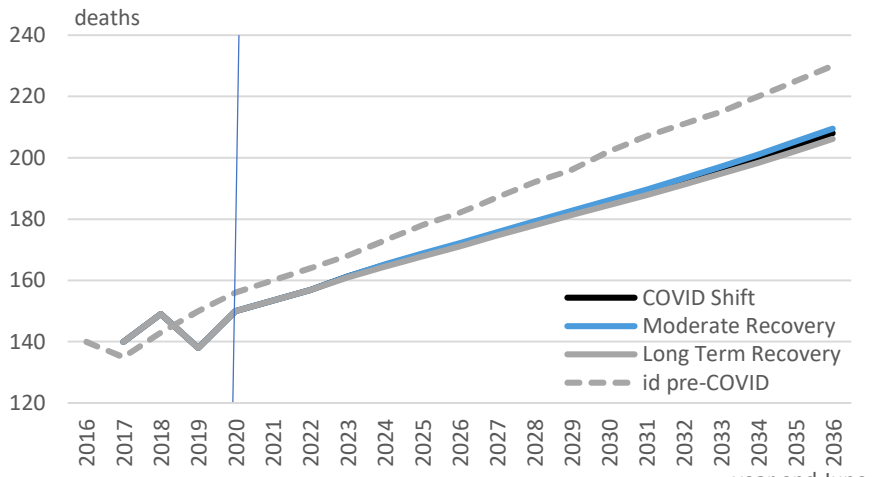


Source: Charter Keck Cramer

8.1.3. Deaths

Under the COVID-19 Shift scenario. The mortality rate across Brunswick has been relatively unaffected by the onset of the COVID-19 pandemic. Moving forward the total number of annual deaths in Brunswick is forecast to increase in line with population growth following a similar trajectory to that forecast pre COVID-19 (forecast.id, 2020). As the older (50+ years) age cohorts will only experience limited change under the difference post COVID-19 scenarios, there will be little difference to deaths.

Figure 83 Forecast Deaths - Brunswick

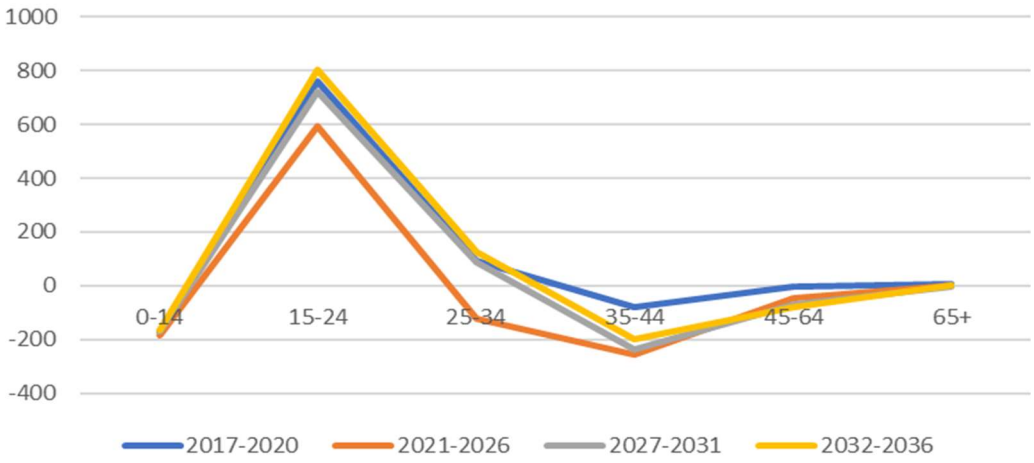


Source: Charter Keck Cramer

8.1.4. Net Migration by Age

Under the COVID-Shift scenario as a guide, migration into Brunswick is predominantly driven by residents aged 15–24 years. Over 2017–2036 Brunswick is forecast to record a net outflow of residents aged 35 years or older. The closed international border as a result of the COVID-19 pandemic is forecast to result in lower net migration within the 15-24 years and 25-34 years age cohorts over 2021–2026.

Figure 84 Net Migration by Age - Brunswick



Source: Charter Keck Cramer

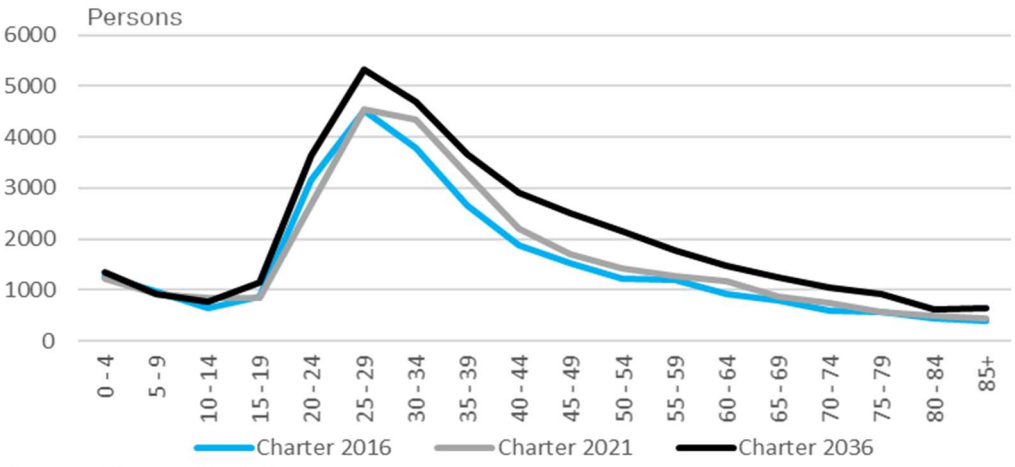
8.1.5. Population by Age

Age Profile (Over Time)

Under the COVID-Shift scenario, Brunswick's population is underpinned by a high proportion of residents in the 20–39 years age cohort, accounting for 51% of total residents in 2016. Over the 2016–2036 period Brunswick's population is forecast to age significantly with the proportion of residents aged 20–39 years forecast to account for 47% of total residents by 2036. Conversely the proportion of

residents aged 40–59 years is forecast to increase to 26% of total residents, up from just 21% in 2016.

Figure 85 Age Profile Over Time – Brunswick, COVID-19 Shift Scenario



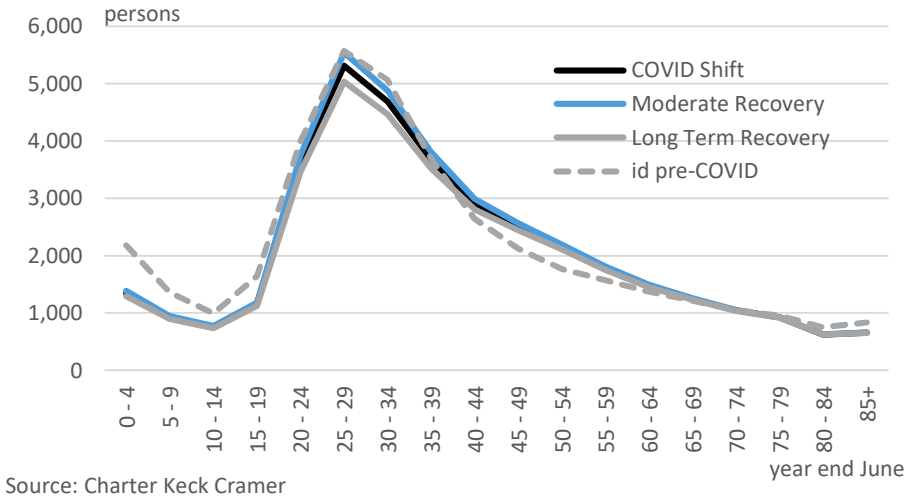
Source: Charter Keck Cramer

Age Profile Comparison (at 2036)

Under the COVID-Shift scenario, Brunswick's age profile at 2036 is likely to be significantly older than that forecast pre COVID-19 (forecast.id, 2020). Current forecasts show that by 2036 Brunswick will contain 1,260 more residents aged 40–59 years but 1,990 fewer residents aged under 20 years in comparison to pre COVID-19 forecasts.

In the Moderate recovery scenario, the greater level of in-migration results in the higher population being concentrated in the 15 to 39 year old age cohorts relative to the COVID-19 Shift scenario, while in the Long Term Recovery scenario, population in this cohort is lower.

Figure 86 Age Profile Comparison – Brunswick



Source: Charter Keck Cramer

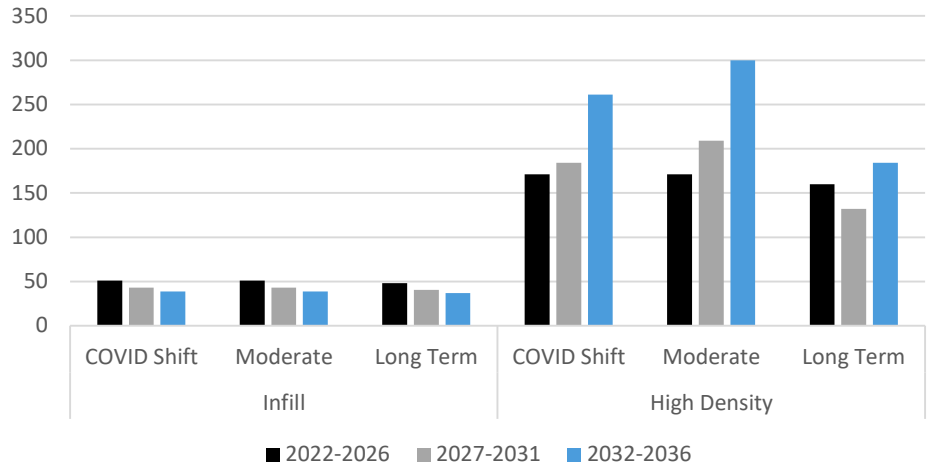
8.1.6. Households

Dwellings by Type

While some infill development takes place in Brunswick, new dwelling supply is largely accounted for by high density dwellings. With the high density market entering a downturn and the pipeline of new high density projects under construction diminishing, supply is expected to be lower over 2022-2026 and rising (on average) over 2027-2031 as the high density recovery starts to have an impact on completions. It will be the 2032-2036 period that incorporates new high density supply returning to capacity over the whole period. The rise will also reflect population and household growth returning to long term trend after COVID-19 impacted years.

Under the Moderate scenario, High Density activity is stronger than the COVID-19 Shift scenario, while enter the Long Term Recovery scenario, average high density supply is expected to be lower over 2027-2031 compared to 2022-2026 due to the high number of apartments in projects currently under construction and to be completed in the earlier period, as well as the delay in the next upturn due to the longer period expected to take to absorb the emerging excess stock.

Figure 87 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Brunswick, Selected Time Periods



Source: Charter Keck Cramer

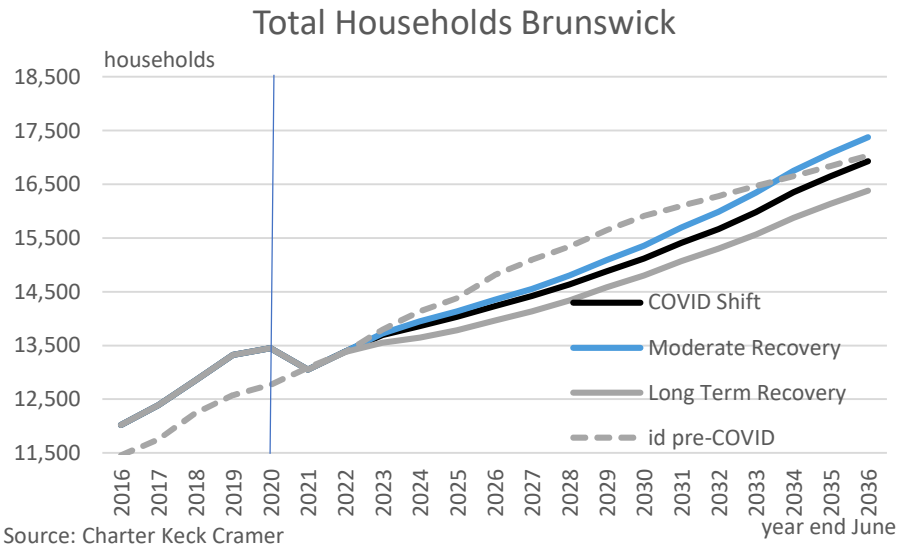
8.1.7. Total Households (Comparison)

Under the COVID-19 Shift scenario, the COVID-19 pandemic will see household growth across Brunswick fall short of pre COVID-19 forecasts. Over the 2019–2029 period the total number of households in Brunswick is forecast to grow at an average rate of 1.1% p.a. below the 2.2% p.a. forecast pre COVID-19 (forecast.id, 2020). This will result in 1,520 fewer households being established in Brunswick over the 2019–2029 period.

Household growth is expected to be stronger from 2030-2036 as both net overseas migration and net internal migration flows increase. This is likely due to the slightly smaller household size assumption used by Charter relative to the pre COVID-19 forecast. Consequently, under the Moderate scenario, total

households (17,400) are above the pre COVID-19 forecast (17,000) despite a lower population forecast. Under the Long Term Recovery scenario, households by 2036 (35,400) are 1,400 dwellings below the COVID-19 Shift scenario (36,800).

Figure 88 Total Household Comparison - Brunswick



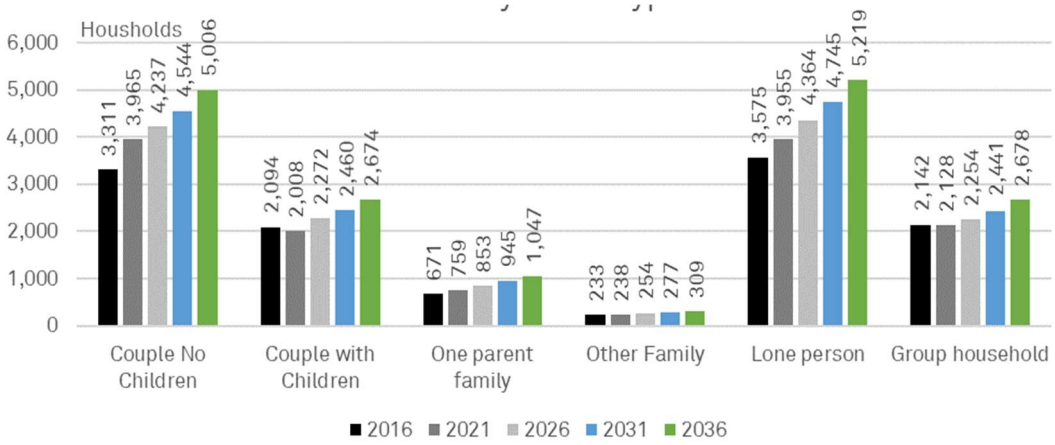
Source: Charter Keck Cramer

8.1.8. Growth in Households by Household Type

Using the COVID-19 Shift scenario as a guide, Brunswick's household structure is expected to be underpinned by small households with Lone Person Households and Couple Households without Children accounting for 57% of total households in 2016. The proportion of these household types is forecast to increase over the 2016–2036 period to account for approximately 60% of total households in Brunswick by 2036.

Under the Moderate scenario, the higher level of net overseas migration inflows is expected to result in a slightly higher proportion of household growth coming from couples without children, lone persons and group households relative to the COVID-Shift scenario. Under the Long Term Recovery scenario, the slightly older age profile by 2036 means that couple without children, one parent families and lone persons will account for a higher percentage of household growth, albeit from a lower increase in the number of households relative to the COVID-Shift scenario.

Figure 89 Growth by Household Type – Brunswick, COVID-19 Shift Scenario



8.2. Brunswick East

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 90 Total Population and Household Comparison – Brunswick East

Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	15,272	15,410	16,507	18,671	19,688	4,416
Moderate Recovery	15,272	15,410	16,622	19,067	20,182	4,910
Long Term Recovery	15,272	15,410	16,019	17,723	18,685	3,413
id Pre-COVID	16,000	16,737	19,252	20,650	22,054	6,054
	Households					
COVID Shift	7,039	7,081	7,854	8,973	9,584	2,546
Moderate Recovery	7,039	7,081	7,899	9,138	9,791	2,752
Long Term Recovery	7,039	7,081	7,651	8,557	9,133	2,094
id Pre-COVID	7,102	7,423	8,500	9,136	9,801	2,699

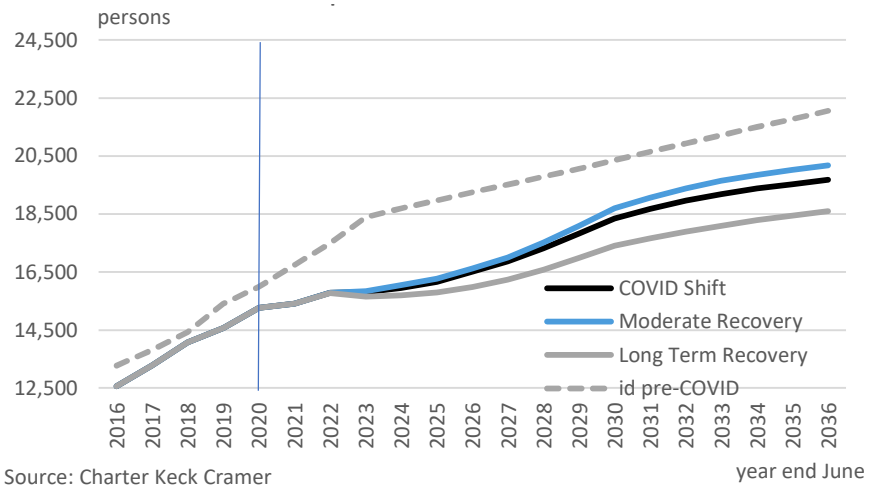
Source: Charter Keck Cramer, id

8.2.1. Population Comparison

Under the COVID-19 Shift scenario, the COVID-19 pandemic will see population growth across Brunswick East fall short of pre COVID-19 forecasts. Over the 2020–2026 period Brunswick East's population is forecast to grow at an average rate of 1.3% p.a., significantly below the 3.1% p.a. forecast pre COVID-19 (forecast.id, 2020). Over the 2022–2024 period Brunswick East's population is forecast to grow by just 170 residents, significantly below the increase of 1,100 residents forecast pre-COVID.

Diminishing availability of development sites is expected to play a part in constraining population growth to 2036. In the pre COVID-19 forecast, the rate of growth was expected to begin to taper from 2023. However, in the post COVID-19 population forecast, this trend is expected to emerge from 2029.

Figure 91 Total Population Comparison – Brunswick East

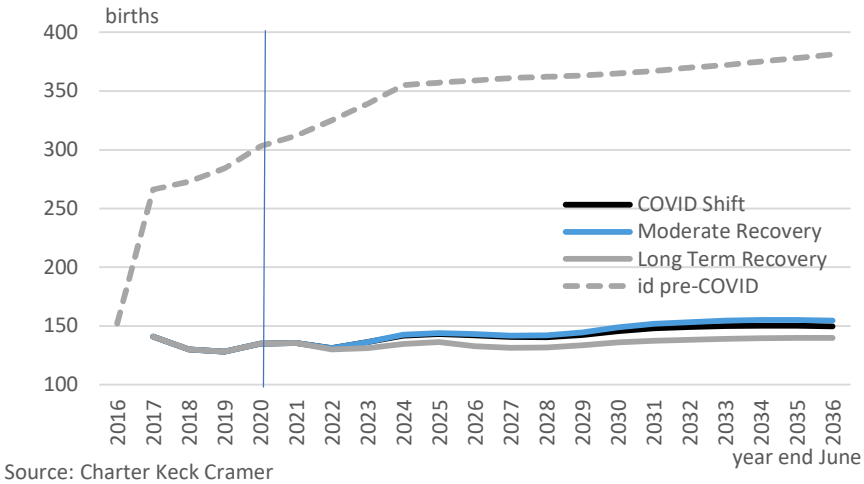


Source: Charter Keck Cramer

8.2.2. Births

Under the COVID-19 Shift scenario, births across Brunswick East are projected to hold steady over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A slight increase in births is then anticipated over the 2022–2024 period as couples that delayed birth over the 2020–2022 period start to have children. Over the next decade the number of births in Brunswick East is forecast to remain around 140 births per annum, rising to 150 per annum by 2036. Under the Moderate scenario, the higher population in the child bearing age cohorts will result in slightly higher births, while in the Long Term Recovery scenario, births will remain longer for lower.

Figure 92 Forecast Births – Brunswick East

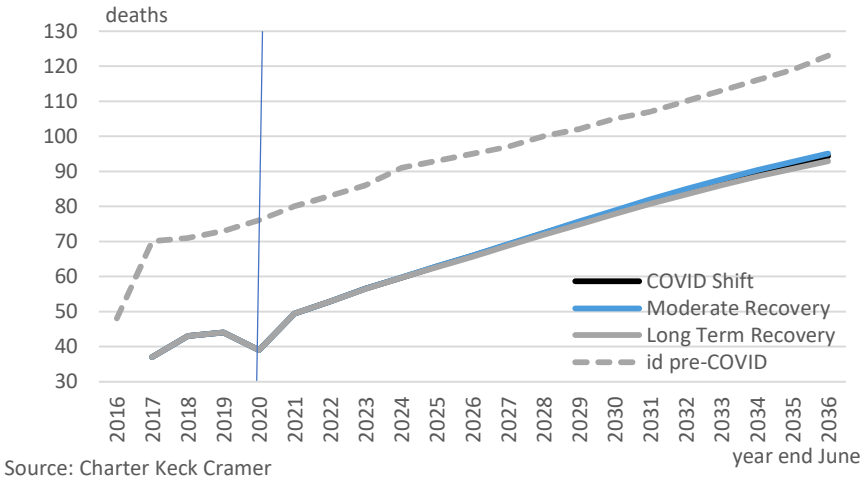


Source: Charter Keck Cramer

8.2.3. Deaths

The mortality rate across Brunswick East has been relatively unaffected by the onset of the COVID-19 pandemic. Moving forward the total number of annual deaths in Brunswick East is forecast to increase in line with population growth following a similar trajectory to that forecast pre COVID-19 (forecast.id, 2020). As the older (50+ years) age cohorts will only experience limited change under the different post COVID-19 scenarios, there will be little difference to deaths.

Figure 93 Forecast Deaths – Brunswick East

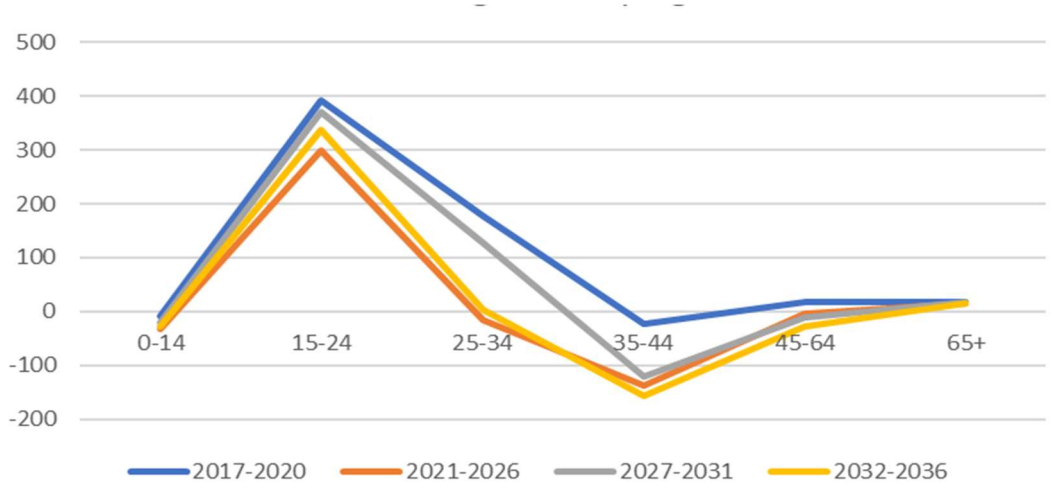


Source: Charter Keck Cramer

8.2.4. Net Migration by Age

Under the COVID-19 Shift scenario, migration into Brunswick East is expected to be predominantly driven by residents aged 15–24 years. Over the 2017–2036 period Brunswick East is forecast to record a net outflow of residents age 35 years or older. The closed international border as a result of the COVID-19 pandemic is forecast to result in lower net migration within the 15-24 years age cohort over the 2021–2026 period.

Figure 94 Net Migration by Age – Brunswick East, COVID-19 Shift Scenario



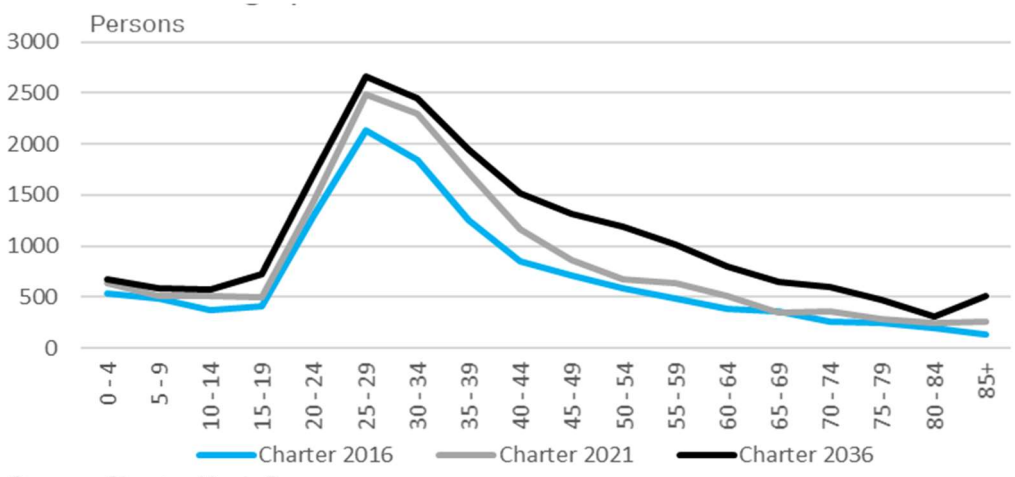
Source: Charter Keck Cramer

8.2.5. Population by Age

Age Profile (Over Time)

Under the COIVID Shift scenario, Brunswick East's population is underpinned by a high proportion of residents in the 20–39 years age cohort accounting for 52% of total residents in 2016. Over the 2016–2036 period Brunswick East's population is forecast to age significantly with the proportion of residents aged 20–39 forecast to account for 44% of total residents by 2036. Conversely the proportion of residents aged 40–64 years is anticipated to increase to 30% of total residents, up from just 24% in 2016.

Figure 95 Age Profile Over Time – Brunswick East, COVID-19 Shift Scenario



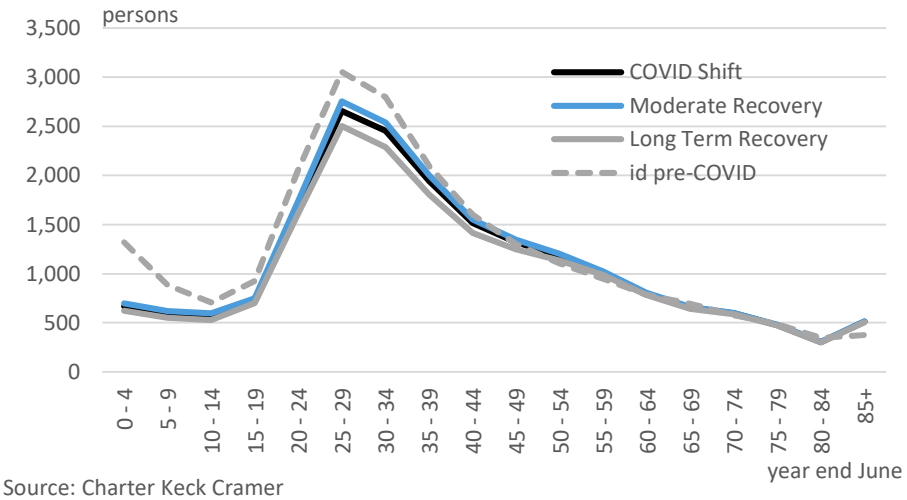
Source: Charter Keck Cramer

Age Profile Comparison (at 2036)

Brunswick East's age profile at 2036 is likely to be significantly older than that forecast pre COVID-19 (forecast.id, 2020). Current forecasts show that by 2036 Brunswick East will contain 2,040 fewer residents aged under 30 years but just 325 fewer residents aged over 30 years when compared against pre COVID-19 forecasts.

In the Moderate recovery scenario, the greater level of in-migration results in the higher population being concentrated in the 15 to 39 year old age cohorts relative to the COVID-19 Shift scenario, while in the Long Term Recovery scenario, population in this cohort is lower.

Figure 96 Age Profile Comparison – Brunswick East



Source: Charter Keck Cramer

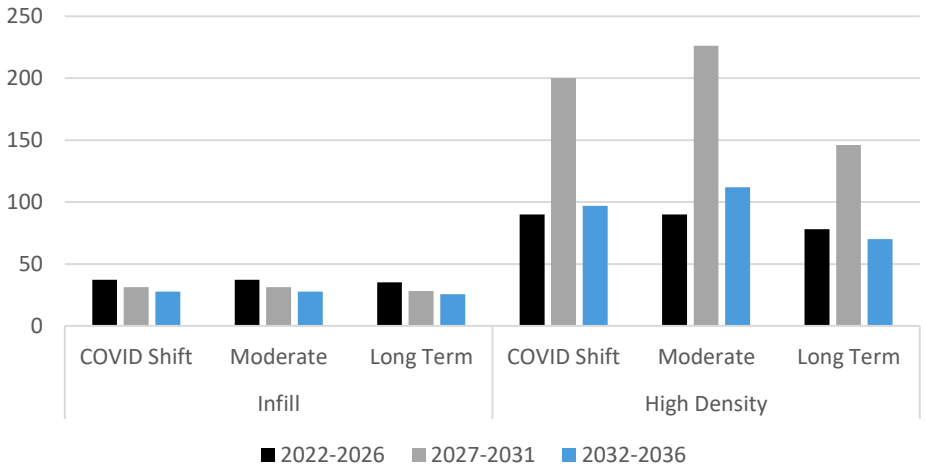
8.2.6. Households

Dwellings by Type

While some infill development takes place in Brunswick, new dwelling supply is largely accounted for by high density dwellings. The COVID-19 shock to population growth is expected to dampen new high density dwelling supply over 2022-2026, before recovering over 2027-2031 as excess stock is absorbed and the rate of population growth recovers. However, with the most easily developable sites expected to be absorbed by the end of the decade, forecast supply is expected to reduce over 2031-2036. Ultimately population growth and dwelling demand will move into other parts of Moreland.

A similar pattern is expected under the Moderate and Long Term Recovery scenarios, with the stronger market under the Moderate scenario freeing up some of the more difficult sites to result in higher levels of supply, with the converse occurring under the Long Term Recovery scenario to result in lower activity overall.

Figure 97 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Brunswick East, Selected Time Periods



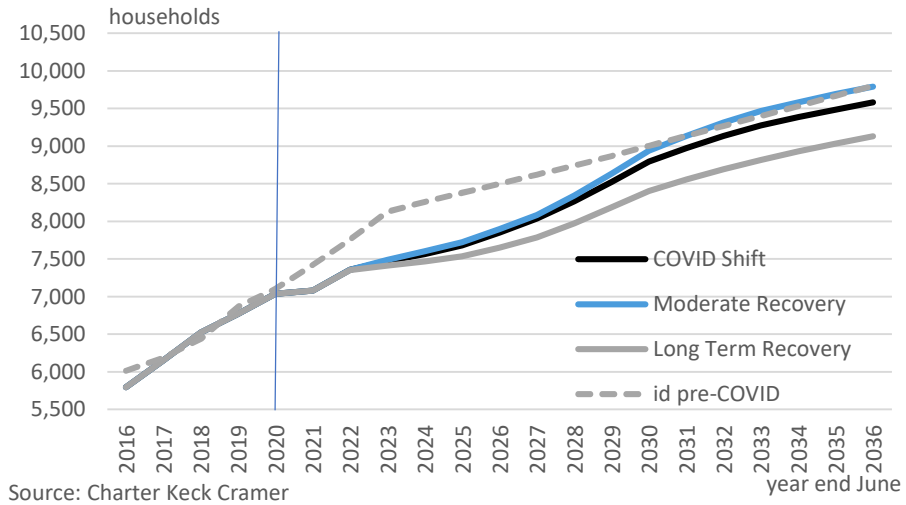
Source: Charter Keck Cramer

Total Households (Comparison)

The COVID-19 pandemic will see short term household growth across Brunswick East fall short of pre COVID-19 forecasts. Over the 2020–2027 period the total number of households in Brunswick East is forecast to increase by 1,000 households some 620 fewer than that forecast over the same time period pre COVID-19 (forecast.id, 2020). From 2027 current forecasts depict a higher rate of household growth than that forecast pre COVID-19 with an average household growth rate of 2.0% p.a. forecast over the 2027–2036 period compared to the 1.4% forecast pre COVID.

Household growth is expected to be stronger from 2030-2036 as both net overseas migration and net internal migration flows increase. This is likely due to the slightly smaller household size assumption used by Charter relative to the pre COVID-19 forecast. Consequently, under the Moderate scenario, total households (9,800) are on par with the pre COVID-19 forecast despite a lower population forecast. Under the Long Term Recovery scenario, households by 2036 (9,100) are 500 dwellings below the COVID-19 Shift scenario (9,600).

Figure 98 Total Households Comparison – Brunswick East



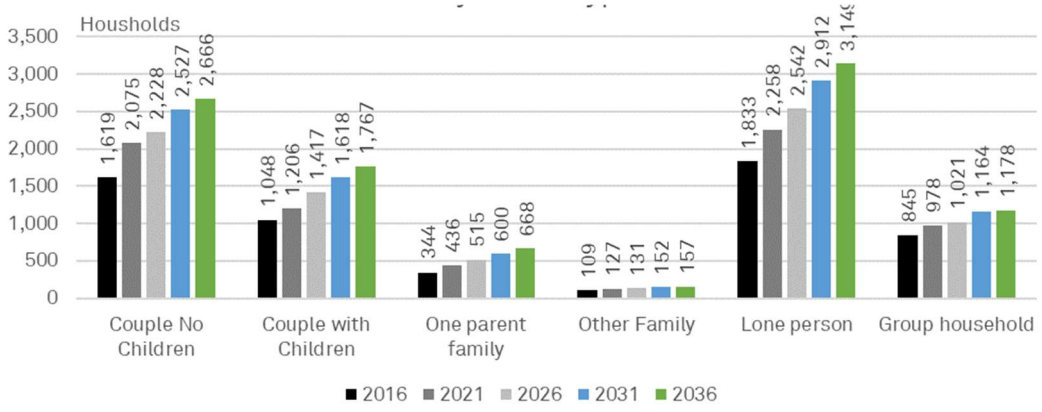
Source: Charter Keck Cramer

Growth in Households by Household Type

Brunswick East's household structure is underpinned by small households with Lone Person Households and Couple Households without Children accounting for 60% of total households in 2016. Over the 2016–2036 period the proportion of Lone Person households is forecast to increase to account for 33% of total households. Conversely the proportion of Group Households is forecast to fall over the same time period from 15% of total households in 2016 to 12% of total households by 2036.

Under the Moderate scenario, the higher level of net overseas migration inflows is expected to result in a slightly higher proportion of household growth coming from couples without children, lone persons and group households relative to the COVID-Shift scenario. Under the Long Term Recovery scenario, the slightly older age profile by 2036 means that couple without children, one parent families and lone persons will account for a higher percentage of household growth, albeit from a lower increase in the number of households relative to the COVID-Shift scenario.

Figure 99 Growth by Household Type – Brunswick East



8.3. Brunswick West

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 100 Total Population and Household Comparison – Brunswick West

Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	15,883	15,955	16,871	18,406	20,498	4,615
Moderate Recovery	15,883	15,955	16,948	18,617	20,920	5,037
Long Term Recovery	15,883	15,955	16,560	18,087	20,076	4,193
id Pre-COVID	17,566	18,035	19,980	21,404	22,810	5,244
	Households					
COVID Shift	7,160	7,161	7,791	8,542	9,531	2,372
Moderate Recovery	7,160	7,161	7,825	8,631	9,713	2,553
Long Term Recovery	7,160	7,161	7,664	8,406	9,348	2,188
id Pre-COVID	7,625	7,812	8,606	9,236	9,883	2,258

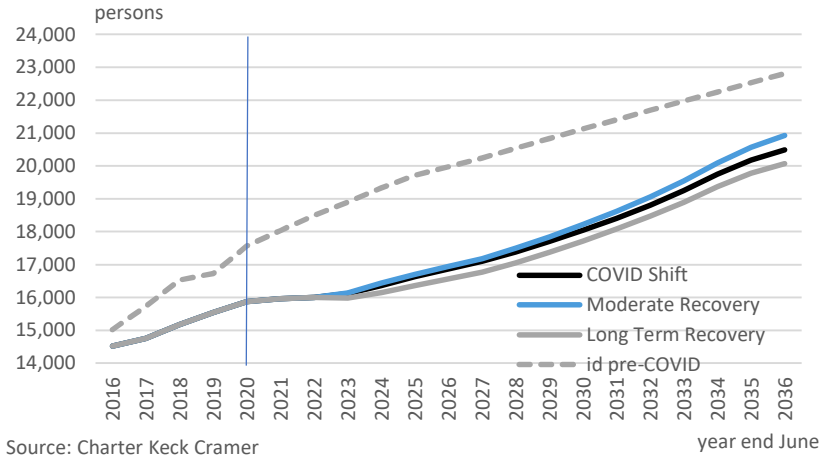
Source: Charter Keck Cramer, id

8.3.1. Population Comparison

Under the COVID-19 Shift scenario, the COVID-19 pandemic is expected to see population growth across Brunswick West fall short of pre COVID-19 forecasts. Over 2020–2026 Brunswick West's population is forecast to grow at an average rate of 1.0% p.a. below the 1.3% p.a. forecast pre COVID-19 (forecast.id, 2020). By 2036 the population of Brunswick West is forecast to be approximately 2,300 residents below that forecast pre-COVID. The rate of population growth is expected to pick up slightly from 2029 onwards as some of the Brunswick East inflow moves west as sites for development begin to dry up.

The difference in total population by 2036 is less under each scenario than in Brunswick and Brunswick East. Lower initial population growth is expected in Brunswick West to the end of the decade, and it is only in the 2030s when the differences become more pronounced between scenarios as population growth accelerates.

Figure 101 Total Population Comparison – Brunswick West

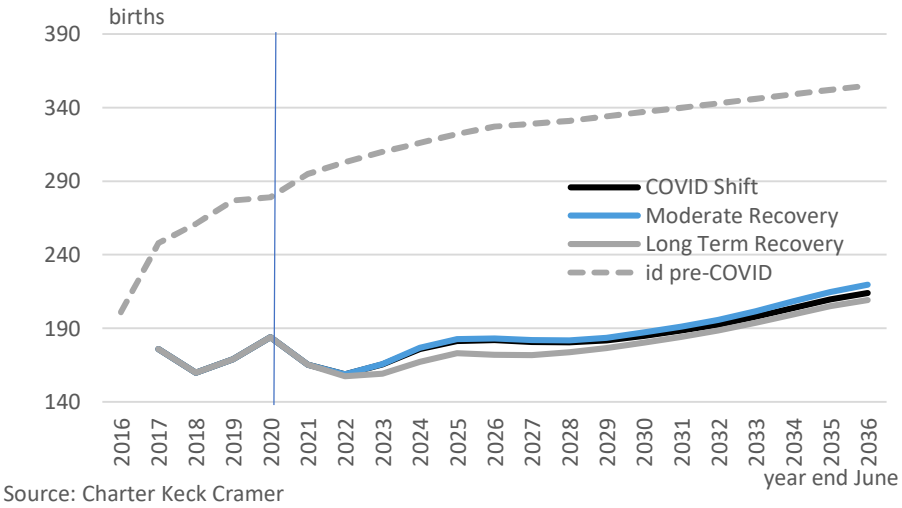


Source: Charter Keck Cramer

8.3.2. Births

Under the COVID-19 Shift scenario, births across Brunswick West are projected to fall over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. An increase in births is then anticipated over the 2022–2024 period as couples that delayed giving birth over the 2020–2022 period start to have children. From 2022 the number of annual births in Brunswick West is forecast to trend upwards increasing from 159 births in 2022 to 214 births by 2036. Under the Moderate scenario, the higher population in the child bearing age cohorts will result in slightly higher births, while in the Long Term Recovery scenario, births will remain longer for lower.

Figure 102 Forecast Births – Brunswick West

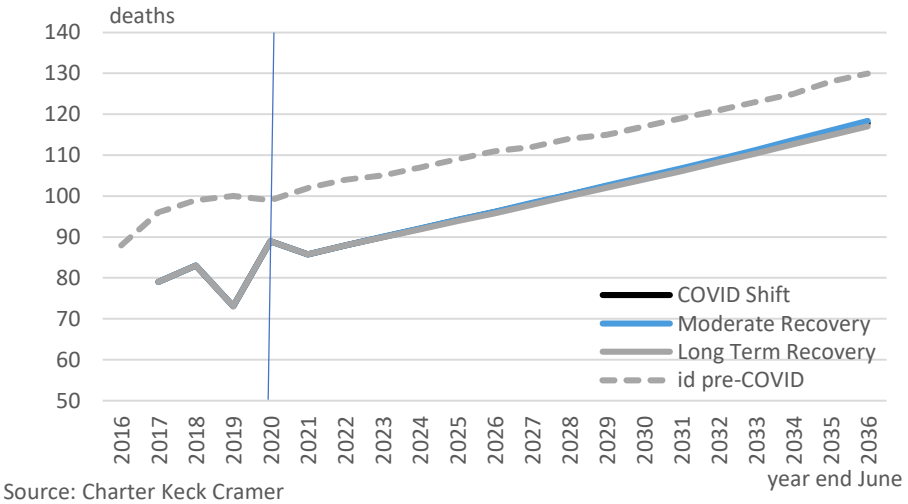


Source: Charter Keck Cramer

8.3.3. Deaths

The mortality rate across Brunswick West has been relatively unaffected by the onset of the COVID-19 pandemic. Moving forward the total number of annual deaths in Brunswick West is forecast to increase in line with population growth following a similar trajectory to that forecast pre COVID-19 (forecast.id, 2020). As the older (50+ years) age cohorts will only experience limited change under the difference post COVID-19 scenarios, there will be little difference to deaths.

Figure 103 Forecast Deaths – Brunswick West

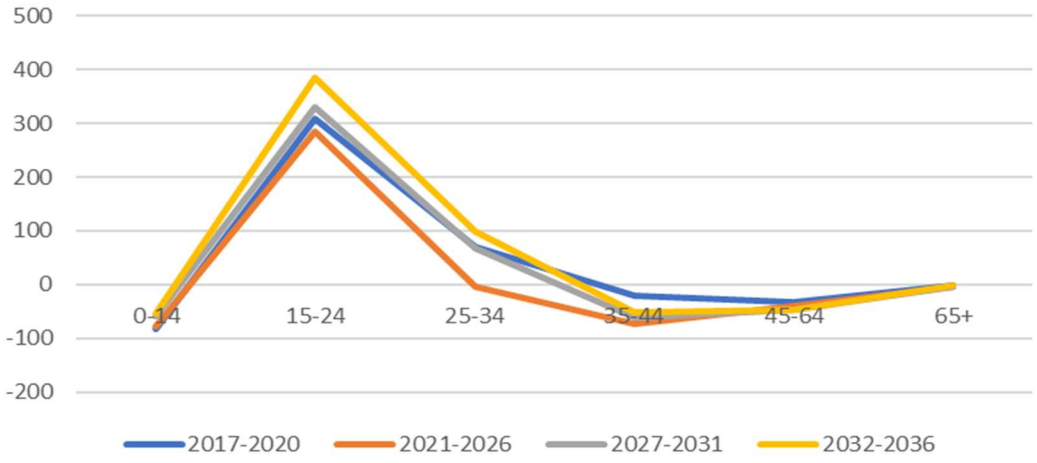


Source: Charter Keck Cramer

8.3.4. Net Migration by Age

Under the COVID-19 Shift scenario as an example, migration into Brunswick West is predominantly driven by residents aged 15–34 years. Over the 2017–2036 period Brunswick West is forecast to record a net outflow of residents age 35 years or older. The closed international border as a result of the COVID-19 pandemic is forecast to result in lower net migration within the 15-24 years and 25-34 years age cohort over the 2021–2026 period.

Figure 104 Net Migration by Age – Brunswick West



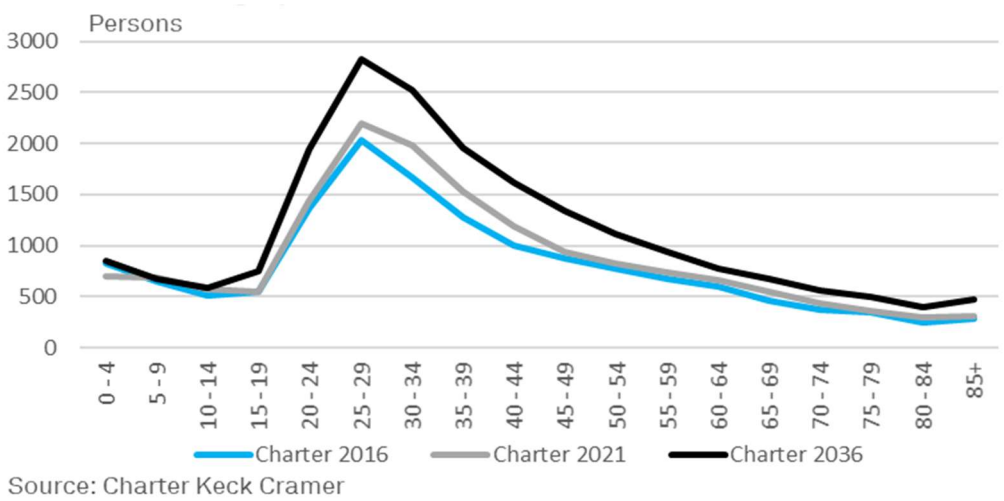
Source: Charter Keck Cramer

8.3.5. Population by Age

Age Profile (Over Time)

Under the COIVD Shift scenario, Brunswick West's population is underpinned by a high proportion of residents in the 20–39 years age cohort accounting for 44% of total residents in 2016. Over the 2016–2036 period Brunswick West's age profile is forecast to undergo limited change with the proportion of residents aged 20–39 years forecast to account for 45% of total residents by 2036 similar to that recorded in 2016. In addition the proportion of residents aged 40–64 years is forecast to account for 28% of total residents by 2036 similar to 27% recorded in 2016.

Figure 105 Age Profile Over Time – Brunswick West, COVID-19 Shift scenario



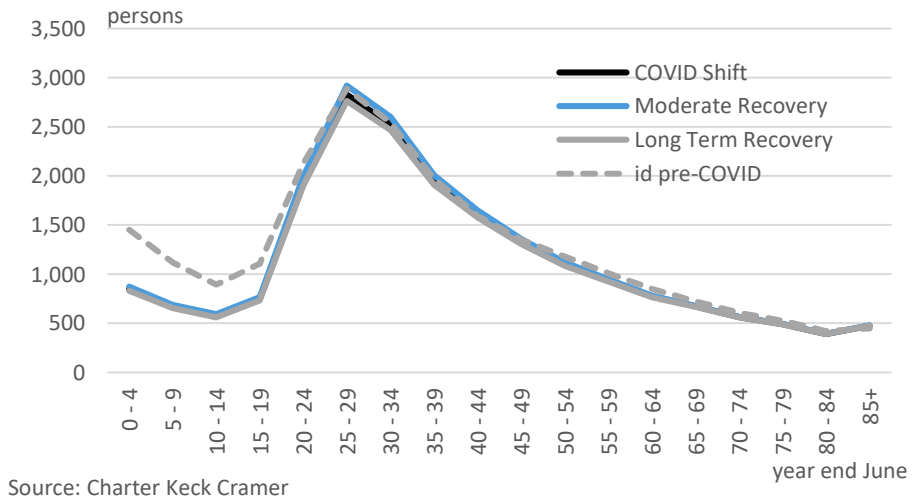
Source: Charter Keck Cramer

Age Profile Comparison (at 2036)

Under the COVID-19 Shift scenario, Brunswick West's age profile at 2036 is likely to be somewhat older than that forecast pre COVID-19 (forecast.id, 2020). Current forecasts show that by 2036 Brunswick East will contain 1,900 fewer residents aged under 25 years, but a comparable number of residents aged 25–54 years when compared against pre COVID-19 forecasts.

With less differences in 2036 population under each scenario relative to Brunswick and Brunswick East, differenced across the 2036 age profile between each of the three scenarios is also relatively limited, with slightly higher population being concentrated in the 15 to 39 year old age cohorts relative to the COVID-19 Shift scenario, while in the Long Term Recovery scenario, population in this cohort is lower.

Figure 106 Age Profile Comparison – Brunswick West



Source: Charter Keck Cramer

8.3.6. Households

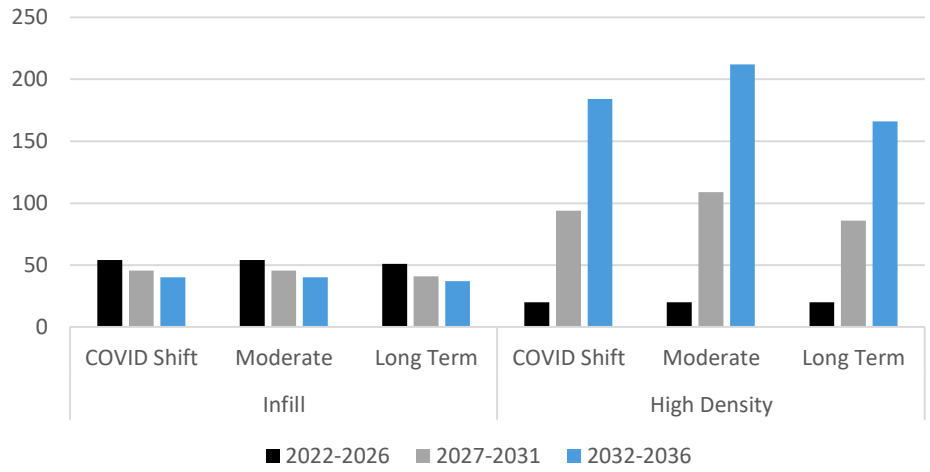
Dwellings by Type

Brunswick West experiences limited infill dwelling activity, but also experienced limited new high density dwelling supply over the past decade. However, it has a

relatively high level of potential capacity. Brunswick West is expected to begin to absorb population that would have otherwise been in Brunswick East by the end of the decade as capacity there diminishes. As a result, high density supply is expected to progressively increase over 2022-2026 to 2027-2031 and 2032-2036.

New high density supply will be correspondingly higher under the Moderate and lower under the Long Term Recovery scenario.

Figure 107 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Brunswick West, Selected Time Periods



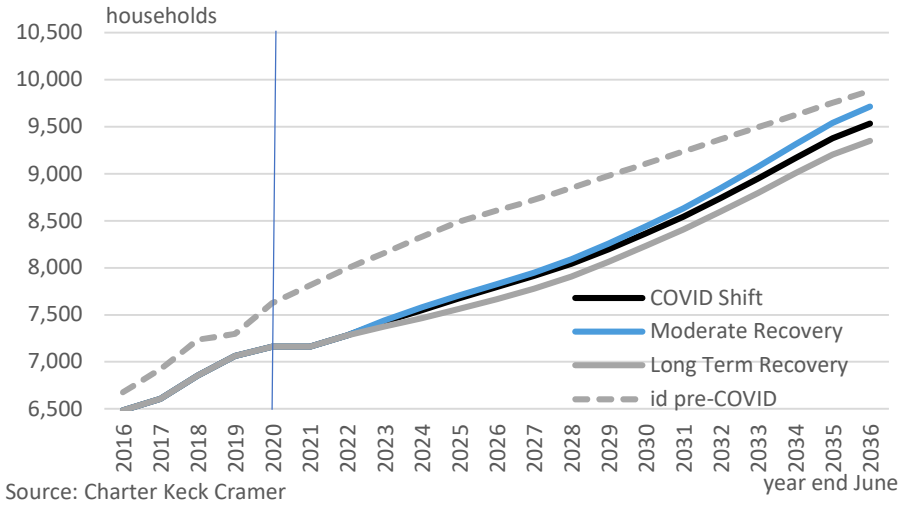
Source: Charter Keck Cramer

8.3.7. Total Households (Comparison)

Under the COVID-19 Shift scenario, the COVID-19 pandemic will see short-term household growth across Brunswick West fall short of pre COVID-19 forecasts. As at 2020 there are 465 fewer households in Brunswick West than that forecast pre COVID-19 (forecast.id, 2020). Over the 2020–2030 period is currently forecast that the total number of households in Brunswick West will increase at an average rate of 1.6% per annum slightly below the pre COVID-19 forecast of 1.8% per annum over the same time period.

Household growth is forecast to be stronger from 2030-2036 as both net overseas migration and net internal migration flows increase. Total households by 2036 are expected to move closer to the pre COVID-19 forecast by id, although this is also expected to be due to the slightly smaller household size assumption used by Charter relative to the pre COVID-19 forecast. Under the Moderate scenario, total households (9,700) are slightly below the pre COVID-19 forecast (9,900). Under the Long Term Recovery scenario, households by 2036 (9,350) are 150 dwellings below the COVID-19 Shift scenario (9,500).

Figure 108 Total Household Comparison – Brunswick West



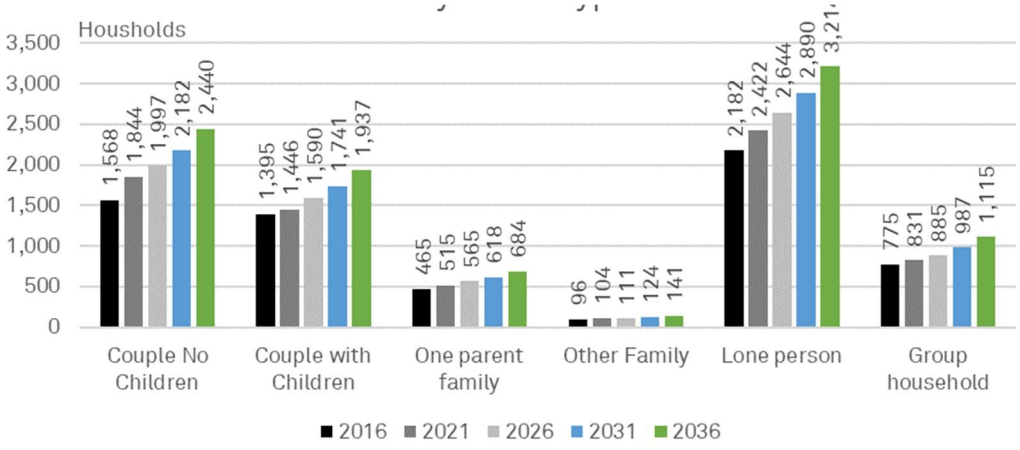
Source: Charter Keck Cramer

8.3.8. Growth in Households by Household Type

Using the COVID-19 Shift scenario as a sample, Brunswick West's household structure is underpinned by a significant proportion of Lone Person Households accounting for 34% of total households within the suburb in 2016. Over the 2016–2036 period the proportion of Couple Households without Children is forecast to increase to account for 26% of total households up from 24% in 2016.

Under the Moderate scenario from couples without children and group households are expected to account for a slightly higher share of the increase in households relative to the COVID-Shift scenario. Under the Long Term Recovery scenario lone persons households are expected to account for a higher percentage of household growth, albeit from a lower increase in the number of households relative to the COVID-Shift scenario.

Figure 109 Growth by Household Type – Brunswick West



8.4. Coburg

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 110 Total Population and Household Comparison - Coburg

Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	29,463	29,859	31,824	34,269	37,372	7,909
Moderate Recovery	29,463	29,859	31,941	34,552	37,946	8,483
Long Term Recovery	29,463	29,859	31,408	33,838	36,797	7,334
id Pre-COVID	29,459	30,126	35,344	38,533	40,656	11,197
	Households					
COVID Shift	11,308	11,424	12,397	13,328	14,536	3,228
Moderate Recovery	11,308	11,424	12,435	13,424	14,738	3,430
Long Term Recovery	11,308	11,424	12,267	13,185	14,335	3,027
id Pre-COVID	11,234	11,522	13,771	15,168	16,127	4,893

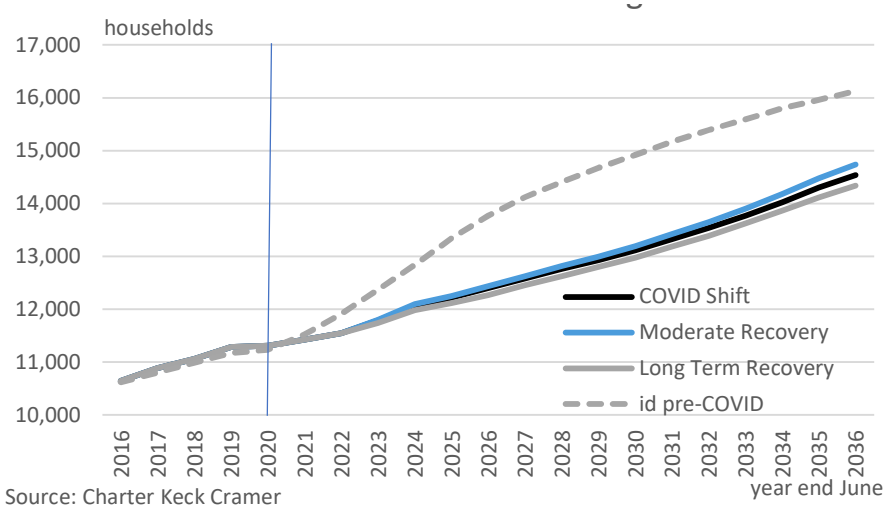
Source: Charter Keck Cramer, id

8.4.1. Population Comparison

Under the COIVID Shift scenario, the COVID-19 pandemic is expected to see population growth across Coburg fall short of pre COVID-19 forecasts. Over the 2020–2030 period Coburg's population is forecast to grow at an average rate of 1.4% p.a. below the 2.6% p.a. forecast pre COVID-19 (forecast.id, 2020). Over the 2020 - 2036 period Coburg's population is forecast to increase by 4,240 fewer residents than that forecast pre-COVID.

Relative to the pre COVID-19 forecast, it appears that they have allowed for a significant level of development in Coburg to take place and absorb population beginning early-mid 2020s. Charter's assumption is for development in Coburg to pick up much later (i.e. from 2030 onwards), given the expected protracted post COVID-19 weakness in the high density market, and ample supply still available in Brunswick, Brunswick East (for now) and Brunswick West.

Figure 111 Total Population Comparison - Coburg

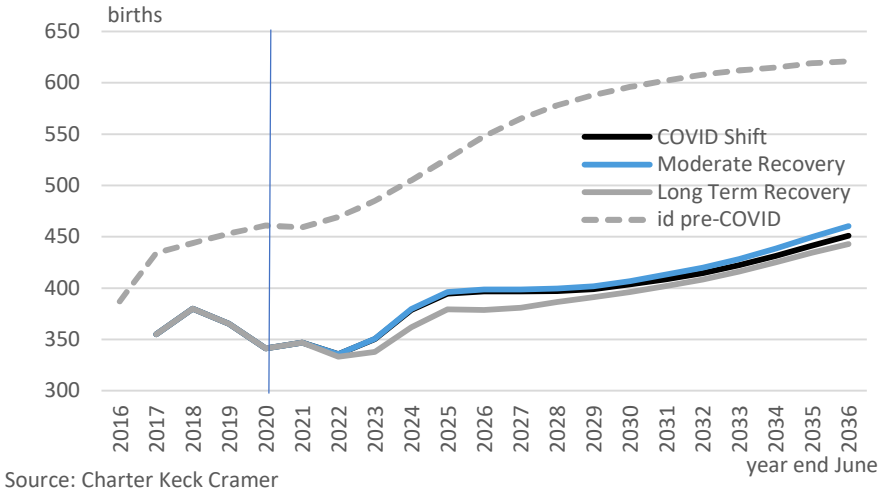


Source: Charter Keck Cramer

8.4.2. Births

Under the COIVID Shift scenario, births in Coburg are projected to hold steady over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. An increase in births is then anticipated over the 2022–2024 period as couples that delayed having children over the 2020–2022 period start to have children. From 2022 the number of annual births in Coburg is forecast to trend upwards increasing from 336 births in 2022 to 451 births by 2036. Under the Moderate scenario, the higher population in the child bearing age cohorts will result in slightly higher births, while in the Long Term Recovery scenario, births will remain longer for lower.

Figure 112 Forecast Births - Coburg

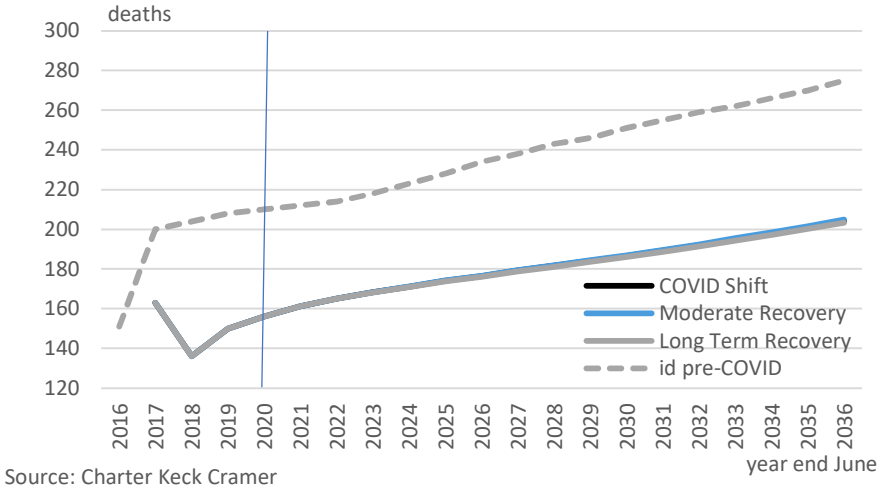


Source: Charter Keck Cramer

8.4.3. Deaths

Under the COIVID Shift scenario, the mortality rate across Coburg has been relatively unaffected by the onset of the COVID-19 pandemic. Moving forward the total number of annual deaths in Coburg is forecast to increase in line with population growth following a similar trajectory to that forecast pre COVID-19 (forecast.id, 2020). As the older (50+ years) age cohorts will only experience limited change under the difference post COVID-19 scenarios, there will be little difference to deaths.

Figure 113 Forecast Deaths - Coburg

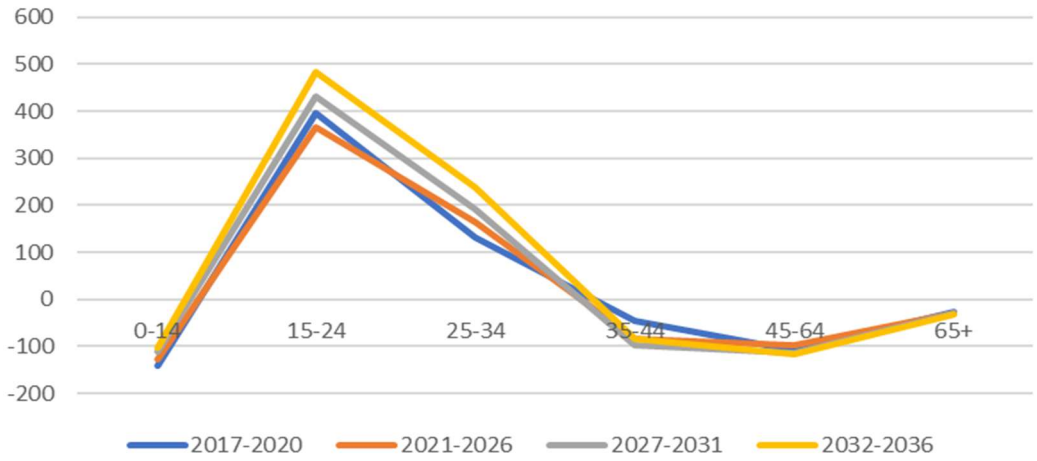


Source: Charter Keck Cramer

8.4.4. Net Migration by Age

Using the COVID-19 Shift scenario as a guide, migration into Coburg is predominantly driven by residents aged 15–34 years. Over the 2017–2036 period Brunswick West is forecast to record a net outflow of residents age 35 years or older. The closed international border as a result of the COVID-19 pandemic is forecast to result in lower net migration within the 15-24 over the 2021–2026 period.

Figure 114 Net Migration by Age – Coburg, COVID-19 Shift scenario



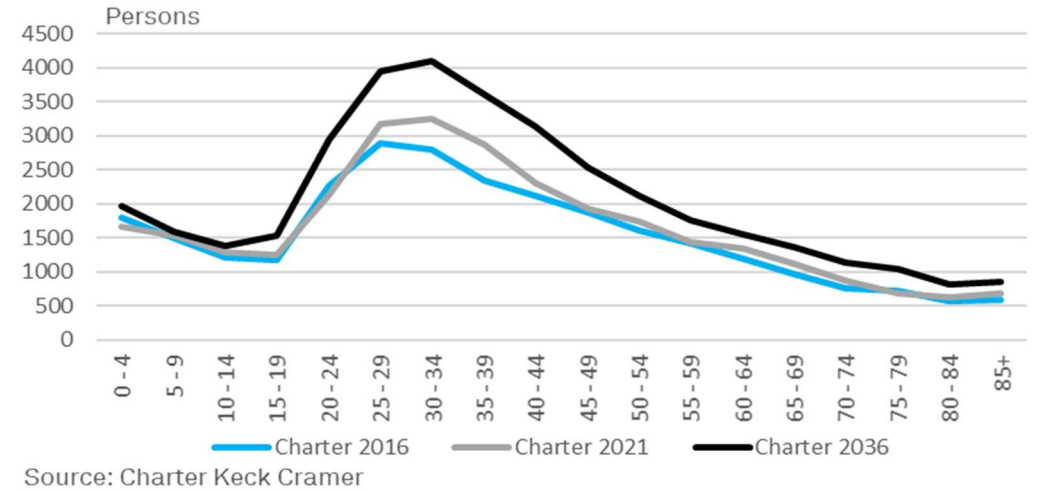
Source: Charter Keck Cramer

8.4.5. Population by Age

Age Profile (Over Time)

Under the COVID-19 Shift scenario, Coburg's age profile shows a more even distribution across age cohorts than other suburbs within Moreland. The predominant age cohort in Coburg in 2016 was the 25–29 years age cohort closely followed by the 30–34 years age cohort. Coburg's population is forecast to age slightly over the 2016–2036 period with the 30-34 years age cohort set to overtake the 25-29 years age cohort and become the predominant age cohort across Coburg.

Figure 115 Age Profile Over Time – Coburg, COVID-19 Shift Scenario



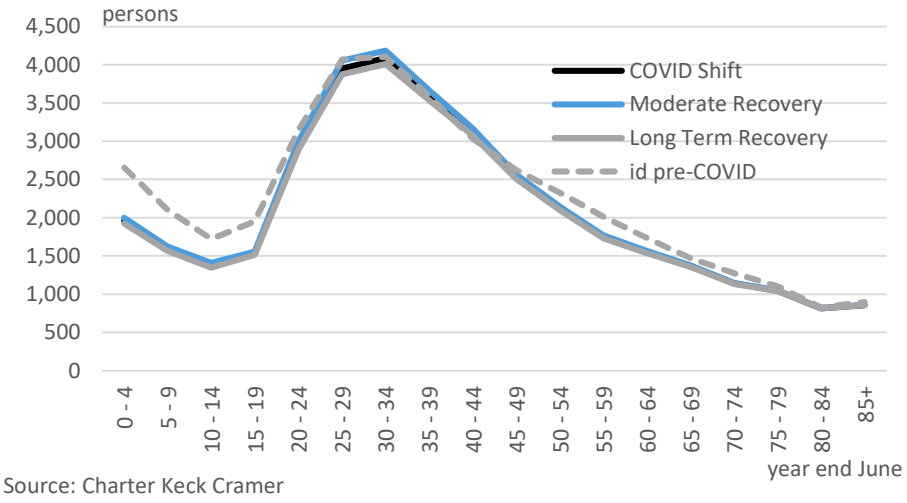
Source: Charter Keck Cramer

8.4.6. Age Profile Comparison (at 2036)

In comparison to pre COVID-19 forecasts (forecast.id, 2020) Coburg is forecast to contain 1,960 fewer residents aged 19 years or under by 2036 under the COVID-19 Shift scenario. In contrast Coburg is forecast to contain a comparable number of residents aged 30-49 years by 2036 when compared against pre COVID-19 forecasts.

In the Moderate recovery scenario, the greater level of in-migration results in the higher population being concentrated in the 15 to 39 year old age cohorts relative to the COVID-19 Shift scenario, while in the Long Term Recovery scenario, population in this cohort is lower.

Figure 116 – Age Profile Comparison - Coburg



Source: Charter Keck Cramer

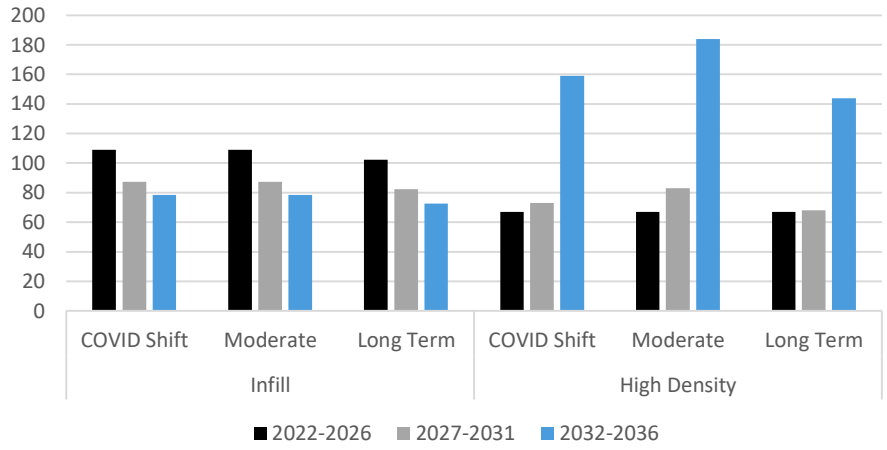
8.4.7. Households

Dwellings by Type

Infill dwelling supply has historically exceeded high density supply in Coburg. However, available sites are slowly being absorbed and some of this is likely to translate to high density supply. However, as with Brunswick West, Coburg is expected to also benefit from overflow demand from Brunswick East as it runs out of capacity by the end of the decade, translating to a significant uplift in new high density dwelling supply over 2032-2036.

New high density supply will be correspondingly higher under the Moderate and lower under the Long Term Recovery scenario.

Figure 117 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Coburg, Selected Time Periods

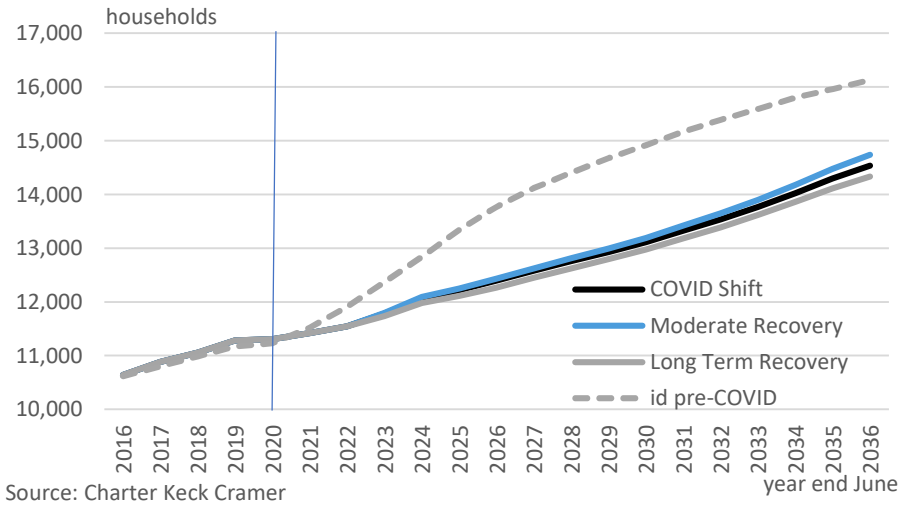


Source: Charter Keck Cramer

Total Households (Comparison)

Under the COVID-19 Shift scenario, the COVID-19 pandemic will see short term household growth across Coburg fall short of pre COVID-19 forecasts. As at 2020 there is a similar number of households present within Coburg than that forecast pre COVID. Over the 2020–2030 period it is forecast that the total number of households in Coburg will increase at an average rate of 1.5% per annum significantly below the pre COVID-19 forecast (forecast.id, 2020) of 2.9% per annum over the same time period. This reflects the trends in the population growth assumptions, with similar differences also apparent under the Moderate and Long Term Recovery scenarios.

Figure 118 Total Households Comparison - Coburg



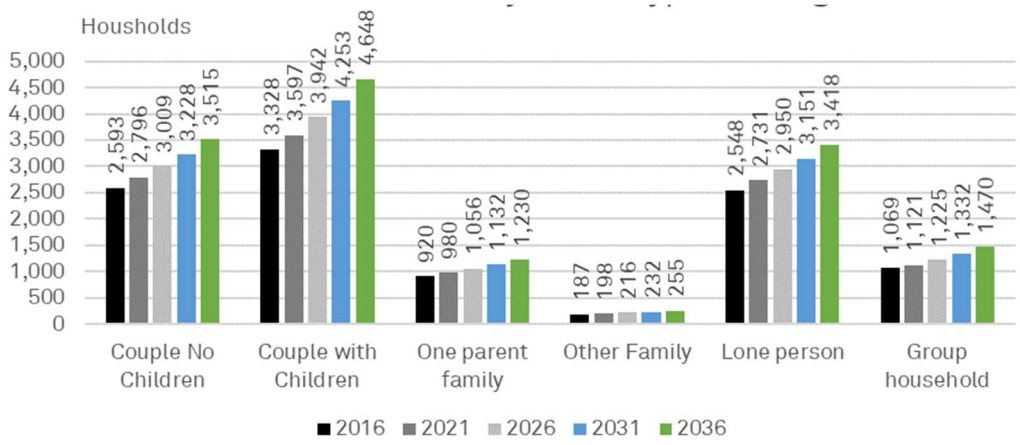
Source: Charter Keck Cramer

8.4.8. Growth in Households by Household Type

Coburg's predominant household type is Couple Households with Children as at 2016 this household type accounted for 31% of total households across Coburg. Over the 2016–2036 period Coburg's household structure is forecast to remain stable, by 2036 Couple Households with Children will remain the predominant household type accounting for 32% of total households.

Under the Moderate scenario couples without children and group households are expected to account for a greater share of the increase in households relative to the COVID-Shift scenario. Under the Long Term Recovery scenario, share of growth is more similar.

Figure 119 Growth by Household Type - Coburg



8.5. Pascoe Vale South

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 120 Total Population and Household Comparison – Pascoe Vale South

Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	11,125	11,073	11,879	12,588	13,068	1,943
Moderate Recovery	11,125	11,073	11,895	12,627	13,130	2,005
Long Term Recovery	11,125	11,073	11,792	12,489	12,992	1,867
id Pre-COVID	12,040	12,331	13,493	14,562	15,413	3,373
	Households					
COVID Shift	3,961	3,956	4,217	4,490	4,689	728
Moderate Recovery	3,961	3,956	4,223	4,503	4,711	749
Long Term Recovery	3,961	3,956	4,191	4,460	4,666	705
id Pre-COVID	4,248	4,352	4,792	5,234	5,607	1,359

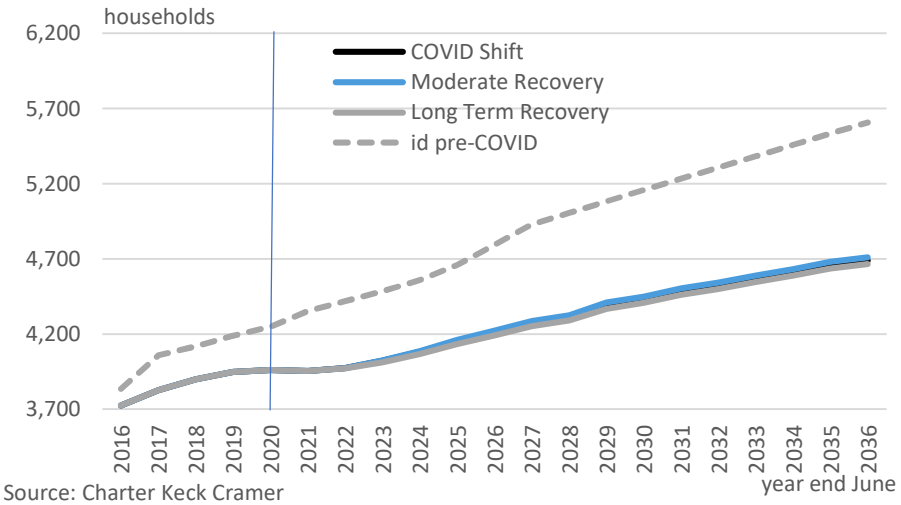
Source: Charter Keck Cramer, id

8.5.1. Population Comparison

Under the COVID-19 Shift scenario, the COVID-19 pandemic will see population growth across Pascoe Vale South fall short of pre COVID-19 forecasts. Over the 2020–2030 period Pascoe Vale South's population is forecast to grow at an average rate of 1.1% p.a. below the 1.8% p.a. forecast pre COVID-19 (forecast.id, 2020). Over the 2020 - 2036 period Pascoe Vale South's population is forecast to increase by 1,430 fewer residents than that forecast pre-COVID.

With limited potential to increase the rate of infill development as well as limited high density supply potential, there is little difference in population growth forecasts under each of the three scenarios.

Figure 121 Total Population Comparison – Pascoe Vale South

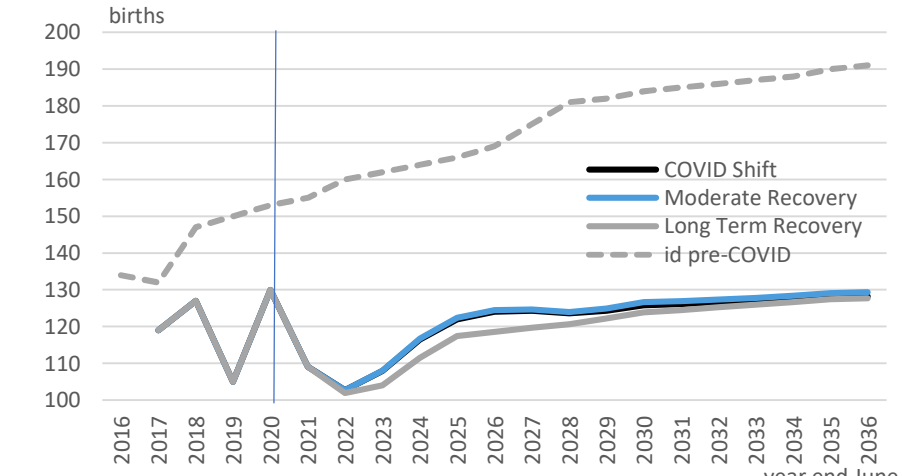


Source: Charter Keck Cramer

8.5.2. Births

Births across Pascoe Vale South are projected to fall significantly over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. An increase in births is then forecast over the 2022–2024 period as couples that delayed having children over the 2020–2022 period start to have children. From 2025 the number of annual births in Pascoe Vale South is forecast to remain steady at 125 births per year. With little change in population assumptions across all three scenarios, births are similar under the COVID-19 Shift and Moderate scenarios, which have the same assumptions for TFR, while lower under the Long Term Recovery scenario where TFRs stay lower for longer before returning to trend.

Figure 122 Forecast Births – Pascoe Vale South

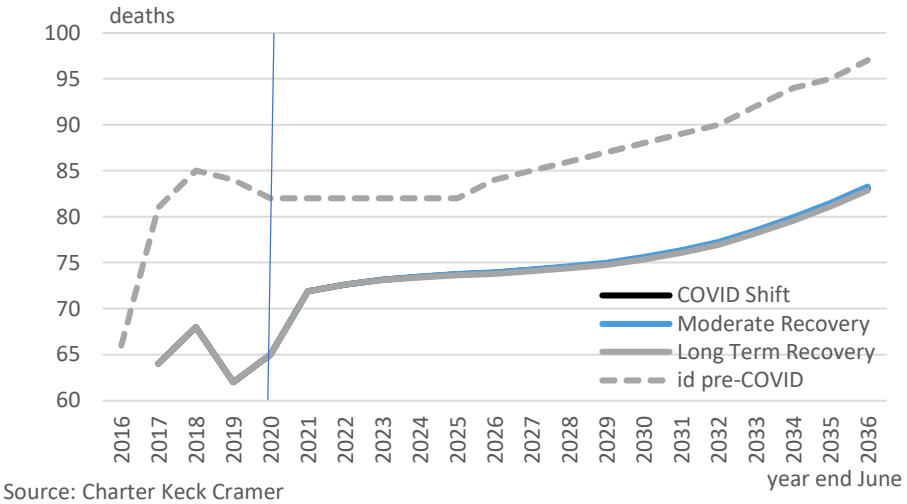


Source: Charter Keck Cramer

8.5.3. Deaths

The mortality rate across Pascoe Vale South has been relatively unaffected by the onset of the COVID-19 pandemic. The total number of annual deaths in Pascoe Vale South is forecast to increase in line with population growth following a similar trajectory to that forecast pre-COVID. The limited differences in population under each scenario is reflected in little difference in deaths.

Figure 123 Forecast Deaths – Pascoe Vale South

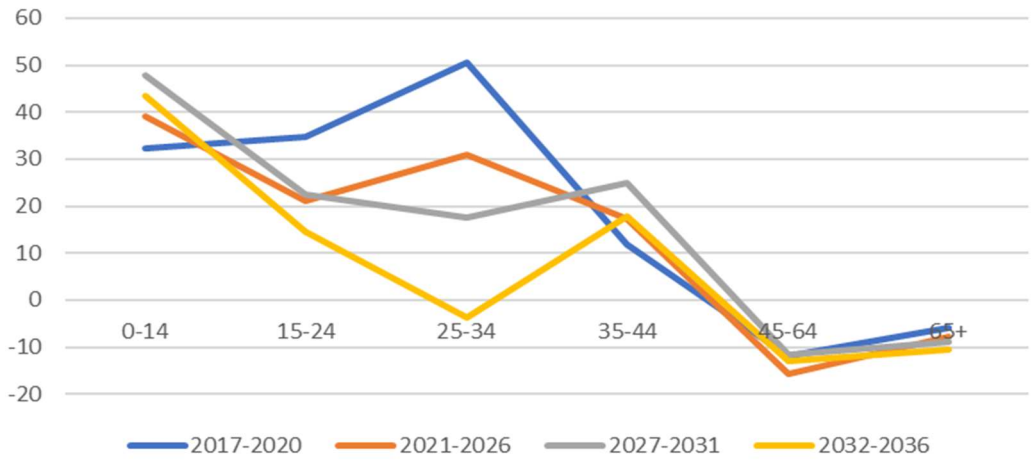


Source: Charter Keck Cramer

8.5.4. Net Migration by Age

Net migration in Pascoe Vale South is balanced with the number of outward movements by residents countered by migration to the suburb across all age cohorts. Over the 2017–2036 period net migration across Pascoe Vale South is forecast to be highest amongst the 0-14 years age cohort.

Figure 124 Net Migration Over Time – Pascoe Vale South



Source: Charter Keck Cramer

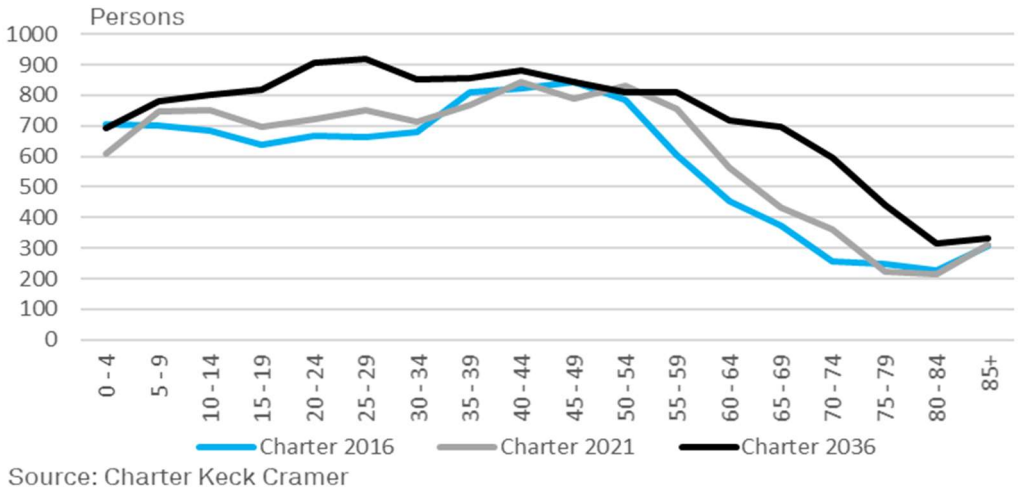
8.5.5. Population by Age

Age Profile (Over Time)

Under the COVID-19 Shift scenario, Pascoe Vale South's age profile shows an even distribution across all age cohorts. In 2016 each five year age cohort within the 0-59 years age range contained more than 600 residents.

The predominant age cohort in Pascoe Vale South in 2016 was the 45 – 49 years age cohort closely followed by the 40–44 years age cohort. The proportion of young adult residents within Pascoe Vale South is forecast to increase over the 2016–2036 period with the 25-29 years age cohort set to become the predominant household type within Pascoe Vale South by 2036, closely followed by the 20–24 years age cohort.

Figure 125 Age Profile Over Time – Pascoe Vale South

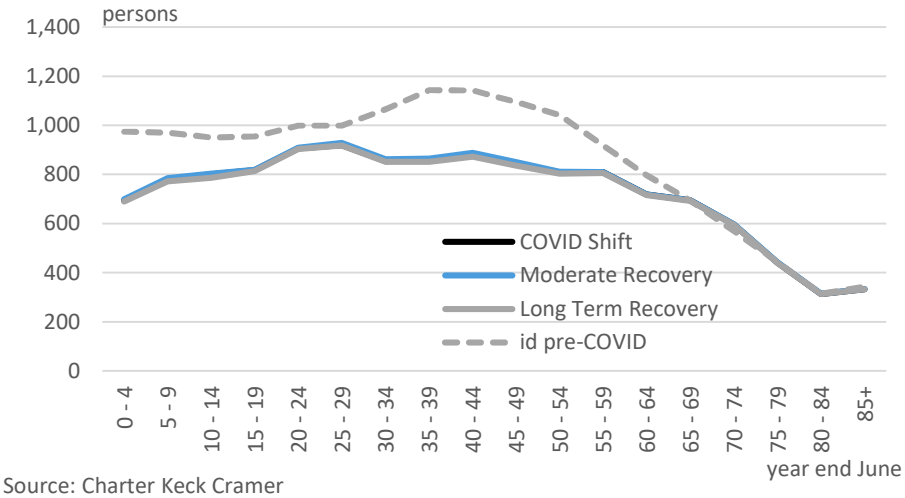


Source: Charter Keck Cramer

Age Profile Comparison (at 2036)

In comparison to pre COVID-19 forecasts (forecast.id, 2020) Pascoe Vale South is forecast to contain lower volumes of residents across all age cohorts up to 70 years of age under the COVID-19 Shift scenario. The most significant difference is forecast to occur within the 0-4 years age cohort where there is forecast to be 29% fewer residents when compared against pre COVID-19 forecasts. With little differences in population growth across the three scenarios, the age profile is also little different.

Figure 126 Age Profile Comparison – Pascoe Vale South



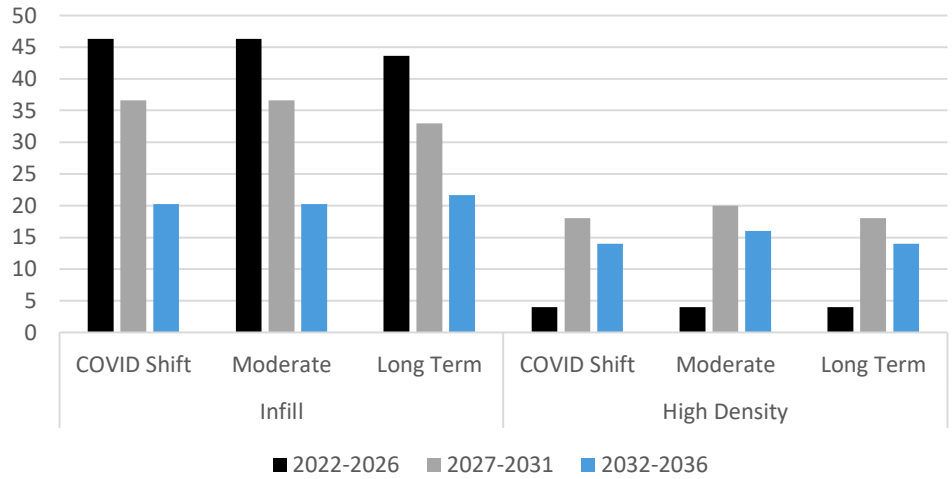
Source: Charter Keck Cramer

8.5.6. Households

Dwellings by Type

Infill dwelling supply has historically exceeded high density supply in Pascoe Vale South. Available sites are slowly being absorbed and infill supply is expected to reduce over the forecast period. However, there is also limited capacity for high density development and only a modest increase is expected in new high density supply over 2027-2031 and 2032-2036 to fill the gap. With capacity relatively limited, there is little variation in supply under all three scenarios.

Figure 127 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Pascoe Vale South, Selected Time Periods

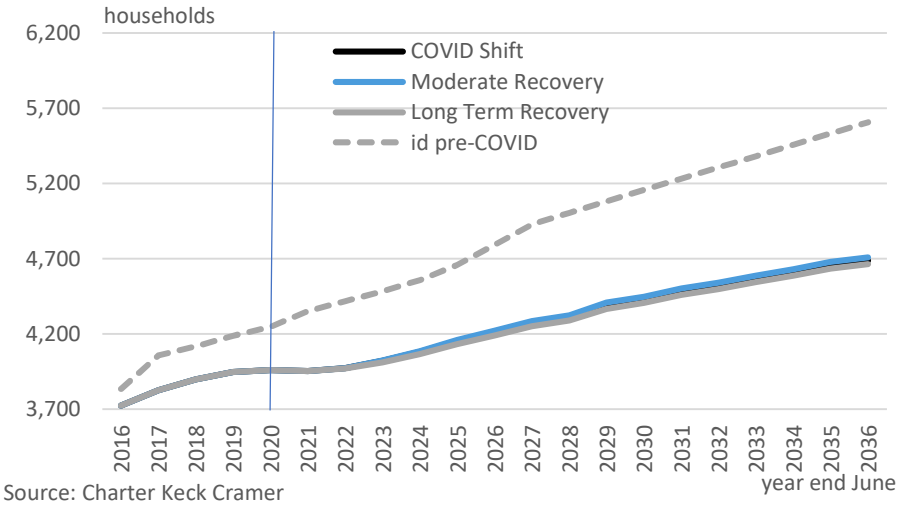


Source: Charter Keck Cramer

Total Households (Comparison)

Under the CVOID Shift scenario, the COVID-19 pandemic will see household growth across Pascoe Vale South fall short of pre COVID-19 forecasts. Over the 2020–2030 period it is currently forecast that the total number of households in Pascoe Vale South will increase at an average rate of 1.1% per annum significantly below the pre COVID-19 forecast (forecast.id, 2020) of 2.0% per annum over the same time period. By 2036 there is forecast to be 980 fewer households in Pascoe Vale South in comparison to pre COVID-19 forecasts. With little difference in forecast population growth under each scenario, little variation is expected between the number of households by 2036.

Figure 128 Total Household Comparison – Pascoe Vale South

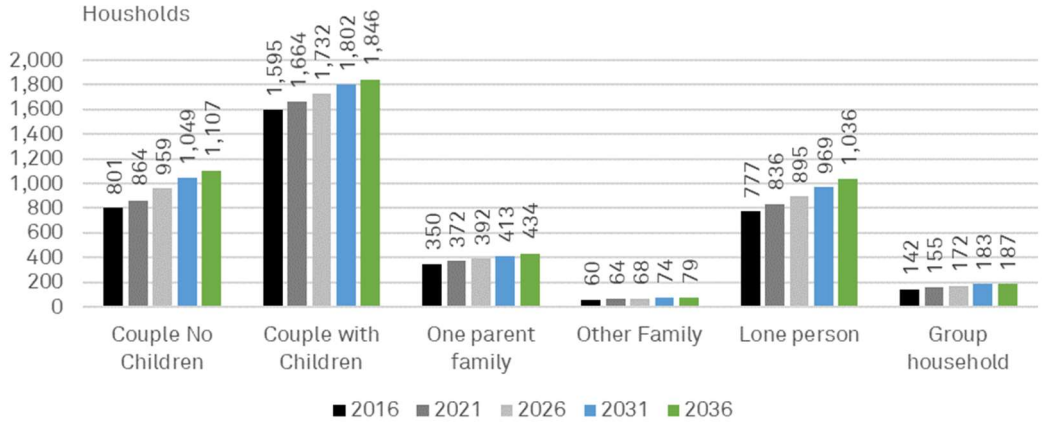


Source: Charter Keck Cramer

Growth in Households by Household Type

Based on the COVID-19 Shift assumptions, Pascoe Vale South's predominant household type is Couple Households with Children, as at 2016 this household type accounted for 43% of total households within Pascoe Vale South. Over the 2016–2036 period Pascoe Vale South's household structure is forecast to change with increases in the proportions of Couple Households without Children and Lone Person Households. A decrease in the proportion of Couple Households with Children is forecast however it will still remain the predominant household type accounting for 39% of total households. The household profile is expected to be similar across each of the three scenarios given the little variation in household numbers.

Figure 129 Growth by Household Type – Pascoe Vale South



8.6. Coburg North

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 130 Total Population and Household Comparison – Coburg North

Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	9,039	8,996	9,733	10,966	11,756	2,717
Moderate Recovery	9,039	8,996	9,741	11,023	11,787	2,748
Long Term Recovery	9,039	8,996	9,627	10,854	11,650	2,611
id Pre-COVID	9,047	9,182	10,567	11,587	12,411	3,364
	Households					
COVID Shift	3,323	3,285	3,561	3,965	4,227	904
Moderate Recovery	3,323	3,285	3,562	3,982	4,233	910
Long Term Recovery	3,323	3,285	3,533	3,933	4,195	871
id Pre-COVID	3,389	3,438	3,955	4,378	4,743	1,354

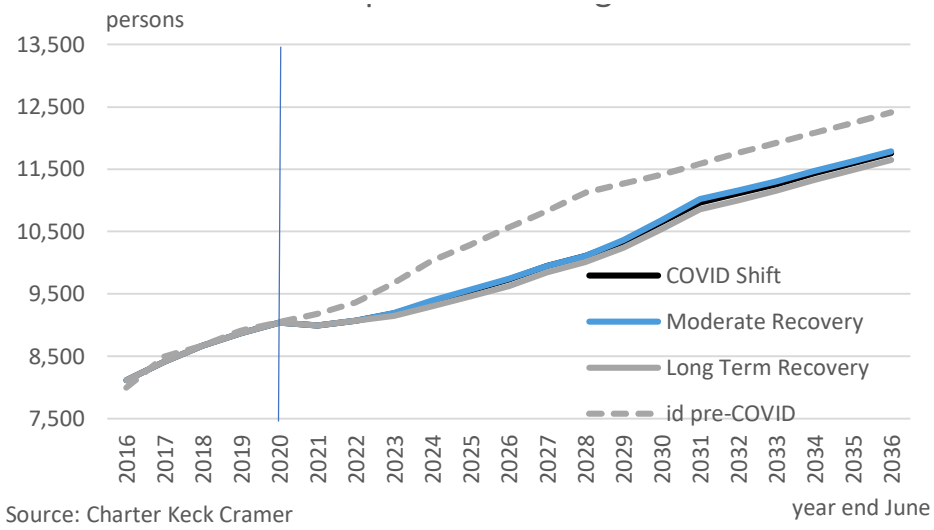
Source: Charter Keck Cramer, id

8.6.1. Population Comparison

Under the COVID-19 Shift scenario, the COVID-19 pandemic is expected to see population growth across Coburg North fall short of pre COVID-19 forecasts. As at 2020 Coburg North's population is equivalent to that forecast pre COVID-19 (forecast.id, 2020) however over the 2020–2028 period Coburg North's population is forecast to grow at an average rate of 1.4% p.a. below the 2.6% p.a. growth forecast pre-COVID.

With limited potential to increase the rate of infill development as well as limited high density supply potential, there is little difference in population growth forecasts under each of the three scenarios.

Figure 131 Total Population Comparison – Coburg North

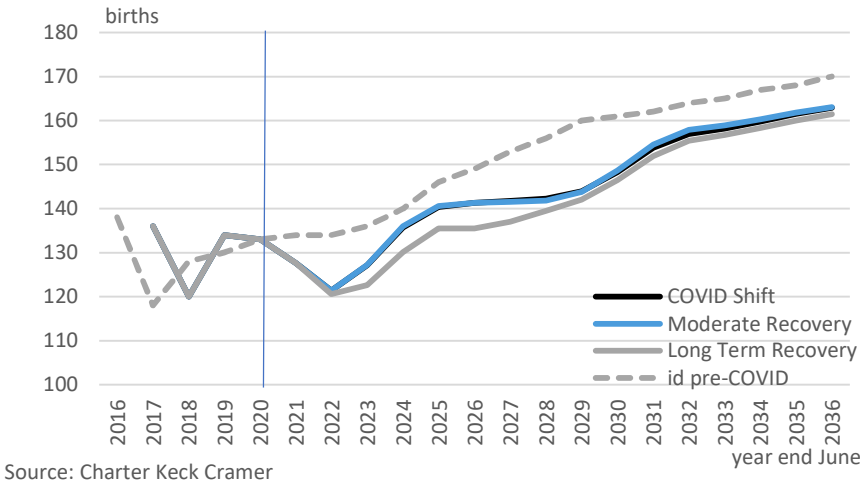


Source: Charter Keck Cramer

8.6.2. Births

Under the COVID-19 Shift scenario, births across Coburg North are projected to fall over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A significant increase in births is then forecast over the 2022–2024 period as couples that delayed having children over the 2020–2022 period start to have children. From 2022 the number of annual births in Coburg North is forecast to grow from 121 births in 2022 to reach 163 births by 2036. With little change in population assumptions across all three scenarios, births are similar under the COVID-19 Shift and Moderate scenarios, which have the same assumptions for TFR, while lower under the Long Term Recovery scenario where the TFR stays lower for longer before returning to trend.

Figure 132 Forecast Births – Coburg North

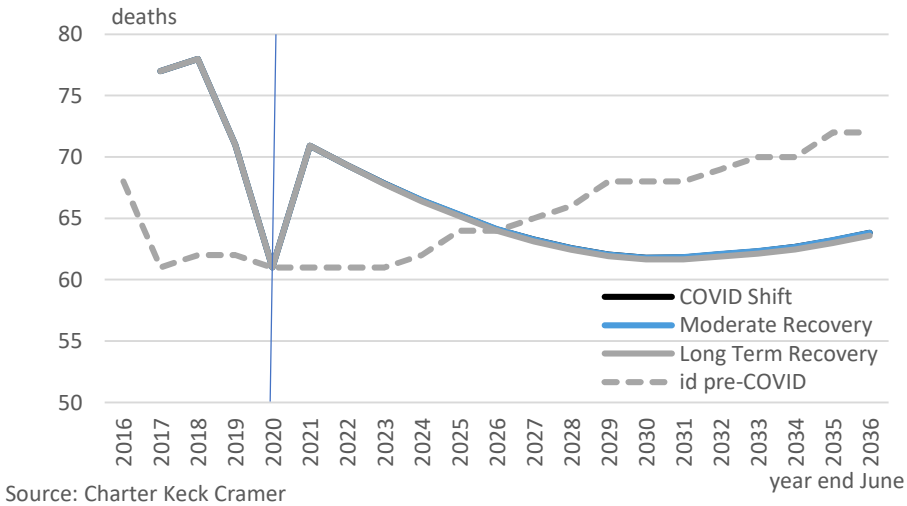


Source: Charter Keck Cramer

8.6.3. Deaths

From 2021 the annual number of deaths within Coburg North is forecast to trend downwards from the 71 deaths forecast in 2021 reaching a low of 62 annual deaths over the 2029–2032 period, based on the COVID-19 Shift scenario. The limited variation in population under each scenario is also reflected in the limited variation in annual deaths.

Figure 133 Forecast Deaths – Coburg North

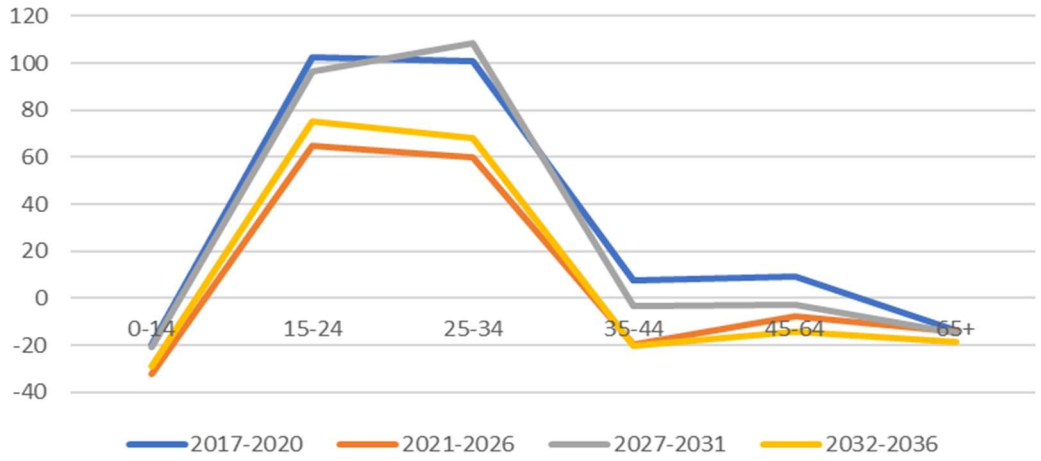


Source: Charter Keck Cramer

8.6.4. Net Migration by Age

Using the COVID-19 Shift scenario as an indicator, net migration into Coburg North is primarily driven by residents in the 15-34 years age cohort. Over the 2017–2036 period Coburg North is forecast to record small net outflows of residents within the youngest (0-14 years) and older (35+ years) age cohorts.

Figure 134 Net Migration by Age – Coburg North



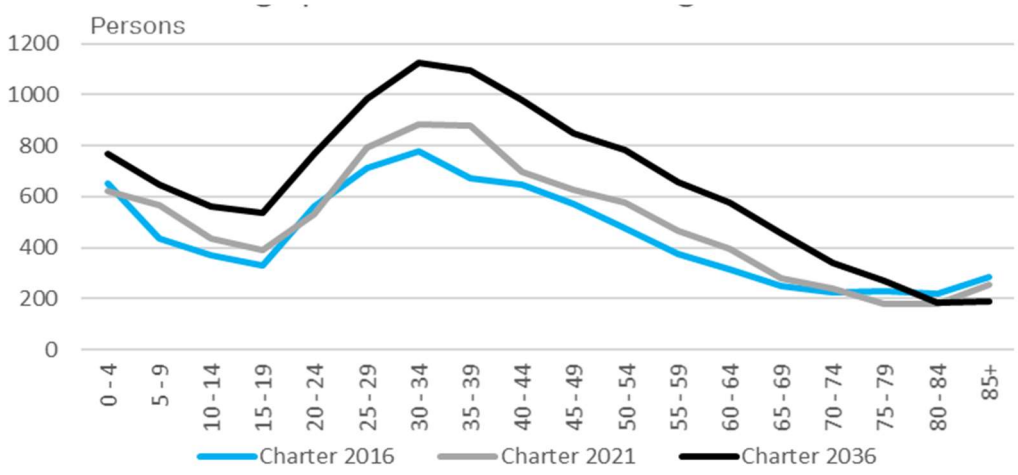
Source: Charter Keck Cramer

8.6.5. Population by Age

Age Profile (Over Time)

Under the COVID-19 Shift scenario, Coburg North's age profile is underpinned by a high proportion of residents aged 25–44 years, as at 2020 residents within these age cohorts accounted for 35% of total residents within Coburg North. Over the 2016–2036 period Coburg North's age structure is not forecast to change greatly with residents aged 25–44 years forecast to remain the predominant age cohort across the suburb accounting for 35% of total residents by 2036.

Figure 135 Age Profile Over Time – Coburg North, COVID-19 Shift scenario

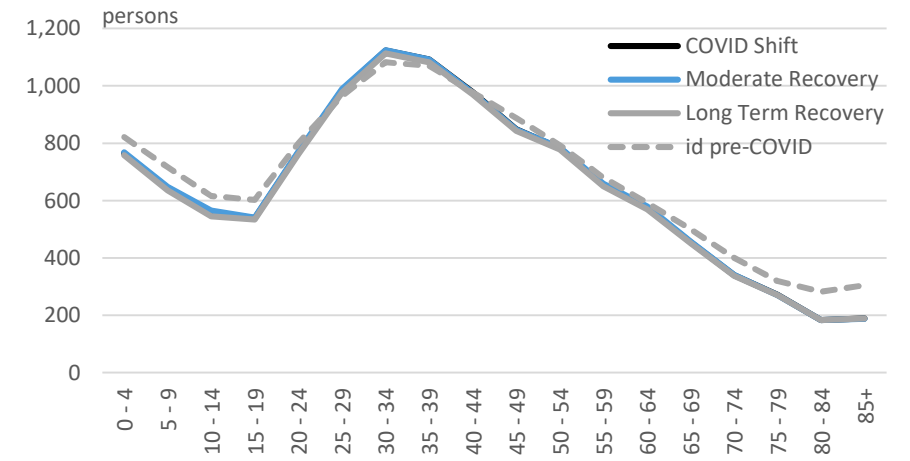


Source: Charter Keck Cramer

Age Profile Comparison (at 2036)

In comparison to pre COVID-19 forecasts (forecast.id, 2020) Coburg North is forecast to contain lower volumes of residents across the youngest and oldest age cohorts. Current forecasts show that Coburg North will comprise 250 fewer residents aged under 20 years and 320 fewer residents aged over 70 by 2036. With little differences in population growth across the three scenarios, the age profile is also little different.

Figure 136 Age Profile Comparison – Coburg North



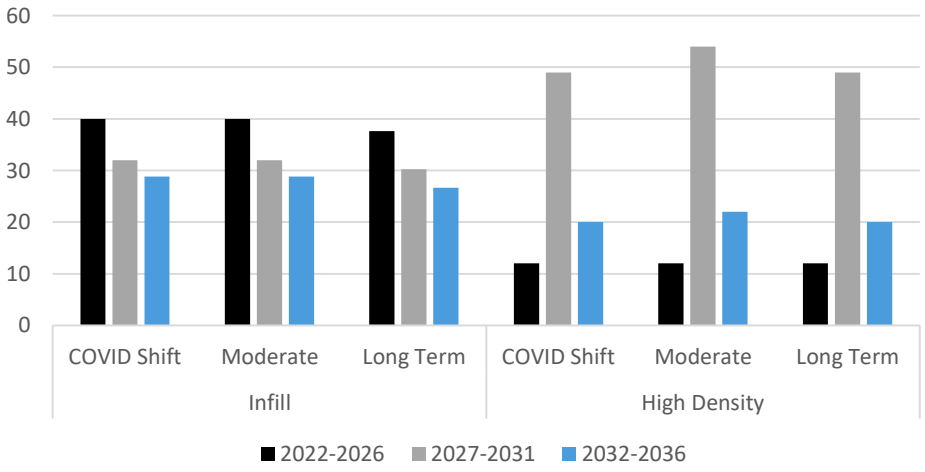
Source: Charter Keck Cramer

8.6.6. Households

Dwellings by Type

Infill dwelling supply has historically exceeded high density supply in Coburg North. Available sites are slowly being absorbed and infill supply is expected to reduce a little over the forecast period. While there is some high density capacity in Coburg North, this is expected to be largely taken up in the next cycle over 2027-2031 before high density supply falls away again over 2032-2036 to fill the gap. With capacity relatively limited, there is little variation in supply under all three scenarios.

Figure 137 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Coburg North, Selected Time Periods

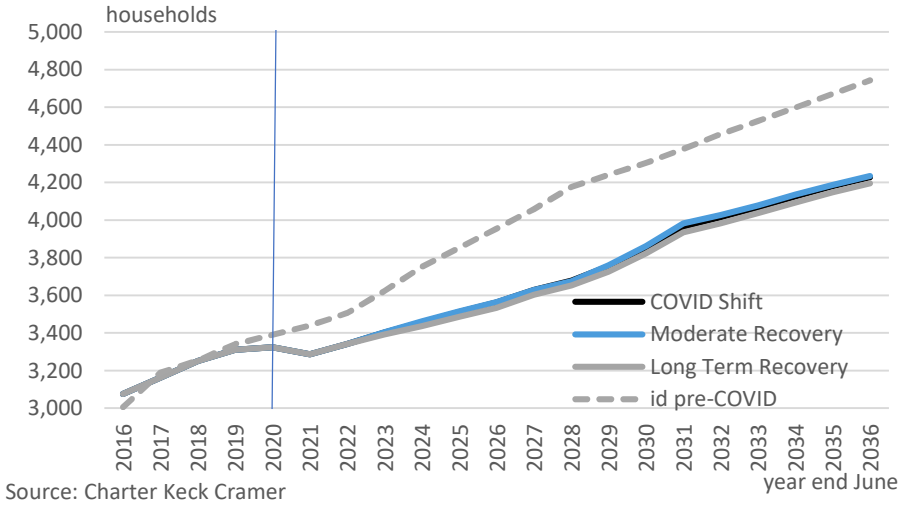


Source: Charter Keck Cramer

Total Households (Comparison)

The COVID-19 pandemic will see household growth across Coburg North fall short of pre COVID-19 forecasts. Over the 2020–2030 period it is currently forecast that the total number of households in Coburg North will increase at an average rate of 1.5% per annum significantly below the pre COVID-19 forecast (forecast.id, 2020) of 2.4% per annum over the same time period. With little difference in forecast population growth under each scenario, little variation is expected between the number of households by 2036.

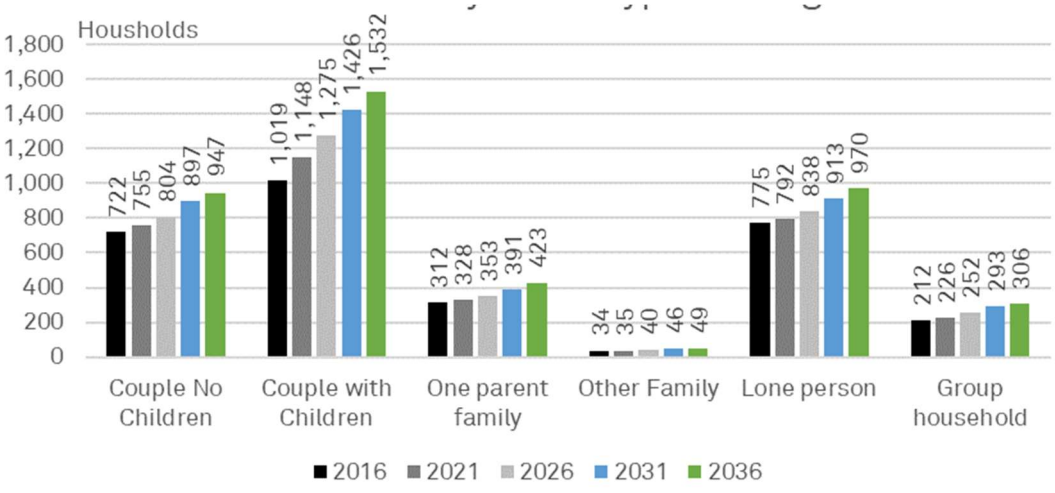
Figure 138 Total Household Comparison – Coburg North



8.6.7. Growth in Households by Household Type

Coburg North's predominant household type is Couple Households with Children, as of 2016 this household type accounted for 33% of total households within Coburg North. Over the 2016–2036 period the proportion of Couple Households with Children is forecast to increase accounting for 36% of total households by 2036. Conversely over the same time period the proportion of Couple Households without Children and Lone Person Households are forecast to decrease. The household profile is expected to be similar across each of the three scenarios given the little variation in household numbers.

Figure 139 Growth by Household Type – Coburg North



8.7. Fawkner

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 140 Total Population and Household Comparison - Fawkner

Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	15,353	15,011	16,526	17,913	18,904	3,551
Moderate Recovery	15,353	15,011	16,594	17,992	19,004	3,651
Long Term Recovery	15,353	15,011	16,226	17,624	18,655	3,302
id Pre-COVID	15,570	15,769	17,025	18,082	19,010	3,440
	Households					
COVID Shift	5,118	5,077	5,443	5,818	6,140	1,022
Moderate Recovery	5,118	5,077	5,467	5,853	6,187	1,069
Long Term Recovery	5,118	5,077	5,358	5,731	6,061	943
id Pre-COVID	5,150	5,203	5,556	5,894	6,249	1,099

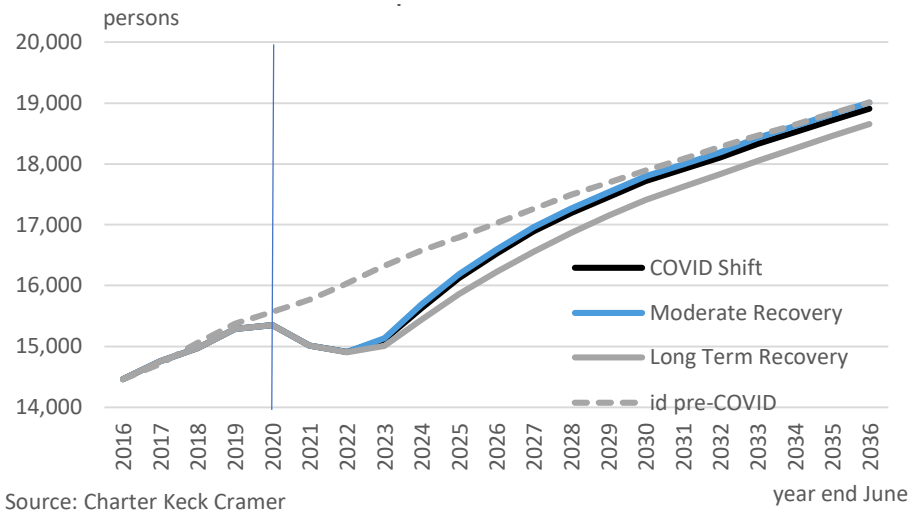
Source: Charter Keck Cramer, id

8.7.1. Population Comparison

The COVID-19 pandemic will see near term population growth across Fawkner fall short of pre COVID-19 forecasts under the COVID-19 Shift scenario. Over the 2020–2024 period Fawkner's population is forecast to grow at an average rate of 0.5% p.a. significantly below the 1.6% p.a. growth forecast pre COVID-19 (forecast.id, 2020). From 2023 the population of Fawkner is forecast to grow more rapidly than that forecast pre COVID, although ends with a similar population level by 2036.

A marginally stronger outcome is expected to population growth under the Moderate scenario, reflecting the lower upside due to supply capacity constraints. There is a bigger gap in (lower) population under the Long Term Recovery scenario.

Figure 141 Total Population Comparison - Fawkner

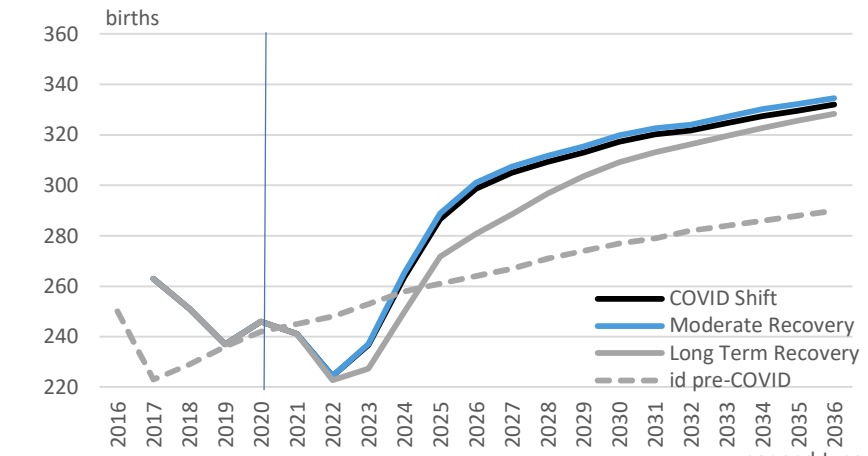


Source: Charter Keck Cramer

8.7.2. Births

Under the COVID-19 Shift scenario, births across Fawkner are projected to fall over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A significant increase in births is then forecast over the 2022–2026 period as couples that delayed having children over the 2020–2022 period start to have children. Over this time period births in Fawkner are forecast to increase from 224 in 2022 to 299 by 2026. Births are forecast to continue to grow year on year until 2036 and are forecast to be far greater than pre COVID-19 forecasts (forecast.id, 2020). While the level of births under the Moderate scenario is not expected to be materially higher than the COVID-19 Shift scenario, it runs noticeably lower under the Long Term Recovery scenario to the end of the decade, which may also be a function of both the changes to age-specific fertility rates, and well as Fawkner's age profile under this scenario.

Figure 142 Forecast Births - Fawkner

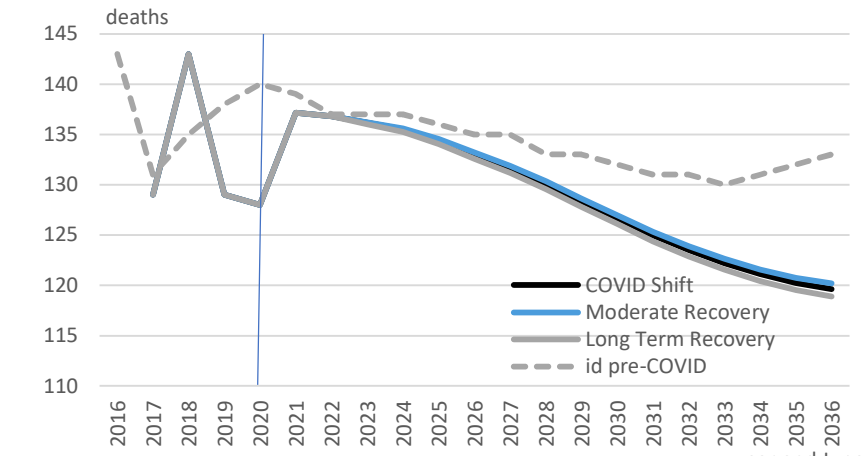


Source: Charter Keck Cramer

8.7.3. Deaths

From 2021 the annual number of deaths within Fawkner is forecast to trend downwards from the 137 deaths forecast in 2021 to reach a low of 120 deaths by 2036. There is little variation in deaths across each of the three scenarios.

Figure 143 Forecast Deaths - Fawkner

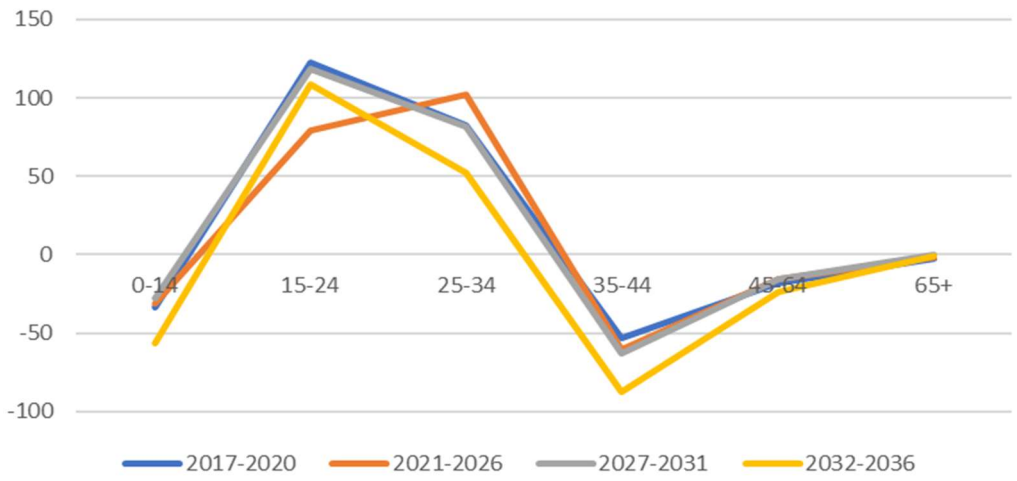


Source: Charter Keck Cramer

8.7.4. Net Migration by Age

Based on the COVID-19 Shift scenario, net migration into Fawkner is primarily driven by residents in the 15-34 years age cohort. Over the 2017–2036 period Fawkner is forecast to record small net outflows of residents within the youngest (0-14 years) and older (35+ years) age cohorts.

Figure 144 Net Migration by Age - Fawkner



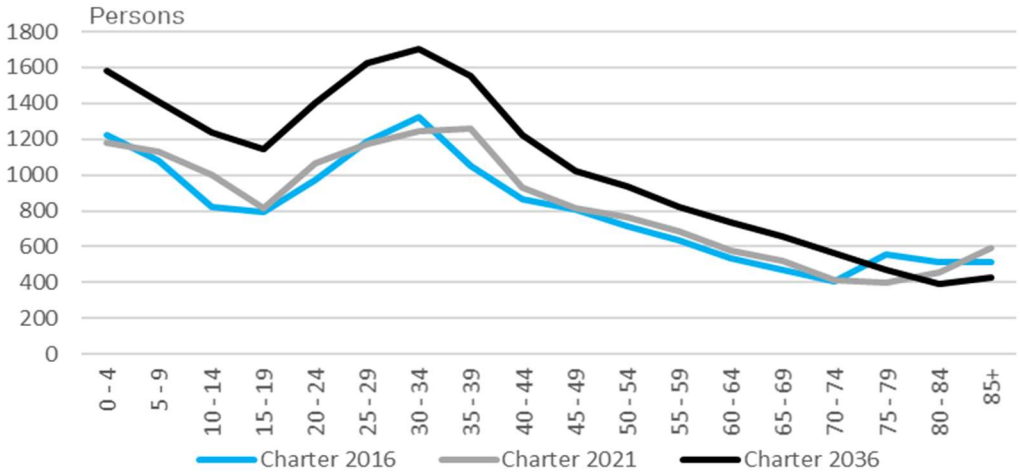
Source: Charter Keck Cramer

8.7.5. Population by Age

Age Profile (Over Time)

Under the COVID-19 Shift scenario, Fawkner's age profile is underpinned by high proportions of residents aged 25–39 years and 0-9 years indicating many young families are present within the suburb. Over the 2016–2036 period Fawkner's age structure is not forecast to change greatly with residents aged 25–39 years and 0-9 years forecast to remain the predominant age cohorts across the suburb.

Figure 145 Age Profile Over Time – Fawkner, COVID-19 Shift Scenario

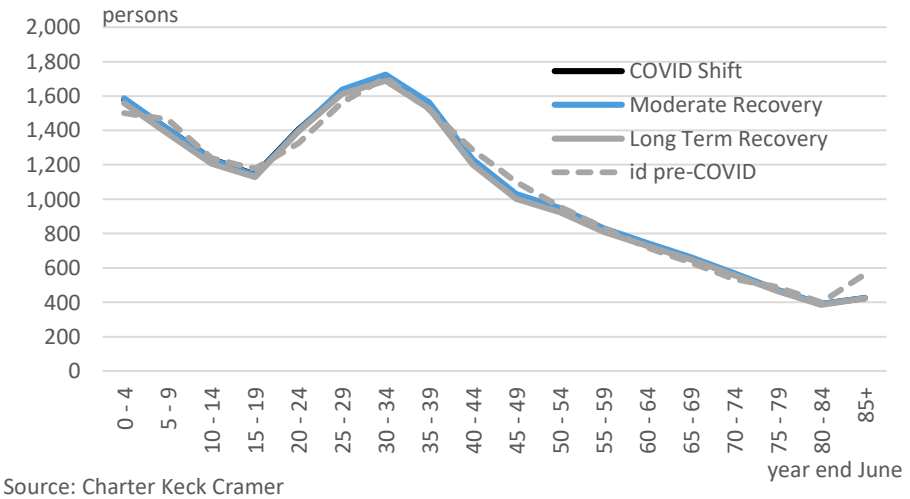


Source: Charter Keck Cramer

8.7.6. Age Profile Comparison (at 2036)

In comparison to pre COVID-19 forecasts (forecast.id, 2020) by 2036 Fawkner is forecast to contain a lower volume of residents aged 80 years or older but higher volumes of infants (0-4 years) and young adult residents (20-39 years). There is little difference in the population profile between each of the three scenarios, with only a slightly lower over of 0-14 year olds under the Long Term Recovery scenario, which reflected the lower level of expected births under this scenario.

Figure 146 Age Profile Comparison - Fawkner



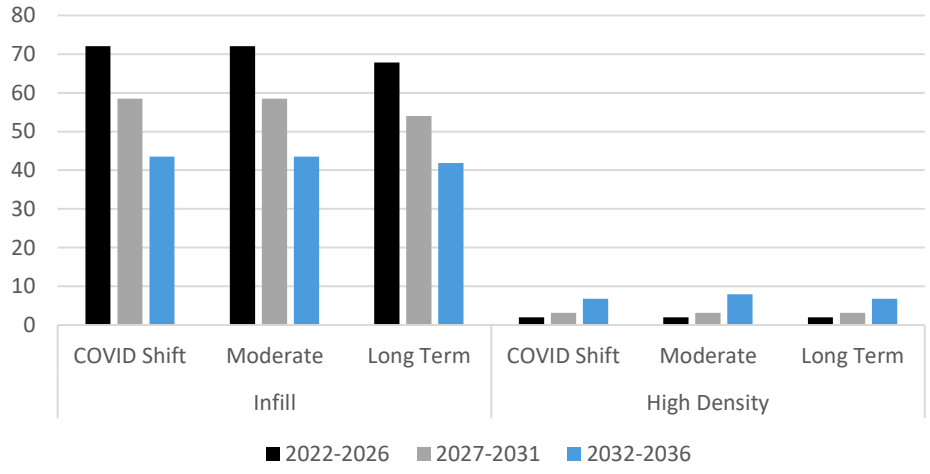
Source: Charter Keck Cramer

8.7.7. Households

Dwellings by Type

New dwelling supply in Fawkner is mainly via infill development, with minimal high density dwelling capacity. Infill development is expected to remain relatively healthy, although slowing down over the next 15 years as the most easily developable sites are absorbed. With infill as the only outlet for new dwellings, there is expected to be limited differences in expected dwelling supply under each scenario.

Figure 147 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Fawkner, Selected Time Periods

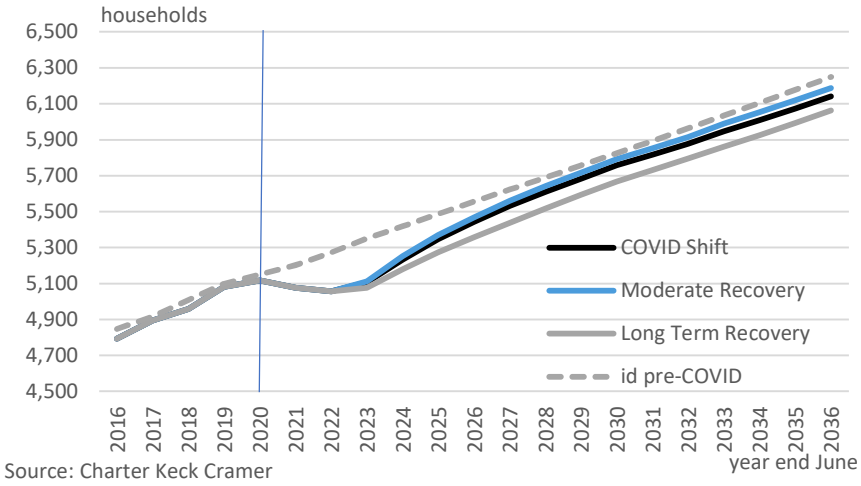


Source: Charter Keck Cramer

Total Households (Comparison)

The COVID-19 pandemic will see household growth across Fawkner fall short of pre COVID-19 forecasts over the near term. Over the 2020–2024 period it is currently forecast that the total number of households in Fawkner will increase at an average rate of 0.6% per annum significantly below the pre COVID-19 forecast (forecast.id, 2020) of 1.3% per annum over the same time period. Household growth under each of the three scenarios reflects population growth.

Figure 148 Total Households Comparison - Fawkner



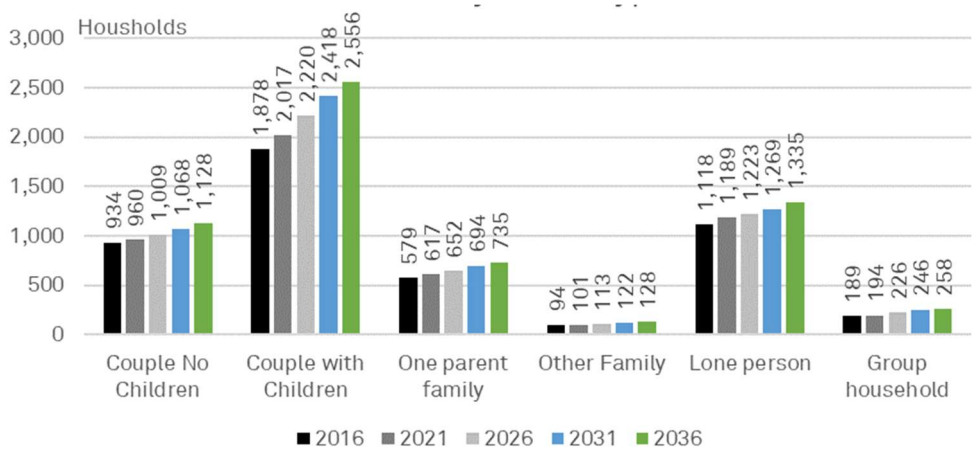
Source: Charter Keck Cramer

Growth in Households by Household Type

Fawkner's predominant household type is Couple Households with Children, as of 2016 this household type accounted for 39% of total households within Fawkner. Over the 2016–2036 period the proportion of Couple Households with Children is forecast to increase accounting for 42% of total households by 2036. Conversely over the same time period the proportion of Couple Households without Children and Lone Person Households are forecast to decrease.

Under the Moderate scenario, couples without children and lone persons are expected to account for a slightly higher share of household growth relative to the COVID-19 Shift scenario, while under the Long Term Recovery scenario, it is expected to be couples with children.

Figure 149 Growth by Household Type - Fawkner



8.8. Pascoe Vale

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 150 Total Population and Household Comparison – Pascoe Vale

Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	20,061	19,935	22,113	23,948	25,550	5,490
Moderate Recovery	20,061	19,935	22,140	23,942	25,555	5,494
Long Term Recovery	20,061	19,935	21,779	23,540	25,175	5,115
id Pre-COVID	19,636	20,042	21,666	23,342	25,433	5,797
	Households					
COVID Shift	8,018	7,976	8,801	9,521	10,232	2,214
Moderate Recovery	8,018	7,976	8,814	9,524	10,242	2,223
Long Term Recovery	8,018	7,976	8,683	9,377	10,098	2,080
id Pre-COVID	7,829	7,981	8,635	9,377	10,292	2,463

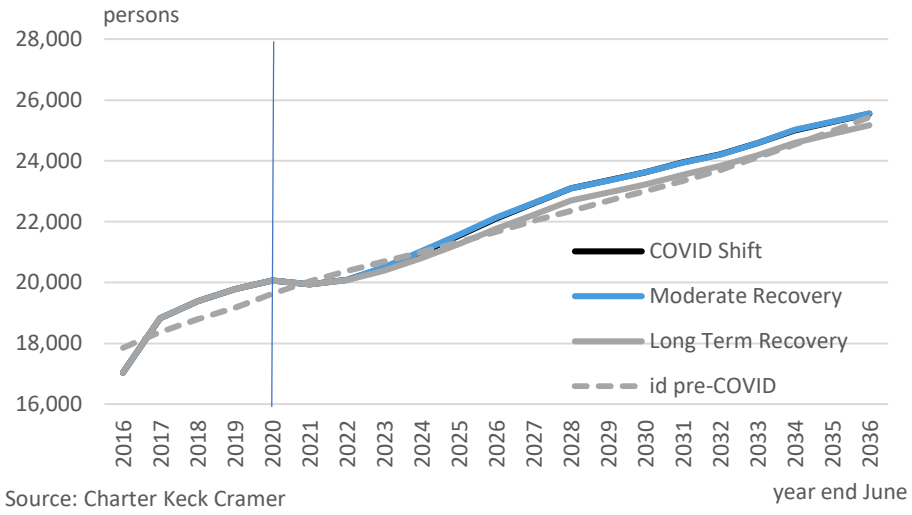
Source: Charter Keck Cramer, id

8.8.1. Population Comparison

As at 2020 Pascoe Vale's population was slightly higher than that forecast pre-COVID. The COVID-19 pandemic will see near term population growth across Pascoe Vale fall before increasing again from 2022 under the COVID-19 Shift scenario. Over the 2022–2028 period Pascoe Vale's population is forecast to grow at an average rate of 2.1% p.a. slightly above the 1.6% p.a. growth forecast pre COVID-19 (forecast.id, 2020).

There is minimal difference in population growth between the Moderate and Long Term scenarios, although forecast population growth under the Long Term Recovery scenario is around 300 lower.

Figure 151 Total Population Comparison – Pascoe Vale



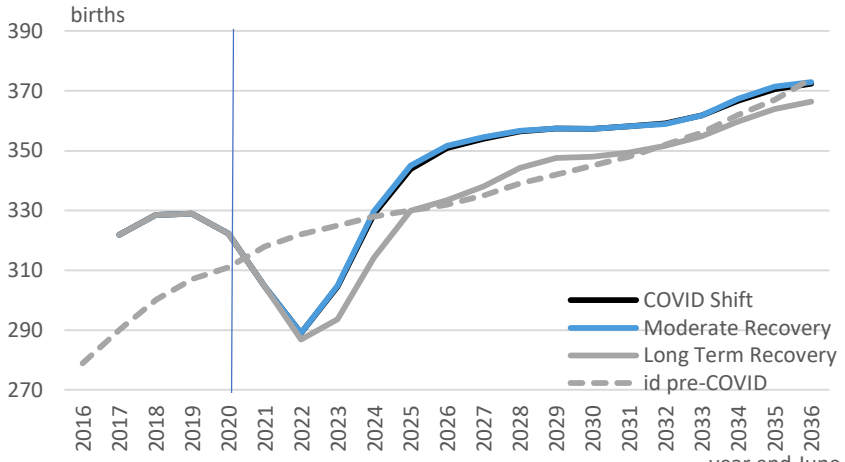
Source: Charter Keck Cramer

8.8.2. Births

Under the COVID-19 Shift scenario, births across Pascoe Vale are projected to fall over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A significant increase in births is then forecast over the 2022–2025 period as couples that delayed having children over the 2020–2022 period start to have children.

Over this time period births in Pascoe Vale are forecast to increase from 289 in 2022 to 344 by 2025. From 2025 births across Pascoe Vale are forecast to increase marginally to reach 372 births by 2036. Over the 2024–2028 period the volume of births across Pascoe Vale are forecast to be greater than that forecast pre COVID-19 (forecast.id, 2020). While the level of births under the Moderate scenario is not expected to be materially higher than the COVID-19 Shift scenario (due to supply capacity constraints), it ends up lower under the Long Term Recovery scenario.

Figure 152 Forecast Births – Pascoe Vale

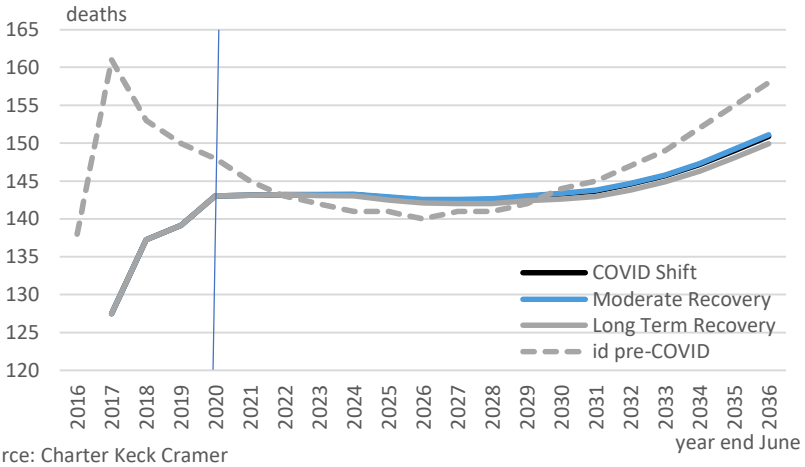


Source: Charter Keck Cramer

8.8.3. Deaths

From 2021 the annual number of deaths within Pascoe Vale is forecast to remain steady at 144 deaths per year. From 2032 the number of deaths within Pascoe Vale is forecast to increase in line with population growth. There is little variation in the number of deaths under each of the three scenarios.

Figure 153 Forecast Deaths – Pascoe Vale

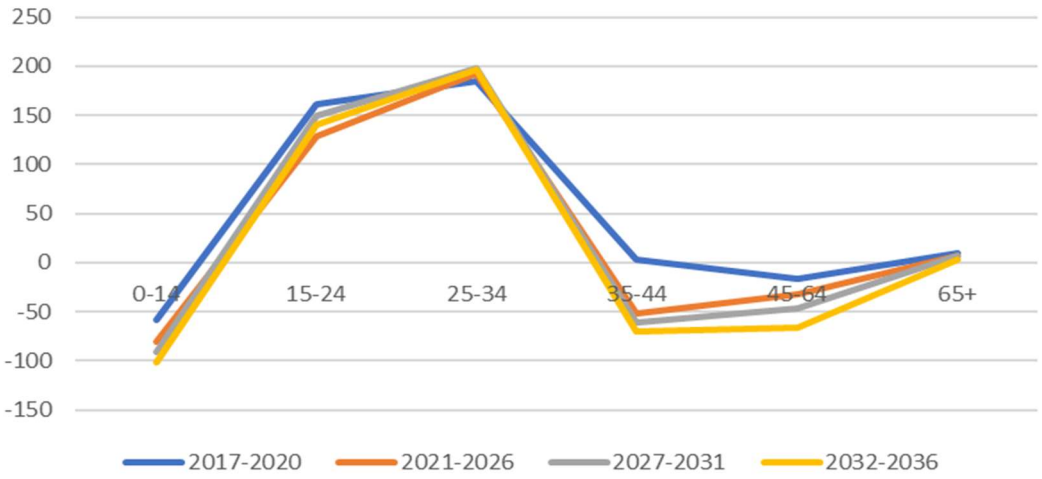


Source: Charter Keck Cramer

8.8.4. Net Migration by Age

Using the COVID-19 Shift scenario as an indicator, net migration into Pascoe Vale is primarily driven by residents in the 15-34 years age cohort. Over the 2017–2036 period Pascoe Vale is forecast to record net outflows of residents within the 0-14 years and 35-64 years age cohorts.

Figure 154 Net Migration by Age – Pascoe Vale, COVID-19 Shift scenario



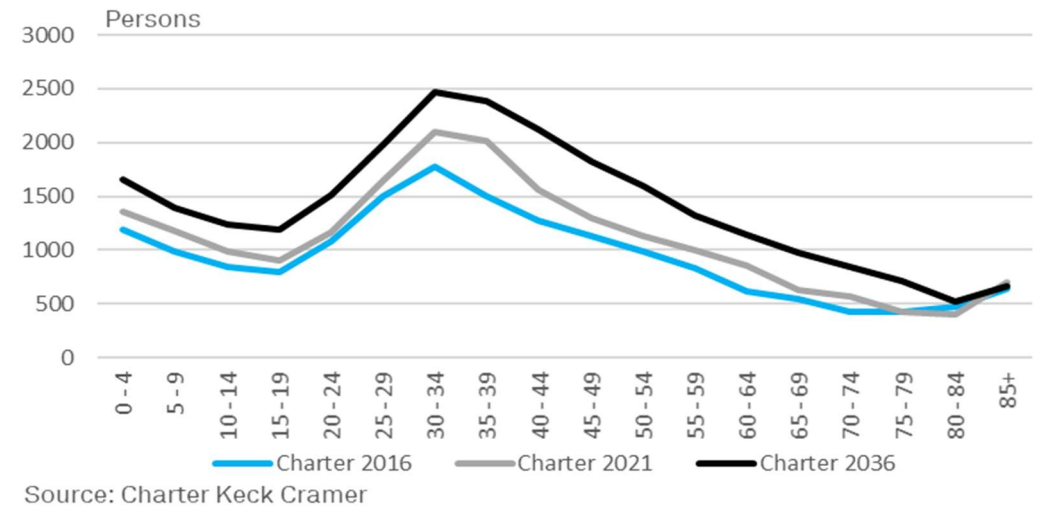
Source: Charter Keck Cramer

8.8.5. Population by Age

Age Profile (Over Time)

Under the COVID-19 Shift scenario, Pascoe Vale's age profile is underpinned by high proportions of residents aged 25–39 years which as of 2016 account for 28% of total residents within the suburb. Over the 2016–2036 period Pascoe Vale's age structure is not forecast to change greatly with the 25–39 years age cohort forecast to remain the predominant age cohort across the suburb. A slight increase in the proportion of older adult residents is forecast with the proportion of residents in the 40–59 years age cohort forecast to increase from 25% in 2016 to 27% by 2036.

Figure 155 Age Profile Over Time – Pascoe Vale, COVID-19 Shift scenario

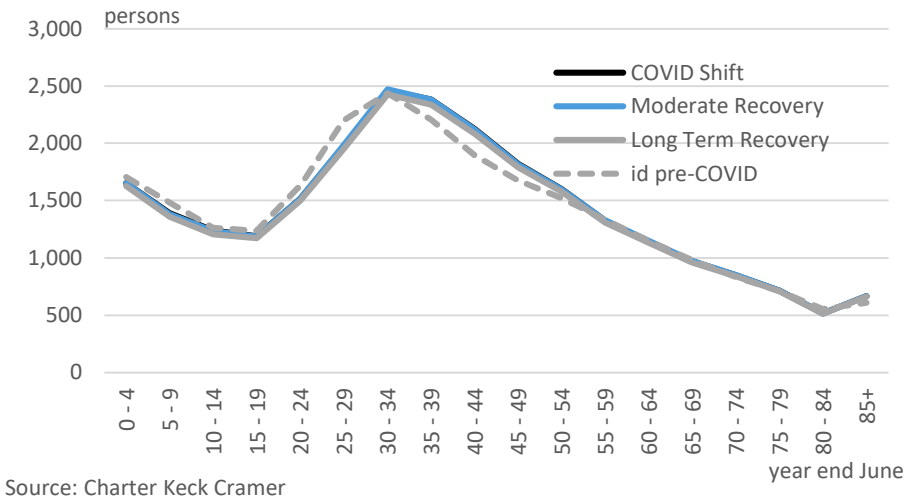


Source: Charter Keck Cramer

Age Profile Comparison (at 2036)

In comparison to pre COVID-19 forecasts (forecast.id, 2020) by 2036 Pascoe Vale is forecast to contain a lower volume of residents aged 20-34 years but a higher volume of residents age 35–59 years. There is little difference in the population profile between each of the three scenarios, with only a slightly lower over of 0-14 year olds under the Long Term Recovery scenario, which reflected the lower level of expected births under this scenario.

Figure 156 Age Profile Comparison – Pascoe Vale



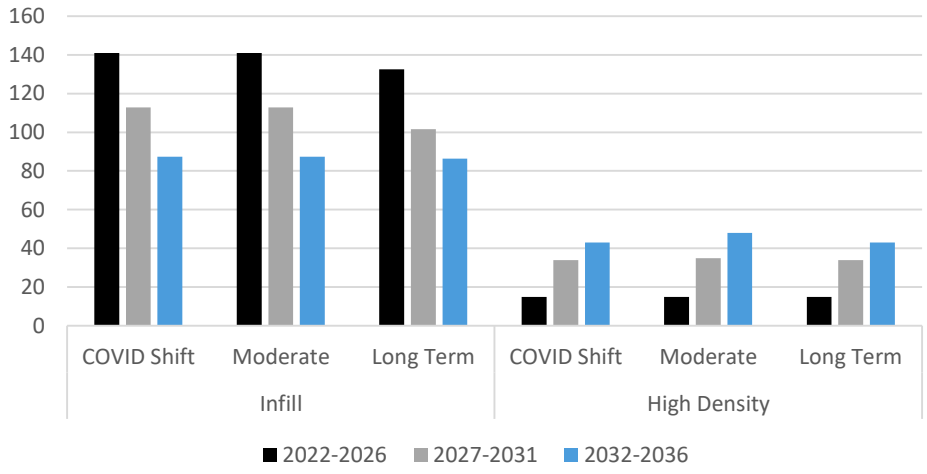
Source: Charter Keck Cramer

8.8.6. Households

Dwellings by Type

New dwelling supply in Pascoe Vale is mainly via infill development, with limited high density dwelling capacity. Infill development should remain relatively healthy, although slowing through to 2036 as the most easily developable sites are absorbed. There is some potential capacity for high density dwelling supply in Pascoe Vale and this is expected to increase as infill supply runs down. Nevertheless, capacity appears relatively constrained and there is expected to be limited differences in expected dwelling supply under each scenario.

Figure 157 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Pascoe Vale, Selected Time Periods

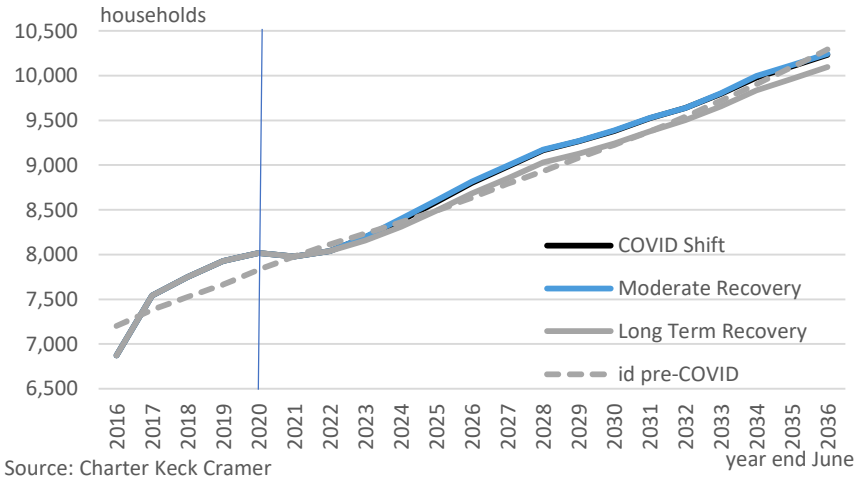


Source: Charter Keck Cramer

Total Households (Comparison)

As of 2020 the number of households within Pascoe Vale was slightly higher than that forecast pre-COVID. The COVID-19 pandemic will see near term household growth across Pascoe Vale fall before increasing again from 2022. Over the 2022–2028 period the number of households within Pascoe Vale is forecast to grow at an average rate of 2.0% p.a. slightly above the 1.6% p.a. growth forecast pre COVID-19 (forecast.id, 2020). Household growth under each of the three scenarios reflects population growth.

Figure 158 Total Households Comparison – Pascoe Vale



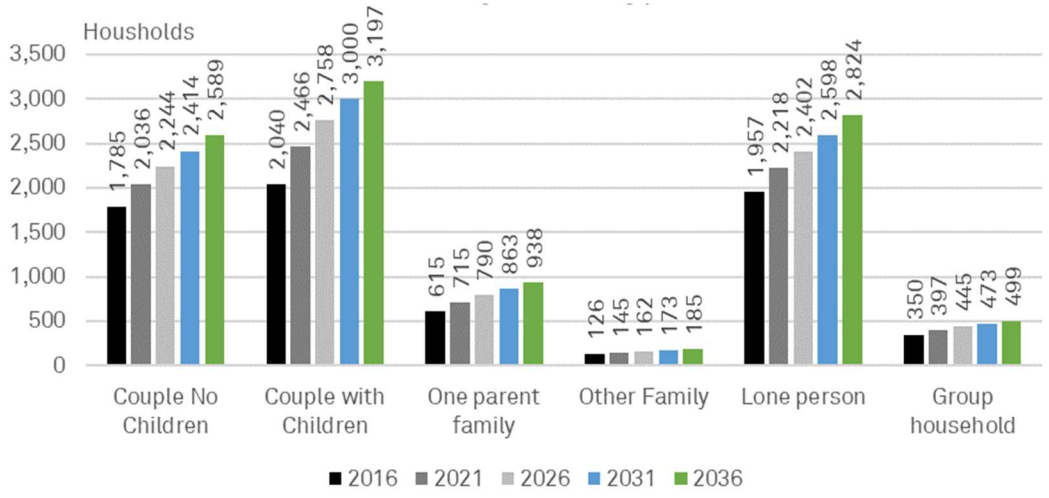
Source: Charter Keck Cramer

8.8.7. Growth in Households by Household Type

Pascoe Vale's predominant household type is Couple Households with Children, as of 2016 this household type accounted for 30% of total households closely followed by Lone Person Households (29% of total households) and Couple Households without Children (26% of total households).

Over the 2016–2036 period the proportion of Couple Households with Children is forecast to become more prominent whilst the proportion of Lone Person and Couple Households without Children are forecast to decrease. With limited variation in the number of households under each forecast scenario, the household profile is also expected to remain broadly similar.

Figure 159 Growth by Household Type – Pascoe Vale



8.9. Oak Park

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 160 Total Population and Household Comparison – Oak Park

Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	7,303	7,240	8,090	8,758	9,337	2,034
Moderate Recovery	7,303	7,240	8,115	8,796	9,392	2,089
Long Term Recovery	7,303	7,240	8,000	8,671	9,247	1,944
id Pre-COVID	7,386	7,610	7,929	8,160	8,366	980
	Households					
COVID Shift	2,705	2,685	3,009	3,270	3,534	830
Moderate Recovery	2,705	2,685	3,018	3,285	3,556	851
Long Term Recovery	2,705	2,685	2,980	3,242	3,504	799
id Pre-COVID	2,777	2,848	2,977	3,088	3,200	423

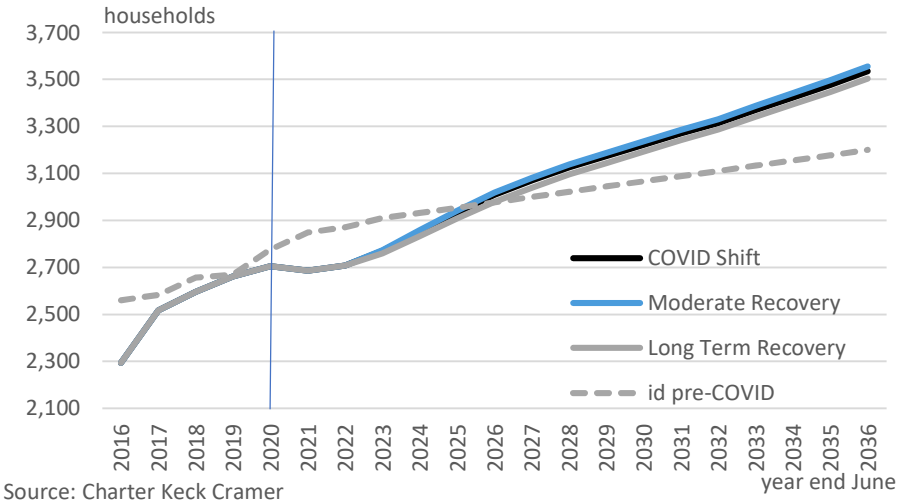
Source: Charter Keck Cramer, id

8.9.1. Population Comparison

As at 2020 Oak Park's population was equivalent to that forecast pre-COVID. Under the COVID-19 Shift scenario. the COVID-19 pandemic will see near term population growth across Oak Park being somewhat subdued with a significant increase then forecast from 2024. Over the 2024–2036 period Oak Park's population is forecast to grow at an average rate of 1.6% p.a. significantly above the 0.6% p.a. growth forecast pre COVID-19 (forecast.id, 2020) over the same time period. This is forecast to result in Oak Park gaining an additional 1,130 residents over the 2024–2036 period.

Oak Park is expected to have sufficient capacity for population growth to continue, although not enough to create significant upside under the Moderate scenario and weaker growth expected under the Long Term Recovery scenario.

Figure 161 Total Population Comparison – Oak Park

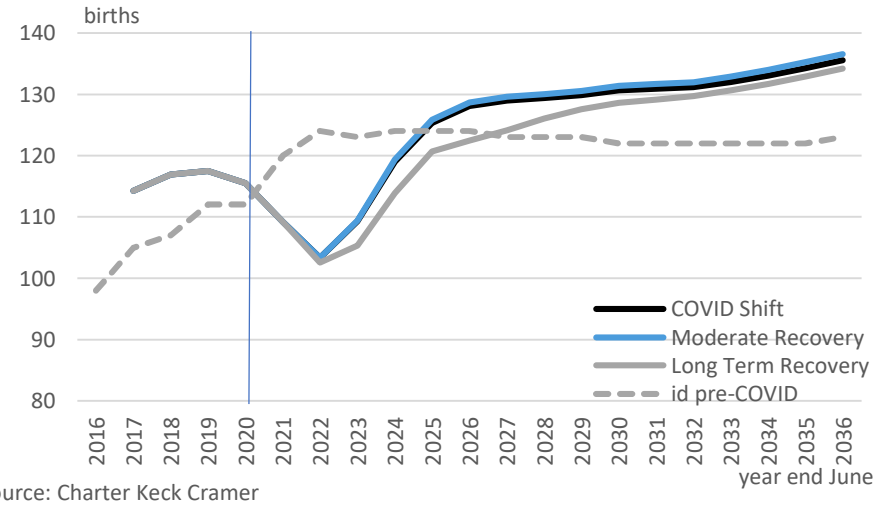


Source: Charter Keck Cramer

8.9.2. Births

Births across Oak Park are projected to fall over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A significant increase in births is then forecast over the 2022–2026 period as couples that delayed having children over the 2020–2022 period start to have children. Over this time period births in Oak Park are forecast to increase from 103 in 2022 to 128 by 2026. From 2026 births across Oak Park are forecast to increase marginally to reach 136 births by 2036. From 2026 the volume of births across Oak Park are forecast to be greater than that forecast pre COVID-19 (forecast.id, 2020). While the level of births under the Moderate scenario is not expected to be materially higher than the COVID-19 Shift scenario, it ends up noticeably lower under the Long Term Recovery scenario to 2029.

Figure 162 Forecast Births – Oak Park

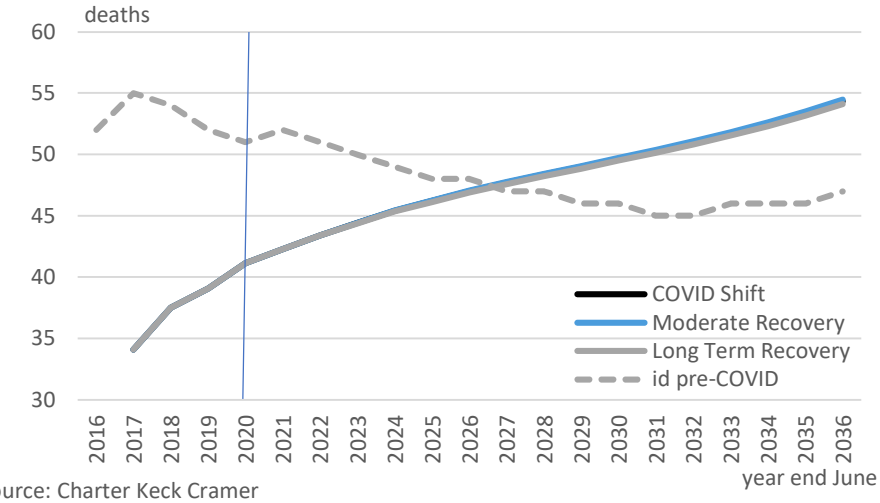


Source: Charter Keck Cramer

8.9.3. Deaths

From 2021, annual of deaths within Oak Park is forecast to increase, growing in line with population growth, with limited variation under the three scenarios.

Figure 163 Forecast Deaths – Oak Park

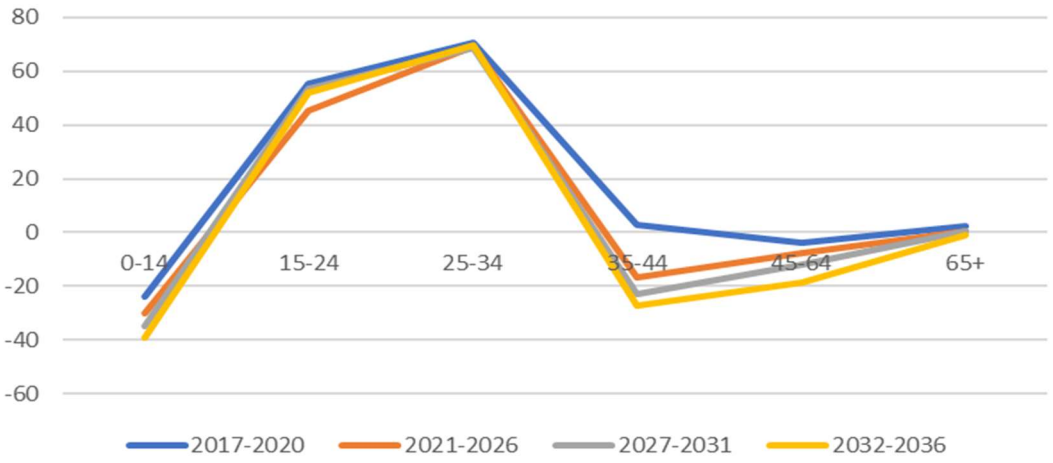


Source: Charter Keck Cramer

8.9.4. Net Migration by Age

Using the COVID-19 Shift scenario as an indicator, net migration into Oak Park is primarily driven by residents in the 15-34 years age cohort. Over the 2017–2036 period Oak Park is forecast to record net outflows of residents within the 0-14 years and 35-64 years age cohorts.

Figure 164 Net Migration by Age – Oak Park, COVID-19 Shift scenario

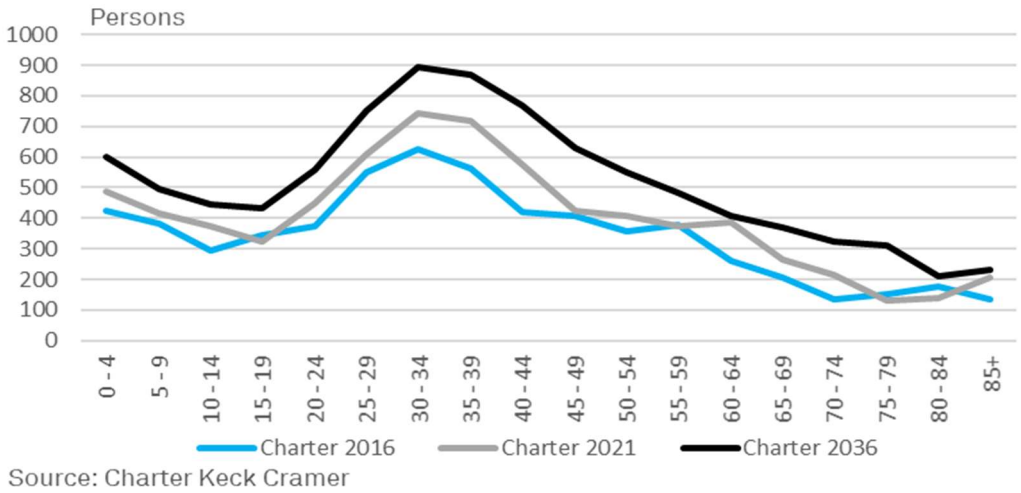


8.9.5. Population by Age

Age Profile (Over Time)

Under the COIVD Shift scenario, Oak Park's age profile is underpinned by high proportions of residents aged 25–39 years which as of 2016 account for 28% of total residents within the suburb. Over the 2016–2036 period Oak Park's age structure is not forecast to change greatly with the 25–39 years age cohort forecast to remain the predominant age cohort across the suburb. By 2036 it is forecast that this age cohort will account for 27% of total residents within Oak Park.

Figure 165 Age Profile Over Time – Oak Park, COVID-19 Shift scenario

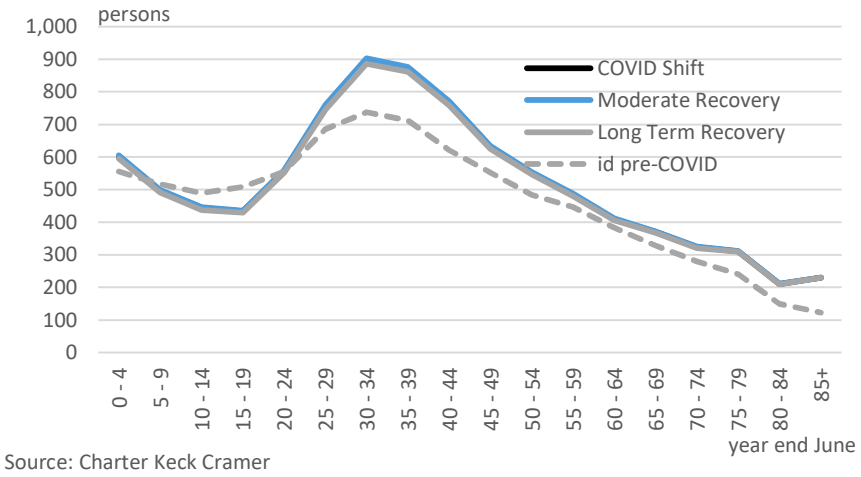


Source: Charter Keck Cramer

Age Profile Comparison (at 2036)

In comparison to pre COVID-19 forecasts (forecast.id, 2020) by 2036 Oak Park is forecast to contain an additional 530 residents aged 25-44 years. Conversely it is forecast that by 2036 Oak Park will contain 140 fewer residents aged 5-19 years than forecast pre-COVID. There is little difference in the population profile between each of the three scenarios, with only a slightly lower over of 0-14 year olds under the Long Term Recovery scenario, which reflected the lower level of expected births under this scenario.

Figure 166 Age Profile Comparison – Oak Park



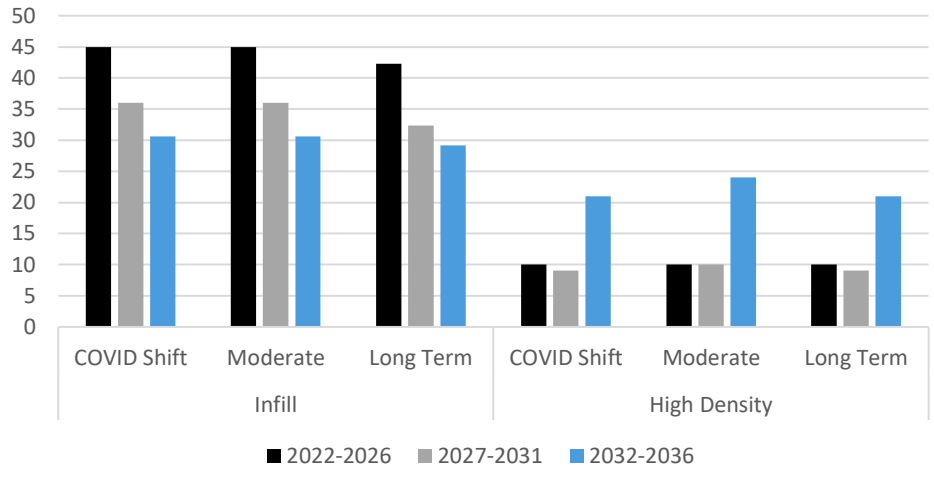
Source: Charter Keck Cramer

8.9.6. Households

Dwellings by Type

New dwelling supply in Oak Park is mainly via infill development, with limited high density dwelling capacity. Infill development should remain relatively healthy, although slowing through to 2036 as the most easily developable sites are absorbed. There is some potential capacity for high density dwelling supply in Oak Park and this is expected to increase as infill supply runs down. Nevertheless, capacity appears relatively constrained and there is expected to be limited differences in expected dwelling supply under each scenario.

Figure 167 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Oak Park, Selected Time Periods

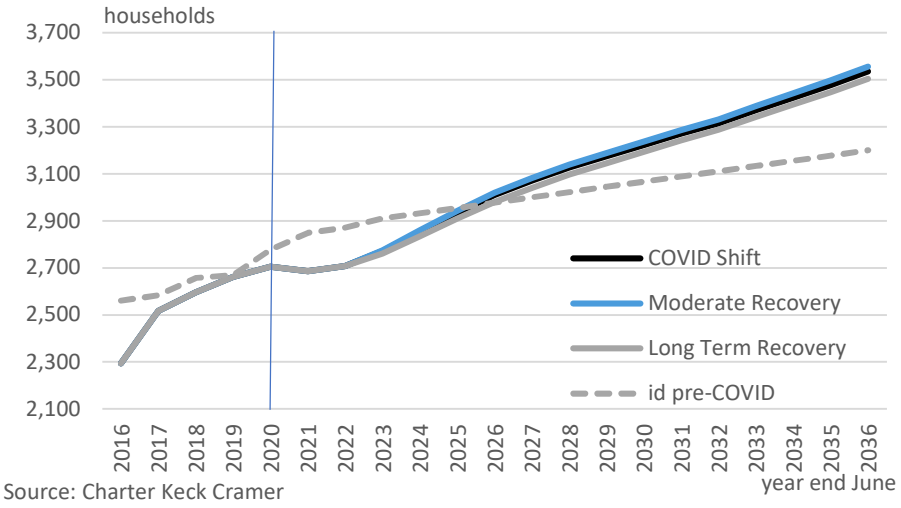


Source: Charter Keck Cramer

Total Households (Comparison)

Under the COVID-19 Shift scenario Oak Park is forecast to record a pick up in the rate of household growth from 2024, with the total number of households within Oak Park is forecast to grow at an average rate of 1.7% p.a. over the 2024–2036 period, significantly above the 0.7% p.a. growth forecast pre COVID-19 (forecast.id, 2020). This level of growth is forecast to result in an additional 400 households being formed in Oak Park over the 2024–2036 period in comparison to pre COVID-19 projections. Household growth under each of the three scenarios reflects population growth.

Figure 168 Total Households Comparison – Oak Park

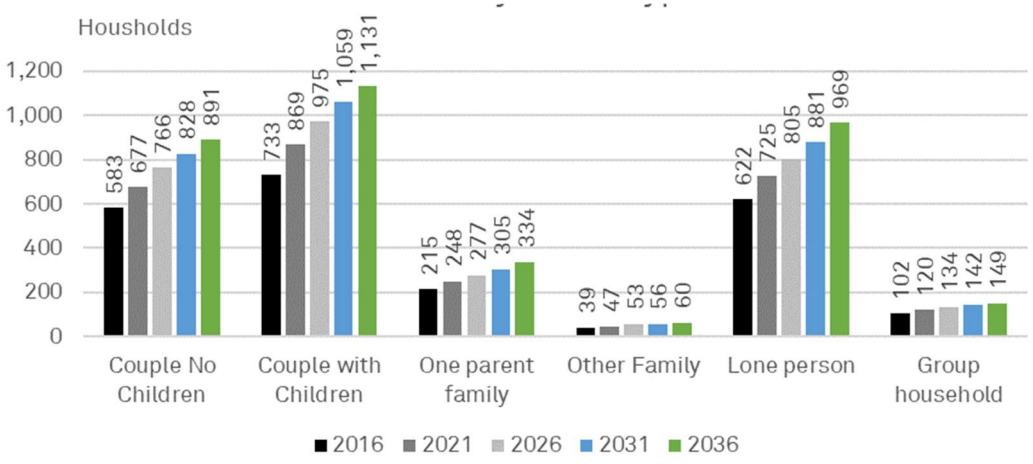


Source: Charter Keck Cramer

8.9.7. Growth in Households by Household Type

Oak Park's predominant household type is Couple Households with Children. As of 2016 this household type accounted for 32% of total households followed by Lone Person Households (27% of total households) and Couples without Children (25% of total households). Over the 2016–2036 period Oak Park's household structure is forecast to remain unchanged with Couple Households with Children to continue to be the predominant household type across the suburb. With limited variation in the number of households under each forecast scenario, the household profile is also expected to remain broadly similar.

Figure 169 Growth by Households Type – Oak Park



8.10. Glenroy

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 170 Total Population and Household Comparison - Glenroy

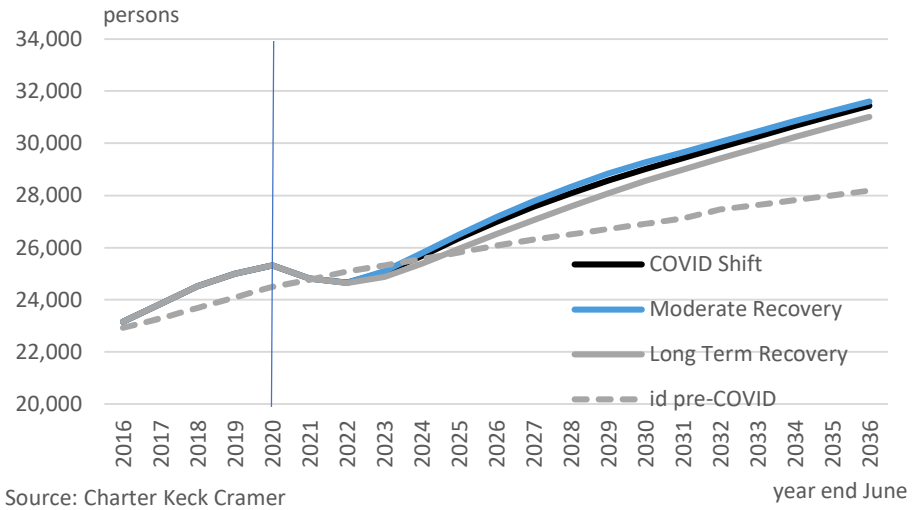
Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	25,319	24,816	26,983	29,435	31,445	6,126
Moderate Recovery	25,319	24,816	27,162	29,662	31,603	6,284
Long Term Recovery	25,319	24,816	26,513	28,983	31,023	5,704
id Pre-COVID	24,500	24,770	26,072	27,120	28,186	3,686
	Households					
COVID Shift	9,448	9,371	10,098	10,949	11,702	2,254
Moderate Recovery	9,448	9,371	10,162	11,037	11,773	2,325
Long Term Recovery	9,448	9,371	9,950	10,799	11,554	2,107
id Pre-COVID	8,931	9,029	9,555	10,023	10,511	1,580

Source: Charter Keck Cramer, id

8.10.1. Population Comparison

As at 2020 Glenroy's population was above that forecast pre-COVID. Over the coming decade Glenroy's population is forecast to grow at an average rate of 1.9% p.a. significantly above the 0.9% p.a. growth forecast pre COVID-19 (forecast.id, 2020). Over the 2020 - 2036 period Glenroy is forecast to gain an additional 2,440 residents in comparison to pre COVID-19 forecasts. Relative to the id pre COVID-19 forecast, Charter has an assumption of stronger infill development, as reflected by recent development. Nevertheless, the upside to population under the Moderate scenario is limited, based on more limited upside to infill development and limited expected high density activity in the suburb.

Figure 171 Total Population Comparison - Glenroy

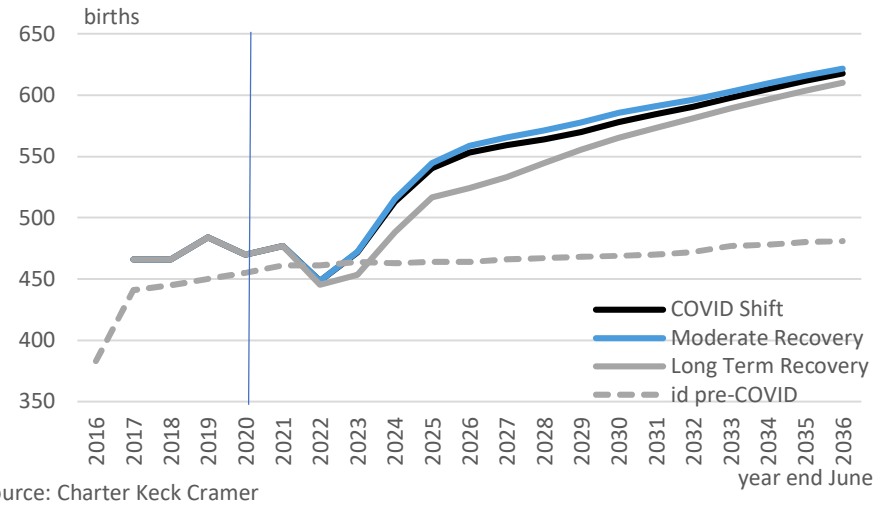


Source: Charter Keck Cramer

8.10.2. Births

Births across Glenroy are projected to fall over the 2021–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A significant increase in births is then forecast over the 2022–2025 period as couples that delayed having children over the 2020–2022 period start to have children. Over this time period births in Glenroy are forecast to increase from 448 in 2022 to 553 by 2026. Over the long term the volume of births across Glenroy is forecast to be far greater than that forecast pre COVID-19 (forecast.id, 2020). While the level of births under the Moderate scenario is not expected to be materially higher than the COVID-19 Shift scenario, it ends up notably lower under the Long Term Recovery scenario, particularly to the turn of the decade.

Figure 172 Forecast Births - Glenroy

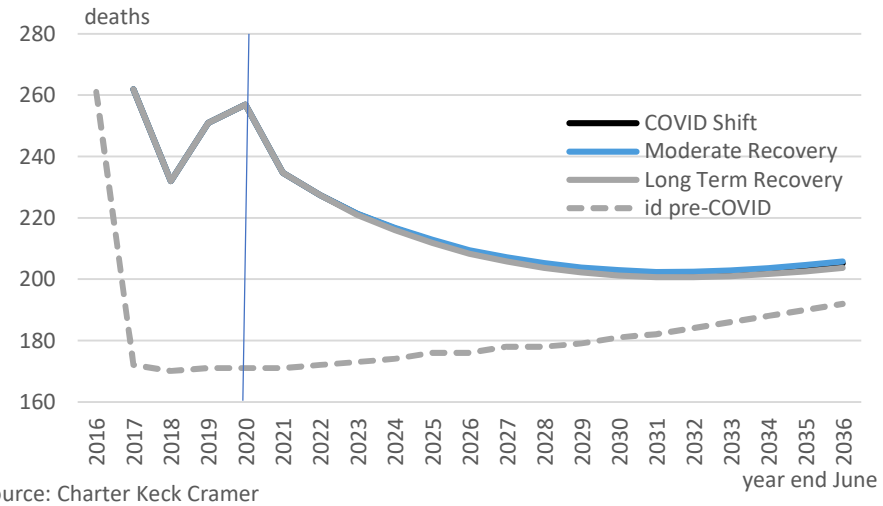


Source: Charter Keck Cramer

8.10.3. Deaths

From 2020 the annual number of deaths within Glenroy is forecast to trend downwards from 257 deaths in 2020 to reach a low of 202 deaths by 2031, with little differences across each of the three scenarios.

Figure 173 Forecast Deaths - Glenroy

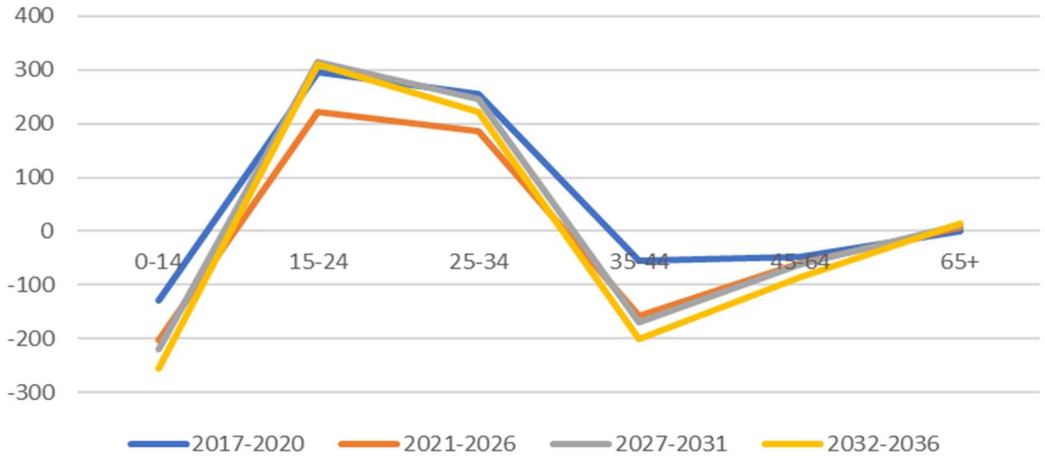


Source: Charter Keck Cramer

8.10.4. Net Migration by Age

Using the COVID-19 Shift scenario as a guide, net migration into Glenroy is primarily driven by residents in the 15-34 years age cohort. Over the 2027–2036 period Glenroy is forecast to record net outflows of residents within the 0-14 years and 35-44 years age cohorts.

Figure 174 Net Migration by Age – Glenroy, COVID-19 Shift Scenario



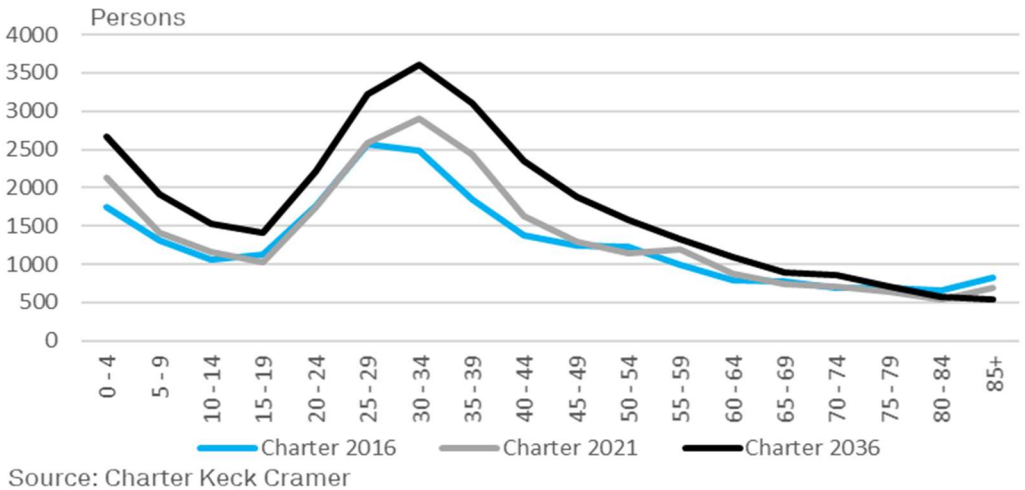
Source: Charter Keck Cramer

8.10.5. Age of Population

Age Profile (Over Time)

Under the COVID-19 Shift scenario, Glenroy's age profile is underpinned by high proportions of residents aged 20–39 years which as of 2016 account for 37% of total residents within the suburb. Over the 2016–2036 period Glenroy's age structure is not forecast to change greatly with the 20–39 years age cohort forecast to remain the predominant age cohort across the suburb. By 2036 it is forecast that this age cohort will account for 38% of total residents within Glenroy.

Figure 175 Age Profile Over Time – Glenroy, COVID-19 Shift Scenario

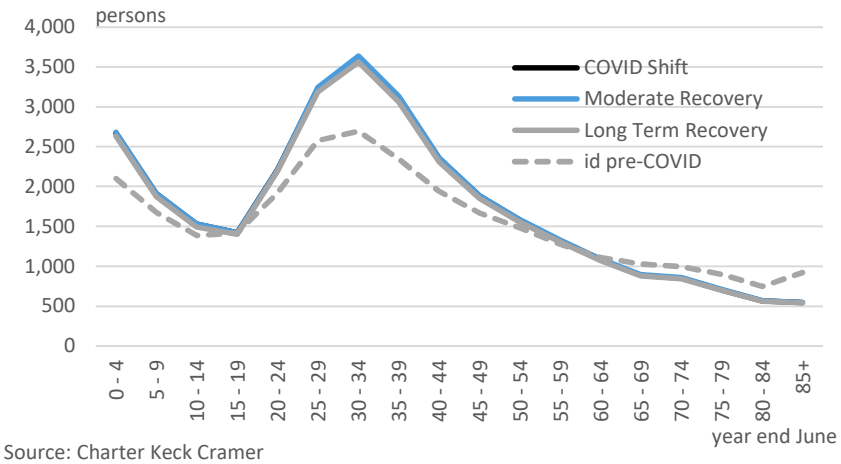


Source: Charter Keck Cramer

8.10.6. Age Profile Comparison (at 2036)

In comparison to pre COVID-19 forecasts (forecast.id, 2020) by 2036 Glenroy is forecast to contain an additional 3,230 residents within the 20-49 years age cohort. Glenroy is forecast to have a younger population by 2036 in comparison to pre COVID-19 forecasts with the suburb set to contain 1,030 fewer residents aged 65 years or older. There is little difference in the population profile between each of the three scenarios, with only a slightly lower over of 0-14 year olds under the Long Term Recovery scenario, which reflected the lower level of expected births under this scenario.

Figure 176 Age Profile Comparison - Glenroy



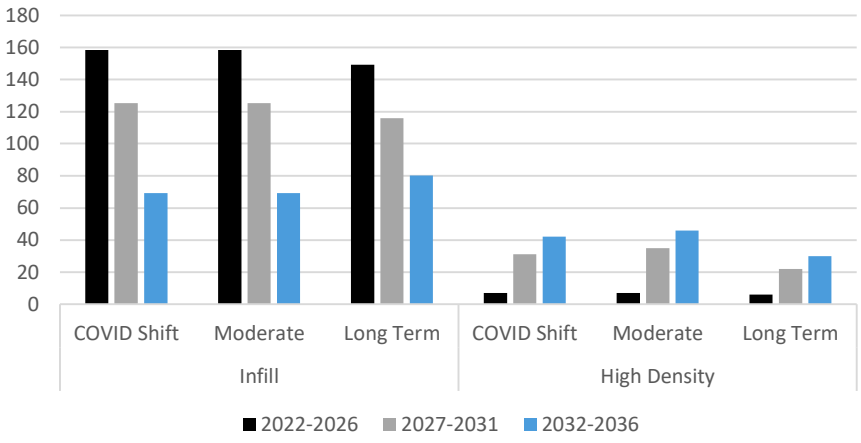
Source: Charter Keck Cramer

8.10.7. Households

Dwellings by Type

New dwelling supply in Glenroy has been mainly via infill development, with minimal high density dwelling activity. Infill development is expected to remain relatively healthy but drop off quickly to 2036 as the most easily developable sites are absorbed. There is some potential capacity for high density dwelling supply. However, the economics of apartment development in Glenroy is expected to remain challenging relative to the suburbs to the south. This will constrain the upside under any population scenario.

Figure 177 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Glenroy, Selected Time Periods

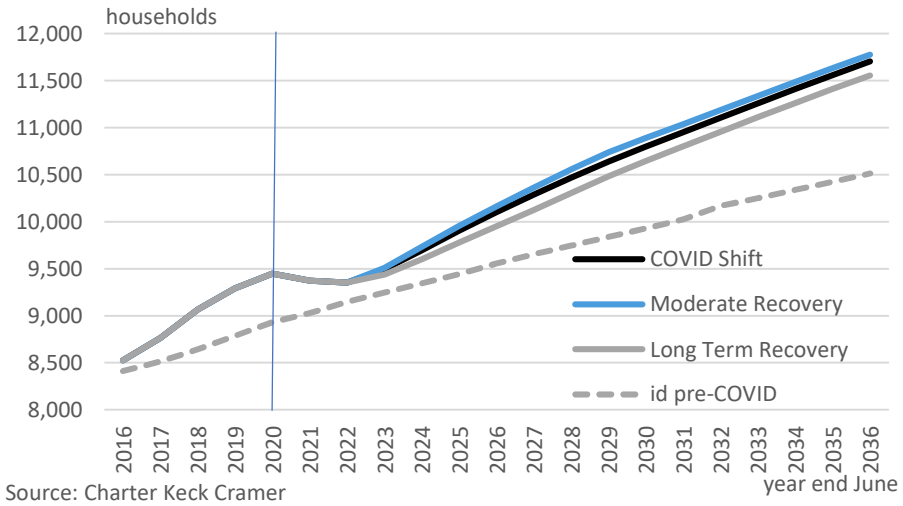


Source: Charter Keck Cramer

Total Households (Comparison)

As of 2020 the number of households within Glenroy was slightly above that forecast pre COVID-19 (forecast.id, 2020). Over the 2020–2030 period Glenroy is forecast to record significant volumes of household growth with the total number of households within Glenroy forecast to grow at an average rate of 1.3% p.a. slightly above the 1.1% p.a. growth forecast pre-COVID. Household growth under each of the three scenarios reflects population growth.

Figure 178 Total Households Comparison - Glenroy

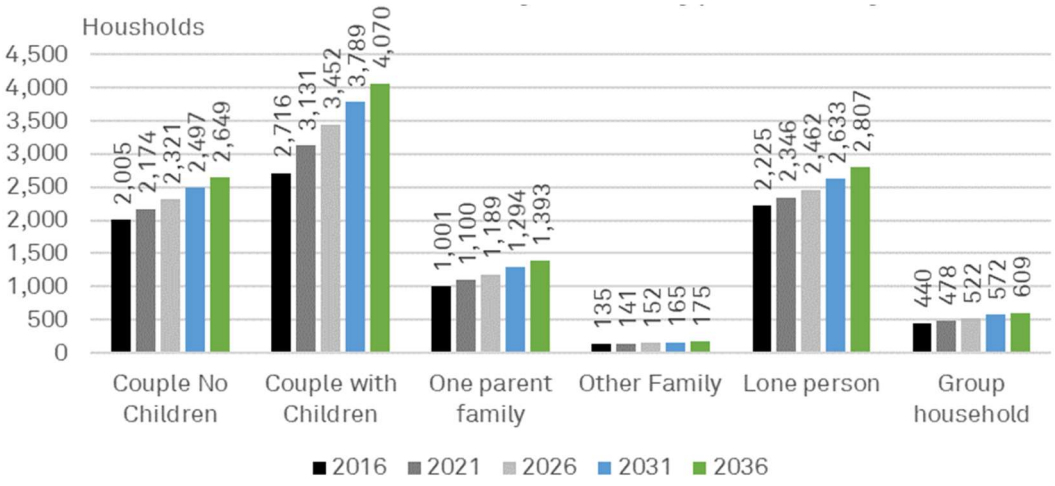


Source: Charter Keck Cramer

8.10.8. Growth in Households by Household Type

Glenroy's predominant household type is Couple Households with Children, as of 2016 this household type accounted for 32% of total households followed by Lone Person Households (27% of total households) and Couple Households without Children (24% of total households). Over the 2016–2036 period the proportion of Couple Households with Children in Glenroy is forecast to increase to account for 35% of total households by 2036. With limited variation in the number of households under each forecast scenario, the household profile is also expected to remain broadly similar.

Figure 179 Growth by Household Type - Glenroy



8.11. Gowanbrae

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 180 Total Population and Household Comparison - Gowanbrae

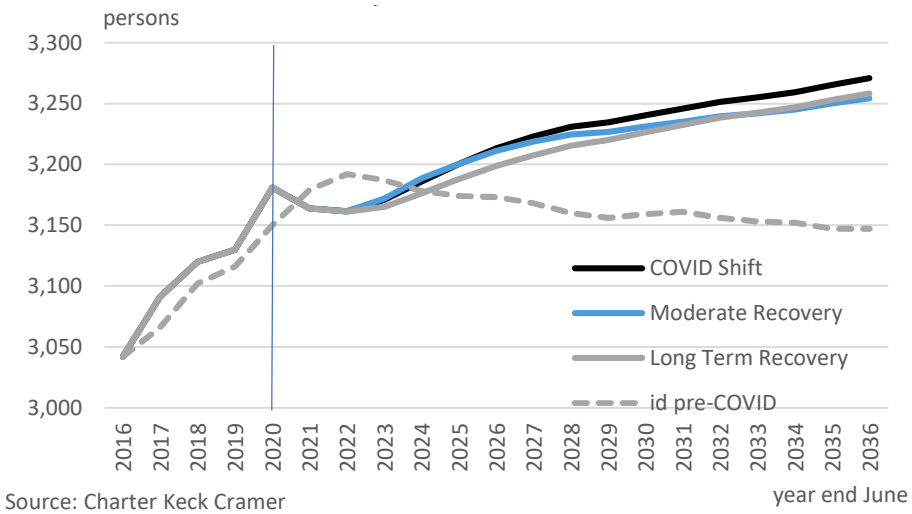
Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	3,181	3,164	3,213	3,246	3,271	90
Moderate Recovery	3,181	3,164	3,211	3,235	3,254	73
Long Term Recovery	3,181	3,164	3,199	3,232	3,258	77
id Pre-COVID	3,150	3,179	3,173	3,161	3,147	-3
	Households					
COVID Shift	1,192	1,191	1,213	1,237	1,240	49
Moderate Recovery	1,192	1,191	1,212	1,234	1,235	43
Long Term Recovery	1,192	1,191	1,209	1,234	1,237	45
id Pre-COVID	1,177	1,190	1,204	1,213	1,223	46

Source: Charter Keck Cramer, id

8.11.1. Population Comparison

Gowanbrae is forecast to record low levels of population growth over coming years with the population forecast to increase by less than 100 residents over the 2020–2036 period under each scenario. The limited forecast population growth within Gowanbrae reflects the limited opportunities that exist to increase housing supply within the suburb. The Moderate scenario actually provides a (marginally) lower population forecast than the COVID-19 Shift scenario. This reflects the higher assumption of net overseas migration (whose age profile reflect a smaller household size) in this scenario displacing net internal migration (which has a larger household size).

Figure 181 Total Population Comparison - Gowanbrae

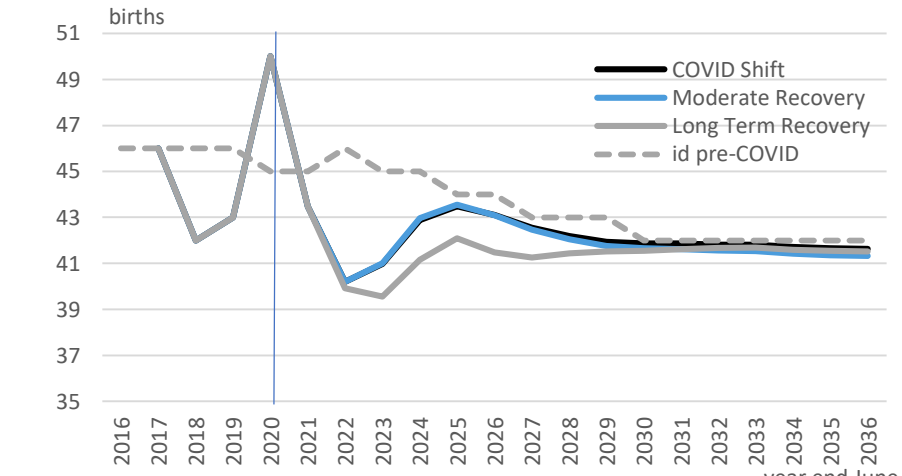


Source: Charter Keck Cramer

8.11.2. Births

Births across Gowanbrae are projected to fall over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A slight increase in births is then forecast over the 2022–2024 period as couples that delayed having children over the 2020–2022 period start to have children. From 2025 the number of annual births in Gowanbrae will continue to fall as the population ages. As with the population forecast, by the end of the forecast period, births in the Long Term Recovery scenario are expected to be marginally above the Moderate scenario, reflecting the slightly higher end population.

Figure 182 Forecast Births - Gowanbrae

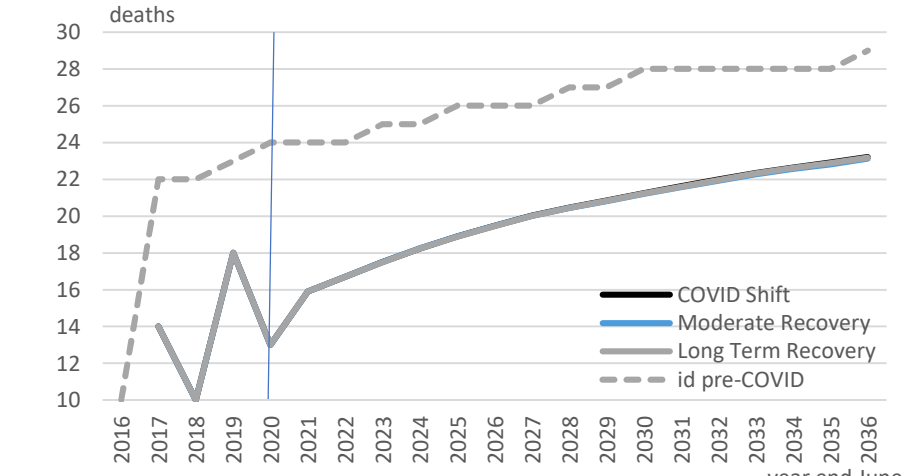


Source: Charter Keck Cramer

8.11.3. Deaths

As Gowanbrae's population ages the number of annual deaths is forecast to trend upwards from 13 deaths in 2020 to 23 deaths by 2036, with little change across the three scenarios.

Figure 183 Forecast Deaths - Gowanbrae

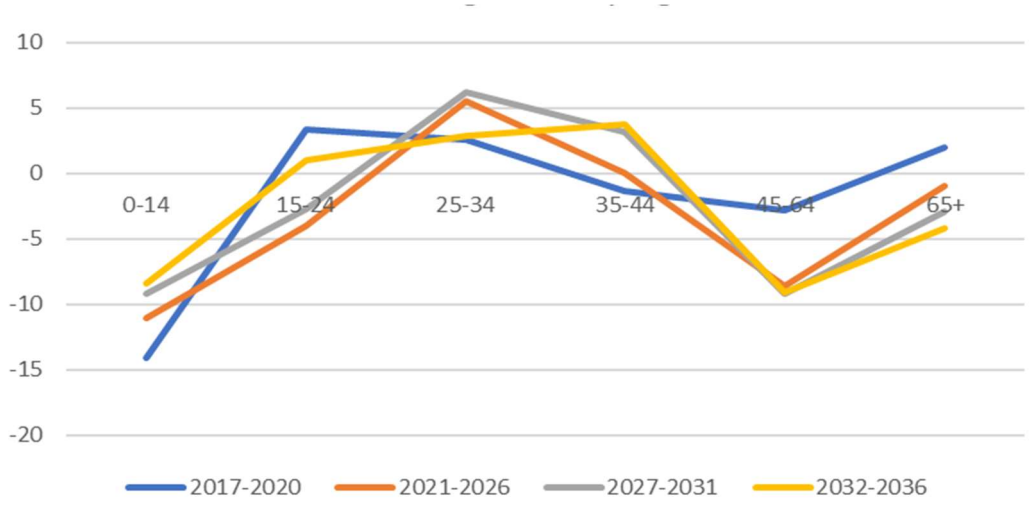


Source: Charter Keck Cramer

8.11.4. Net Migration by Age

Based on the COVID-19 Shift scenario profile, over the 2017–2036 Gowanbrae is forecast to record negligible levels of net migration across all age cohorts.

Figure 184 Net Migration by Age – Gowanbrae, COVID-19 Shift scenario



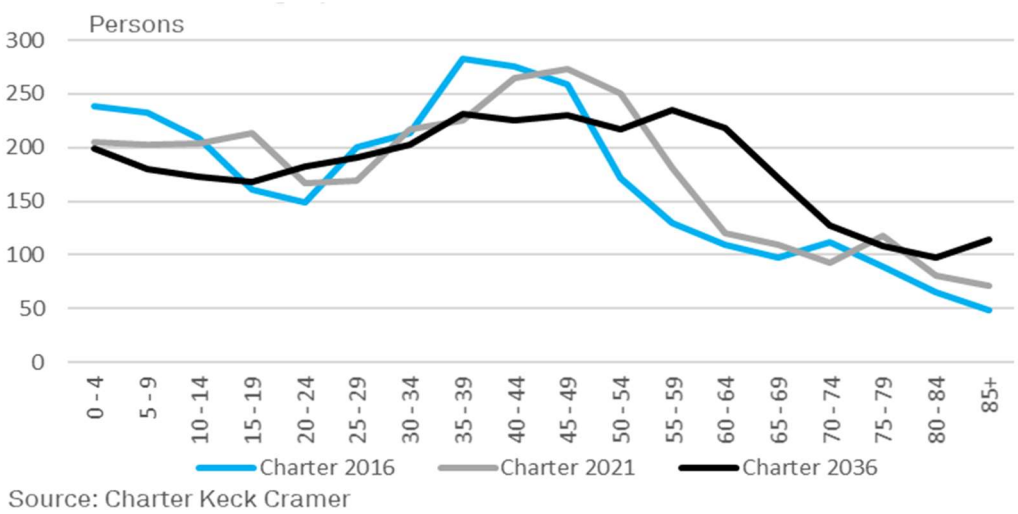
Source: Charter Keck Cramer

8.11.5. Age of Population

Age Profile (Over Time)

In comparison to pre COVID-19 forecasts (forecast.id, 2020) by 2036 Gowanbrae is forecast to contain a significantly older population with the suburb forecast to contain an additional 160 residents aged 50–69 years and 155 fewer residents aged 0-19 years.

Figure 185 Age Profile Over Time – Gowanbrae, COVID-19 Shift scenario



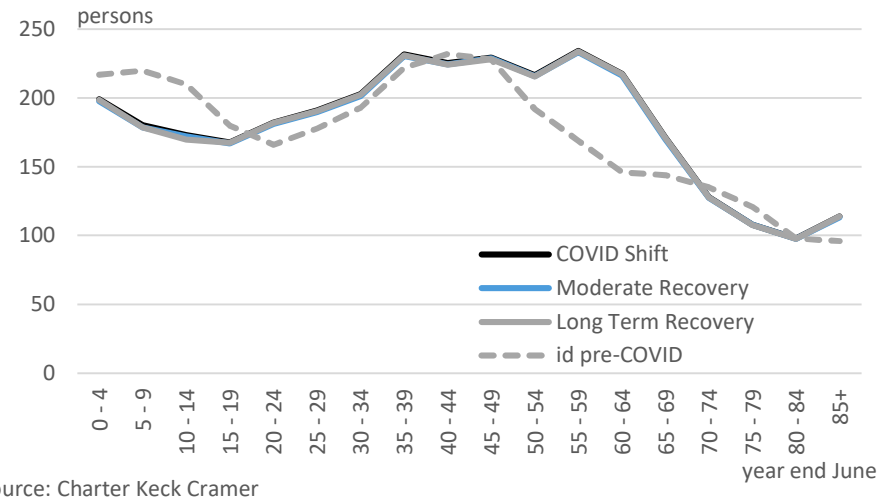
Source: Charter Keck Cramer

Age Profile Comparison (at 2036)

Gowanbrae's current age profile depicts a large volume of family households within the suburb. At present the predominant age cohorts within the suburb are residents aged 35-49 years followed by residents aged 0-14 years.

Over the 2016–2036 period Gowanbrae's age structure is forecast to age significantly. By 2036 the predominant age cohort is forecast to be residents aged 55-64 years followed by residents in the 45-54 years age cohort. This indicates that the parents of the current family households are forecast to continue to reside in Gowanbrae even after their children leave the suburb to form their own households. There is little difference in the population profile between each of the three scenarios.

Figure 186 Age Profile Comparison - Gowanbrae



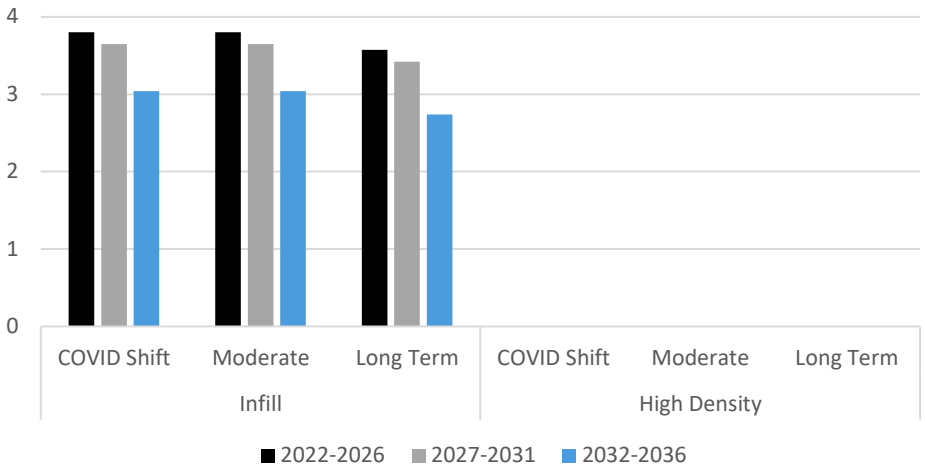
Source: Charter Keck Cramer

8.11.6. Households

Dwellings by Type

Gowanbrae is effectively a fully built out detached house suburb. There is little opportunity to add new dwellings, and this is reflected in the minimal historical infill supply and in the annual forecast.

Figure 187 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Gowanbrae, Selected Time Periods

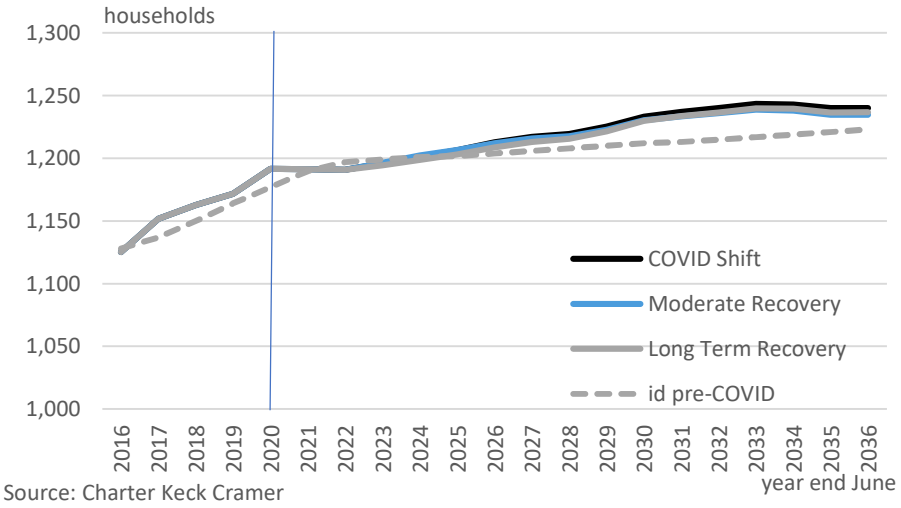


Source: Charter Keck Cramer

8.11.7. Total Households (Comparison)

As of 2020 the number of households within Gowanbrae was slightly above that forecast pre COVID-19 (forecast.id, 2020). Into the future household growth across Gowanbrae is forecast to be minimal with the suburb forecast to sustain 1,190–1,240 households over the 2020–2036 period. Household growth under each of the three scenarios reflects population growth.

Figure 188 Total Households Comparison - Gowanbrae

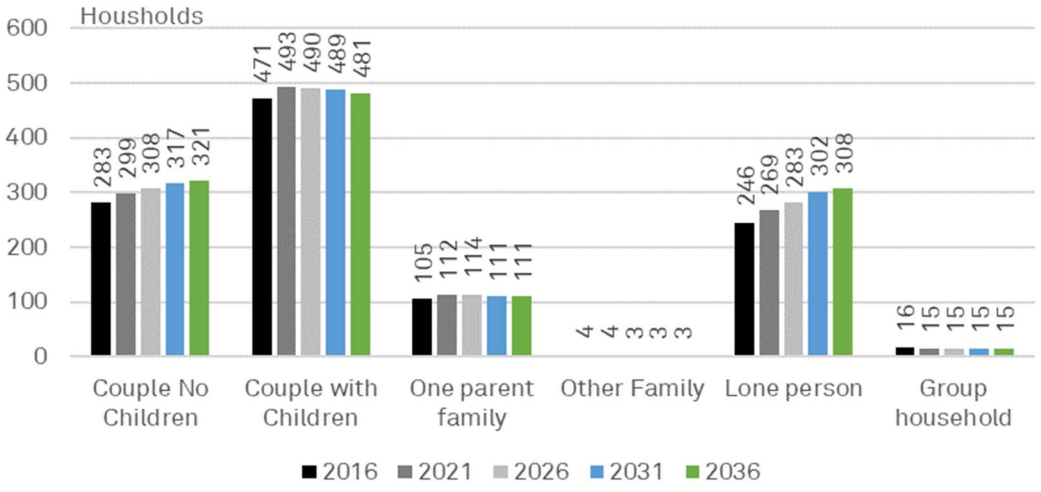


Source: Charter Keck Cramer

8.11.8. Growth in Households by Household Type

Gowanbrae's predominant household type is Couple Households with Children, as of 2016 this household type accounted for 42% of total households followed by Couple Households without Children (25% of total households) and Lone Person Households (22% of total households). Over the 2016–2036 period the proportion of Couple Households with Children in Gowanbrae is forecast to decrease to account for 37% of total households by 2036. The aging of the Gowanbrae population over this time period will result in an increase in Older Couple Households without Children and Lone Person Households. With limited variation in the number of households under each forecast scenario, the household profile is also expected to remain broadly similar.

Figure 189 Growth by Household Type - Gowanbrae



8.12.Hadfield

The following table provides a high level comparison of Charter's population and household forecast under each of the three post COVID-19 scenarios, as well as Council's pre COVID-19 forecasts (forecast.id, 2020). More detailed data and commentary follow.

Figure 190 Total Population and Household Comparison - Hadfield

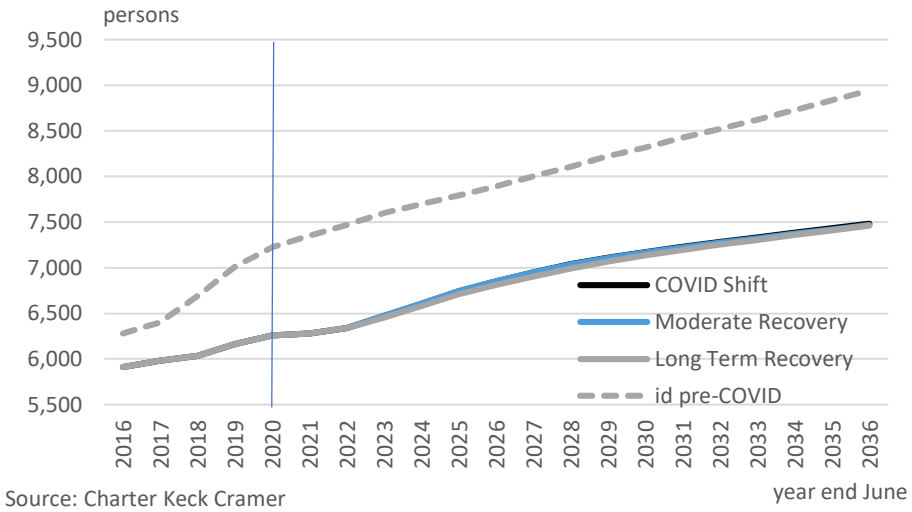
Scenario	2020	2021	2026	2031	2036	2020-2036
	Population					
COVID Shift	6,258	6,281	6,851	7,228	7,483	1,225
Moderate Recovery	6,258	6,281	6,853	7,221	7,467	1,209
Long Term Recovery	6,258	6,281	6,811	7,195	7,460	1,202
id Pre-COVID	7,226	7,350	7,891	8,427	8,943	1,717
	Households					
COVID Shift	2,421	2,432	2,599	2,726	2,820	399
Moderate Recovery	2,421	2,432	2,599	2,724	2,815	394
Long Term Recovery	2,421	2,432	2,591	2,719	2,814	393
id Pre-COVID	2,718	2,758	2,946	3,156	3,380	662

Source: Charter Keck Cramer, id

8.12.1. Population Comparison

As at 2020 Hadfield's population was significantly below that forecast pre-COVID. Over the coming decade Hadfield's population is forecast to grow at an average rate of 1.4% p.a. equivalent to that forecast pre COVID-19 (forecast.id, 2020). The Moderate scenario actually provides a (marginally) lower population forecast than the COVID-19 Shift scenario. This reflects the higher assumption of net overseas migration (whose age profile reflect a smaller household size) in this scenario displacing net internal migration (which has a larger household size).

Figure 191 Total Population Comparison - Hadfield

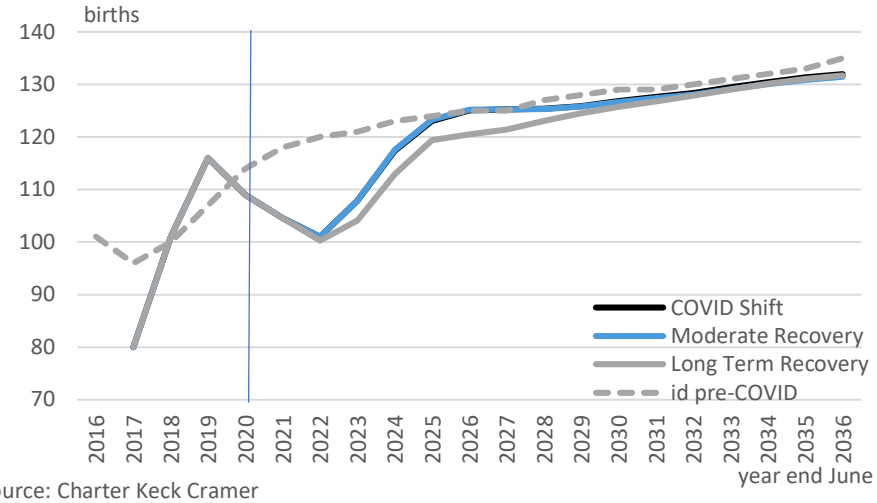


Source: Charter Keck Cramer

8.12.2. Births

Under the COVID-19 Shift scenario, Births across Hadfield are projected to fall over the 2020–2022 period as couples delay having children as a result of the uncertainty caused by the COVID-19 pandemic. A significant increase in births is then forecast over the 2022–2025 period as couples that delayed having children over the 2020–2022 period start to have children. Over this time period births in Hadfield are forecast to increase from 101 in 2022 to 125 by 2026. Over the long term the volume of births across Hadfield is forecast to be greater than that forecast pre COVID-19 (forecast.id, 2020). The level of births under both the Moderate scenario and Long Term Recovery scenario are not expected to be materially different to the COVID-19 Shift scenario, although the forecast under the Long Term Recovery scenario will be notably lower through to the end of the decade.

Figure 192 Forecast Births - Hadfield

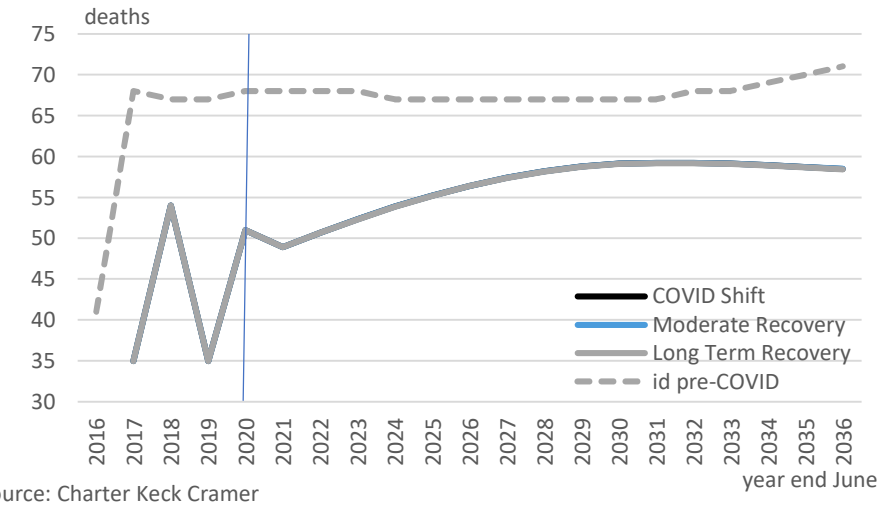


Source: Charter Keck Cramer

8.12.3. Deaths

Over the long term the annual number of deaths within Hadfield is forecast to trend upwards increasing from 49 deaths in 2021 to 59 deaths by 2031, with minimal variation across each of the three scenarios.

Figure 193 Forecast Deaths - Hadfield

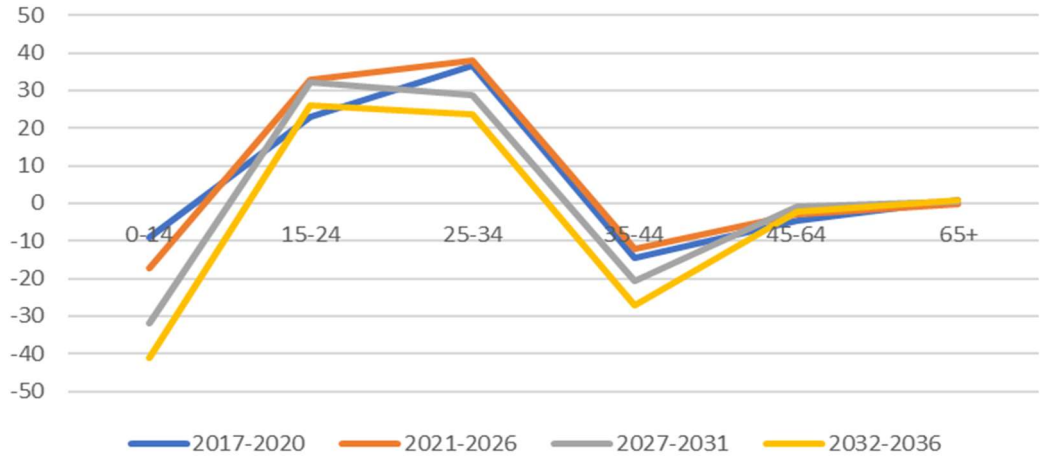


Source: Charter Keck Cramer

8.12.4. Net Migration by Age

Using the COVID-19 Shift scenario as a guide, net migration into Hadfield is primarily driven by residents in the 15-34 years age cohort. Over the 2027–2036 period Hadfield is forecast to record net outflows of residents within the 0-14 years and 35-44 years age cohorts.

Figure 194 Net Migration by Age – Hadfield, COVID-19 Shift scenario



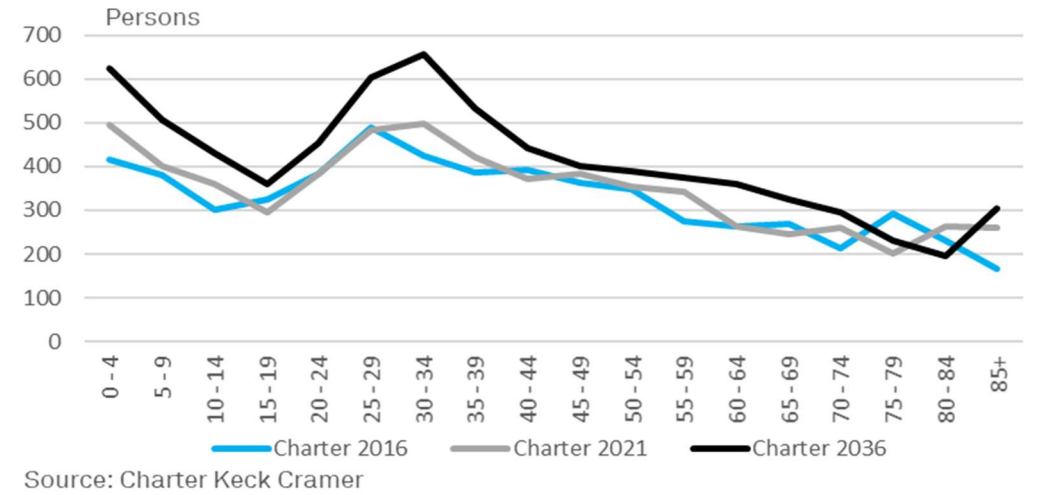
Source: Charter Keck Cramer

8.12.5. Age of Population

Age Profile (Over Time)

Under the COVID-19 Shift scenario, Hadfield is underpinned by a younger age profile with its predominant age cohort being residents aged 25–34 years. As of 2016 all five year age cohorts under 60 years comprised 300–500 residents. Over the 2016–2036 period Hadfield's age structure is not forecast to change greatly with the 25–34 years age cohort forecast to remain the predominant age cohort across the suburb.

Figure 195 Age Profile Over Time – Hadfield, COVID-19 Shift Scenario

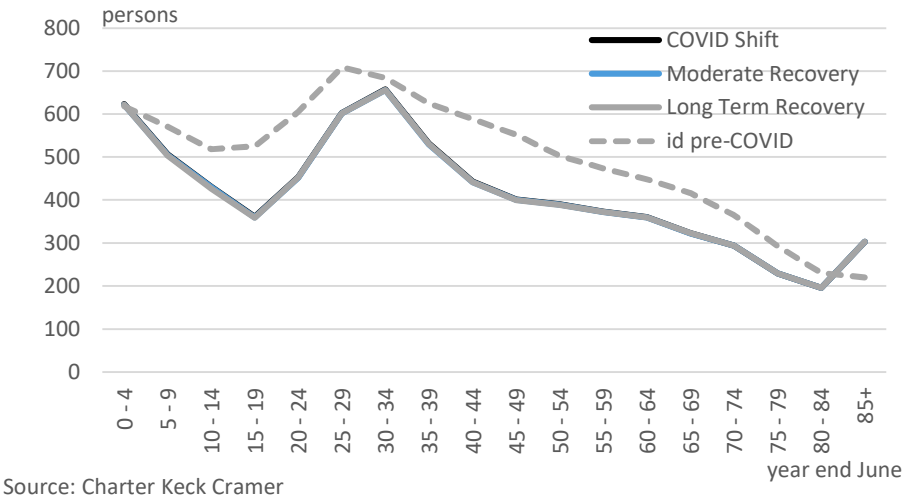


Source: Charter Keck Cramer

8.12.6. Age Profile Comparison (at 2036)

In comparison to pre COVID-19 forecasts (forecast.id, 2020) by 2036 Hadfield is forecast to contain 1,450 fewer residents under the CVOID Shift scenario. This forecast shortfall will be relatively evenly distributed across all five year age cohorts. There is little difference in the population profile between each of the three scenarios, with only a slightly lower over of 0-14 year olds under the Long Term Recovery scenario, which reflected the lower level of expected births under this scenario.

Figure 196 Age Profile Comparison - Hadfield



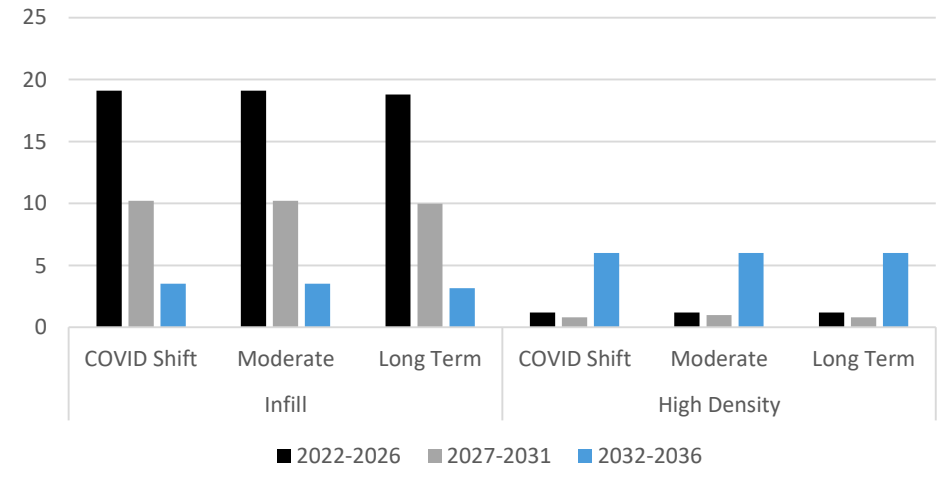
Source: Charter Keck Cramer

8.12.7. Households

Dwellings by Type

New dwelling supply in Hadfield has been mainly via infill development and limited due to capacity constraints. As such, infill supply is expected to continue to slow to 2036 as capacity is absorbed. However, with very limited high density capacity, overall new supply is expected to remain constrained. This will constrain the upside under any population scenario.

Figure 197 Average Annual New Dwelling Supply (no. of dwellings), Infill and High Density, Hadfield, Selected Time Periods

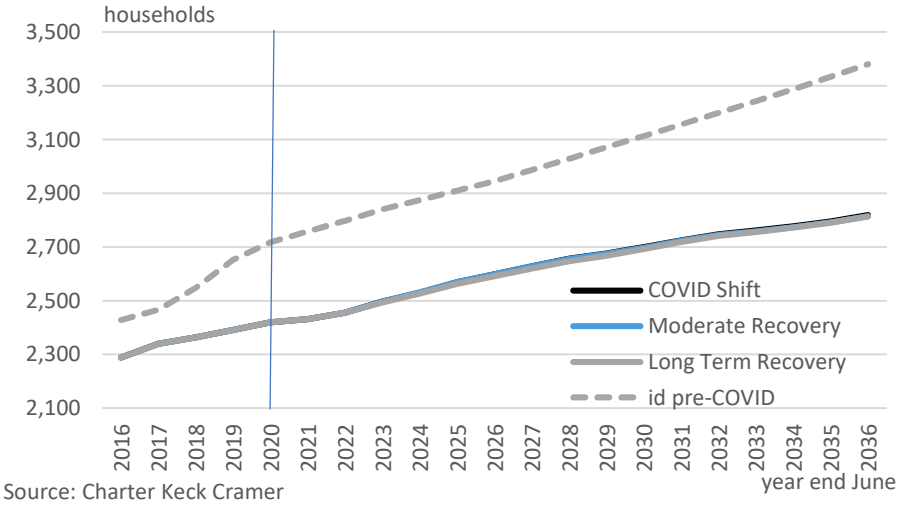


Source: Charter Keck Cramer

Total Households (Comparison)

As of 2020 the number of households within Hadfield was significantly below that forecast pre-COVID. Over the 2020–2030 period Hadfield is forecast to record significant volumes of household growth with the total number of households within Hadfield forecast to grow at an average rate of 1.1% p.a. slightly below the 1.4% p.a. growth forecast pre COVID-19 (forecast.id, 2020). By 2036 there are forecast to be 560 fewer households in Hadfield than that forecast pre-COVID. Household growth under each of the three scenarios reflects population growth.

Figure 198 Total Households Comparison - Hadfield

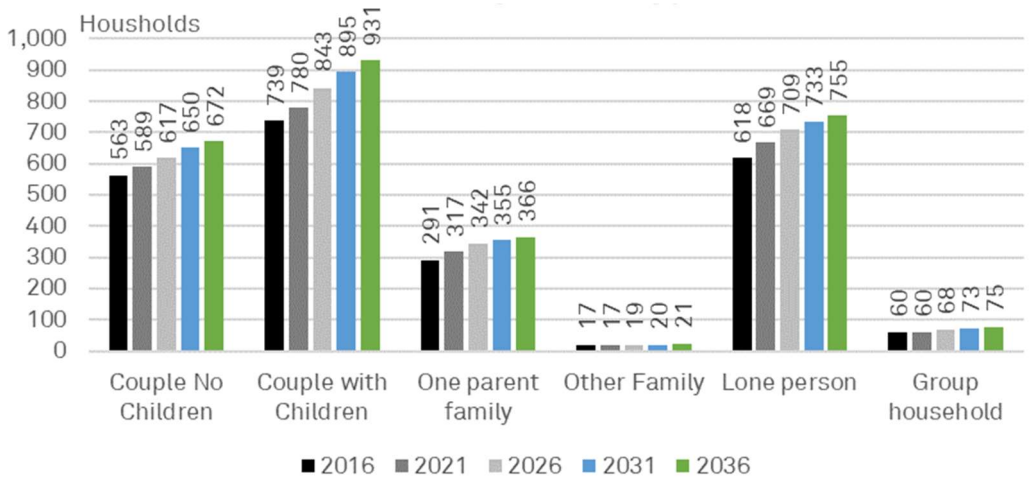


Source: Charter Keck Cramer

8.12.8. Growth in Households by Household Type

Hadfield's predominant household type is Couple Households with Children, as of 2016 this household type accounted for 32% of total households followed by Lone Person Households (27% of total households) and Couple Households without Children (25% of total households). Over the 2016–2036 period the proportion of Couple Households with Children in Hadfield is forecast to increase to account for 34% of total households by 2036. With limited variation in the number of households under each forecast scenario, the household profile is also expected to remain broadly similar.

Figure 199 Growth by Household Type - Hadfield



9. Appendix B – List of Figures

10. Appendix C – List of Annexures

The annexures to this report listed below have been provided to Moreland City Council as outputs of this study.

Annex	Name	Description
A.	Total forecast population 2021-2036	Tables of forecast population (number of persons) by: suburb, 5-year age cohorts*, three post COVID-19 scenarios and at single year forecast intervals. Actual population estimates 2016-2019 included are from the ABS ERP 2017-2019, with 2020 based on a total ERP and derived age profile.
B.	Total forecast dwellings 2021-2036	Tables of forecast dwellings by: suburb, density type (infill or high density), three post COVID-19 scenarios and at single year forecast intervals, where infill is defined as being developed on residential zoned land and high density developed on commercial and multi use zoned land. Estimates of historical infill and high density dwellings 2010-2020 are included based on methods and definitions described in Section 4.
C.	Total household forecast 2021-2036	Tables of forecast households by: suburb, three post COVID-19 scenarios and at single year forecast intervals, and suburb by household type^, three post COVID-19 scenarios, at 5-yearly forecast intervals. Actual estimated number of households in 2016 are included based on the ABS 2016 population census.
D.	Total births forecast 2021-2036	Tables of forecast births by: suburb, three post COVID-19 scenarios and at single year forecast intervals. Actual estimated births 2017 – 2020 are included, drawn from ABS Regional Population publication
E.	Total deaths forecast 2021-2036	Tables of forecast deaths by: suburb, three post COVID-19 scenarios and at single year forecast intervals. Actual estimated deaths 2017 – 2020 are included, drawn from ABS Regional Population publication

Annex	Name	Description
F.	Forecast migration 2021-2036 Internal migration by scenario (a) - (c) and Overseas migration by scenario (e) – (f)	Tables of forecast migration by: overseas arrivals, overseas departures, net overseas migration, internal arrivals, internal departures, net internal migration, 5-year age cohorts*, suburb, three post COVID-19 scenarios and at single year forecast intervals. Actual estimates of total migration 2017-2020 are included, drawn from ABS ERP data, with age profile derived by Charter Keck Cramer bases on Census analysis and ABS Regional Population Age by Sex.
G.	Forecast fertility rates	Tables of forecast fertility rate (births per female) by: suburb, three post COVID-19 scenarios, and age of female (single year) and at 5-yearly forecast intervals
H.	Forecast mortality rates	Tables of forecast mortality rates (deaths per person/population) by: suburb, three post COVID-19 scenarios and single year of age*, and at 5-yearly forecast intervals
I.	Historical summary of overseas arrivals 2011-2016	Documented results of an inter-census data analysis of overseas arrivals by suburb and country of origin 2011-2016

*with exception of 85+ year olds being an aggregated cohort

^Household types are: couple with no children, couple with children, one parent family, other family, lone person, group household

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