SGS Economics & Planning

DAREBIN HOUSING DEMAND & SUPPLY ANALYSIS

FINAL
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Prepared for
Darebin City Council

Independent insight.

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EXECUTIVE SUMMARY

SGS Economics and Planning has been commissioned by Darebin City Council (Council) to analyse the supply, demand and affordability of housing in Darebin. This report is intended to provide an evidence base for Council to plan for future housing development in the Local Government Area (LGA) which meets the needs of the current and future community. This includes:

- How much and what types of housing will be needed in the future to cater to the community's needs
- The factors influencing what types of housing are being built under current planning controls and how this aligns to likely housing demand
- How the affordability of housing has declined recently and the need for more affordable housing
- The implications of any mismatch between housing supply and demand

More detailed information on the project scope is provided in Chapter 1 of the main body of the report. The following sections provide a summary of SGS's findings, followed by a list of potential policy responses.

An overview of Darebin's housing

Overall, SGS's findings show that diversity in housing is an important strength of the Darebin LGA, with a much higher proportion of medium density dwellings in Darebin than the Greater Melbourne average, and than many other LGAs. Housing diversity is important to provide housing choice as people's circumstances change and to provide dwellings at a variety of price points.

Both medium and high density dwellings of a variety of sizes between one and three bedrooms are being delivered through housing development in multiple parts of the LGA. Over time this is reducing the proportion of Darebin's dwellings which are separate houses and increasing housing diversity. New high-density dwellings generally cater to smaller households those who want to live in the most accessible parts of the LGA. Medium density dwellings provide an alternative to separate houses for families and other households who need a dwelling larger than most apartments. Without additional medium density dwellings being built, larger households could be priced out of Darebin to more affordable parts of Melbourne.

In this report dwellings have been categories as follows:

- **Separate houses**, means a dwelling which is not attached to any other dwelling.
- **Medium density** dwellings include attached dwellings (such as semi-detached, terraced houses and townhouses), as well as two storey apartments buildings.
- **Higher density** dwellings are flats and apartment buildings with three or more storeys.
- **Other dwellings** includes caravans and cabins, improvised dwellings (for example sheds, tents or humpies as defined by the ABS), houseboats and flats attached to shops.
- **Non-private dwellings** which do not house single households. These include boarding houses, boarding schools, student accommodation and aged care facilities.

The number of dwellings and population by dwelling type as of 2016 is presented below.

DWELLINGS AND POPULATION BY TYPE IN THE DAREBIN LGA

Dwelling type	Separate house	Medium density	High density	Other	Dwelling type not stated	Non-private dwelling	Total
Number of dwellings	36,310	22,567	3,932	473	216	64	63,562
% of total dwellings	57.1%	35.5%	6.2%	0.7%	0.3%	0.1%	100.0%
Population in dwellings	93,093	42,496	6,210	818	425	3,961	147,005
% of total population	63.3%	28.9%	4.2%	0.6%	0.3%	2.7%	100.0%

Source: ABS Census 2016

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

Separate houses comprise just over half (57%) of dwellings in the Darebin LGA, but a greater proportion of the land area. Medium density dwellings are located throughout the LGA, with concentrations in certain parts in Northcote, Thornbury and Reservoir. High density dwellings are highly clustered along Hugh Street in Northcote, Thornbury and Preston with isolated buildings elsewhere.

The predominant development types observable in both recent development data and the housing development pipeline are:

- High density housing development in centres such as along High Street in Northcote and in Central Preston. The number of high-density dwellings in Preston increased by 325% between 2006-2016 as more high density dwellings were built in Preston than in Northcote, Thornbury, Fairfield and Alphington combined. Relatively little of this development is occurring north of Preston due to low feasibility.
- High density housing development along transport corridors outside of historical shopping strips. This is much rarer than development within centres.
- Opportunistic site-by-site medium density infill development mostly in in Reservoir and some parts of Preston. Much less of this development occurs south of Preston, partly due to smaller lot sizes and higher land values.
- Consolidated key site or precinct development which contains a mix of housing types, often including medium density. This occurs in multiple parts of the LGA including the Lower Area and several precincts near Latrobe University. It is often on brownfield sites.

Change in demographics and housing preferences

The rate of growth of Darebin's population has increased over time from almost no growth between 1996-2001 to just over 1.5% per year on average between 2006-2016. Growth is forecast to remain at around this level in the future as the population rises by 46,465 or 28% between 2016 and 2036 from 164,184 to 210,649 (note that the 2016 population statistic here is higher than the total shown in the table above because the table shows the population according to the ABS census, which is an undercount of overall population).

Darebin and Greater Melbourne include that group households are more common in Darebin (8% vs 5%), while couple families with children are less common (29% vs 35%). By 2036, Darebin is expected to house 24,093 more households than in 2016, including more households of every type. While couple families with children were the most common household type in Darebin in 2016 (29% of households), lone person households are expected to overtake them by 2021, with the number of these households growing by 5,844 between 2016 and 2036. Particularly high levels of growth are also expected in the number of group households and couples without children (2,660 and 6,177 additional households respectively between 2016 and 2036).

Darebin has a relatively young population compared to Greater Melbourne, with particularly high numbers of young adults (aged 20 – 35). Young adults are attracted by the amenity of Darebin's high-density centres, and continued high density housing development will likely lead to further growth in this demographic group. As these people get older and some start families, some of them stay in Darebin but some move elsewhere in search of larger and more affordable dwellings. Darebin also hosts significant migration from overseas, with many migrants living in Preston and Reservoir.

In the future, small household types like lone person households and couples without children are expected to become more common in Darebin. At the same time, the average number of children in a family is expected to decline. As a result of both these factors, Darebin's average household size is expected to decline, meaning that there will be more demand for smaller dwellings in the future compared to the past. This is quantified in demand modelling in this report, the results of which are summarised in the next section.

All kinds of households in Darebin live in all kinds of dwellings, however households of some types are more likely to live in separate houses (for example) than others. Couple families with children generally live in separate houses, with some living in medium density and few in high density. By contrast, lone person households are most likely to live in medium density and relatively likely to live in high density. Over time, the housing preferences of households of all types are shifting towards medium or high density and away from separate houses. As a result, while more than half of couples with children and one parent families are expected to live in separate houses in 2036, more than half of other families, couples without children, lone person households are group households are expected to live in medium or high density housing.

Housing demand

Future housing demand has been modelled based on the Victoria in Future population projections. The SGS Housing Demand Model converts population projections to projections for dwelling demand using recent demographic trends and housing preference trends from multiple censuses. The results are shown in the table below.

The highest demand is expected to be for medium density dwellings, followed by high density dwellings. As Darebin is an established LGA, additional separate houses are unlikely to be able to be accommodated. An increase in demand for separate houses, driven by increased numbers of families, could instead be met through development of larger medium density dwellings, likely with three or four bedrooms.

DWELLING DEMAND BY DWELLING TYPE, DAREBIN LGA, 2016-2036

Dwelling type	2016	2021	2026	2031	2036	Change 2016-2036	Average annual growth rate
Separate house	36,413	38,560	39,096	39,204	38,834	2,421	0.32%
Medium density	22,644	26,023	29,879	34,094	39,204	16,560	2.78%
High density or other dwelling	4,409	5,403	7,261	9,605	12,228	7,819	5.23%
Total Private Dwellings	**63,467**	**69,987**	**76,236**	**82,902**	**90,266**	**26,800**	**1.78%**

Source: SGS 2020

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

Dwelling demand has also been calculated by number of bedrooms, the results for which are shown in the following table. These results are based on trends in the housing that people choose rather than on absolute requirements reflecting household size and composition. Some people choose to live in larger houses than they would otherwise need, while others choose to live in smaller dwellings which are more affordable or better located.

The highest demand is expected to be for dwellings with two bedrooms, which also make up the highest share of recent development. Large numbers of dwellings with one bedroom, three bedrooms and four or more bedrooms are also expected to be required. In contrast to demand for dwellings with three or fewer bedrooms, demand for large homes with four or more bedrooms is almost exclusively met by renovation of existing houses or replacement with new houses on the same property rather than through infill or apartment development.

DWELLING DEMAND BY NUMBER OF BEDROOMS, DAREBIN LGA, 2016-2036

Dwelling type	2016	2021	2026	2031	2036	Change 2016-2036	Average annual growth rate
No or one bedroom	6,668	7,646	8,761	9,941	11,218	4,550	2.64%
Two bedrooms	21,385	23,894	26,677	29,837	33,612	12,227	2.29%
Three bedrooms	25,725	26,974	27,691	28,417	29,176	3,451	0.63%
Four or more bedrooms	9,688	11,473	13,106	14,707	16,260	6,571	2.62%
Total Private Dwellings	**63,467**	**69,987**	**76,236**	**82,902**	**90,266**	**26,800**	**1.78%**

Source: SGS 2020

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

Recent development between 2016 and 2020 has featured more high-density dwellings than would be expected under SGS's demand modelling. To reflect this SGS created an alternative adjusted demand forecast, in which demand by number of bedrooms remains constant, but high-density development comprises a greater share of one and two bedroom dwellings. This forecast is shown in the table below, and shows how Darebin's future population could be suitably accommodated with a slightly greater number of high density than medium density dwellings.

ADJUSTED DWELLING DEMAND BY DWELLING TYPE, DAREBIN LGA, 2016-2036

Dwelling type	2016	2021	2026	2031	2036	Change 2016-2036	Average annual growth rate
Separate house	36,413	38,560	39,096	39,204	38,834	2,421	0.32%
Medium density	22,644	24,596	27,316	30,379	34,118	11,474	2.07%
High density or other dwelling	4,409	6,830	9,825	13,320	17,314	12,905	7.08%
Total Private Dwellings	**63,467**	**69,987**	**76,236**	**82,902**	**90,266**	**26,800**	**1.78%**

Source: SGS 2020

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

Overall, the two housing demand projections show the range within demand by dwelling type is likely to lie. They both show that a diversity of new housing will be required to house Darebin's population in the future, including larger medium density, smaller medium density and higher density dwellings.

Housing capacity

Housing capacity under current planning controls has been modelled for the Darebin LGA. Net capacity results are shown in the table below and presented by land zone and predominant dwelling type.

This table shows that current planning controls have substantial capacity for additional housing in multiple parts of the LGA, including both medium and high density housing. The Upper area (comprising those parts of the LGA north of Bell Street) has the greatest amount of housing capacity, most of which is for medium density infill development in the General Residential Zone. There is substantial capacity for high density development throughout the LGA, with the most in the Central Area around Preston.

NET CAPACITY RESULTS (NUMBER OF ADDITIONAL DWELLINGS)

Predominant development type	Zone	Lower	Central	Upper	Total
Medium density	NRZ1	1,179	50	97	1,325
	GRZ1	1,798	427	10,588	12,813
	GRZ2	7,779	12,834	18,410	39,022
	Subtotal	*10,755*	*13,310*	*29,095*	*53,160*
Medium or high density	RGZ 1-5	968	3,084	7,186	11,238
High density	C1Z	6,481	4,916	6,178	17,575
	MUZ	571	576	787	1,934
	PDZ 1-2	0	9,029	0	9,029
	Subtotal	*7,052*	*14,520*	*6,965*	*28,538*
Total		**18,776**	**30,914**	**43,246**	**92,936**

Source: SGS, 2020

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

This analysis has been tailored to local planning controls, development standards and recent development data. This analysis is completed at a high-level and does not show whether development is feasible or likely to occur, or if there are site-specific constraints which may hinder development.

Housing supply-demand balance

The balance between modelled housing demand and capacity is shown in the table below. Both the base case and adjusted demand can be accommodated within current planning controls, with only 29% of overall capacity needing to be developed by 2036 under current population projections. Current planning controls are facilitating both medium and high density development, so intervention is not needed to create more capacity. Rather, Council should maintain current policy settings as well as considering whether capacity is currently provided in the right places in line with the visions of Council and the community.

OVERALL CAPACITY-DEMAND BALANCE (2016)

Dwelling type	Capacity (2016)	Additional demand 2016-2036		% of capacity needed to meet demand	
		Base case demand	Adjusted demand	Base case demand	Adjusted demand
Separate house or medium density	53,160	18,981	13,895	36%	26%
High density or other dwellings	38,690	7,819	12,905	20%	32%
Total	**91,850**	**26,800**	**26,800**	**29%**	**29%**

Comparing recent development trends to forecast demand shows that:

- The types of housing being delivered are well aligned with the modelled demand and so are suitable to accommodate the future population
- The sizes of housing being delivered (number of bedrooms) are generally well aligned with modelled demand,
- There was only a small increase in the number of three bedroom dwellings between 2011-2016, as a result of a reduction in the number of three bedroom separate houses and of two bedrooms being the predominant size for new medium and high density dwellings. Continuation of this trend could see a shortfall of three bedroom dwellings below modelled demand in the future.

Housing affordability and affordable housing

Housing affordability has declined in Darebin recently, with growth in dwelling prices and rents outpacing growth in household incomes, as shown in the Table below. Increases in prices have been higher than rises in rents, and house prices and increased more than unit prices.

TABLE 1: CHANGE IN HOUSEHOLD INCOME, DWELLING PRICES AND RENTS IN THE DAREBIN LGA 2006-2016

	2006	2011	2016	% Increase
Median weekly household income	$905	$1,178	$1,423	57%
Median house price	$382,000	$635,000	$865,000	126%
Median unit price	$260,000	$400,000	$460,000	77%
Median weekly rent - two bedroom unit (new bonds)	$200	$320	$360	80%
Median weekly rent - three bedroom house (new bonds)	$250	$400	$420	68%

Source: ABS Census 2006, 2011, 2016, Department of Environment, Land, Water and Planning 2020, *Property Price Statistics,* Department of Health and Human Services 2020, *Rental Report*

Impacts of declining housing affordability include:

- More people in housing stress, increasing demand for SAH
- People spending more time renting, particularly young people
- The household size has increased since 2006 as people put off forming a new household and stay with others (for example their parents or in group households)
- People may be displaced from the Darebin LGA to other more affordable areas

There are estimated to be 9,088 households in Darebin (15% of all households) who have very low, low or moderate incomes and who pay at least 30% of their incomes on rent, placing them in rental stress. Households of all types are in rental stress, but group households and lone person households are particularly likely to be in rental stress, as are households with very low incomes. Rental stress is expected to grow to between 11,045 and 15,696 households by 2036 (between 13%-19% of all households in 2036), depending on how incomes and rents change in the future.

Not all households who are in rental stress will need SAH, as some may be in stress only temporarily (for example, students) or may choose to live in an expensive area. SGS modelled the need for affordable housing in Darebin, including some of the households in rental stress as well as households who currently live in social housing or who are homeless. This amounts to around 8,886 households in 2016, which compares with 3,528 social housing dwellings available in Darebin in 2016.

As there are substantially more households who need SAH than social housing dwellings, there is an unmet need in 2016 for 7,143 additional SAH dwellings. The size of this gap will grow in the future, as shown in the table below, as the number of SAH dwellings is not expected to grow significantly, based on current government policy and funding.

GAP BETWEEN SUPPPLY AND NEED FOR SOCIAL AND AFFORDABLE HOUSING IN DAREBIN, 2016-2036

Scenario	2016	2021	2026	2031	2036
Optimistic (incomes grow faster than rents)	7,143	6,439	7,248	8,074	8,975
Base (incomes grow at the same rate as rents)	7,143	8,113	9,062	10,026	11,076
Pessimistic (incomes grow more slowly than rents)	7,143	9,541	10,607	11,687	12,861

Source: SGS 2020

Addressing this gap through new development would require between 33%- 48% of dwellings to be SAH, which is highly unlikely to occur. While Council policies can increase SAH provision, they will not be able to close the gap by themselves. Significant investment from the Victorian and Commonwealth Governments would be needed to make a meaningful contribution to closing the SAH gap.

Implications of COVID-19

There is a high degree of uncertainty currently regarding the impacts of the COVID-19 pandemic and any associated economic downturn.

COVID-19 is likely to decrease migration, particularly international migration. International student numbers are also likely to be reduced. While how long this impact will last is unknown, reduced migration and international student numbers will likely reduce population growth rates and housing demand. These impacts are likely to be more acutely felt in the northern parts of the Darebin LGA near Latrobe University and in areas with more multi-cultural communities.

Economic shocks, such as the one likely to follow COVID-19, are associated with downturns in the housing market. This is likely to mean that people will put off purchasing a dwelling, particularly investors. Some housing projects which have not yet started construction are likely put on hold. Impacts are likely to be more pronounced for high density than medium density development. This is because of the increased development risk, greater difficulty accessing finance, greater number of sales required and greater reliance on investors that typifies high density development when compared to medium density.

As a result of the uncertainty relating to COVID-19 and how it may impact on population projections and housing development markets, Council should review planning for housing in the future when impacts of COVID-19 are better known.

Potential policy responses to key findings

The table below shows key findings from different parts of the report which have been synthesised to show key implications of policy relevance for Council as well as potential policy responses.

Key finding	Potential policy response
Housing diversity and supply-demand balance	
Darebin's current housing policies are facilitating housing development of a variety of types and sizes, increasing housing diversity in line with modelled demand. This is a positive outcome for housing diversity, choice and affordability and indicates that current planning controls are performing well.	Reinforce and build on current policy approaches
There may be an under-provision of three-bedroom dwellings in the LGA in the future based on modelled demand and recent development trends. There does not appear to be an undersupply of dwellings of other sizes, with smaller dwellings being delivered through new development and larger dwellings (four or more bedrooms) being delivered through renovation and replacement of existing houses.	Potential responses include: ▪ Undertake further investigation of why so many two-bedroom townhouses are being delivered, through for example consulting with the development and real estate industries ▪ Monitor the size of new dwellings being proposed and constructed to determine if trends seen between 2011-2016 have continued If trends remain unchanged, encourage or require the delivery of three bedroom dwellings in medium and high density developments
The right housing in the right places	
The high level of housing capacity in Darebin creates opportunities to reconsider what the best places for additional housing are.	Ensure that intended future housing characters and the intended overall distribution of housing development align with the vision of Council and the community.
There is little medium density infill development occurring in the southern part of the LGA.	Ensure that large site or precinct developments in the Lower Area provide housing diversity, including medium density.
The amount of medium density redevelopment in the southern part of the LGA may decrease in the future as brownfield development opportunities are exhausted	Seek to deliver dwellings that function similarly to medium density dwellings in apartment developments, including three bedroom dwellings and dwellings with ground floor entrances that function as terraces.
Apartment development appears to be unfeasible in Reservoir and some other nearby areas.	Increased feasibility can be facilitated by allowing design responses to car parking besides basements, or by improving local amenity through public domain and infrastructure improvements. These actions may not be appropriate to make development feasible, or may not be a priority. In this case, development will only become feasible once property prices rise in these areas.
Housing development in Darebin mostly takes one of four forms: ▪ Site by site infill development ▪ Apartment development in centres ▪ Apartment development out of centres along key transport corridors (less common) ▪ Precinct scale development of large, often brownfield, sites	Ensure that good design outcomes are achieved in each category by periodically reviewing planning controls.

Key finding	Potential policy response
The vast majority of Darebin's suburbs are available for infill housing development.	Consider applying the NRZ or additional schedules in the GRZ in areas where protection of neighbourhood character is desired, as long as this does not unduly compromise housing capacity. Where and to what degree neighbourhood character needs to be protected is a matter for Council, considering the community's views.
Housing which meets the community's needs	
The number of families living in Darebin is expected to increase.	Support the delivery of medium density dwellings, including with three bedrooms, as well as of high density dwellings with a size and design to cater to families.
While only a small portion of older people downsize, those who do mostly live in medium density dwellings, with less in high density dwellings.	Ensure that some medium density dwellings, including with three bedrooms, are delivered near centres to cater to potential downsizers.
More nursing homes, aged care facilities and retirement living facilities are likely to be required as the number of older people in Darebin increases.	Facilitate development of additional nursing homes, aged care facilities and retirement living facilities in appropriate locations in the Darebin LGA.
Around 1,700 additional accessible dwellings will be needed by 2036.	Potential responses include: ▪ Consult with the disability housing sector regarding the types of housing needed and in short supply Facilitate the delivery of accessible dwellings in new developments.
Affordable housing and housing affordability	
There is a substantial unmet demand for SAH of around 7,143 dwellings in 2016, which will grow over time to between 8,975 – 12,861 dwellings by 2036.	Actions Council could take to increase SAH provision include: ▪ Creation of an affordable housing strategy. ▪ Delivery of SAH through redevelopment of Council owned sites. ▪ Direct funding of SAH. ▪ Imposition of a development levy or inclusionary zone requiring a contribution to be made to SAH in the area (subject to legislative requirements). ▪ Partnering with the community housing sector to facilitate community housing development at appropriate densities to ensure feasibility. ▪ Collaborating with the Victorian Government on redevelopment of existing social housing sites which increases social housing provision.
The size of the SAH provision gap (between 33%-48% of all forecast new dwellings between 2016-2036 would need to be SAH to bridge the gap) means that Council cannot address demand on its own.	Advocate to the Victorian and Commonwealth governments for increased funding for SAH.
Housing has become less affordable to purchase, particularly in the Lower Area and particularly for separate houses.	Support innovative higher density housing delivery models like the Nightingale Model which are targeted at owner occupiers at a more affordable price. This would allow young people to purchase a high amenity dwelling in the Lower Area.
Rental housing has become less affordable.	Support the provision of SAH and continue to facilitate the delivery of diverse housing across the LGA in line with demand.

1. INTRODUCTION

1.1 Project background

SGS Economics and Planning has been commissioned by Darebin City Council (Council) to analyse the supply, demand and affordability of housing in Darebin.

Recent population growth in the Darebin Local Government Area (LGA) has outpaced previous population projections, upon which Council's previous housing strategy was based. This project aims to update Council's previous strategic work regarding housing demand and supply in light of more recent development trends and population projections. This will provide an evidence base for Council's strategic planning for housing across the Darebin LGA.

The dynamics of housing supply and demand preferences across Melbourne have been rapidly evolving in recent years. Traditional models and expectations no longer align with current and future needs for a range of social, economic and demographic reasons.

This is particularly relevant for established middle ring areas such as Darebin which are experiencing higher than (previously) anticipated levels of demand and rapidly evolving housing markets. This change places pressure on development outcomes and prices which has implications for affordability, suitable dwelling outcomes and the alignment of supply with demand.

Project scope and limitations

Matters to be addressed in this study include:

Dwelling demand

- Recent trends in the property market impacting housing demand, including migration in and out of the municipality
- Housing need based on forecast population demographics and household type tenure type trends and growth in Darebin
- Forecast need for affordable housing and demand for accessible housing

Dwelling supply

- Factors including supply of housing including forecast market response
- The current supply of affordable housing
- The maximum number of dwellings which can be built under current development controls and land earmarked for future residential use
- Commentary on the feasibility of different dwelling types
- Likely current and forecast realised supply of housing

Bringing it together

- An analysis of the mismatch between housing demand and supply to 2040
- Housing type preferences and how they differ from what is realised
- Commentary on the findings of the report and their implications for the wellbeing of Darebin residents
- Identification of social, economic and spatial (if applicable) implications of forecasted mismatch between housing demand and supply

This report has been written drawing on the best available data sources. Despite this, during the time of writing the COVID-19 pandemic has occurred which has created a major source of uncertainty regarding the future performance of the housing market across Greater Melbourne and Australia. The current lockdown and unknown extent associated with this pandemic is likely to have economic consequences including a potential economic downturn, and to reduce migration and population growth rates, with limited data available to quantify short and likely medium term effects. As such, modelling in this report uses data sources released before the COVID-19 pandemic, and the report includes commentary on potential impacts of COVID-19 where appropriate.

1.2 Document structure

This report contains the following chapters:

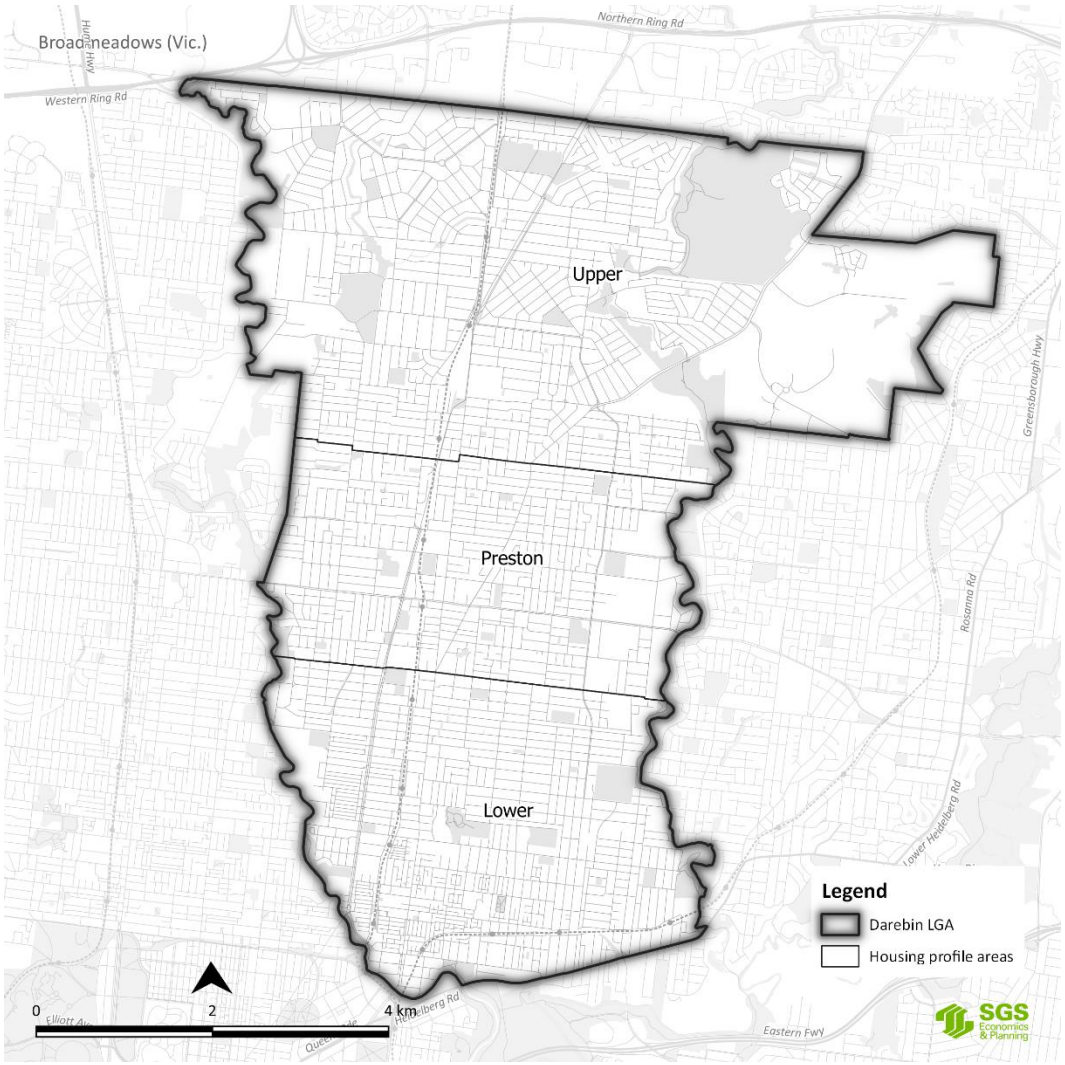
- Chapter 2: Current housing supply profiles the housing in the Darebin LGA in terms of dwelling type, dwelling size and recent development.
- Chapter 3: Future housing development discusses the results of several different analyses informing what kinds of housing are likely to be developed in the future and where, including the development pipeline, current housing capacity and current development feasibility.
- Chapter 4: Darebin's changing community profiles Darebin's households and population projections, and how these relate to the supply and demand for housing.
- Chapter 5: Housing demand discusses the likely future demand for housing in the Darebin LGA broken down by type and size.
- Chapter 6: Housing affordability summarises recent changes to dwelling prices and rents in the Darebin LGA and provides the results of modelling regarding demand for social and affordable housing
- Chapter 7: Overall supply and demand alignment brings together analysis of future housing development potential and housing demand to illustrate the extent to which current planning controls are sufficient to accommodate the LGA's future population.
- Chapter 8: Synthesis provides commentary regarding SGS's overall findings and the implications of these for Council.

1.3 Project study area and profile areas

The Darebin LGA has been split into three areas for the purpose of housing profile and the presentation of housing capacity results. These areas are shown in Figure 1 and are aligned with suburb boundaries, with the following suburbs included in each area:

- Lower: Northcote, Fairfield, Alphington and Thornbury,
- Central: Preston
- Upper: Reservoir, Kingsbury, Bundoora, Macleod.

FIGURE 1: HOUSING PROFILE AREAS



Source: SGS 2020

2. CURRENT HOUSING SUPPLY

2.1 Dwelling types

In this report, dwellings are categorised into four types which are based on definitions used by the Australian Bureau of Statistics (ABS) in the Census and other data sources. These categories are:

- Separate house means a dwelling which is not attached to any other dwelling.
- Medium density dwellings include attached dwellings (such as semi-detached, terraced houses and townhouses), as well as two storey apartments buildings.
- Higher density dwellings are flats and apartment buildings with three or more storeys.
- Other dwellings includes caravans and cabins, improvised dwellings (for example sheds, tents or humpies), houseboats and flats attached to shops.

Another common categorisation of housing type is between separate houses; attached dwellings (in which each dwelling shares one or more walls with another and no dwelling is above another); and apartments (which share vertical as well as horizontal walls). In this report one and two storey attached dwellings have been combined with apartments to generate the medium density category due to the similarity in these development forms and the associated discrepancies in the Australian Bureau of Statistics data categorisations between different census periods.

The above refers only to *private dwellings*, in which individual households occupy self-contained dwellings which do not share bathrooms, kitchens or similar. The Darebin LGA also contains *non-private dwellings* which includes student accommodation, aged care facilities and various other dormitory style or not self-contained housing forms. This distinction refers to the living arrangements in dwellings rather than their ownership, and so social housing, while mostly owned by the government, would be counted in the categories listed above as long as each dwelling is self-contained.

Granny flats and other similar forms of secondary dwelling (for example tiny houses on a property containing a larger house) are inconsistently classified in the ABS census. They are sometimes counted as separate houses, or in some cases may be counted as part of the primary dwelling.

2.2 Dwelling supply

Supply by dwelling type

There were 63,562 dwellings in the Darebin LGA in 2016 as recorded in the ABS Census. The breakdown of these dwellings by type as well as the population living in each type is shown in Table 2.

TABLE 2: NUMBER OF DWELLINGS BY TYPE IN THE DAREBIN LGA

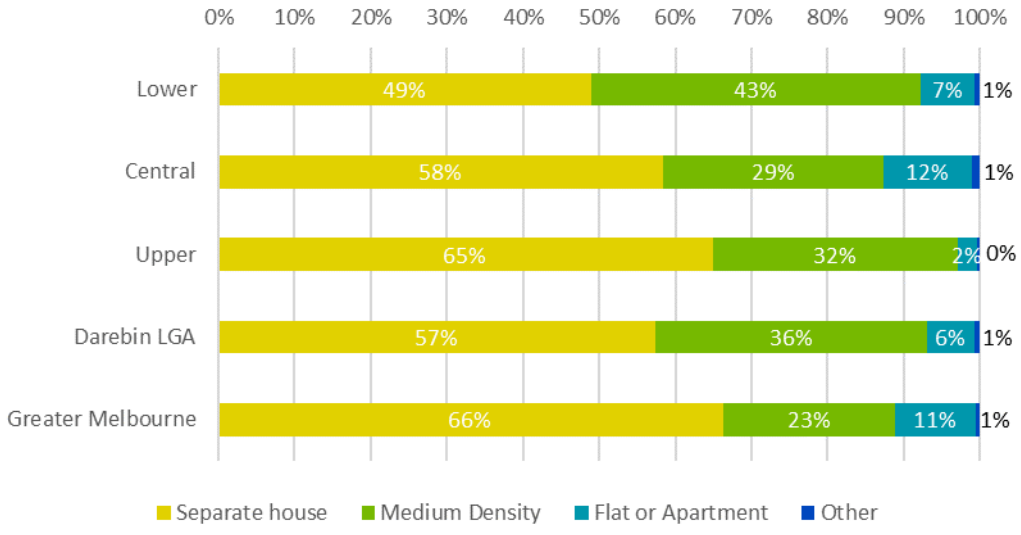
Dwelling type	Separate house	Medium density	High density	Other	Dwelling type not stated	Non-private dwelling	Total
Number of dwellings	36,310	22,567	3,932	473	216	64	63,562
% of total dwellings	57.1%	35.5%	6.2%	0.7%	0.3%	0.1%	100.0%
Population in dwellings	93,093	42,496	6,210	818	425	3,961	147,005
% of total population	63.3%	28.9%	4.2%	0.6%	0.3%	2.7%	100.0%

SOURCE: ABS CENSUS 2016
NOTE THAT THE VALUES IN THIS TABLE HAVE BEEN ROUNDED SO THE SUM OF THE ROWS OR COLUMNS MAY BE DIFFERENT TO THE REPORTED TOTAL. IN THESE CASES THE REPORTED TOTAL IS MORE ACCURATE.

The types of dwellings in each part of the Darebin LGA and in the benchmark area of Greater Melbourne is shown in Figure 2. Darebin has a higher proportion of medium density dwellings than Greater Melbourne, but a lower proportion of separate houses and high density dwellings.

The mix of dwellings by type varies across the LGA, with a higher proportion of separate houses further north in the Upper Area and a lower proportion further south in the Lower and Central areas. The Central area has the highest proportion of high-density dwellings, while the Lower Area has the highest proportion of medium density dwellings.

FIGURE 2: DWELLING TYPES IN THE DAREBIN LGA AND BENCHMARK AREAS (2016)



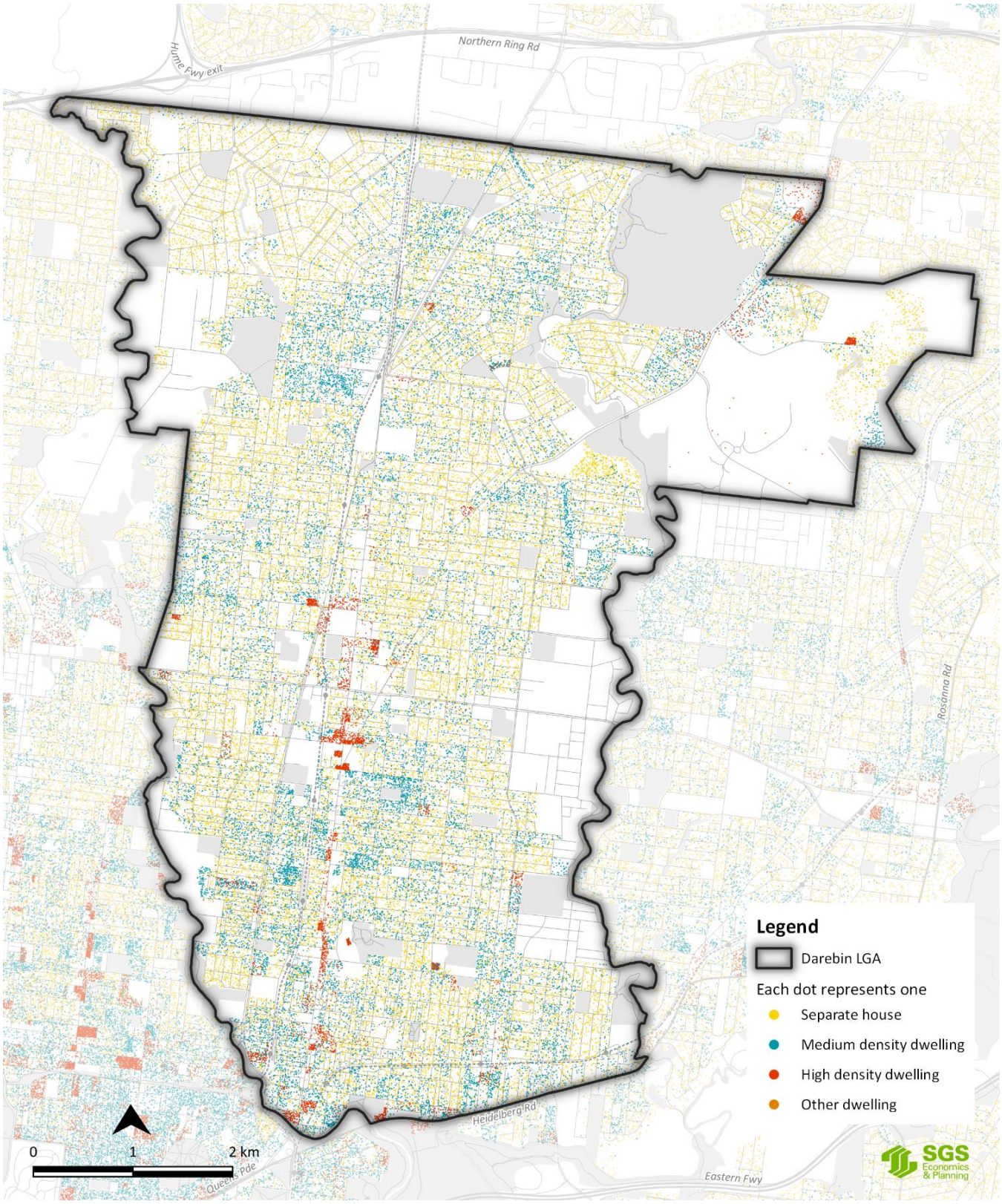
Source: ABS Census 2016

More detailed information on the spatial distribution of dwellings by type is shown in Figure 3, which is a dot density map of housing in and around the Darebin LGA. This map is generated based on the number and type of dwellings in each meshblock, with one dot shown per dwelling, although the location of the dot is randomly generated within a meshblock rather than exactly corresponding to the location of the dwelling. Areas with a higher density of dots have a higher housing density.

Separate houses are distributed throughout the LGA at relatively low densities, although they make up a smaller proportion of all dwellings further to the south. Medium density dwellings are interspersed throughout the separate houses in many parts of the LGA. Further to the south they are located more often in concentrated precincts (likely indicating low-rise apartments and concentrated townhouse developments), while further to the north they are more dispersed, showing infill development proceeding on an opportunistic site by site basis. The lots in the northern part of the LGA are generally larger than in the south, facilitating infill development on a single properties or two amalgamated properties, while more extensive amalgamation would be required further to the south.

High density dwellings are highly concentrated in nodes around High Street and the Railway Line in Northcote, Thornbury and Preston, with only isolated buildings elsewhere.

FIGURE 3: DISTRIBUTION AND DENSITY OF DWELLINGS BY TYPE IN THE DAREBIN LGA (2016)



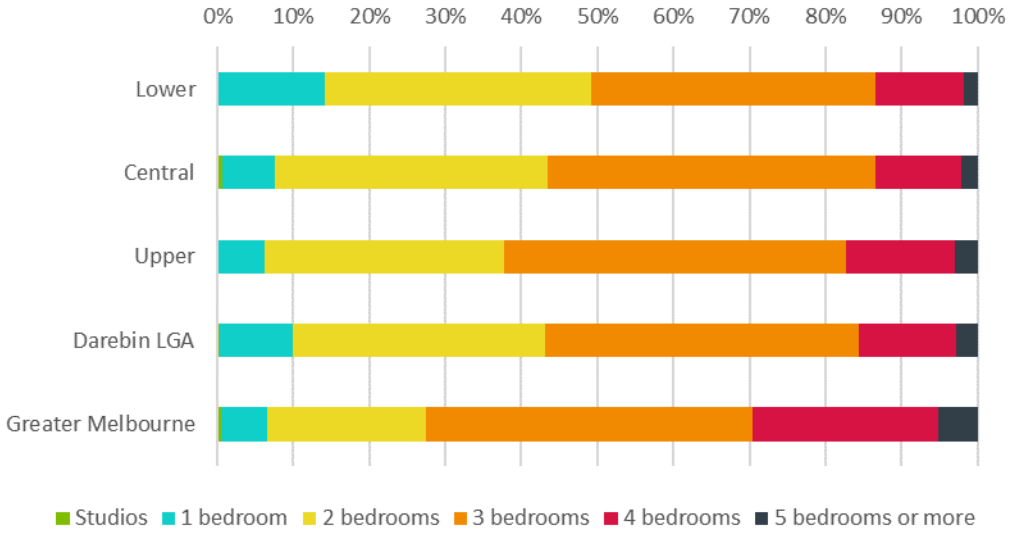
Source: SGS 2020, ABS Census 2016

Dwelling size

The size of the dwellings in the Darebin LGA can be considered through the proxy measure of how many bedrooms they contain. This is shown in Figure 4 for each part of the LGA as well as for Greater Melbourne. The Darebin LGA contains dwellings of a variety of sizes, with three bedrooms the most common number (41% of dwellings) followed by two bedrooms (33%). In comparison to Greater Melbourne:

- Darebin has a similar proportion of three bedrooms dwellings (43% in Darebin vs 41% in Greater Melbourne).
- Darebin has around half the percentage of dwellings with four or more bedrooms (16% vs 30%).
- Darebin has a much higher proportion of dwellings with one or two bedrooms (43% vs 27%).

FIGURE 4: NUMBER OF BEDROOMS IN THE DAREBIN LGA AND BENCHMARK AREAS (2016)



Source: ABS Census 2016

As with dwelling type, dwelling size varies across the Darebin LGA. Dwellings are generally larger further north in the LGA, with higher proportions of three, four and five or more bedrooms dwellings. One bedroom dwellings are most common in the Lower Area, while two bedroom dwellings are common in both the Lower and Central areas (representing 35% and 36% of dwellings respectively). The presence of large numbers of one and two bedroom dwellings in the Lower and Central Area reflects the presence of more apartment development.

Despite the variation in dwelling size, it is notable that each part of the Darebin area contains dwellings of a wide diversity of sizes which are likely to be able to cater to a wide variety of households.

Average number of bedrooms

More information about the sizes of different kinds of dwellings is found in the average number of bedrooms, which is shown in Table 3.

TABLE 3: AVERAGE NUMBER OF BEDROOMS (2016)

Area	Separate house	Medium density	High density	Average
Lower	3.05	2.01	1.64	2.52
Central	3.00	2.24	1.65	2.64
Upper	3.09	2.16	1.45	2.76
Darebin LGA	3.06	2.13	1.64	2.65
Greater Melbourne	3.37	2.46	1.71	3.00

Source: SGS 2020, ABS Census 2016

As noted above, Darebin's dwellings are on average smaller than Greater Melbourne's. This distinction holds true for every type of dwelling and in comparisons between Greater Melbourne and each of the three parts of the Darebin LGA, which have less bedrooms per dwelling on average than Greater Melbourne.

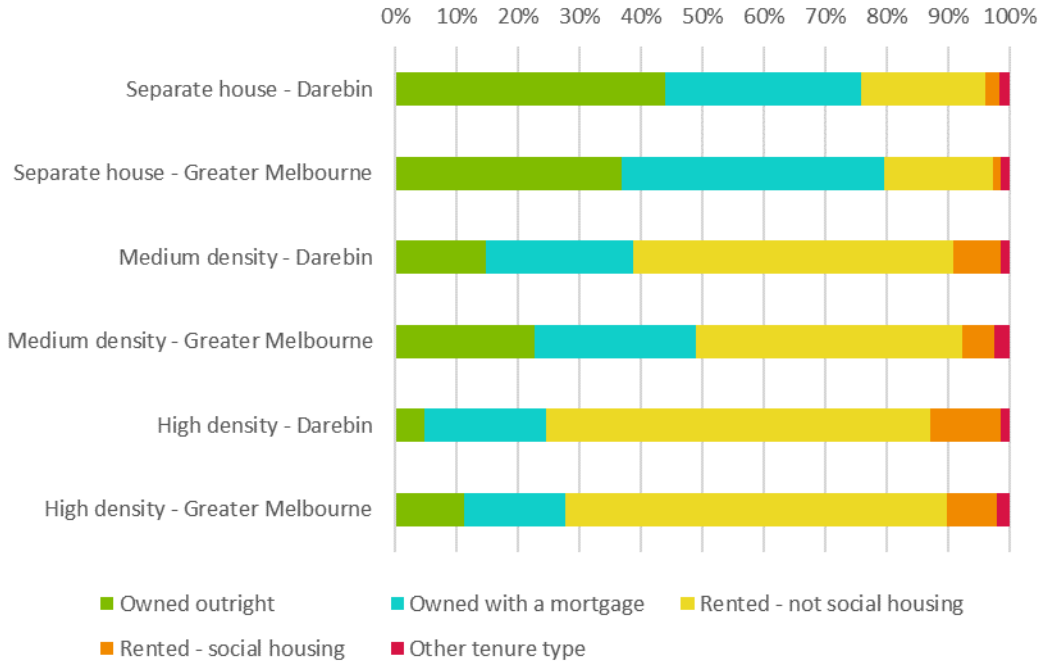
While the average dwelling size is the largest in the Upper Area and the smallest in the Lower Area, the same is not true for separate dwelling types. The following more detailed observations can be made:

- While the Upper Area contains relatively few high density dwellings, these are on average smaller than those in the Lower and Central Area, a likely reflection of a high number of one bedroom units catering the students around Latrobe University.
- The low average size of medium density dwellings in the Lower Area reflects the presence of more apartments in this category than in other parts of the LGA, as well as of the number of terrace houses with two bedrooms (The 2016 census recorded 5,979 attached dwellings in the Lower Area with an average size of 2.30 bedrooms, and 4,164 apartments in a one or two storey building, with an average size of 1.90 bedrooms).
- Medium density dwellings in the Central and Upper areas also have relatively low average sizes compared to Greater Melbourne, with two bedroom townhouses a more common dwelling type in Darebin than elsewhere.
- Separate houses are largest in the Upper Area, , and smaller than the average separate house size compared to Greater Melbourne, but there is not a significant amount of variation in average size in this category across the LGA

Dwelling tenure

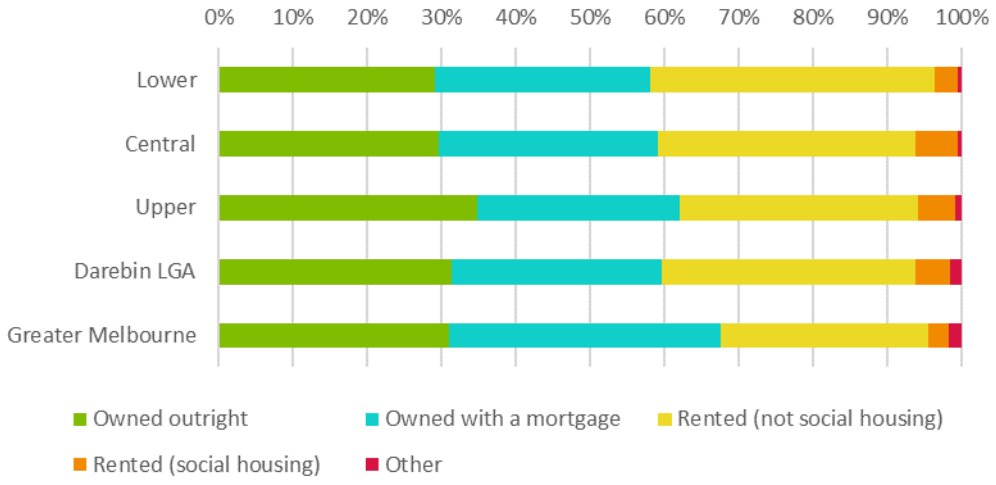
Dwelling tenure refers to whether a dwelling is owned, mortgaged or rented and is shown for each dwelling type in the Darebin LGA and Greater Melbourne in Figure 5 and for each part of the Darebin LGA in Figure 6.

FIGURE 5: DWELLING TENURE TYPE BY DWELLING TYPE IN THE DAREBIN LGA COMPARED TO GREATER MELBOURNE (2016)



Source: ABS Census 2016

FIGURE 6: DWELLING TENURE TYPE BY AREA (2016)



Source: ABS Census 2016

Separate houses in Darebin are likely to be owned outright or with a mortgage (76% combined). They are more likely to be owned outright and less likely to be rented or owned with a mortgage than in Greater Melbourne. This reflects a lower rate of turnover of separate house stock in Darebin than in Greater Melbourne. Relatively unaffordable separate houses is also likely to contribute to low levels of ownership with a mortgage, as high prices restrict first home buyers and young people from buying a separate house.

Medium, high density and other dwellings in Darebin are likely to be rented (60%, 74% and 67% respectively). Both medium density and high density dwellings are more likely to be rented in Darebin than in Greater Melbourne. This reflects the recent development of much of Darebin's medium and high-density stock (discussed in Section 2.3), as well as the development model for these dwellings. New medium and higher density dwellings are often targeted to investors rather than to owner occupiers, and so high rates of development are associated with increases in the proportion of people renting. High density is more targeted at investors than medium density, and has a high proportion of dwellings rented.

The high proportion of medium and high density dwellings rented is likely to lead to an increase in the proportion of renters in the Darebin LGA in the future, particularly when combined with the relative unaffordability of buying a dwelling for many young people.

In contrast to the differences in tenure between different dwelling types, there are only minor differences in the tenure distribution in different parts of the Darebin LGA, with generally around 40% of dwellings rented, 30% owned with a mortgage and 30% owned outright. A higher proportion of dwellings is rented in the Darebin LGA than in Greater Melbourne (39% vs 30%), and a smaller proportion owned with a mortgage (28% vs 37%). This is related to the relatively large number of medium density dwellings in Darebin compared to Greater Melbourne (most of Darebin's medium density dwellings are rented), as well as the increased proportion of both medium and high density dwellings being rented compared to Greater Melbourne.

Dwelling suitability

Dwelling suitability is a measure of how suitable the size of dwellings are for their occupants. This is an indication of relative housing affordability as well as of the availability of appropriately sized housing. It is calculated by the ABS based on the usual residents and the number of bedrooms in each dwelling with the following rules:

- One bedroom is needed for each couple or single adult in a household
- Up to two children of the same sex under 18 can share a bedroom
- Children of different sexes under five can share a bedroom.

A designation of a bedroom as spare does not mean that is not used, only that the household may be able to live in a smaller dwelling.

Dwelling suitability for the Darebin LGA is shown in Figure 7.

FIGURE 7: DWELLING SUITABILITY IN THE DAREBIN LGA (2016)

Source: ABS Census 2016

As shown in Figure 4, three bedrooms is the most common number of bedrooms in Darebin. Around 40% of three bedroom dwellings have two or more bedrooms spare, indicating that only one person or a couple lives in them. Along with the 40% of four bedroom and 47% of five bedroom or more dwellings that have two or more bedrooms spare, this indicates a potential market for households to downsize, although some small households may intend to have children in the future or to continue to live in a relatively large dwelling. Older people are often discussed as a demographic likely to downsize. More discussion about the housing choice of older people and how likely they are to downsize is contained in Section 5.5.

A relatively small but significant proportion of all dwellings would need additional bedrooms to house their occupants appropriately (7% of one or two bedroom dwellings and 4% of three bedroom dwellings). These proportions are similar to those in Greater Melbourne (9% of one bedroom dwellings, 6% of two bedroom dwellings and 4% of three bedroom dwellings), and suggest that housing unaffordability may be leading to households living in smaller dwellings than would be considered appropriate for their needs.

2.3 Recent development

Recent dwelling development in the Darebin LGA and the benchmark area of Greater Melbourne is shown in Table 4, and the average yearly change in Table 5. The number of dwellings in the Darebin LGA increased by 15% between 2006-2016, an annual average growth rate of 1.5%. This is a slower dwelling growth rate than Greater Melbourne between 2006-2016 (2.3% per year on average). The reasons for Darebin's lower rate of growth than Greater Melbourne is discussed in the next section.

TABLE 4: CHANGE IN NUMBER OF DWELLINGS BY TYPE IN DAREBIN BETWEEN 2006-2016

Precinct	Separate house		Medium density		High density		Other		Total	
Lower	-802	-7%	1,999	+25%	948	+131%	-17	-10%	2,186	+10%
Central	-167	-2%	1,035	+35%	1,236	+325%	45	+45%	2,172	+19%
Upper	1,513	+10%	1,929	+30%	193	+45%	72	+147%	3,761	+17%
Darebin LGA	**541**	**+2%**	**4,961**	**+28%**	**2,388**	**+155%**	**134**	**+40%**	**8,237**	**+15%**
Greater Melbourne	164,327	+17%	96,472	+32%	87,430	+91%	1,572	+20%	354,599	+26%

Source: SGS 2020, ABS Census 2006, 2016

Note that the total change in dwellings is larger than the sum of the change in each dwelling type because the total includes the change in the number of dwellings whose type was not stated.

TABLE 5: AVERAGE YEARLY NO. OF DWELLINGS CONSTRUCTED BETWEEN 2006-2016, DAREBIN LGA

Precinct	Separate house	Medium density	High density	Other	Total
Lower	-80	+200	+95	-2	+219
Central	-17	+104	+124	+5	+217
Upper	+151	+193	+19	+7	+376
Darebin LGA	**+54**	**+496**	**+239**	**+13**	**+824**

Source: SGS 2020, ABS Census 2006, 2016

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

Dwelling development was distributed across Darebin, although the proportional increase in the total number of dwellings was almost twice as high in the Central area (+19%) as in the Lower Area (+10%). There was a substantial amount of medium density development in all three parts of the LGA.

Medium density was by far the most common category for new dwellings with over twice as many new medium density built as high density dwellings. Medium density dwellings were built in all parts of the LGA, with proportional increases in the number of dwellings of between 25-35%.

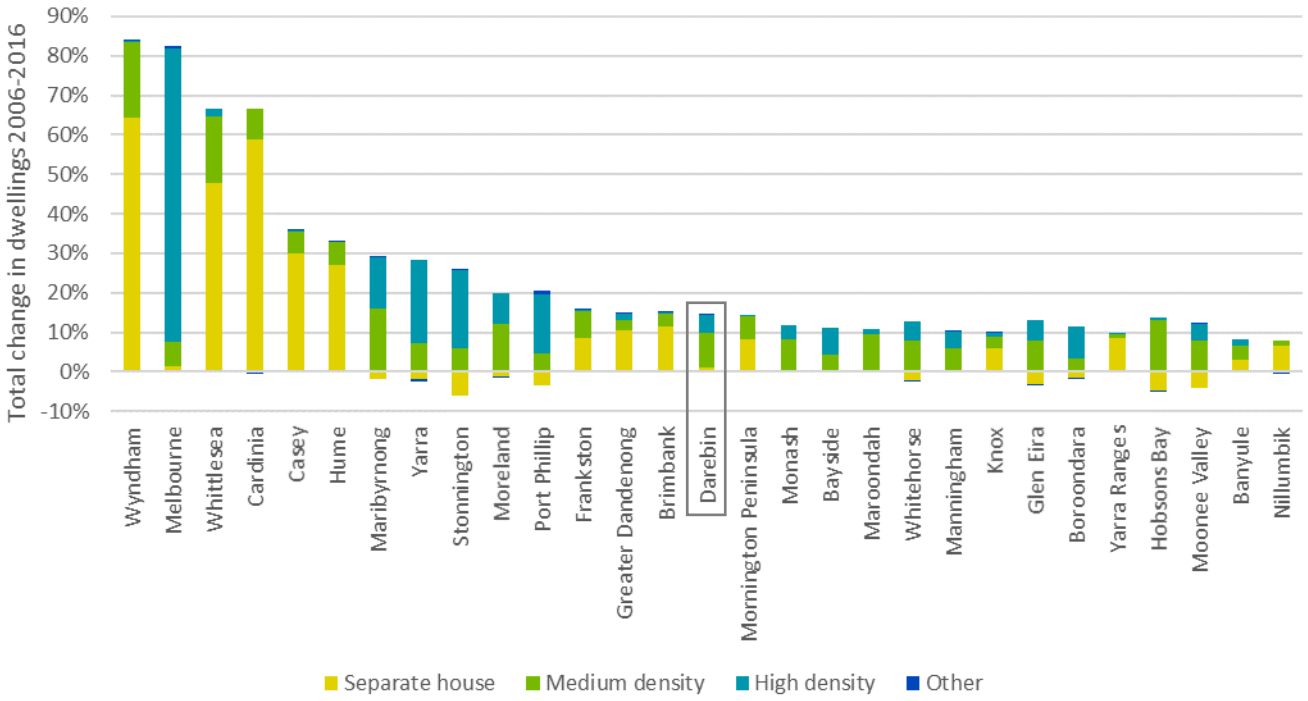
While the number of high density dwellings built was less than the number of medium density dwellings built, the proportional increase in high density dwellings across the LGA was much larger (an increase of 155% vs 28%). The size of this proportional increase means that the vast majority of high density dwellings in the LGA were built since 2006, and so their size and tenure arrangements discussed in sections 2.2 above are highly influenced by recent development market dynamics.

The most high-density development occurred in the Central area, where the number of high density dwellings increased by 325% from a low base of 380 dwellings in 2006. A slightly smaller number of high-density dwellings were built in the Lower Area, associated with a smaller, although still significant, proportional increase (131%).

Comparison of dwelling development rate with other LGAs

Dwelling development between 2006-2016 in Darebin and other LGAs in Greater Melbourne is broken down into dwelling types in Figure 8. This provides more context regarding how Darebin's recent growth rate compares to other LGAs, and why Darebin's growth rate was slightly slower than the Greater Melbourne average between 2006-2016.

FIGURE 8: THE CONTRIBUTION OF DIFFERENT DWELLINGS TYPES TO DEVELOPMENT IN GREATER MELBOURNE'S LGAS, 2006-2016



Source: SGS 2020, ABS Census 2006, 2016

Apart from the City of Melbourne, the fastest growing LGAs in Greater Melbourne between 2006-2016 were those in which large amounts of greenfield development occurred. By contrast, LGAs accommodating predominately infill development can be defined by excluding those in which separate houses made up most development (as well as Maroondah, which appears to be subject to a census dwelling classification error between 2006 and 2016 and so for which there is not reliable dwelling type information). These Infill LGAs had an annual average growth rate for dwellings of 1.6% between 2006-2016, lower than Greater Melbourne's average of 2.3% and only slightly higher than Darebin's 1.5%

Comparing Darebin to other infill LGAS in Figure 8 shows that those LGAs in which much higher growth rates were experienced had higher levels of high density housing development. Darebin's rate of medium density development is comparable to or higher than that in many other infill housing LGAs, with the exception of Moreland and Maribyrnong, which had higher rates of medium density development (New medium density dwellings between 2006-2016 numbered 8.7% of all dwellings in Darebin 2006, compared to 12.3% in Moreland and 16.1% in Maribyrnong).

Spatial distribution of development

More information about the location of dwellings built recently in the Darebin LGA is shown in Figure 9 overleaf. This figure maps the location of each housing development completed between 2005-2016.

High density development

Most new high density developments were located along High Street (Northcote, Thornbury and Preston), with some other developments along St Georges Road, Plenty Road and other locations. Similar to the overall locations of high density development shown in Figure 3, the area with the greatest concentration of recent high density development is the Preston Junction and surrounds, followed by clusters in Northcote and Thornbury. By contrast, little high density development occurred in Reservoir and much of what development did occur in the northern part of the LGA was located near Latrobe University.

Several large high density developments occurred near Latrobe University in the Polaris Development and on several other sites nearby where redevelopment is occurring on a precinct-scale. Precinct scale redevelopment can co-locate housing with retail, open space and community facilities and so is able to improve local amenity and the sale price of units. It is also generally easier and cheaper on a per square metre to acquire large disused sites for redevelopment (for example the Polaris Site was previously part of an asylum) than to purchase and amalgamate properties in suburbs or centres. As such, apartment development is more feasible in consolidated precincts than through opportunistic infill development.

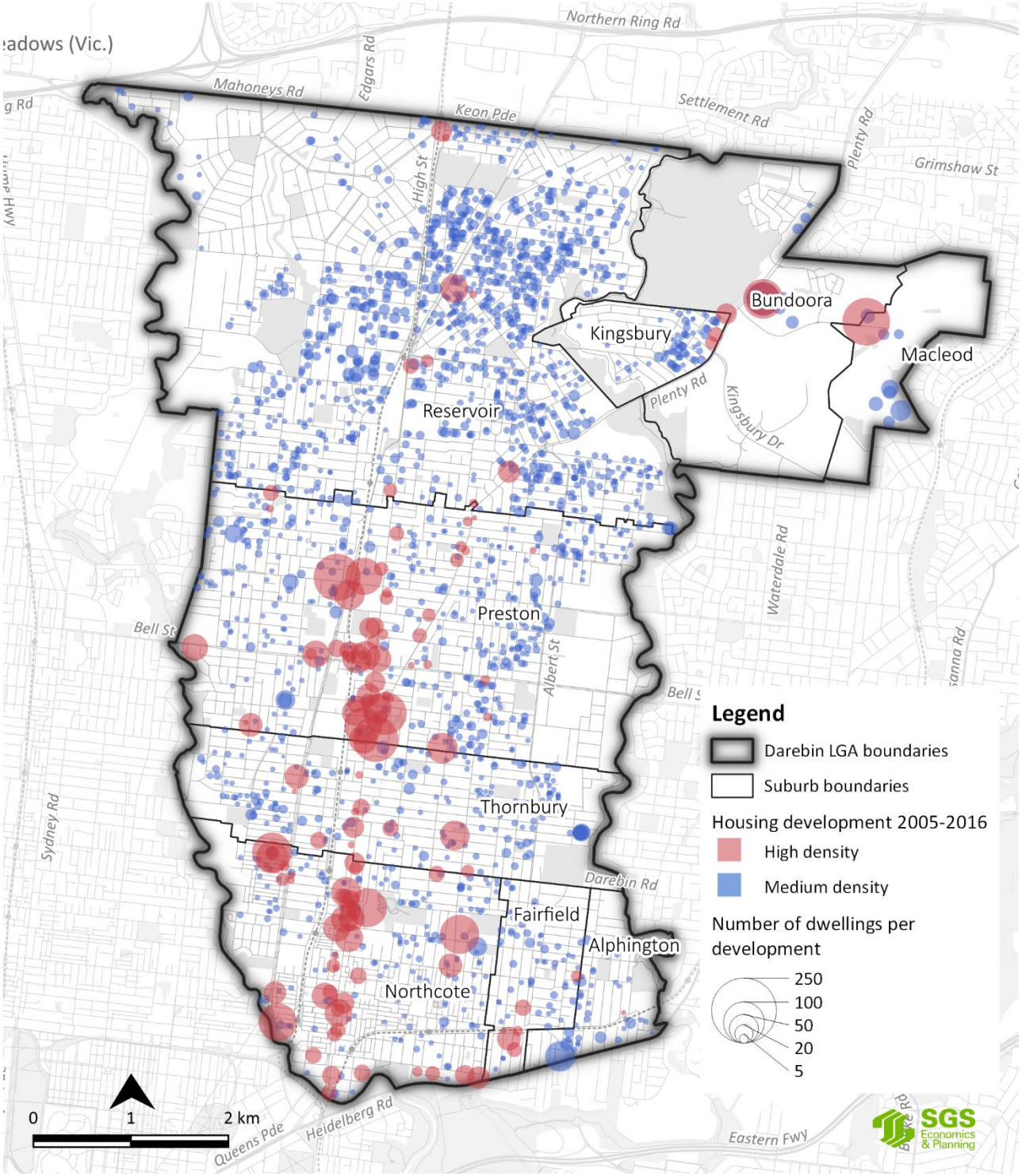
There were three high density developments along Plenty Road in Kingsbury which replaced existing houses. As these sites are near LaTrobe University, students at the University are likely to seek housing nearby, increasing demand for apartments and other infill development. A reduction in the number of international students as a result of COVID-19 could reduce this demand and so reduce the feasibility of apartment development in this area.

Medium density development

Medium density development is more evenly distributed throughout the LGA. While Table 4 shows similar numbers of medium density dwellings constructed in the Lower and Upper areas, their distribution within these areas is very different. The Upper Area holds by far the most medium density developments, with many developments of one or two lots in Reservoir where lot sizes are relatively large and land prices are lower (feasibility of medium density development is examined in Section 3.4 while the land available for development is examined in Section 3.3).

By contrast, there are many fewer (although some) small-scale infill developments in the Lower Area where lot sizes are smaller, land prices are higher and in some places there are heritage constraints. There arealso some larger medium density developments on brownfield or other urban renewal sites.

FIGURE 9: DISTRIBUTION OF DWELLING DEVELOPMENT BETWEEN 2005-2016



Source: SGS 2020, Department of Planning 2019 *Housing Development Data*

Size and type of new dwellings

Figure 10 illustrates the size as well as type of dwellings built recently in each part of the Darebin LGA.

FIGURE 10: CHANGE IN NUMBER OF DWELLINGS BY SIZE IN THE DAREBIN LGA 2006-2016

Source: SGS 2020, ABS Census 2006, 2016

Two bedrooms was the most common size for a dwelling built in Darebin between 2006-2016 in each part of the LGA. However, the type of dwelling built varied with a mix of medium and high density built in the Lower Area and Central Area (although with a greater proportion of high density in the Central area), and mostly medium density dwellings built in the Upper Area.

While some two bedroom apartments in low-rise developments may be shown in the medium density component of Figure 10 for the Lower Area, the Upper Area's medium density development almost exclusively took the form of townhouses. This suggests that the largest development market is for two bedroom dwellings, regardless of whether they are medium or high density. Part of this variation in dwelling type may be due to affordability, apartments likely to be affordable than townhouses in the Lower Area where dwelling prices are higher.

It was noted in Section 2.2 that most medium and high density dwellings are rented, particularly in areas where the average age of dwellings is low. As new dwellings are mostly sold to investors, a preference for two bedroom dwellings among both medium and high density developers may by driven by a perception of what size of dwelling an investor will want to buy. Design considerations relating to how much floorspace or land is required to build a two instead of three bedroom dwelling may also be important.In the Lower and Central areas there was a decrease in the number of two and three bedroom separate houses, which were likely replaced with infill development and larger houses or renovated to contain more bedrooms. In the Upper Area the number of two bedroom separate houses increased slightly while the number of three bedroom houses decreased, which is likely to be a result of concentrated infill development offsetting the decrease in the number of smaller separate houses elsewhere.

The number of four and five bedroom dwellings in the LGA increased. This is predominately a result of the replacement of existing separate houses with new separate houses and the renovation of existing separate houses to have more bedrooms. There were also a small number of additional medium density four bedroom dwellings in the Lower Area.

3. FUTURE HOUSING DEVELOPMENT

3.1 Development pipeline

The current housing development pipeline in the Darebin LGA as well as housing development between 2016-2020, has been assessed based on the Cordell Connect development database. This is a database of development projects with a cost of greater than $1,000,000 which is compiled by Core Logic through research on current and likely future projects, and from consultation with developers. It includes projects at a variety of stages, from project conception before planning approval is sought, through the planning and building approval process to the completion of construction.

The development pipeline are shown in Table 6 for private dwelling developments which would increase the total number of dwellings in the LGA (the replacement of separate houses is not shown). Projects which have been abandoned or for which planning permission has been refused are excluded from the results. Preliminary projects which have not yet received or applied for planning permission are included.

TABLE 6: PRIVATE DWELLING DEVELOPMENT PIPELINE IN THE DAREBIN LGA BY EXPECTED COMPLETION YEAR
ONLY MEDIUM AND HIGH-DENSITY DWELLINGS ARE SHOWN

Pipeline status	Development type	2020	2021	2022	2023	2024	2025 or later	Total
Medium density	Lower	189	110	24	19	9		708
	Central	270	216	108	18			1,071
	Upper	653	463	284	31	12		*2,607*
	Subtotal	*1,112*	*789*	*416*	*68*	*21*		*4,386*
High density	Lower	140	230	248	315	46		2,067
	Central	256	227	463	156	774	365	3,210
	Upper	119	312	173	39	22		1,377
	Subtotal	*515*	*769*	*884*	*510*	*842*	*365*	*6,654*
Total	**Lower**	**329**	**340**	**272**	**334**	**55**		**2,775**
	Central	**526**	**443**	**571**	**174**	**774**	**365**	**4,281**
	Upper	**772**	**775**	**457**	**70**	**34**		**3,984**
Total	***Total***	***1,627***	***1,558***	***1,300***	***578***	***863***	***365***	***11,040***

Source: SGS 2020, Cordell Connect database

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

In comparison with recent development rates, there is a substantial development pipeline in the Darebin LGA. As discussed in Section 2.3, the number of dwellings in the Darebin LGA increased by 824 dwellings on average each year between 2006-2016, including 496 medium density dwellings and 239 high density dwellings. The size of Darebin's development pipeline for 2020 is around double this average, and is also substantially above average for 2021 and 2022.

The mix of both medium and high density dwellings in the development pipeline indicates continued interest in both medium and high density dwellings in Darebin. The substantial size of the high density development pipeline indicates that the amount of high density development in the future is likely to exceed that in the past unless an economic shock reduces development viability. Such a shock could be provided by COVID-19. The impact of COVID-19 could be monitored by reviewing how high density construction commencements and intentions vary over time in the future.

There are a wide variety of potential reasons for the large size of the development pipeline in comparison to recent average development rates. It may in part show increasing demand for dwellings in Darebin. In addition, the recent house price boom, which peaked in 2018, is likely to have generated significant activity in the development industry. As projects must be planned several years in advance, projects conceived during the boom may still be moving through the development pipeline. An economic downturn, for example as a result of COVID-19, could lead to many of these projects being deferred or abandoned.

Limitations of development pipeline data

Some of the development in the pipeline may not occur or may not occur on the timeframe indicated, particularly as the Cordell Connect database from which Table 6 is compiled relies on reports from developers which may not be completely up to data (the data has been cleaned where possible), and the pipeline for 2020 and 2021 is large in comparison to the average development rate in recent years. However, Even if some development is deferred, Table 6 shows considerable potential for continued development in Darebin over the short-medium term.

While the overall development pipeline contains more high density than medium density dwellings, there are several reasons that the pipeline shown above may under-represent potential medium density development, and so the bias of the pipeline towards high density may be overstated:

- Larger projects are likely to be more accurately reported in the database, while medium density development by smaller developers may be under-reported.
- High density developments take longer and must be planned further in advance, and so the high density timeframe is likely to be accurate over most of the time period shown in Table 6. By contrast, medium density developments require less forward planning, and additional development may be conceived between now and 2025, increasing the size of the medium density pipeline.

Spatial distribution of development pipeline

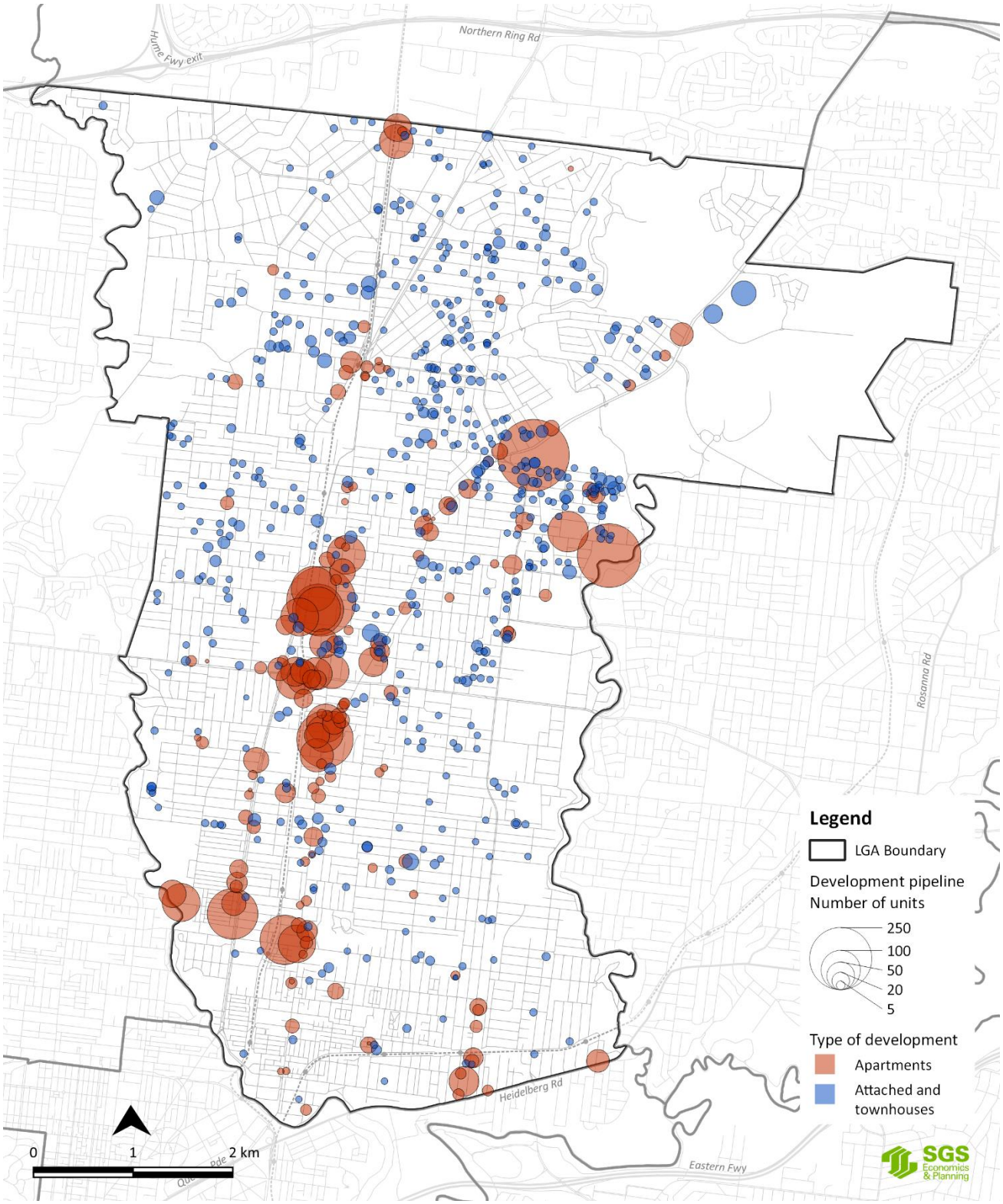
The distribution of the development pipeline across the parts of the Darebin LGA is a shift from the recent pattern of development. If realised, the development pipeline would direct a much higher proportion of development to the Central area than has occurred historically. The pipelines in the Central and Upper areas in Table 6 are much larger than the pipeline in the Lower Area. By contrast, the Upper Area accommodated by far the most development between 2006-2016 (3,761 additional dwellings, see Section 2.3), with the Central and Lower areas accommodating lower amounts of development (2,172 and 2,168 additional dwellings respectively).

In the context of COVID-19 and any associated economic downturn, developments in the Lower Area are likely to remain more feasible due to the high land prices in that area. High density development are often targeted at investors and require large numbers of -commitments to buy units before they can secure financing. As such, high density development is likely to be more impacted by an economic downturn than medium density development (which requires a lower level of capital).

More detail on the spatial distribution of the development pipeline is shown in Figure 11. Due to the format of the data, development has been categorised in this figure as either apartments or attached dwellings/townhouses, instead of as medium or high density. The following observations can be made:

- The largest concentrations of apartment developments are in Preston along and near High Street
- There are smaller development clusters in Northcote along High Street and St Georges Road, in Fairfield along Station Street and in Reservoir, as well as isolated apartment developments along major roads and public transport corridors elsewhere.
- While there was little apartment development in the Upper Area (apart from on large sites around Latrobe University) between 2005-2016, there are several proposed apartment developments in the Reservoir centre around Reservoir Station, as well as along Plenty Road and at Keon Park. This may indicate an expectation among developers that these areas will become more feasible for apartment development in the future.
- There is a relatively limited amount of medium density development proposed or underway across the Lower Area, but a large amount across the Preston and Upper areas in similar locations to those in which medium density development occurred between 2005-2016.

FIGURE 11: DEVELOPMENT PIPELINE IN THE DAREBIN LGA



Source: SGS 2020, Cordell Connect database

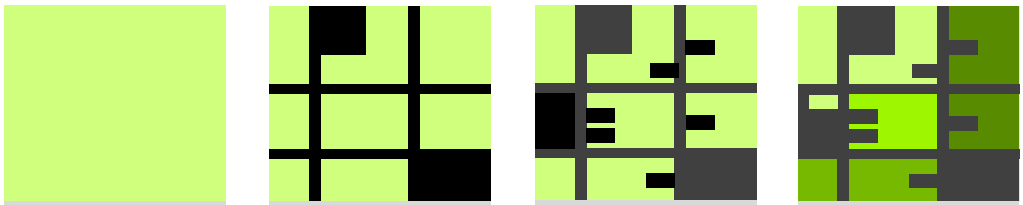
3.2 Housing capacity method

Housing capacity is an estimate of the quantum of housing that could be accommodated in an area. It is based on existing planning controls, recent housing supply trends and planned future land-release precincts. It is a theoretical assessment of the maximum number of dwellings that could be developed under current planning controls and development conditions and in future precincts. It follows from a high-level analysis and is intended to be indicative rather than absolute.

Figure 12 charts the four-step process for determining dwelling capacity. The logical flow is to firstly identify land where residential development is permitted before filtering out all the lots which are unlikely to be developed/redeveloped, and then calculating the potential development yield of each lot. Each step is discussed in more detail below.

Only a small portion of available lots are likely to be developed in any one year and some lots are likely to be withheld from development. For these reasons, greater capacity than (expected) demand is required to ensure that future development is not constrained. There are likely to be site-specific attributes which may affect the development potential of some sites, but which cannot be assessed in an LGA-wide capacity analysis.

FIGURE 12: HOUSING CAPACITY APPROACH OVERVIEW



Total Land

This represents the quantum of land where residential development is permitted.

Net Land Area

Some land cannot ever be developed for residential purposes. For example roads and footpaths.

The analysis has been completed using lot level data, which already excludes these types of uses and associated land area.

Available Land

Various lot/land attributes are used to further exclude sites which would not be able to yield additional housing beyond what is already there.

This includes attributes such as lot size, age of stock, and heritage status.

Potential Yield

Density and yield assumptions are applied to lots defined as available.

This is then compared to the current number of dwellings on each lot to determine the net capacity.

0Source: SGS, 2020.

Key data sources

Housing development data (HDD)

The HDD is a spatial dataset containing a highly accurate count of existing dwellings, vacant residential lots and residential developments. The data is collected by the Victorian Government on a lot by lot basis through an analysis of Government spatial datasets including aerial photography, property boundaries, business registers, planning permit information and other key databases. This data-set provides a highly accurate cadastral base layer showing the current number of dwellings on each parcel as well as the locations in which development with a residential component have occurred.

The most recent year of data available is 2016 and it tracks development back to 2005. While this is several years out of date, the comprehensiveness and accuracy of the dataset means that it is still the best available baseline dataset for housing capacity analysis.

Geoscape dataset

The Geoscape Dataset is developed by PSMA Australia and records the footprint and height of every building in Australia, matched against addresses (this is only accurate for development completed by 2017). This dataset was combined with the HDD to provide more information about current residential built form, particularly where existing development would hamper redevelopment. However, the Geoscape dataset was not used to provide a baseline in terms of number of dwellings as it is not as comprehensive or accurate as the HDD.

Step 1: Net land area identification

Net land refers to total land where residential development is permitted, minus the land that cannot be developed for residential purposes, such as roads and footpaths. The capacity calculation is conducted on a lot by lot basis, with only lots where residential development is permissible considered, and so parts of the public domain are automatically excluded.

In the Darebin LGA, the net land is composed of properties zoned NRZ 1, GRZ 1-3, RGZ 1-5, MUZ 1-3, PDZ 1-2 or C1Z. The net land for the Darebin LGA is shown in Figure 13 overleaf.

Step 2: Available land assessment

Available land represents any land that is likely to be able to accommodate additional housing in the Darebin LGA. It is derived from the net land, from which lots unlikely to be developed are excluded. Exclusions are discussed in more detail below.

Designation of a lot as available land does not mean that development is necessarily feasible or that property owners are ready or willing to develop these sites. Typically, only a small portion of available lots are likely to be developed in any one year. There are also likely to be site-specific attributes which may affect the development potential of some sites, but which cannot be included in an LGA-wide capacity analysis.

Land Exclusions

The following exclusions were used to determine which lots cannot or are unlikely to be developed. Maps of the land excluded are shown in Appendix D.

Existing strata or multi-unit development

Locations where there are multiple property owners (i.e. strata title) or where the original subdivision pattern has been further subdivided (i.e. shared lots) are likely to significantly limit the development potential of these sites. These have thus been identified and excluded from available land.

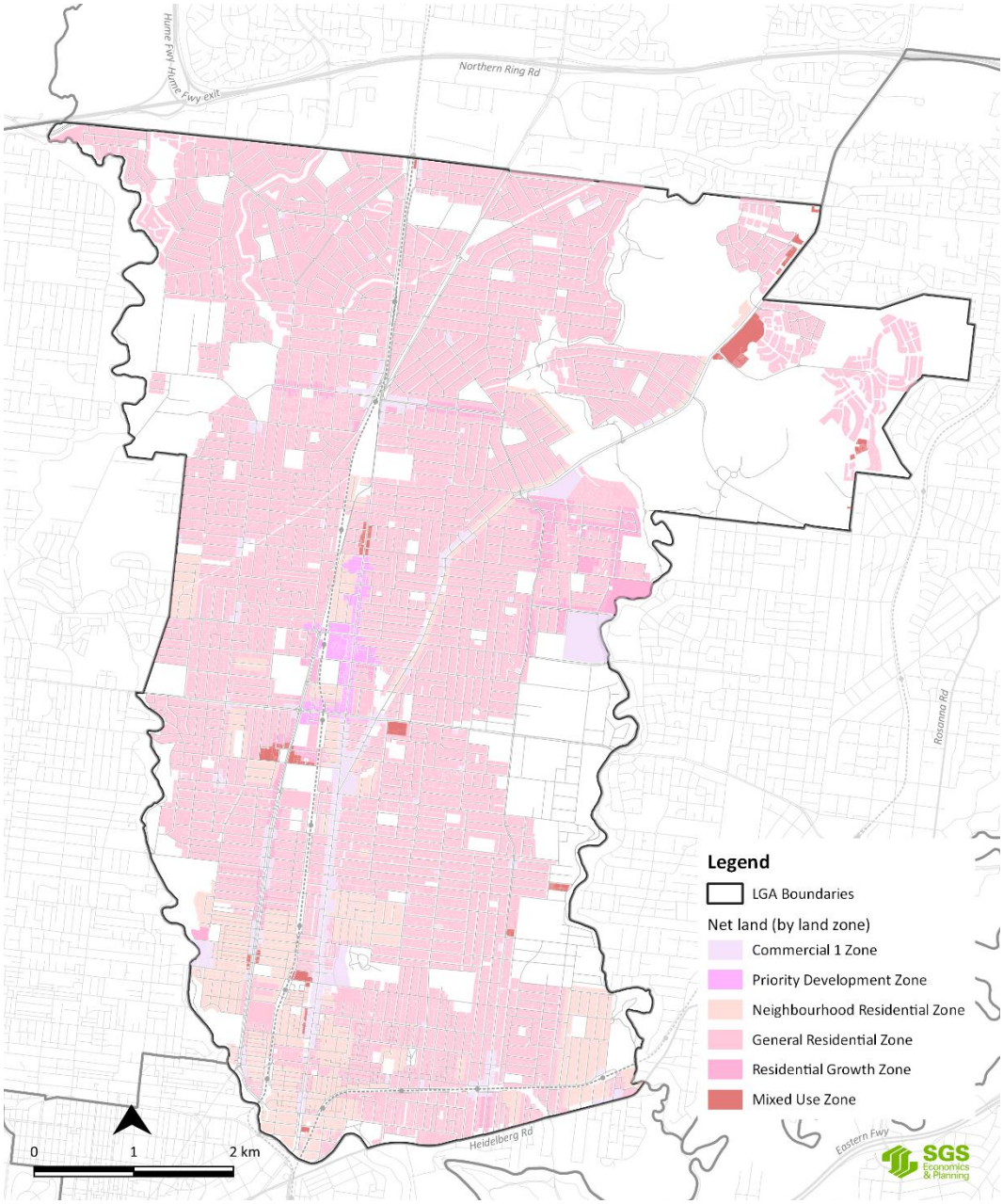
Sites which contain multiple residential dwellings have also been excluded even if they are under single ownership as having multiple dwellings is likely to inflate land prices making redevelopment less feasible or likely than on other sites.

Heritage

The Heritage Overlay is applied to sites of identified heritage value including precincts and individual places. The Heritage Overlay ensures that any development does not adversely affect the significance of heritage places. In regards to capacity, the Heritage Overlay often but not always limits the development capacity of a site. However, it is not possible in a high-level capacity analysis to individually audit which sites under heritage overlays could or could not be developed.

Sites have been excluded if a heritage overlay applies to them, unless they are vacant or over 1,000sqm and in the C1Z, MUZ or PDZ zones where high density development would be expected.

FIGURE 13: NET LAND FOR RESIDENTIAL DEVELOPMENT IN THE DAREIN LGA



Source: SGS 2020

Small lots

Small lots are generally unable to be redeveloped without amalgamation of a large number of sites, which would be difficult and likely unfeasible if the properties contain dwellings or other high value uses. For this reason, properties were excluded from available land if in the NRZ, GRZ or RGZ zone they have an area of less than 300sqm or frontage less than 12m. These cut-offs were determined based on an audit of recent development sites and existing townhouse and apartment developments, with few townhouse or apartment developments having a frontage less than 12m and few examples of development occurring on a site of less than 300sqm.

No small-lot cutoffs were used in the C1Z, MUZ or PDZ zones as higher density development is expected to occur in these zones which would facilitate a greater degree of site amalgamation to assemble a development site from several smaller properties.

Recent development sites

Buildings that were recently completed are unlikely to be redeveloped again and have also been excluded from the capacity analysis. This applies to all residential and commercial land within the municipality.

Recently developed sites were identified as those recorded in the HDD data. This does not include sites which have hosted large-scale commercial development without a residential component, however these are expected to be relatively small in number.

Community infrastructure and assets

These sites, located on both residential and commercial land, serve as community infrastructure for the public and are generally not considered suitable for new housing development. Types of land use include schools, aged care facilities, child care facilities, churches, community centres and halls, car parks, public parks and private hospitals.

Properties containing community infrastructure were identified using the Victorian Government's Feature of Interest dataset, which records the spatial extent and type of various kinds of community infrastructure (among other things). This was supplemented with a visual inspection of large remaining lots of land to identify any community infrastructure or assets which are not reflected in the dataset.

Other exclusions

A visual inspection of available land was used after the above exclusions to identify discrepancies and any remaining large sites which are unlikely to be redeveloped, including large commercial developments which may not counted as community infrastructure but whose significant development value makes redevelopment likely unfeasible.

Geometric irregularity measurements were also developed to identify sites whose irregular shape suggest that they are shared properties which are part of other excluded developments, or where an irregular shape would significantly hamper redevelopment.

Step 3: Potential yield assessment

A series of yield and site density assumptions were used to calculate the likely residential redevelopment potential of each property identified as available for development. Where possible, assumptions were developed from Darebin's Planning Scheme and local development data.

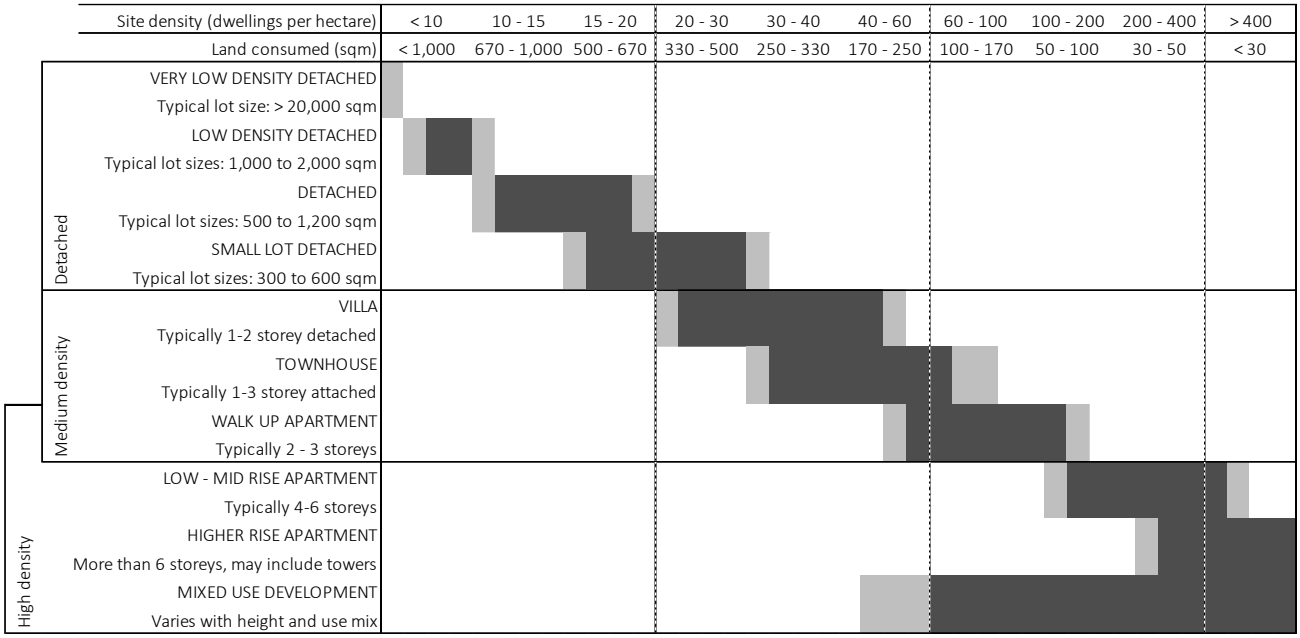
Site density

A likely redevelopment density was determined based on each property's zone, overlays, location, and use to determine likely development yield.

Site density is a measure of the relationship between the number of dwellings and the area of the associated property and therefore does not include surrounding open space, roads, footpaths or other land required to support residential uses. For this reason, a site density figure for the same type of development is typically higher than broader density measures which include other land uses within their calculation.

SGS has completed extensive analysis of development typologies by site density. From this analysis we have found that each development form typically falls within a particular density range. These ranges overlap, meaning multiple development forms can be achieved at one specific density. This has been used to inform the potential yield assumptions applied to various residential zoned land. Typical site densities for a range of dwelling types are shown in Figure 14.

FIGURE 14: TYPICAL SITE DENSITIES FOR LOW-MID RISE DWELLING TYPES



Source: SGS 2020

Site density assumptions

The following site densities were used to calculate potential development yield in the Darebin LGA. Details around the derivation of these densities, including a profile of the density of recent development and built form modelling for multi-storey development, is provided in Appendix A.

The number of storeys in the C1Z, PDZ and MUZ were assessed based on heights in design and development overlays where they were present. The RGZ was assumed to deliver four storey developments in line with the required in the schedules to this zone. The Reservoir centre was assigned a likely average height of five storeys based on the Reservoir Structure Plan. The Fairfield Activity Centre was assigned a height of four storeys reflecting built form

controls proposed with Amendment C161 to the Darebin Planning Scheme. In other locations, likely height was assigned based on proximity to public transport stops, with properties within a 400m walk of a tram stop or an 800m walk of a train station assumed to be able to be developed to six storeys, and other properties assumed to be able to be developed to four storeys.

TABLE 7: ASSUMED DEVELOPMENT DENSITIES FOR POTENTIAL YIELD CALCULATION

Zone	Typical development type	Assumed development density (dwellings/hectare)
NRZ1	Townhouse development	45
GRZ1	Townhouse development	45
GRZ2	Townhouse development, with some 2-3 storey apartment development	60
RGZ1	4 storey apartment building	230
RGZ 2-4	4 storey apartment building	290
C1Z, PDZ 1-2 or MUZ (selection of potential heights shown in this table. Other heights were also used, corresponding to Darebin design and development overlays)	4 storey mixed use development	220
	6 storey mixed use development	420
	8 storey mixed use development	520
	12 storey mixed use development	840

Other yield assumptions

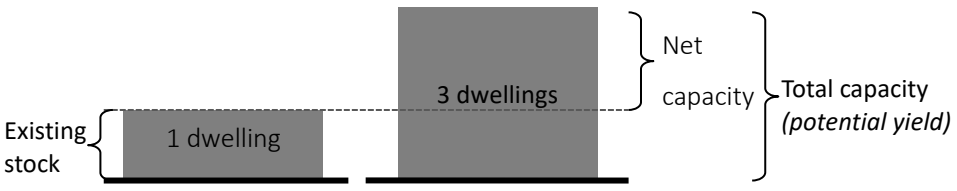
In precincts covered by existing masterplans or development plans which specify the number of likely dwellings, the anticipated number of dwellings in the masterplan provides a better estimate of likely development yield than the application of a high-level density assumption. As such, yields were manually assigned for the Polaris Site at the intersection of Plenty Road and Main Drive, Oakover Village, and the site on the north side of Arthurton Road and east of Herbert Street.

Where no masterplan has been adopted (for example for the C1Z and RGZ zones directly north of Arthurton Road and bordering the Merri Creek in Northcote) it was assumed that 30% of the land would be required for public domain like roads and open space, and the remainder could be developed at heights consistent with assumptions in other parts of the LGA.

Step 4: Net capacity

Net housing capacity is calculated by subtracting the number of existing dwellings on each site from the potential yield. This process is illustrated in the figure below. The 2016 number of dwellings from the HDD data was used as the baseline. While development has occurred since 2016, the HDD data is the most accurate site by site account of dwellings, and more recent data is not available. Using a 2016 baseline will still allow the overall 2016-2036 housing demand to be compared with the 2016 housing capacity.

FIGURE 15: THE DIFFERENCE BETWEEN POTENTIAL YIELD AND NET CAPACITY



Source: SGS 2020

3.3 Capacity results

Available land

The available land in the Darebin LGA for residential development is shown in

There is a large amount of land available for development across the LGA, particularly in the central and northern parts of the LGA. The majority of land in the GRZ1, GRZ2, PDZ and RGZ was classified as available for development. As the GRZ2 covers by far the most land in the LGA, followed by the GRZ1, this means that the vast majority of available land by area is in the general residential zone.

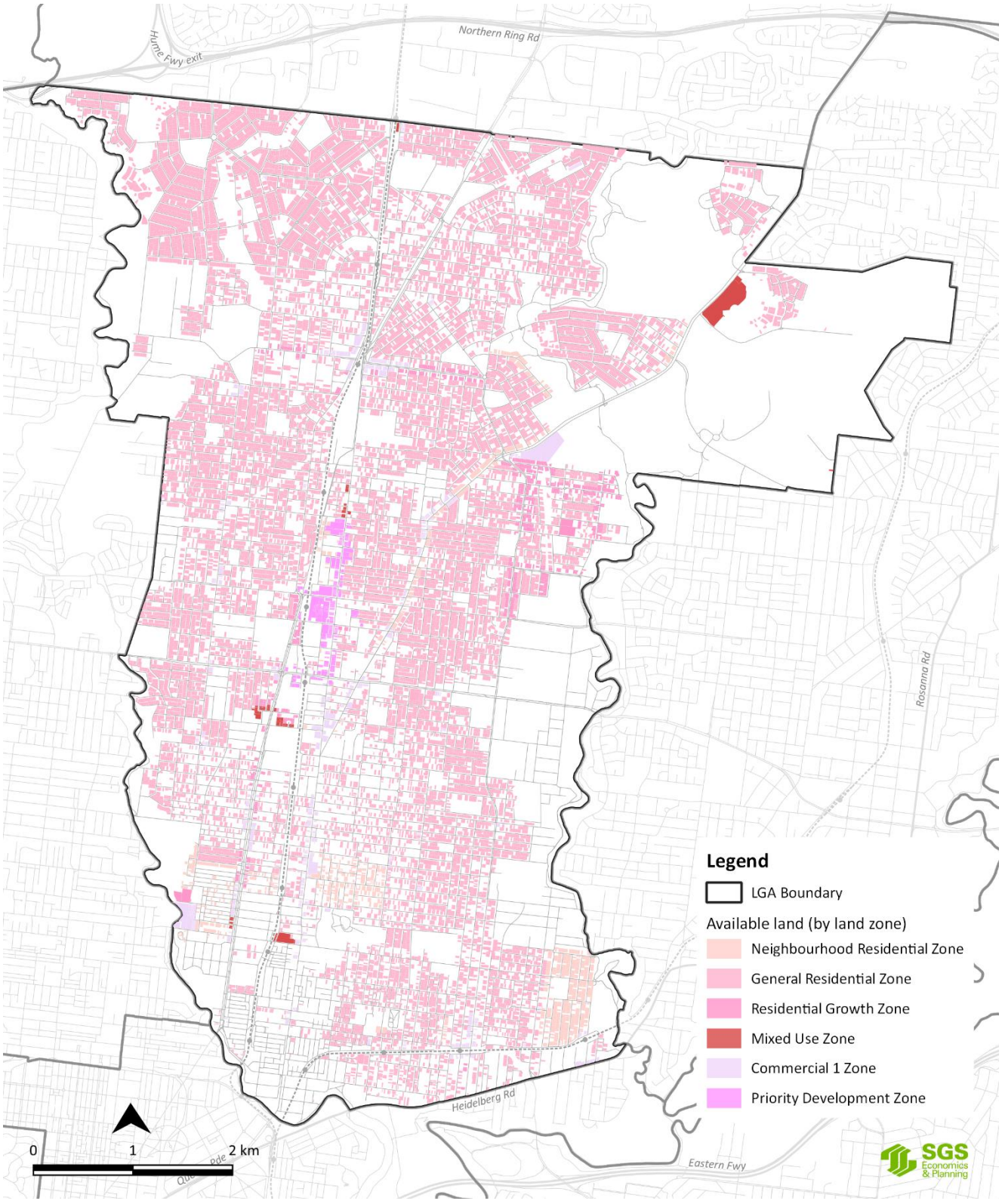
Figure 16 and the amount of land in Table 8.

TABLE 8: AVAILABLE LAND RESULTS

		NRZ1	GRZ1	GRZ2	RGZ 1-5	C1Z	MUZ	PDZ 1-2	Total
Available land	Area (ha)	51.1	418.0	918.7	43.9	47.8	11.8	21.4	1,512.6
	% of zoned land available	20%	62%	57%	55%	45%	48%	67%	54%
Excluded land area by exclusion (ha)	Strata or multi-unit	47.8	149.8	397.1	15.4	44.8	9.4	4.5	669
	Heritage	85.2	1.9	45.6	1.8	12.4	1.3	4.5	153
	Recent development	10.6	33.1	61.8	3.6	0.8	0.7	0.2	111
	Small lots	54.5	11.7	120.0	0.0	0.0	0.0	0.0	186
	Community infrastructure and assets	7.0	54.0	66.3	11.6	0.5	0.8	1.5	142
	Other	1.0	5.3	9.0	3.0	0.1	0.8	0.0	19
Total land area (ha)		**257.2**	**673.9**	**1,618.6**	**79.3**	**106.4**	**24.8**	**32.0**	**2,792.2**

There is a large amount of land available for development across the LGA, particularly in the central and northern parts of the LGA. The majority of land in the GRZ1, GRZ2, PDZ and RGZ was classified as available for development. As the GRZ2 covers by far the most land in the LGA, followed by the GRZ1, this means that the vast majority of available land by area is in the general residential zone.

FIGURE 16: AVAILABLE LAND



Source: SGS 2020

Net capacity

Net dwelling capacity is shown in Table 9 disaggregated by land use zone for each part of the Darebin LGA. These results are also mapped by property in Figure 17 overleaf by property and in Figure 18 on the following page aggregated to SA1s (a small statistical area defined by the Australian Bureau of Statistics)

These results show that there is a total capacity for 92,936 additional dwellings in the Darebin LGA under current planning controls. The majority of this capacity is provided in the General Residential Zone in which medium density development is likely. There is also a large amount of capacity in high density zones, although less than in the General Residential Zone.

Spatially, the Upper Area has the largest development capacity, with the Lower Area having the least capacity. This is a result of the large amount of available land in the GRZ1 and GRZ2 in the Upper Area for medium density development, while the Lower Area has smaller lot sizes and so more of the GRZ1 and GRZ are excluded. However, the Lower Area has more capacity for high density development than the Upper Area, and high density development is likely to be much more feasible in the Lower Area but only marginally feasible in the Upper Area (development feasibility is modelled in Section 3.4).

The Central Area has the most capacity for high density development, which is consistent with the development pipeline discussed in Section 3.1. This capacity is highly concentrated around Central Preston, although there is also some land in the residential growth zone further to the east.

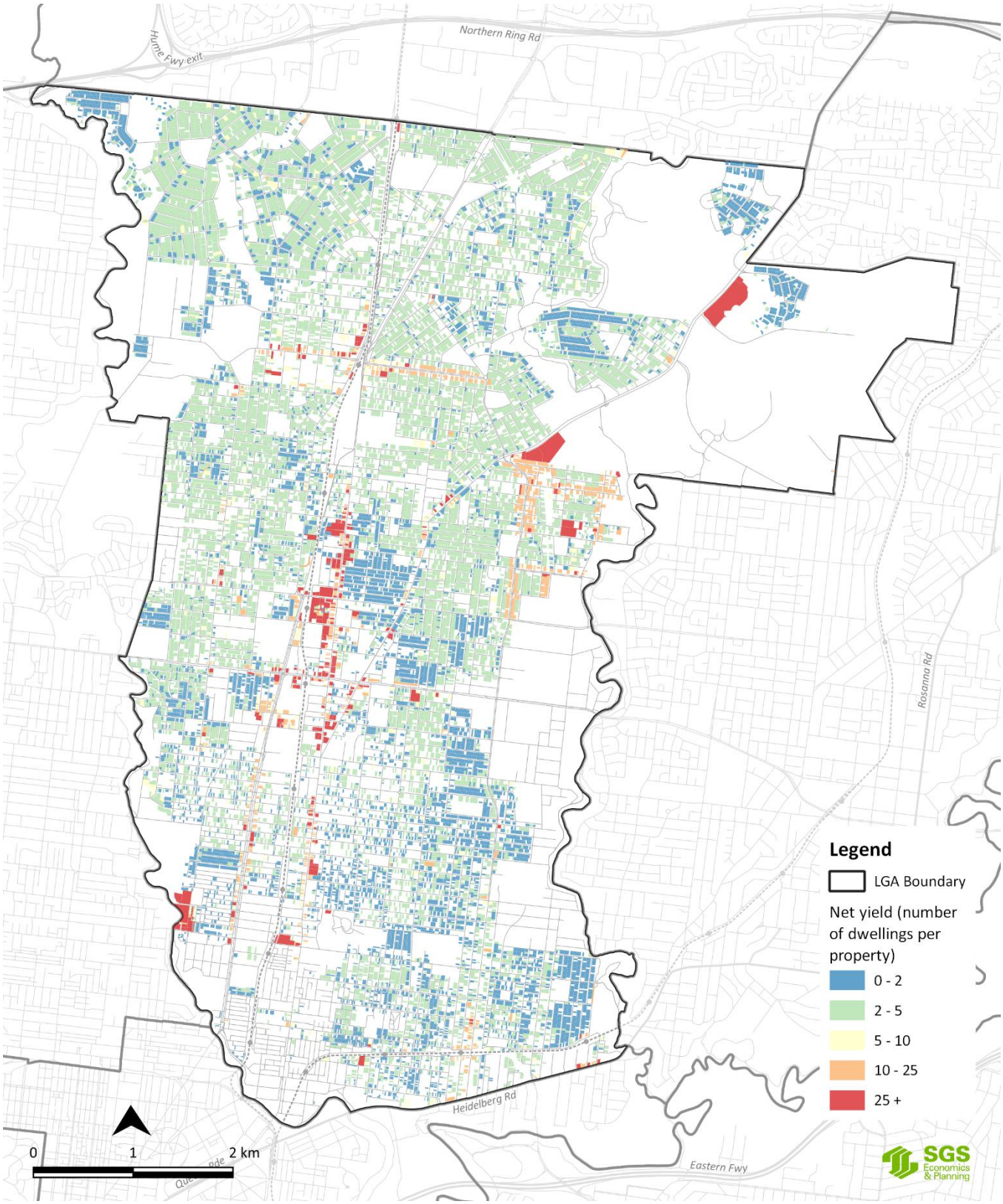
TABLE 9: NET CAPACITY RESULTS

Predominant development type	Zone	Lower	Central	Upper	Total
Medium density	NRZ1	1,179	50	97	1,325
	GRZ1	1,798	427	10,588	12,813
	GRZ2	7,779	12,834	18,410	39,022
	Subtotal	10,755	13,310	29,095	53,160
Medium or high density	RGZ 1-5	968	3,084	7,186	11,238
High density	C1Z	6,481	4,916	6,178	17,575
	MUZ	571	576	787	1,934
	PDZ 1-2	0	9,029	0	9,029
	Subtotal	7,052	14,520	6,965	28,538
Total		**18,776**	**30,914**	**43,246**	**92,936**

Source: SGS, 2020

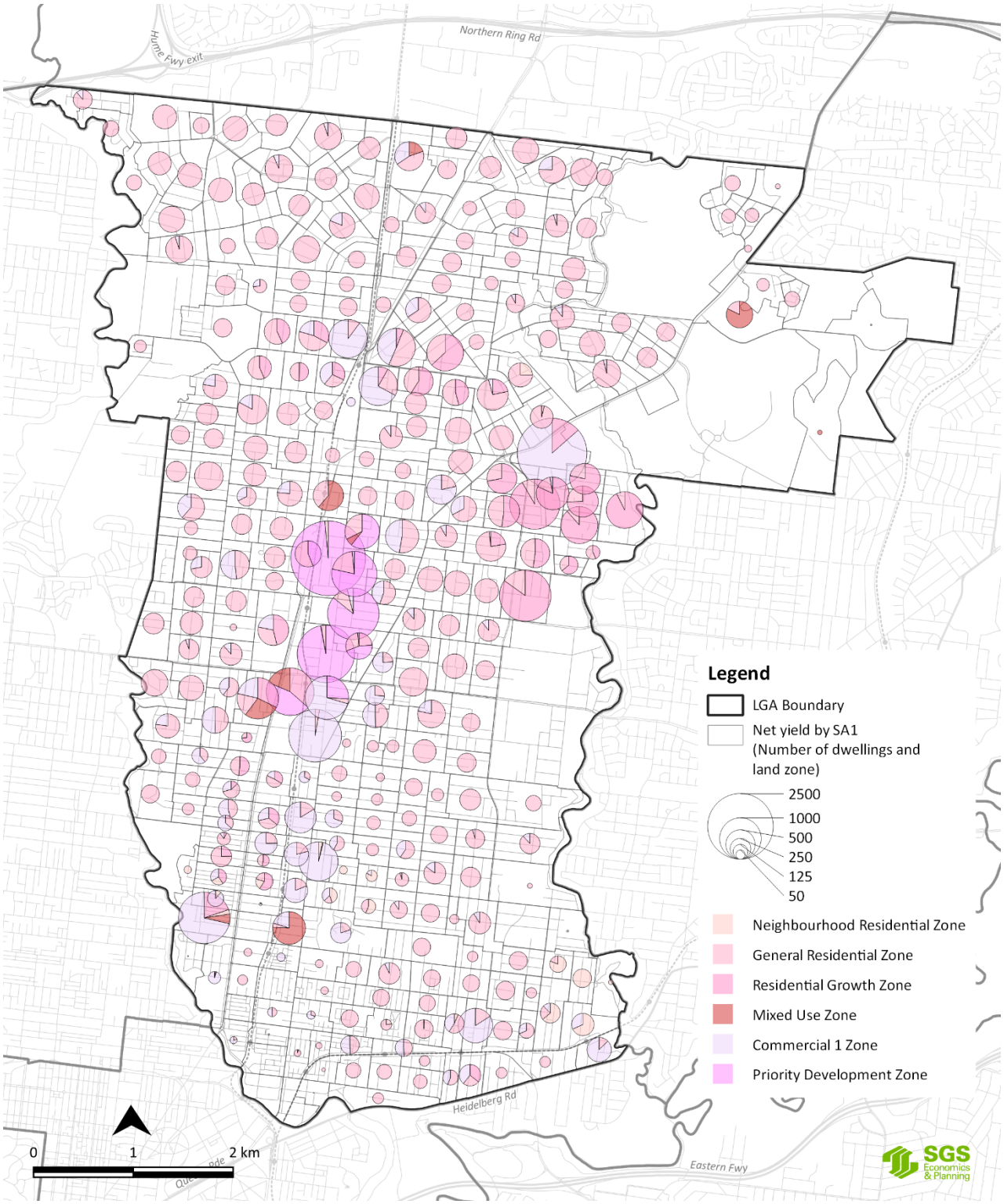
Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

FIGURE 17: NET YIELD OF AVAILABLE PROPERTIES



Source: SGS 2020

FIGURE 18: NET YIELD BY SA1



Source: SGS 2020

3.4 Development feasibility

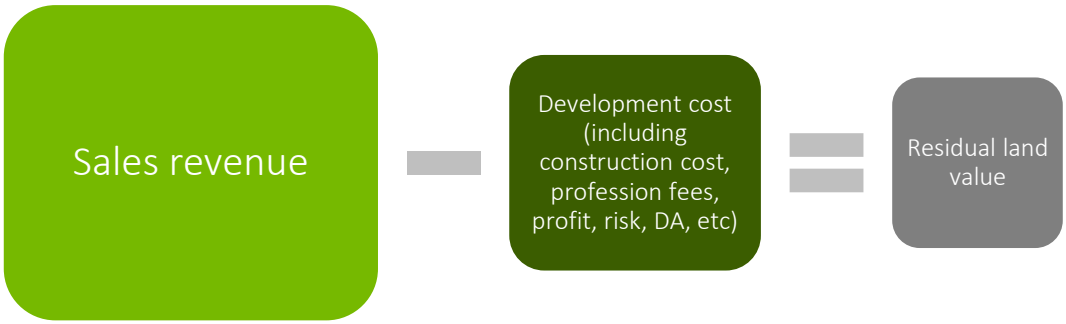
Methodology

The feasibility of residential development in different parts of the Darebin LGA has been tested with a residual land value (RLV) model. The RLV is the maximum amount that a rational developer could pay for a site for redevelopment while still making a profit.

The RLV is calculated by deducting all the costs of a development from the sales revenues in the current market. The development costs include construction costs and contingencies, external works and other site works, professional fees, a developer's profit margin, infrastructure levies or contributions and other council fees. This calculation is illustrated in Figure 19.

If the RLV is much greater than a site's current value including existing improvements such as dwellings, a developer could afford to pay more than the current market value for a site. In this case development is likely to be feasible. If the RLV is much less than a site's value, a developer would not be able to make a sufficient profit from a development to cover the cost of site acquisition, and development would be unfeasible.

FIGURE 19: RESIDUAL LAND VALUE CALCULATION



Source: SGS 2020

Feasibility under an RLV model is usually reported with a ratio of RLV to current land value. If this ratio is 1.25 or greater, a developer could afford to pay a 25% premium on the existing land value to acquire a site for development. This premium could entice a landowner to sell a site for development and would facilitate the amalgamation of sites for development. In this case, development is reported to be feasible.

A feasibility ratio of between 1 - 1.25 indicates that development may be feasible. In this range a developer would be able to make enough profit from a development to cover the cost of acquisition of the land if a landowner is willing to sell their land for a smaller price margin than 25%. However, as there is less room for a price premium in the event of an increase in land value, development may become unfeasible in the future. Developers may also be unable to acquire multiple sites for amalgamation. In this case, development is reported to be marginally feasible.

A feasibility ratio of less than 1 indicates that a developer would not make enough profit to make development viable.

Feasibility testing precincts

Development feasibility was tested in the following four precincts to inform the relative feasibility of different housing development types.

Precinct 1: Northern Reservoir General Residential Zone - Townhouses

Precinct one is the general residential zone in Reservoir, east of Ruthven Station and bounded by Hickford Street, Mais Street, the Darebin Creek Parkland, McMahon Road and Cheddar Road.

Large amounts of infill townhouse development has recently occurred in this area, and further development is proposed, as noted in Section xx above (see Figure 9 and Figure 11). Townhouse development is expected to be the most feasible development type here, and so relative cost of and return from development will inform conditions in which townhouse development is likely to occur.

FIGURE 20: TOWNHOUSE DEVELOPMENT IN PRECINCT 1

Source: Nearmap 2020

Precinct 2: Reservoir Residential Growth Zone – Low rise apartments

This precinct consists of the residential growth zone along Broadway leading east from Reservoir Station. While the residential growth zone encourages the development of four storey apartment buildings, such development has not occurred and instead some lower-yielding townhouse development has occurred on selected sites. There are also no apartment developments in the pipeline in this area.

As apartment development is possible in this area but has not occurred, it is likely to be unfeasible (feasibility results are provided, along with a discussion of the factors affecting feasibility, later in this Chapter). Feasibility modelling in this precinct will inform the conditions under which low rise apartment development is or is not likely to occur.

FIGURE 21: PROPERTIES FRONTING BROADWAY IN RESERVOIR IN PRECINCT 2

Source: Nearmap 2020

Precinct 3: Preston General Residential Zone – Dual occupancy

This precinct is located east of the Preston Centre and contains the general residential zone bounded by Gower Street, Ruby Street, Bell Street and Albert Street, Preston.

There are some examples in this area of two dwellings being developed on properties that previously housed a single dwelling with subsequent subdivision, either through a second dwelling being constructed in the back-yard with the original house retained, or through a house being demolished and two new houses built. There are also examples in this area of larger townhouse developments.

Feasibility modelling in this precinct is intended to inform the relative feasibilities of dual occupancy development on an existing lot compared to townhouse development. The size of properties in this area varies, with most between 500 sqm and around 800sqm, and so an average property of around 700sqm has been assumed for feasibility testing. Feasibility results will vary somewhat depending on the property size, however there are examples of existing development on both smaller and larger properties. As the intention of this analysis is to provide a high level comparison of relative feasibilities of dual occupancy development and townhouse development with three or more dwellings, conclusions from feasibility modelling should be less sensitive to the size of the property chosen.

FIGURE 22: EXAMPLES OF DUAL OCCUPANCY AND TOWNHOUSE DEVELOPMENT IN PRECINCT 3

Source: Nearmap 2020

Precinct 4: High Street Northcote – Higher rise apartments

Precinct four is located in the Commercial 1 Zone along High Street in Northcote between Separation Street and Darebin Road. There are several mixed use developments of up to eight storeys in this area with retail on the ground floor fronting High Street and apartments above. As development appears to be feasible, feasibility modelling of higher rise apartment development in this area will inform the conditions under which this development is feasible, which could inform whether it is likely to occur elsewhere.

FIGURE 23: A SECTION OF HIGH STREET IN PRECINCT FOUR CONTAINING APARTMENT DEVELOPMENT

Source: Nearmap 2020

Feasibility assumptions

Table 10 below shows the cost inputs and assumptions used in the feasibility modelling. Site acquisition costs have been estimated based on recent sales prices for each site and surrounding sites with similar development and use. Expected development revenues have been estimated from reported recent sales prices for comparable dwellings in nearby areas.

TABLE 10: COST INPUTS AND ASSUMPTIONS

Input	Source	Value
Construction and demolition costs	Rawlinson's Construction Handbook 2018	Varies
Existing use values	Market assessment of recent sales For Precinct 4, based on observed rents for retail premises and a 6% capitalisation rate	Precinct 1: $1,030/sqm of land area Precinct 2: $1,670/sqm of land area Precinct 3: $1,350/sqm of land area Precinct 4: $2,670/sqm of land area (for a retail premise)
Construction contingency	Various sources using industry standards	5% of base construction costs
Professional fees	Various sources using industry standards	5% of base construction costs and contingency for townhouse and two dwelling development 10% of base construction costs and contingency for apartment development
Draft Development Contributions Plan	Proposed Amendment C170dare	Varies
Open space levy	Darebin Planning Scheme Clause 53.01 Schedule 1	No levy for dual occupancy 3% of land price for 3 additional lots 4% of land price for 4 additional lots 5% of land price for 5 or more additional lots
Planning permit and subdivision application fees	Darebin Council Fee Schedule	Varies
Finance costs	Various sources using industry standards	6% of construction costs, land costs and fees & charges
Developer profit and risk	Various sources using industry standards	20% of all other development costs
Median residential sales values	Market assessment	Precinct 1 - 2 bedroom townhouse: $675,000 Precinct 1 - 3 bedroom townhouse: $750,000 Precinct 2 – 1 bedroom apartment: $300,000 Precinct 2 – 2 bedroom apartment: $400,000 Precinct 2 – 3 bedroom apartment: $475,000 Precinct 3 – Dual occupancy - $790,000 Precinct 4 – 1 bedroom apartment: $450,000 Precinct 4 – 2 bedroom apartment: $600,000 Precinct 4 – 3 bedroom apartment: $760,000
Sales commission, marketing and legal fees	Various sources using industry standards	4% of sales revenues
Car parking	Clause 52.06 of the Darebin Planning Scheme, Market assessment of number of car parks in existing development.	1 car space per one or two bedroom apartment or townhouse, 2 car spaces per three bedroom apartment, visitor parking spaces provided in apartment development in Reservoir. Car parks in apartment developments provided in a basement.

Feasibility results

Feasibility modelling are shown in Table 11. They are displayed per square metre of site area, allowing the relative feasibilities of different development types and sites to be compared.

TABLE 11: FEASIBILITY MODELLING RESULTS

Precinct	Precinct 1 – Reservoir North, Townhouses	Precinct 2 – Reservoir – Low rise apartments	Precinct 3 – Preston – Dual occupancy	Precinct 4 – Northcote – Higher rise apartments
Existing use value	$1,030/sqm	$1,670/sqm	$1,350/sqm	$2,670/sqm
Total development cost per dwelling (including profit margin etc)	$403,893	$378,982	$533,493	$429,886
Net sales revenue per dwelling	$626,253	$347,273	$673,545	$593,933
Residual land value per dwelling (sales revenue – total development costs)	$222,360	-$31,709	$140,053	$164,047
Assumed land area per dwelling	180 sqm (5 townhouses on a 900 sqm site)	46 sqm (13 apartments on a 600sqm site)	350 sqm (2 dual occupancies on a 700sqm site)	29 sqm (21 apartments on a 600sqm site)
Total development costs/sqm of land area	$2,243	$8,211	$1,524	$15,046
Net sales revenue/sqm of land area	$3,479	$7,524	$1,924	$20,787
Residual land value /sqm of land area	$1,235	-$687	$400	$5,7042
Feasibility ratio (residual land value / existing use value)	1.20 (Feasible)	-0.41 (Unfeasible)	0.35 (Unfeasible)	2.15 (Feasible)

Townhouse development in Reservoir

Townhouse development in Reservoir was deemed to be feasible, consistent with the large amount of this development which has occurred.

While a feasibility ratio of 1.25 would normally be considered to be necessary to provide a buffer allowing a developer to acquire a site, townhouse development does not require site amalgamation and so developers are likely to be able to acquire sites opportunistically as they are sold. In this case, a feasibility ratio of 1.2 indicates development is likely to be feasible.

Low rise apartment development in Reservoir

Low-rise apartment development is assessed as being highly unfeasible in Reservoir, with the total development costs exceeding the likely net sales return. In this case every additional unit built would lose money for a developer, and so an increase in allowable density would not make development more feasible. This is consistent with the lack of development which has been occurring.

The per square metre costs and returns in Table 11 provide an illustration of how returns or land values would need to change for development to be feasible. At a feasibility ratio of 1.25, and using the modelled cost and density of development, a return of $10,313 per square metre of site area would be needed for development to be feasible. This is a 37% increase on

the modelled returns. This would increase prices to around $545,000 for a two bedroom apartment, which is higher than the average unit price in Preston ($530,000), although a new development in Preston may sell for more, but lower than the averages for Thornbury ($586,000) or Northcote ($640,000). While land acquisition prices would be higher in Northcote and Thornbury, low-rise apartment development may thus be more feasible in these areas.

Alternatively, a developer may be able to develop land more cheaply than modelled using SGS's high level assumptions. In particular, the need for a basement carpark substantially increases development cost. Any alternative way to accommodate carparking (for example at the rear of the ground level), or to reduce the size of the carpark (for example with car stackers) would likely improve feasibility, although an increase in returns would still be necessary. Alternative ways of delivering car-parking would also assist feasibility by reducing the need for site amalgamation which may be required to deliver a large basement car-park.

Some recorded sale prices for apartments are significantly below the level assumed in this feasibility modelling, and so a premium for a new development was applied to calculate likely yields shown in Table 10. The achievement of this would depend on there being demand for moderate quality apartment product in Reservoir. There appears to be limited market demand for apartments in Reservoir currently.

Dual occupancy development in Preston

Dual occupancy development in Preston is deemed to be unfeasible. This means that it would likely not be feasible for a developer to acquire a site for the purpose of this development and then sell the dwellings once they are built. Where this kind of development has occurred, it is likely that the existing owner of the site undertook development to increase the capitalisation of their land, including by adding an additional dwelling in the back yard or by demolishing the existing house and replacing it with two dwellings Only limited amounts of development along these lines would be expected to occur in any one year. It is likely that this conclusion applies throughout the Darebin LGA due to the relative prices of existing dwellings and dual occupancies compared to construction prices.

The estimated per square metre land price in this part of Preston is only slightly higher than the price in Northern Reservoir. On this basis, townhouse development of more than two dwellings is likely to be feasible. Given that the yield of townhouse development with three or more dwellings on a property is much higher than the yield of dual occupancy development, developers would likely favour the delivery of more than two dwellings

Mixed-use apartment development in Northcote

Development in Northcote was found to be highly feasible, consistent with the amount of development which has happened nearby. In this case a developer would likely be able to pay much more than the existing use value of the site, which is based on its retail rental yield, and so the market property value will be much higher than the existing use value.

Feasibility modelling limitations

This modelling has occurred using high level standard development assumptions and estimated price points. Land acquisition costs, development costs and development returns may differ on individual sites from the values used. This is particularly true given the potential impact of COVID-19 on the property market.

Potential impacts of COVID-19 on the property market are not well understood at this time. A drop in property values would reduce development feasibility. Impacts would be expected to be most pronounced for development which is marginally feasible, like apartment development further north in Darebin and smaller town house developments. High density housing developments are generally higher risk than smaller developments, require a higher level of sales to be achieved to secure financing and are typically more focused on an investor market. These factors are likely to compound the effects of a reduction in feasibility due to a downturn in the property market in places in which feasibility of high density development is already marginal.

High density development was found to be very feasible in Northcote and surrounds, and is likely to remain so even if prices were to decrease somewhat. However, there may be less appetite for high density development from the development and financing industry for the reasons listed above, and there may be reduced demand.

4. DAREBIN'S CHANGING COMMUNITY

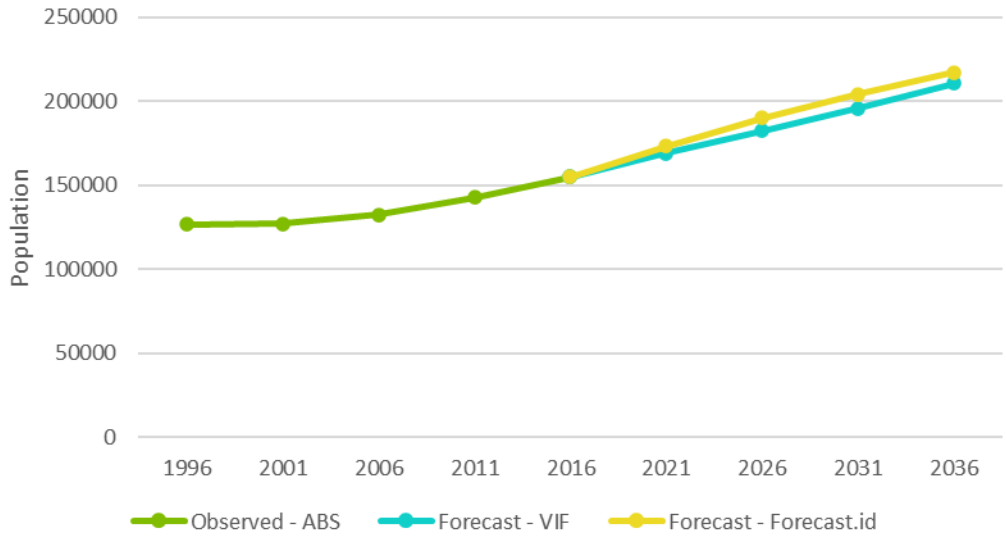
4.1 Population projections

The ABS estimates the population of the Darebin LGA (as of 2019) to be 164,184. Recent changes in the population, as well as future population forecasts, are shown in Figure 24. Two population forecasts are shown: Victoria in Future and Forecast.id.

The Victoria in Future (VIF) forecast is produced by the Victorian Government and provides planning assumptions with a common approach across Metropolitan Melbourne and other parts of the State. According to this forecast, the population of Darebin is likely to grow to 210,649 by 2036. This forecast is used to calculate likely future housing demand in Chapter 5 of this report.

Forecast.id uses a more detailed estimation of local development capacity and trends to provide a bottom-up estimate of the future population. It is included for comparison purposes in this report. Forecast.id predict that Darebin's population will grow to 230,119 by 2036, slightly more than forecast in VIF.

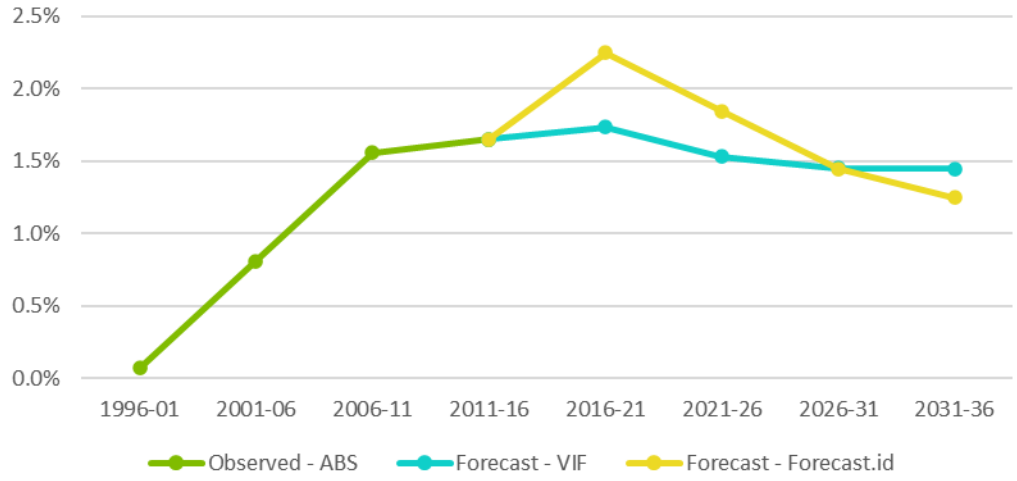
FIGURE 24: RECENT AND FORECAST POPULATION GROWTH IN THE DAREBIN LGA



Source: ABS 2020, *Quarterly Population Estimates (ERP)*, Department of Planning 2019, *Victoria in Future*, Forecast.id

The population growth rate implied by forecasts is compared to Darebin's historical population growth rate in Figure 25. Historically, population growth increased in every five year period from 1996-2016, with almost no growth between 1996-2001 and around 1.6% population growth per year on average between 2006-2016. Population forecasts predict that this level of growth will be sustained (VIF) or increase (Forecast.id) in the short to medium term with a slight drop in growth rates in the longer term, until 2036. If the housing demand generated by these forecasts was to be met, dwelling development rates would need to remain at levels seen between 2006-2016, which are higher than those that occurred between 1996-2006.

FIGURE 25: RECENT AND FORECAST POPULATION GROWTH RATES IN THE DAREBIN LGA



Source: ABS 2020, *Quarterly Population Estimates (ERP)*, Department of Planning 2019, *Victoria in Future*, Forecast.id

The increased rate of population growth between 1996-2016 resulted in previous population projections underestimating the likely level of growth. The table below compares the forecasts used in the Darebin Housing Strategy 2013-2033 and the actual population growth. The observed population growth accounted for 70% of the total forecast (21,242 out of 30,336) over only 40% of the time-frame (8 years out of 20 years). Current forecasts are for a population of between 196,030 (VIF) – 204,140 (Forecast.id) by 2031 (also shown in the table below), a substantial increase from previous forecasts.

TABLE 12: COMPARISON OF PREVIOUS POPULATION FORECASTS AND OBSERVED POPULATION GROWTH

	2011	2019	2031 (forecast)	Change	Average yearly change
Forecast used in Darebin Housing Strategy 2013-2033	143,057		173,393	+30,336 over 20 years	+1,517
ABS estimated residential population	142,942	164,184		+21,242 over 8 years	+2,655
Current VIF forecast		164,184	196,030	+ 31,846 over 12 years	+2,653
Current Forecast.id forecast		164,184	204,140	+39,965 over 12 years	+3,330

Source: Darebin Council, *Darebin Housing Strategy 2013-2033*, ABS ERP 2020

The discrepancy between previous population forecasts and population growth between 2011-2019 highlights the need to consider uncertainty regarding future population growth rates when conducting strategic planning. This is particularly pertinent in light of the COVID-19 pandemic, which could cause a drop in international migration and so the population growth rate in Darebin and Melbourne more broadly. A short-medium term reduction in population growth rates could recover to forecast rates in the longer term. In this context the lower 2036 population forecast by VIF may be more likely.

4.2 Population age profile

Darebin's population age profile is shown in Figure 26, compared with Greater Melbourne's. Darebin has relatively high numbers of young adults and established adults, and relatively low numbers of children, teenagers and older workers and pre-retirees. The reasons for the differences between Darebin and Greater Melbourne are explored in more detail below.

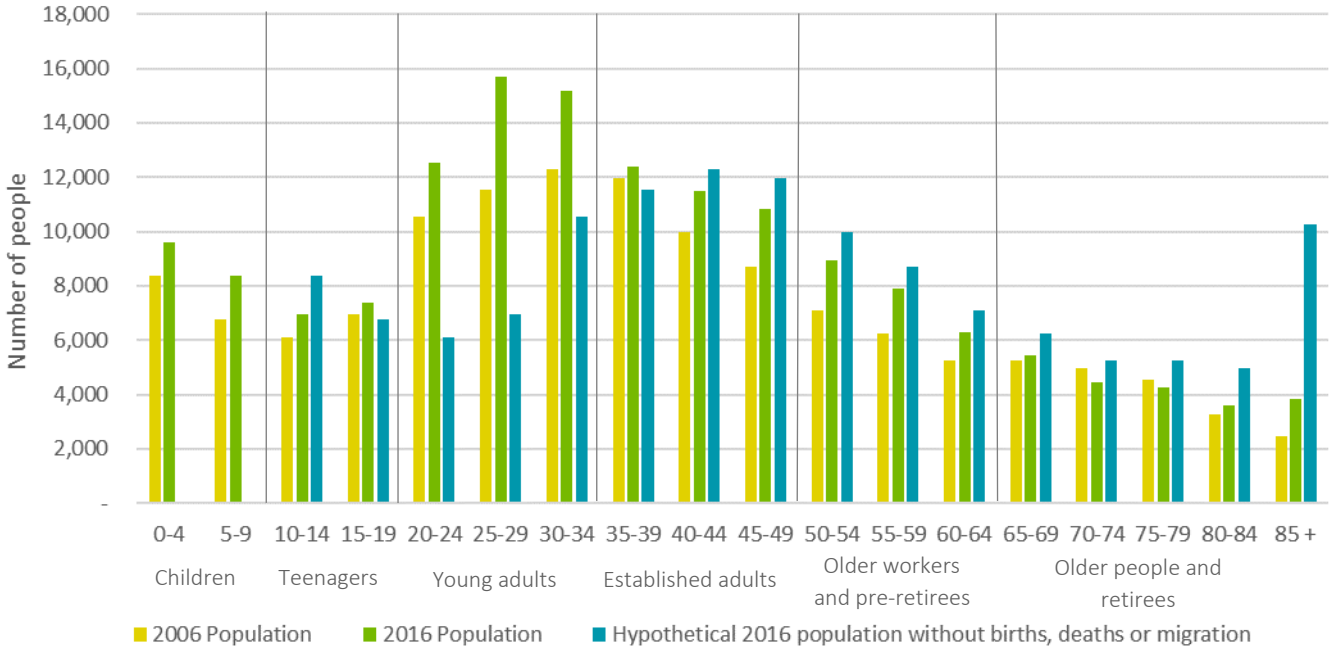
FIGURE 26: DAREBIN'S POPULATION AGE PROFILE COMPARED WITH GREATER MELBOURNE'S (2016)

Source: ABS Census 2016

Darebin's age profile and how it changed between 2006-2016 is shown in Figure 27 overleaf. This figure contains an additional bar in which the 2006 population is moved forwards ten years. This shows what the population would have been in 2016 if the existing population had aged and no births, deaths or migration had occurred. Comparing this bar with the actual population in 2016 shows the impact that people moving in and out of Darebin, along with births and deaths, has had on the population.

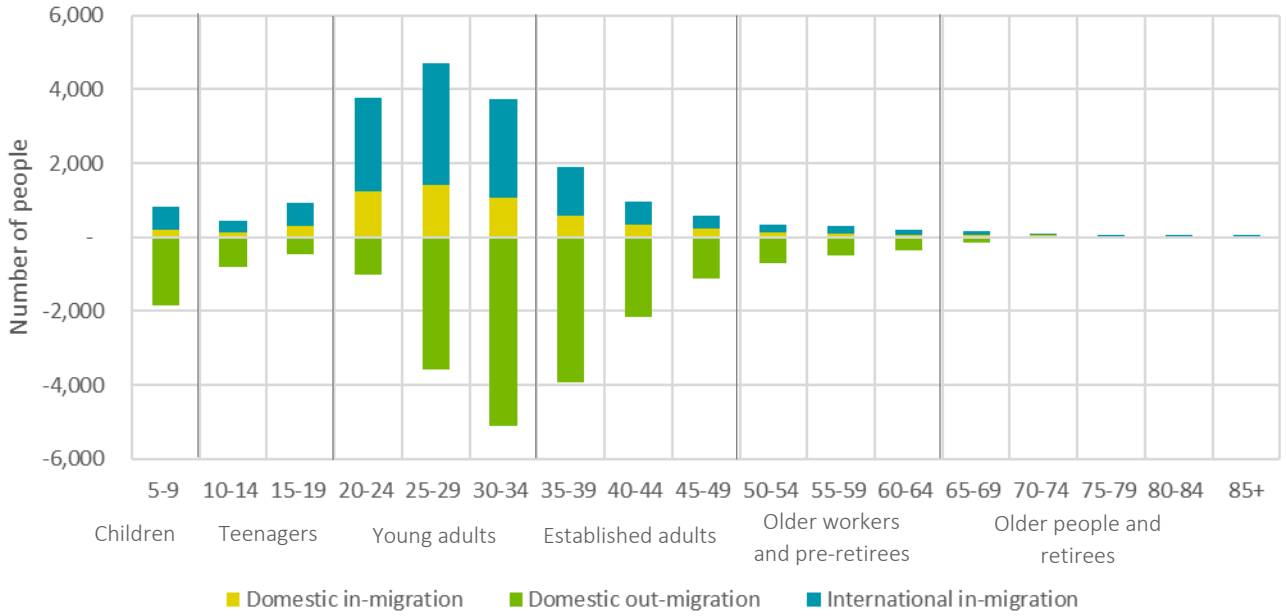
Additional context is provided by Figure 28 (also overleaf), which shows how many people moved to Darebin from overseas, and how many moved in and out of Darebin to and from other parts of Australia between 2011-2016. It is not possible to say how many people moved overseas from Darebin as the ABS census only records people living in Australia.

FIGURE 27: THE AGE DISTRIBUTION IN DAREBIN AND HOW RECENT CHANGE COMPARES TO A HYPOTHETICAL SITUATION WITHOUT BIRTHS, DEATHS OR MIGRATION



Source: ABS Census 2006, 2016

FIGURE 28: MIGRATION TO AND FROM THE DAREBIN LGA BY AGE BETWEEN 2011-2016



Source: ABS Census 2011, 2016

The following observations can be made about different age groups in Darebin:

- There was some growth in the number of **children** between 2006-2016, which kept pace with population growth as there was little shift in the proportion of the population made up by children. This indicates that some young families are likely to be moving to the area, and some young people are staying in the area to start a family.
- **Teenagers** remained a roughly constant part of the population, but are less common than children, and there were less peopled aged 10-14 in 2016 than would have been expected, indicating that some families move out of the area as their children age.
- The number of **young adults** grew strongly between 2006-2016 both in absolute numbers and proportion of the population, well in excess of what would be indicated by the aging of the population. They are the largest demographic group in Darebin, and are the typical demographic for high density and group households, which also experienced strong growth between 2006-2016. Continued high density development will favour this young demographic.
- **Established adults** represent a transitional age between young adults and older workers and pre-retirees, with almost no growth in the number of people aged 35-39 compared with strong growth in younger demographics and moderate growth for people aged 45-49 and older. This is a result of more people aged 35-39 than 40-49 moving out of Darebin to other parts of Australia, coupled with decreased domestic and international in-migration compared with younger demographics. Buying a home in Darebin may be difficult for people 30-39 (an age at which many people buy a first home) given recent dwelling price rises and the resulting unaffordability of housing to purchase.

  While the population aged 40-49 grew moderately, this growth was lower than under the hypothetical scenario, with net out migration from Darebin in these age groups. This is consistent with the low growth in the number of teenagers, as some people move out of the Darebin LGA to provide more space for their families.
- The prevalence of **older workers and pre-retirees** declines as age increases in Darebin. The number of people in this category grew moderately in absolute terms and very slightly in proportional terms between 2006-2016 as the population aged. However, deaths and some net out migration led to a lower 2016 population than would have been seen if everyone had stayed in Darebin.
- **Older people and retirees** are the least common group in Darebin, although they have a similar prevalence to this group across Greater Melbourne (as shown in Figure 26 at the start of this section). Relatively few people in this group move dwellings, with low in and out migration figures

  While the number of people in this group grew between 2006-2016, this growth has not kept pace with growth in younger demographic groups. The number of people aged 85+ was much less than the hypothetical population as a result of deaths, although population aging led to the prevalence of people aged 85+ growing slightly.

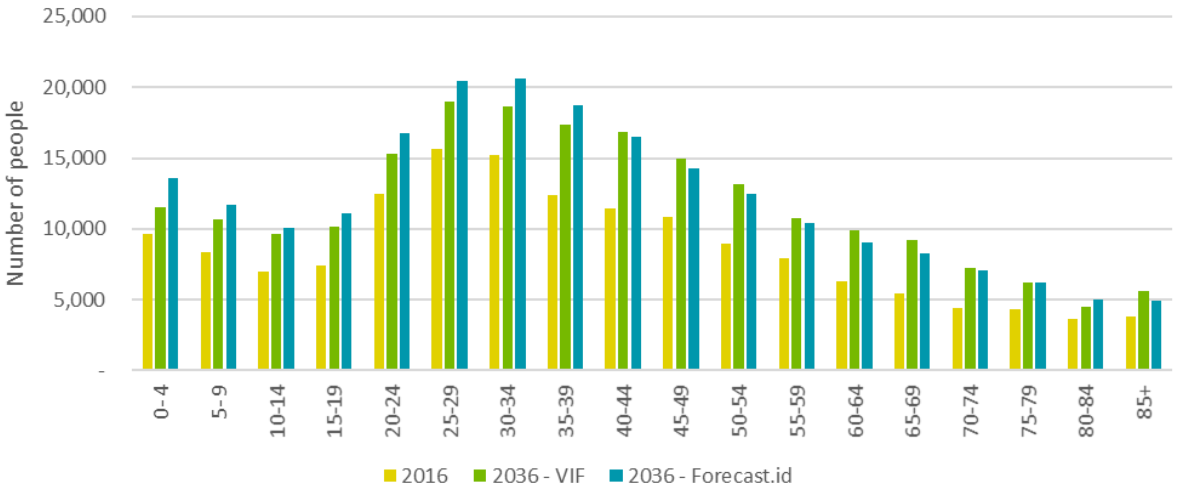
Figure 28 shows Darebin to host significant amounts of international migration. Most of these migrants live in Reservoir or Preston, increasing the cultural diversity of these areas. The high level of international immigration into Preston and Reservoir was coupled with 2011-2016 with people moving out of Darebin to other parts of Melbourne or Australia, although the population grew overall. Similar dynamics are not present in the Lower Area, which hosts fewer recent immigrants.

Immigration is likely to be reduced in the short and possibly medium term as a result of COVID-19. Given the high level of immigration to Darebin from overseas, a reduction in immigration is likely to reduce demand for new housing, particularly in Preston and Reservoir where many of the immigrants live.

Forecast

The forecast population age profile of Darebin in 2036 is compared with the current profile in Figure 29, with both the VIF and Forecast.id profiles shown. Both projections predict that the number of people in every age bracket will grow between 2016-2036, with young people between 20-35 remaining the most common group in the future. If either of these projections eventuate, it will be important that housing diversity continues to be provided in Darebin, with new dwellings catering to people across the age spectrum.

FIGURE 29: CURRENT AND FORECAST POPULATION AGE PROFILE IN THE DAREBIN LGA

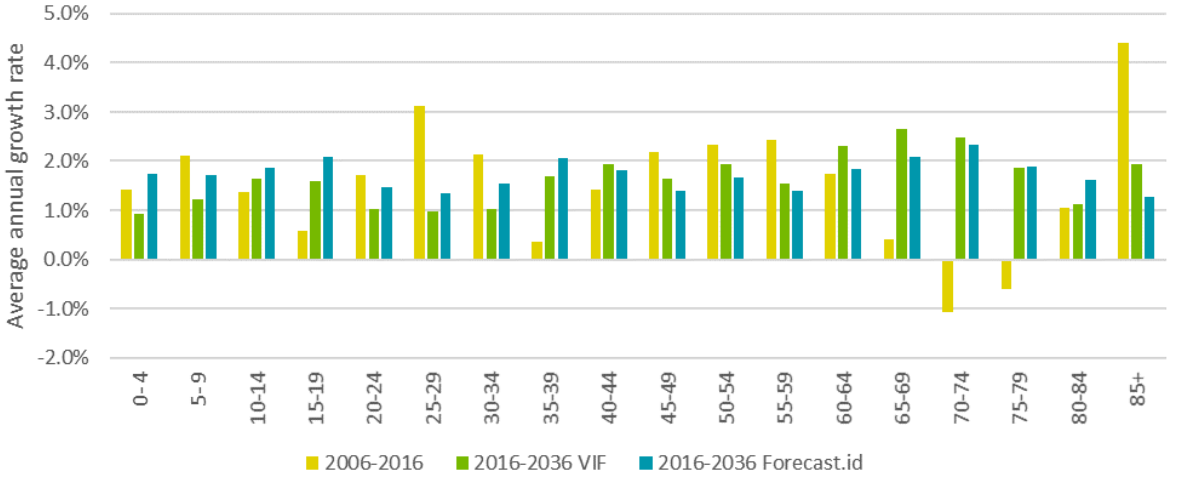


Source: ABS 2020, Quarter Population Estimates (ERP), Department of Planning 2019, Victoria in Future, Forecast.id

More information on the difference in the population projections and how they compare to recent rates of population growth across the age spectrum is shown in Figure 30. This Figure charts how the forecast population growth rate by age compares with the observed rate between 2006-2016.

The Forecast.id projection has higher growth rates for younger people and lower growth rates for older people than the VIF projection, although in both cases average annual growth rates are expected to be highest for people aged 60 and higher and lower for people aged 20-34. This is not consistent with what was observed between 2006-2016, when construction of high density dwellings and demographic shifts led to a rapid increase in the number of younger people. Unless housing development patterns, housing preferences and migration patterns shift, it is likely that there will continue to be strong growth in the number of younger people, above that predicted by VIF and Forecast.id.

FIGURE 30: RECENT AND FORECAST POPULATION GROWTH RATES BY AGE IN THE DAREBIN LGA



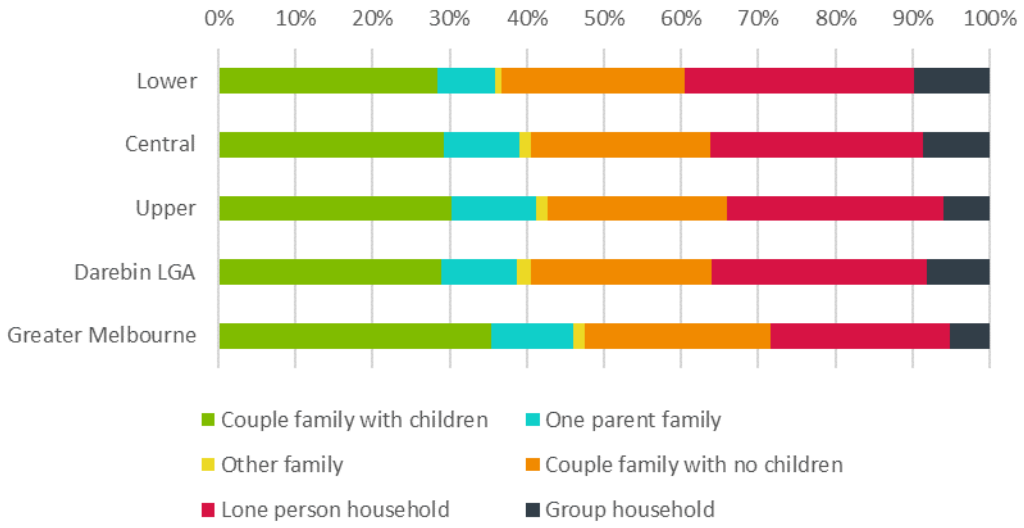
Source: ABS 2020, Quarter Population Estimates (ERP), Department of Planning 2019, Victoria in Future, Forecast.id

4.3 Darebin's households

The kinds of households living in the Darebin LGA (and the comparison area of Greater Melbourne) is shown in Figure 31. The Darebin LGA houses a wide variety of household types. Compared to Greater Melbourne, Darebin accommodates a greater proportion of group households (8% vs 5%) and lone person households (28% vs 23%), and a lower proportion of couple families with children (29% vs 35%).

Household composition varies across the Darebin LGA, with the Upper Area the most like Greater Melbourne and containing the highest proportion of couples with children and one parent families (41% combined) and the lowest proportion of group households (6%). The Lower Area is the least like Greater Melbourne, with the highest proportion of group households (10%) and the lowest proportion of couple families with children and one parent families (36% combined). Despite these variations, there is a broad demographic mix in each of the Upper, Central and Lower areas.

FIGURE 31: HOUSEHOLD TYPE COMPOSITION (2016)



Source: ABS Census 2016

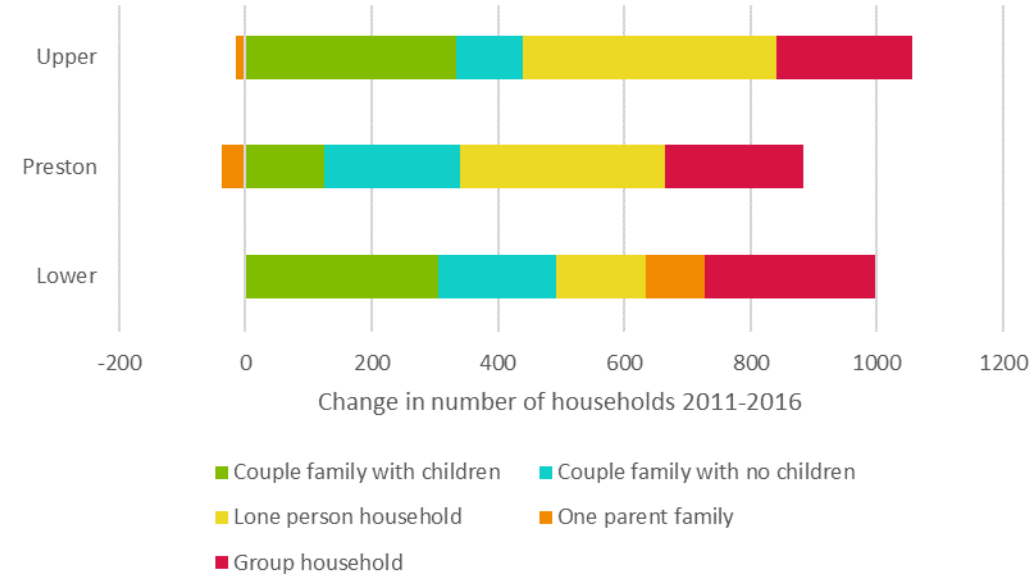
Change in household composition

Between 2011 and 2016 the number of households in the Darebin LGA grew by 4,111, with the breakdown of this growth by household type in each part of the LGA shown in Figure 32 (note that Figure 25 does not include households that could not be classified, so the total change shown adds up to less than 4,111).

Between 2011-2016, the number of households of every type except single parent households grew in the Darebin LGA. The household types which increased the most were lone person households (952) and couples with children (822). The number of group households increased the most in proportional terms, growing by 18% compared to 7% for lone person households and 5% for couples with children.

In line with the diverse dwelling stock delivered across the Darebin LGA between 2006-2016 (shown in Section 2.3), a diverse range of households moved to each part of the LGA during this period. The Lower Area saw the greatest increase in group households, while the Upper Area saw the greatest increase in couple families with children as well as lone person households.

FIGURE 32: CHANGE IN NUMBER OF HOUSEHOLDS 2011-2016



Source: ABS Census 2011, 2016

Household size

The average number of people living in each dwelling in different parts of the Darebin LGA is shown in Table 13. Average household sizes are lower in the Darebin LGA than in Greater Melbourne for every dwelling type, consistent with the reduced dwelling size in Darebin compared to Greater Melbourne discussed in Section 2.2.

TABLE 13: AVERAGE HOUSEHOLD SIZES BY DWELLING TYPE (2016)

Area	Separate house	Medium density	High density
Lower	2.80 (+0.17)	1.90 (+0.16)	1.63 (+0.15)
Central	2.74 (+0.06)	2.12 (+0.15)	1.78 (+0.24)
Upper	2.70 (-0.03)	2.05 (+0.13)	1.63 (-0.11)
Darebin LGA	2.76 (+0.06)	2.08 (+0.16)	1.74 (+0.11)
Greater Melbourne	2.93 (+0.05)	2.22 (+0.24)	1.80 (+0.07)

Source: SGS 2020, ABS Census 2016

Note: Changes since 2006 are shown in brackets.

Across the Darebin LGA, the average size of households living in separate houses is substantially larger than that for medium density dwellings, which is substantially larger than the average size for high density dwellings. The average number of people in medium and high density dwellings in the Darebin LGA increased substantially between 2006-2016, reflecting a likely change in the average age and size of dwellings as well as decreasing affordability.

Average household size increased for almost all dwelling types in each area profiled. This is likely to reflect decreasing housing affordability, leading to people putting off forming a new household or sharing with more people in a household (this is also discussed in the following section). The exceptions to this trend are separate houses in the Upper Area, which is likely to be due to the aging of the population in parts of the Upper Area leading to older couples and singles being more prevalent, and high density in the Upper Area, where the low number of dwellings in 2011 may mean that this statistic is not highly reliable.

Affordability pressures are likely to be particularly acute in the Lower Area, where the average household size in separate houses increased by 0.17, giving it the highest average household size of any part of the LGA. By contrast, the Lower Area has relatively small average household sizes in medium and high density dwellings, reflecting the low average number of bedrooms in this area compared to other parts of the LGA.

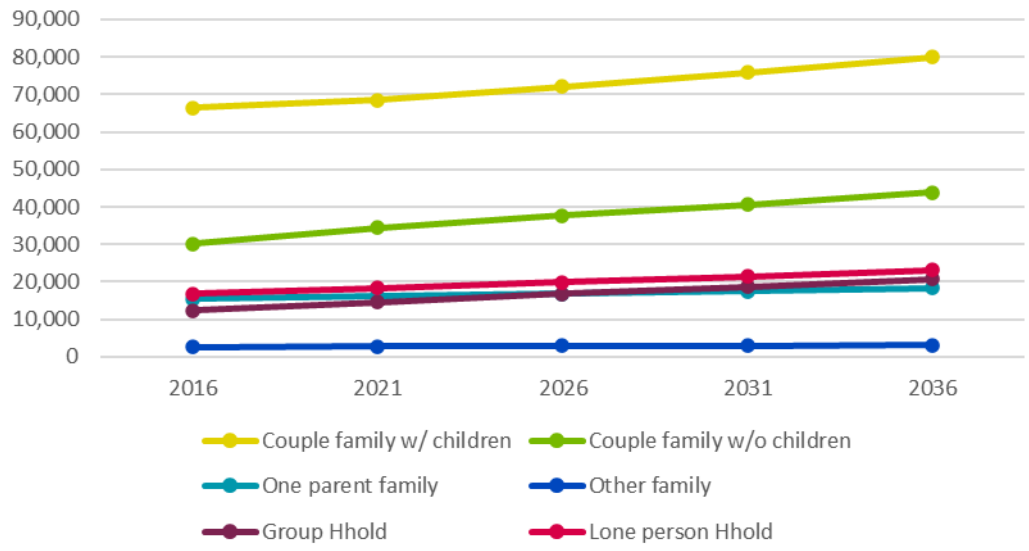
The Central Area also saw large increases in average household sizes for medium and high density dwellings, while the Upper Area saw an increase only for medium density. There were few high density dwellings in 2006 in the Central or Upper Area and so some fluctuation in household size is to be expected as the average size and age of dwellings changes.

4.4 Household projections

Population by family type

Figure 33 depicts the forecast population by household type from 2016 to 2036. Over this time the number of people in every household type is expected to grow.

FIGURE 33. FORECAST POPULATION BY HOUSEHOLD TYPE IN THE DAREBIN LGA, 2016 TO 2036



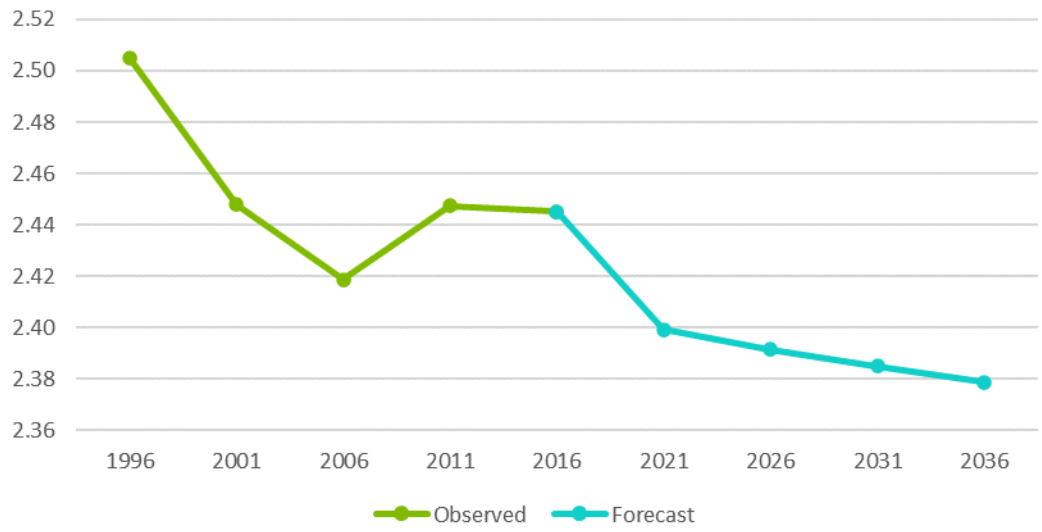
Source: SGS 2020

The highest numerical levels of growth are expected for people in couple families without children, and couple families with children, increasing by around 13,500 each or 20% and 45% respectively. The highest proportional rates of growth are expected for people in group households (an increase of around 8,440 people of 69%).

Household size

Historic average household sizes in the Darebin LGA were calculated from the ABS Census, and are shown along with forecast sizes in Figure 34. The household size in the LGA decreased between 1996-2006 before rising between 2006-2011 and then remaining relatively constant from 2011-2016. SGS's model forecasts the average household size to continue to decrease relatively slowly in the future.

FIGURE 34: AVERAGE HOUSEHOLD SIZE PROJECTIONS FOR THE DAREBIN LGA



Source: SGS 2020, ABS Census 1996, 2001, 2006, 2011, 2016

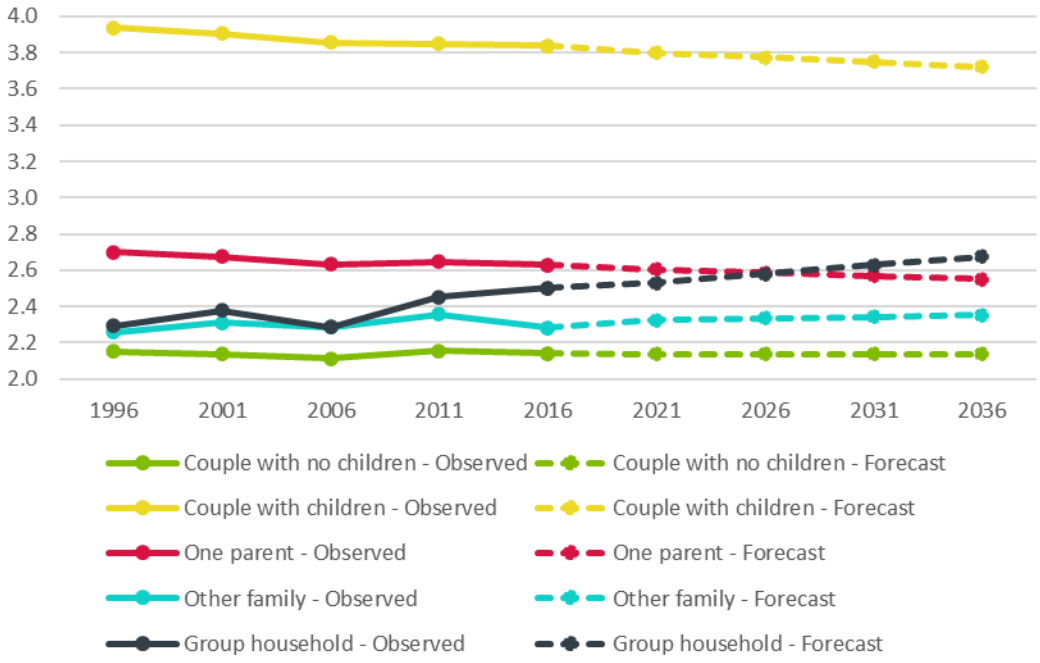
Over the long term, household sizes are expected to decrease as a result of diversification and shrinking of household types (couples with children make up a smaller proportion of households today than they have historically, and people are having less children on average than in the past). An increase in household size despite these trends, such as seen between 2006-2011 in Darebin, can be a result of people putting off forming a new household in response to declining housing affordability.

The observed and expected household size for each type of household in the Darebin LGA is shown in Figure 35 (lone person households are not shown). While the average size of couple with children households and one parent households are declining over time, the average size of group households and other families is increasing. Group households often contain young people who have not purchased a dwelling, and so increase in the average size of group households is consistent with declining affordability for younger people.

As SGS's modelling is based on long term demographic trends, overall household size in the Darebin is forecast to decrease in the future. This is driven by the expected household type makeup of the population, and by decreases in the household sizes for couples with children and one parent families. However, the average size of group households and other families is expected to increase.

Continued unaffordability could lead to future increases in household size, meaning that fewer dwellings are required to house Darebin's population. However, Council should not adopt this scenario as the baseline to plan for how much housing Darebin will need in the future, as this would creates a risk of constraining housing supply, reinforcing a lack of affordability (although other factors than housing supply also impact on housing affordability).

FIGURE 35: POPULATION SIZE BY HOUSEHOLD TYPE IN THE DAREBIN LGA

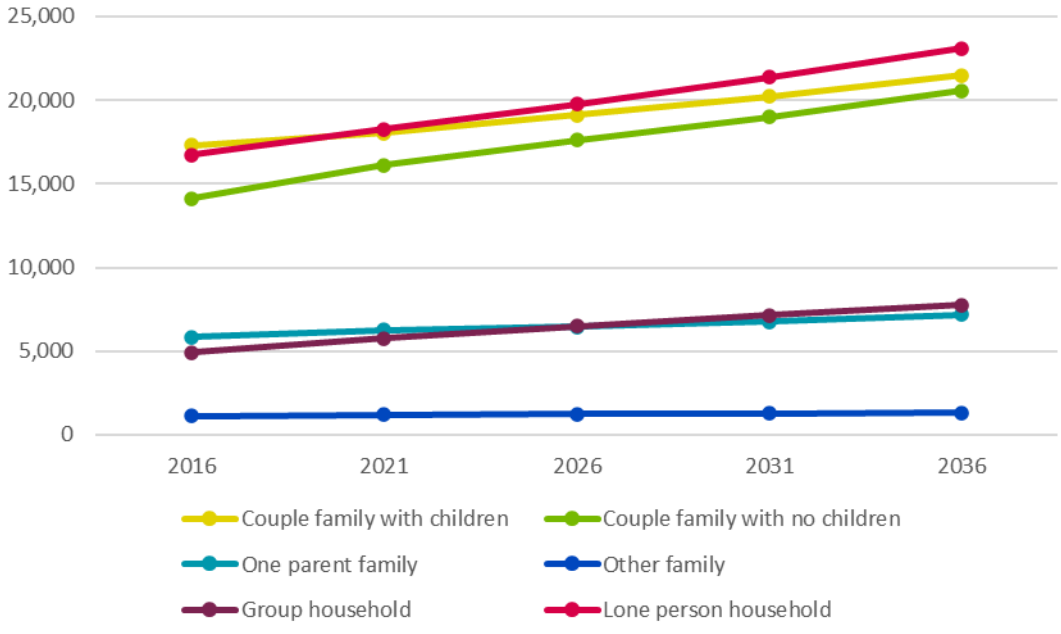


Source: SGS 2020, ABS Census 1996, 2001, 2006, 2011, 2016

Number of households by family type

Figure 36 shows the forecast *number* of households by family type from 2016 to 2036 (this is calculated by dividing the population by the forecast household size). Couple families with children are currently the most common household type, with slightly higher numbers than lone person households. However, by 2021 (and into the future) lone person households are expected to be the most common, with the number of couple families without children also growing more quickly than couple families with children.

FIGURE 36. FORECAST NUMBER OF HOUSEHOLDS BY TYPE IN THE DAREBIN LGA, 2016 TO 2036



Source: SGS 2020

While couple families with children are expected to make up a lesser proportion of Darebin's households in the future, their number is still expected to grow by 4,168 or 24% between 2016-2036. Medium density dwellings are likely to be suitable to house these families, but if few are constructed in the southern part of the LGA the increase in the number of families with children may be confined to the northern part of the LGA.

The number of group households in Darebin LGA is expected to rise significantly, overtaking the number of one parent families. This is a result of two factors:

- The number of young adults in the LGA increasing (young adults are more likely than other age groups to live in group housholds), and
- The proportion of people living in group households increasing – between 1996 and 2016 the proportion of people aged 25-34 living in a group household increased from 9.0% to 17.5%.

The increasing prevalence of group households is likely to be in part a result of decreasing housing affordability in the Darebin LGA, leading to a greater proportion of people living with others in order to save on housing costs.

Continued housing diversity is also important to cater to other household types, all of which are smaller on average than couples with children. One parent families and other families may have similar housing requirements to couples with children. Smaller household types are less likely to require large dwellings with multiple bedrooms, but a portion are likely to prefer an attached dwelling or one with several bedrooms to a smaller apartment in a high density development.

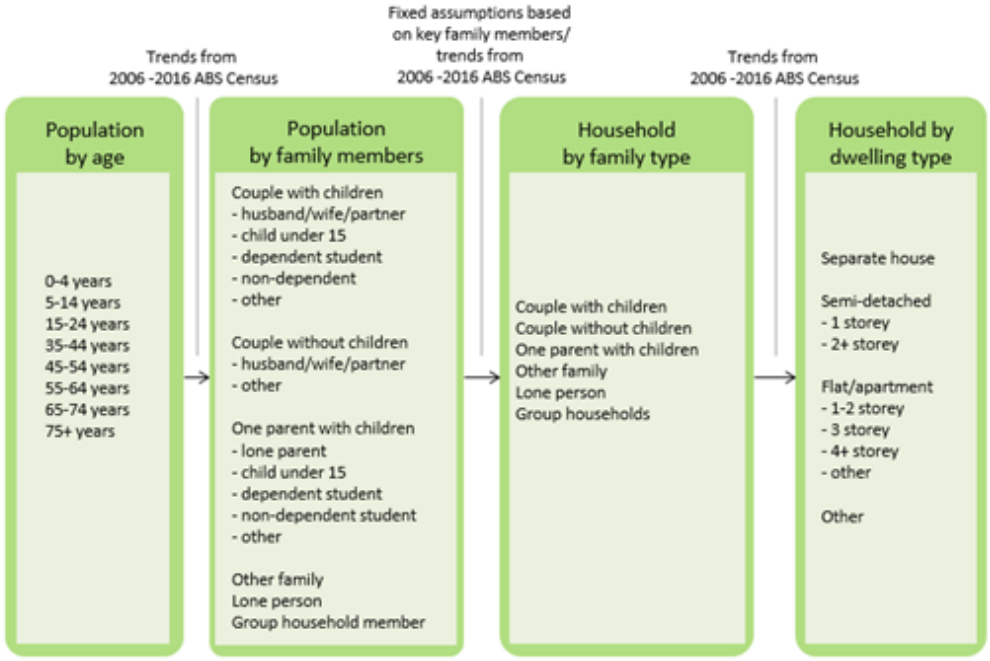
5. HOUSING DEMAND

5.1 Housing demand method

The analysis in this section draws a upon a range of datasets summarised in Chapter 4, including population growth projections and trends in population age, family and household types. Building upon these projections and demographic factors, SGS's Housing Demand determines how many new dwellings of each type will be required in the Darebin LGA in the future.

The operation of SGS's housing demand model is shown in Figure 37. Projections for population growth by age in five-year periods are converted to number of households by type using demographic trends. Trends in revealed housing preferences are used to convert these projections into requirements for number of dwellings in the future.

FIGURE 37: SGS HOUSING DEMAND MODEL METHOD



Source: SGS 2020

5.2 Housing preferences

The proportion of each household type who lives in each dwelling type is commonly referred to as *revealed housing preferences*. As people are constrained in the kinds of housing available and affordable and so must make trade-offs when choosing where to live, revealed preferences can differ from people's ideal (unconstrained preferences). People may also wish to stay in their current dwelling, even if it differs from their ideal preference.

Factors which influence revealed preferences include what kinds of dwellings households would like to live in, what kinds of dwellings are available and how affordable those dwellings are. Revealed preferences evolve over time as these variables change, as well as in response to shifts in local demographics.

Revealed preferences across the Darebin LGA as well as in Greater Melbourne are shown in Figure 38 on page 59. Following this, recent changes in revealed preferences in the Darebin LGA along with SGS's forecasts of how they could shift in the future are shown in Figure 39 on the following page.

Compared to Greater Melbourne, households of all types in Darebin are more likely to live in medium density dwellings and less likely to live in separate houses or apartments, reflecting the different dwelling mixes in the LGA compared to Greater Melbourne. Similarly, households in the Lower Area are more likely to live in separate houses while those in the Upper Area are more likely to live in separate houses.

Over time, the proportion of people living in separate houses is expected to decrease for all household types, while the proportion of households living in medium and high density dwellings is expected to increase.

The following observations can be made regarding preferences for different household types.

Couples families with children

Couple families with children are the most likely household type to live in a separate house (76% of households), and very few live in high density dwellings (1%). There is little variation in this preference across the LGA (varying between 75% in the Lower Area and 79% in the Upper Area), but Figure 39 shows an increasing preference for medium density over time, with a larger change between 2011-2016 than in previous years.

One parent families and other families

One parent families and other families are the next most likely household types to live in a separate house (68% and 57% respectively). Over time, these households are becoming more likely to live in medium and high density dwellings, although only a small proportion live in high density dwellings currently (3% and 6% respectively).

Couples without children

The proportion of couples with no children living in separate houses has seen the most steady decline of any household type since 1996 (from 78% to 57%). If this trend continues in the future (as modelled), only 32% of households will live in a separate house by 2036 compared with 53% in medium density and 14% in high density. The proportion of these households living in separate houses varies substantially in different parts of the LGA (47%, 58% and 68% in the Lower, Central and Upper areas respectively), with more young couples further south and more older couples living in separate houses further north.

Lone person households

The most common dwelling type for lone person households is medium density, followed closely by separate houses. Trends show growth in medium density and high density as housing choices for this group. If this continues the proportion of these households living in

high density dwellings is expected to increase to 14% by 2036, and the proportion in medium density to increase to 49%.

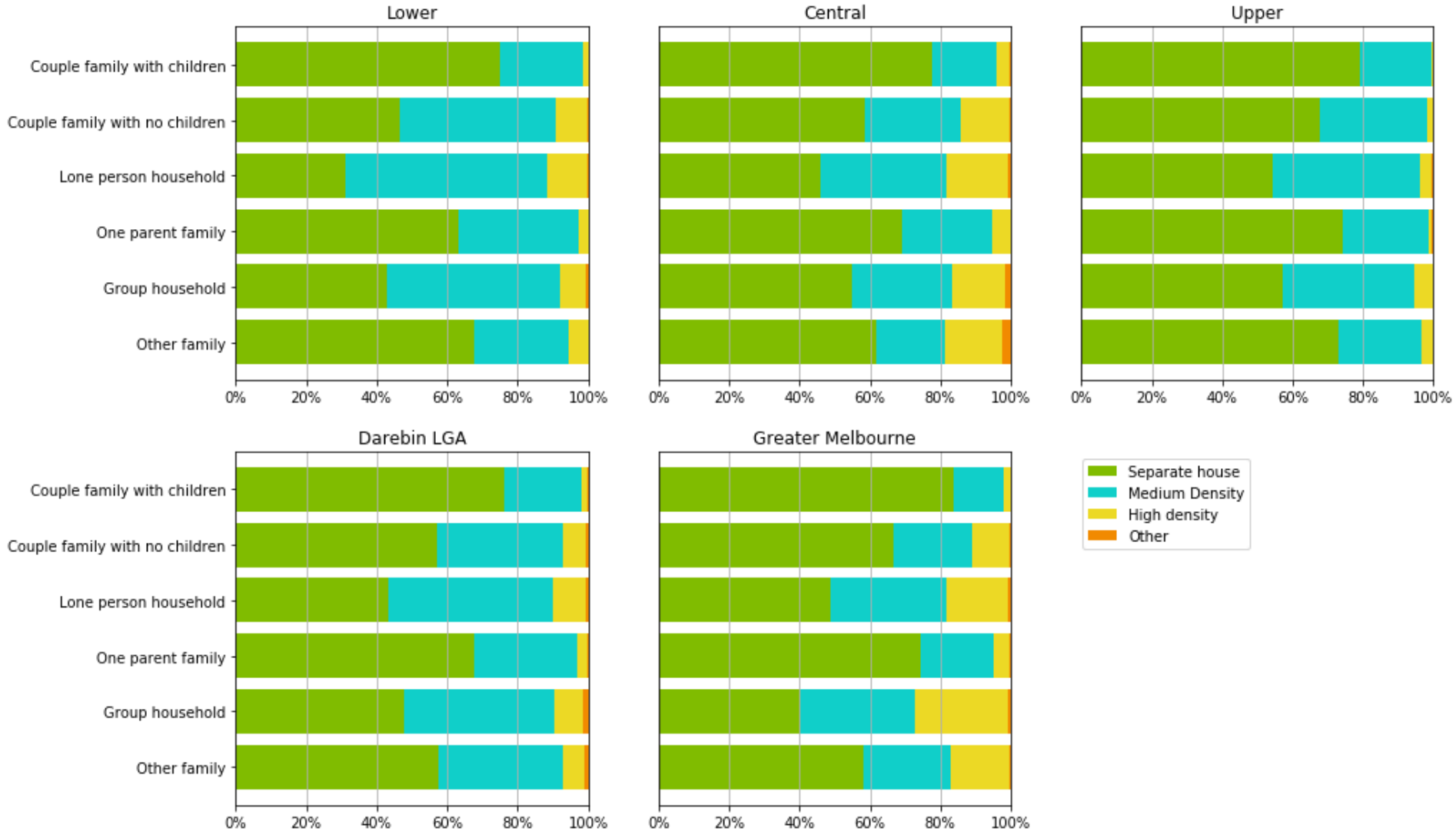
Housing preferences for lone person households are likely to vary depending on the age of the person, as older people may want to stay in a separate house they have lived in for some time. As with couples with no children, this results in substantial variation in preferences across the LGA (31%, 46% and 54% in separate houses in the Lower, Central and Upper areas respectively), with more younger lone person households in the Lower Area, and more older lone person households in the Central and Upper areas

Group households

Group households are most likely to live in separate houses followed by medium density, with a smaller but increasing proportion in higher density dwellings. Group households in the Lower Area are much less likely to live in a separate house than those in the Central or Upper areas (43% vs 55% and 57% respectively), and much more likely to live in a medium density dwelling. Over time group households are becoming more likely to live in medium or high density, with medium density expected to be the most common housing type for these households by 2031.

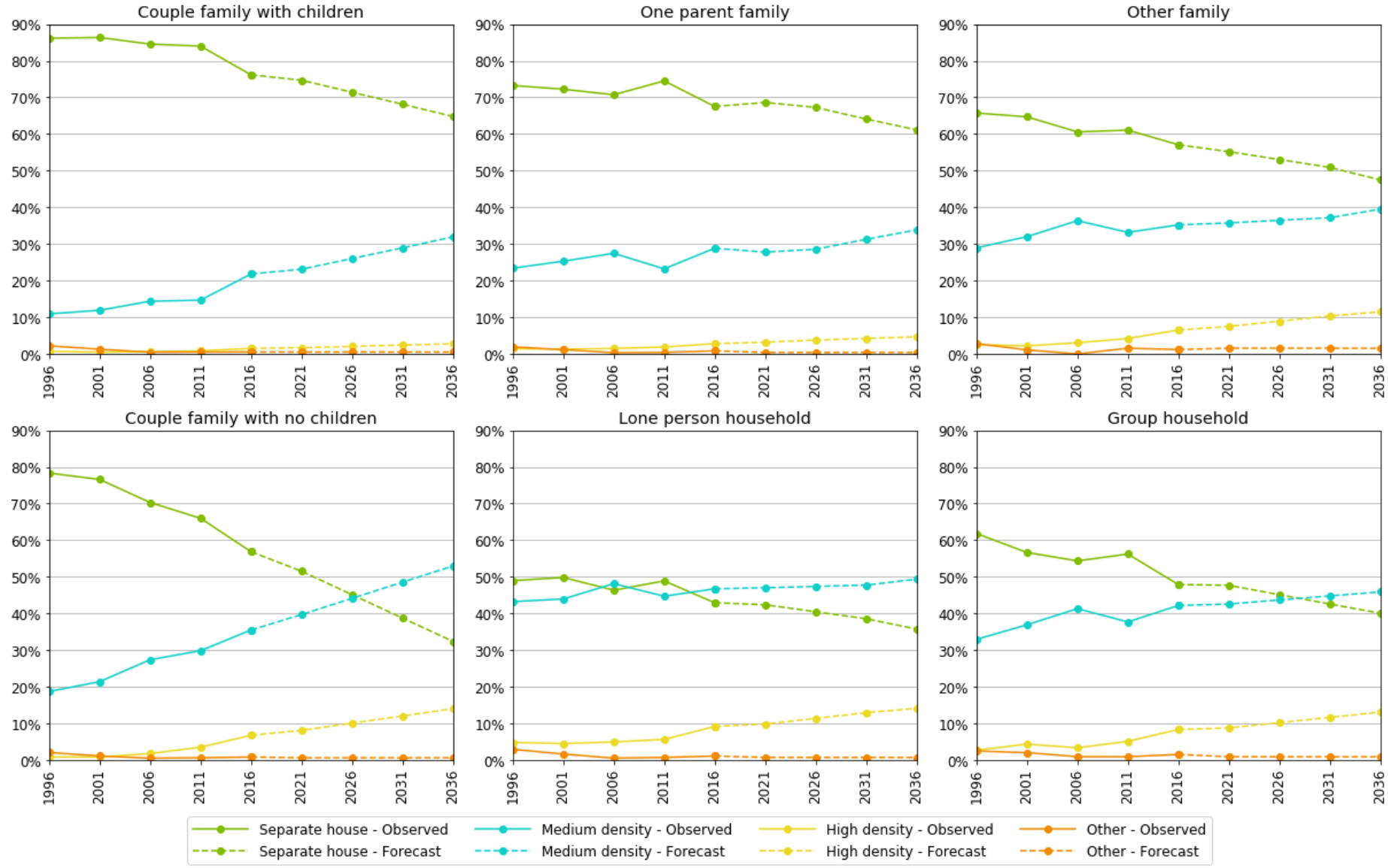
In all cases only a relatively small proportion of households live in high-density dwellings. Growth in this proportion could outpace the trend-based forecasts shown in Figure 39 if more of these dwellings are provided than other dwelling types, but current preferences show that this would cater better to couples without children, lone person households and group households than to families, changing the likely future household composition discussed in Section 4.4.

FIGURE 38: VARIATION IN 2016 REVEALED DWELLING PREFERENCES ACROSS THE DAREBIN LGA AND COMPARED TO GREATER MELBOURNE



Source: SGS 2020, ABS Census 2016

FIGURE 39: OBSERVED AND FORECAST REVEALED DWELLING PREFERENCES, DAREBIN LGA



Source: SGS 2020, ABS Census 1996-2016

5.3 Housing demand result

Demand results

Combining shifts in revealed housing preferences with forecast growth by household type allows housing demand by dwelling type to be estimated. This is shown in Table 14 for the Darebin LGA. Forecast housing demand is also shown compared to recent housing development in Figure 40.

Between 2016 and 2036, around 26,775 additional dwellings are forecast to be needed in the Darebin LGA, an annual average growth rate of 1.78%. In line with past trends, the majority of this demand (62%) is forecast to be for medium density, although the average annual growth rate of high density demand is forecast to be around double that of medium density. As there is likely to be limited scope to accommodate new separate houses in the Darebin LGA, the demand for 2,420 additional separate houses is likely to be taken up by additional larger medium density dwellings.

As shown in Figure 40, this demand forecast represents a continuation in future years of the rates and kinds of development seen between 2011-2016.

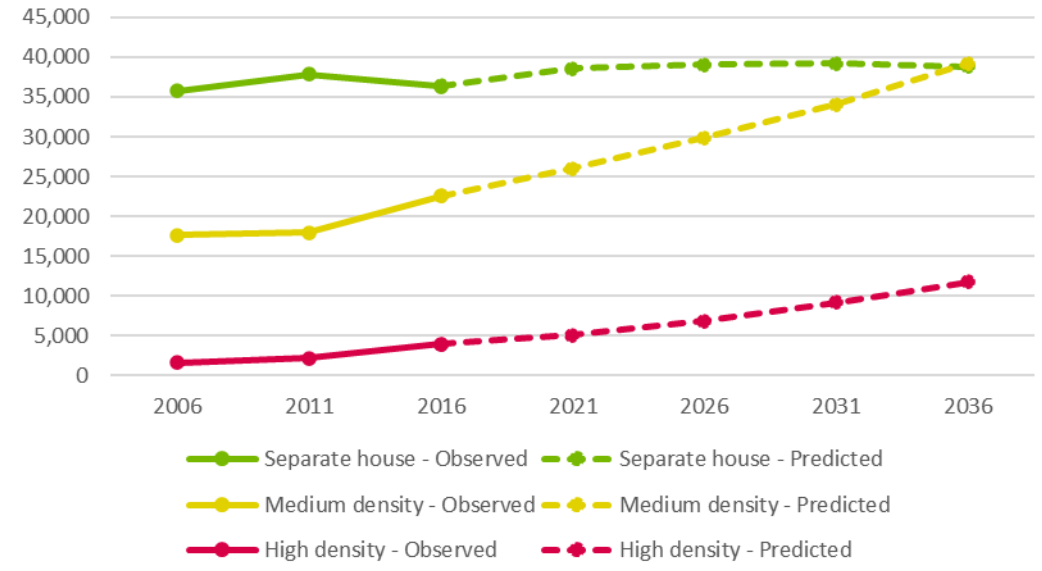
TABLE 14: DWELLING DEMAND BY DWELLING TYPE, DAREBIN LGA, 2016-2036

Dwelling type	2016	2021	2026	2031	2036	Change 2016-2036	Average annual growth rate
Separate house	36,413	38,560	39,096	39,204	38,834	2,421	0.32%
Medium density	22,644	26,023	29,879	34,094	39,204	16,560	2.78%
High density or other dwelling	4,409	5,403	7,261	9,605	12,228	7,819	5.23%
Total Private Dwellings	**63,467**	**69,987**	**76,236**	**82,902**	**90,266**	**26,800**	**1.78%**

Source: SGS 2020

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

FIGURE 40: HOUSING DEMAND FORECASTS FOR THE DAREBIN LGA



Source: SGS 2020

Table 15 shows the future housing demand forecast broken down by number of bedrooms instead of dwelling type. The greatest additional demand is expected to be for two bedroom dwellings, followed by four or more bedrooms. The average annual growth rate in demand for studios and dwellings with one, two or four or more bedrooms is expected to be similar, and to outpace the growth rate in demand for three bedroom dwellings. This reflects the large number of two bedroom medium density dwellings that have been built recently, as discussed in Section 2.3.

The increase in the number of four or more bedroom dwellings predominately reflects recent trends in which existing separate houses have been replaced with larger separate houses or renovated to increase the number of bedrooms (this can be seen in Figure 10 in Section 2.3). As this is expected to continue in the future, and more families are expected to live in Darebin, more dwellings with four or more bedrooms will be needed. Some of these dwellings also house other types of households, such as group households.

TABLE 15: DWELLING DEMAND BY NUMBER OF BEDROOMS, DAREBIN LGA, 2016-2036

Dwelling type	2016	2021	2026	2031	2036	Change 2016-2036	Average annual growth rate
No or one bedroom	6,668	7,646	8,761	9,941	11,218	4,550	2.64%
Two bedrooms	21,385	23,894	26,677	29,837	33,612	12,227	2.29%
Three bedrooms	25,725	26,974	27,691	28,417	29,176	3,451	0.63%
Four or more bedrooms	9,688	11,473	13,106	14,707	16,260	6,571	2.62%
Total Private Dwellings	**63,467**	**69,987**	**76,236**	**82,902**	**90,266**	**26,800**	**1.78%**

Source: SGS 2020

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

As this housing demand forecast is trend based, it represents a scenario in which the housing market in the future continues to evolve in the way and at the pace it is currently evolving. However, if shifts in housing preferences accelerate in the future or a particular kind of development becomes more common (for example high density development outpaces medium density), actual dwelling demand may differ from the results shown in Table 14. Similarly, people may be willing to substitute one housing type for another, for example choosing to live in a high density dwelling instead of a medium density dwelling of a similar size.

Table 15 provides a guide as to the kinds of dwelling substitutions that may occur. Both apartments and townhouses commonly have two bedrooms, and so some of the medium density demand may be taken up by additional high density dwellings. Both separate houses and townhouses may have four or more bedrooms, and so larger dwellings of these types may be substitutable.

5.4 Adjusted housing demand forecast

SGS analysed data from Cordell Connect to determine how many dwellings and of what types are likely to have been completed between 2016 and 2020. This is the same data source used to provide data about the development pipeline in Section 3.1. It is a list of development projects compiled in consultation with the development industry. More details regarding the origin and content of this data are provided in Section 3.1. This data shows that while dwelling development in Darebin overall since 2016 is unlikely to have exceeded demand projections, substantially more high density development than anticipated has occurred (see Table 16 below).

TABLE 16: MISMATCH BETWEEN MODELLED HOUSING DEMAND AND OBSERVED DEVELOPMENT BETWEEN 2016-2020

		Separate house or medium density	High density or other dwellings	Total
Development likely to have been completed between 2016-early 2020	Lower	488	479	967
	Central	473	641	1,113
	Upper	936	514	1,450
	Total	1,897	1,633	3,530
Modelled additional housing demand between 2016-2021		**5,526**	**994**	**6,520**

Source: SGS 2020, Cordell Connect Database

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

Based on current data, modelled housing demand may underestimate the true demand for higher density dwellings. However, while modelled housing demand results are consistent with recent housing development rates, it appears that since 2016 development of high density housing has accelerated. This trend may not continue in the future as COVID-19 and a downturn in the housing market may dampen demand for high-density housing. Medium density development is also likely to be dampened somewhat, but as medium density projects are smaller they are less dependent on achieving very large numbers of sales before finance can be secured, and so are less susceptible to a downturn in the market. High density dwellings are also generally more targeted towards investors than medium density, and investors are likely to be much less willing to purchase a property during a housing market downturn.

To correct for the mismatch shown in Table 16, an adjusted housing demand projection was created which reallocates demand between medium and high density dwelling types while maintaining the demand profile by number of bedrooms (which is shown in Table 15 in Section 5.3). To perform this reallocation:

- 70% of demand for one bedroom medium density dwellings (likely to be low rise apartments) was reallocated to high density dwellings
- 40% of demand for two bedroom medium density dwellings (which is a common size for townhouses and apartments) was reallocated to high density apartments
- Slightly greater reallocations were applied between 2016-2021 to reflect the development profile shown in Table 16.

The resulting revised demand profile is shown in Table 17 below. Between 2016-2036, this reallocation drops likely additional demand for medium density dwellings from 16,560 to 11,474 and increases additional demand for high density or other dwellings from 7,754 to 12,840.

TABLE 17: ADJUSTED DWELLING DEMAND BY DWELLING TYPE, DAREBIN LGA, 2016-2036

Dwelling type	2016	2021	2026	2031	2036	Change 2016-2036	Average annual growth rate
Separate house	36,413	38,560	39,096	39,204	38,834	2,421	0.32%
Medium density	22,644	24,596	27,316	30,379	34,118	11,474	2.07%
High density or other dwelling	4,409	6,830	9,825	13,320	17,314	12,905	7.08%
Total Private Dwellings	**63,467**	**69,987**	**76,236**	**82,902**	**90,266**	**26,800**	**1.78%**

Source: SGS 2020

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

In combination, the two demand forecasts in Table 14 and Table 17 provide a range within which demand by dwelling type is likely to fall. The former projection is based on observed housing preference trends and demographic factors, while the latter modifies these to take account of more recent development rates.

5.5 Housing for older people

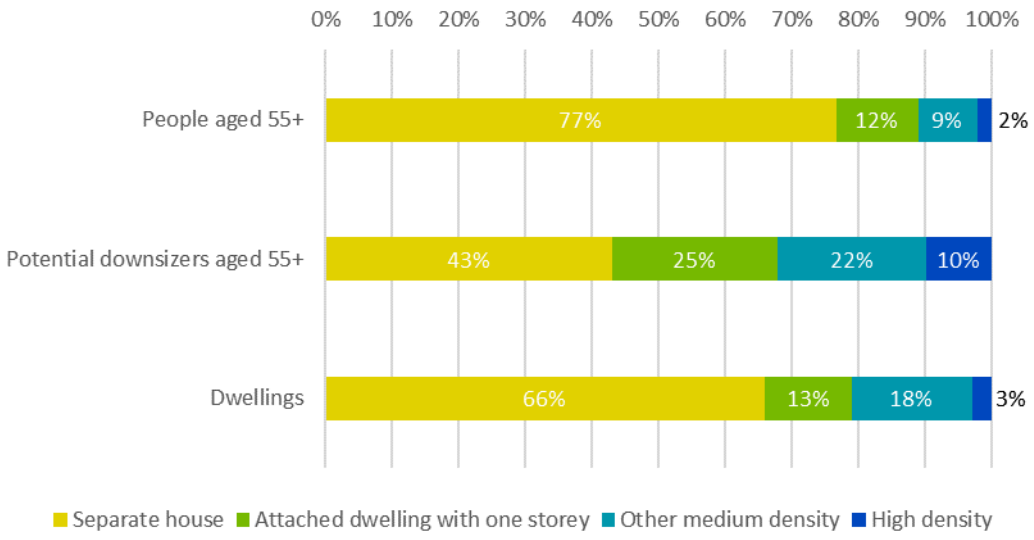
In the Darebin LGA, only 17 per cent of people aged 50-70 and 10 per cent of people aged over 70 in 2016 changed address between 2011-2016, compared to 36 per cent of the overall population. This indicates that people move dwellings less as they age and that there is a relatively limited demand for downsizing. There are a range of reasons for this beyond dwelling supply or suitability, including Victorian Government and Australian Government taxation policy.

The kind of housing occupied by people aged 55+ in the Darebin LGA is shown in Figure 41 below. This is the age range in which people can be thought of as wanting to downsize to a smaller dwelling more suited to their needs, potentially after children have moved out. The revealed housing preferences of all residents of private dwellings aged 55+, as well as those of 'potential downsizers'.

Potential downsizers have been estimated to be those aged 55 or older who changed address between 2011-2016 and who are living in a lone person or couple without children household rather than one in which a child or grandchild is provided care. There were approximately 2,375 of these people counted in the 2016 census.

Housing preferences in Figure 41 are compared with the overall dwelling mix in the LGA (for example, separate houses make up 66% of all dwellings, but house 77% of people aged 55+). If the housing preferences of older people or potential downsizers were no different from the LGA average, their revealed preferences would be expected to resemble the overall dwelling mix. Any difference between revealed housing preferences and the overall dwelling mix show what kinds of housing older people are more or less likely than average to prefer.

FIGURE 41: WHERE PEOPLE AGED 55+ LIVE, COMPARED TO OVERALL HOUSING MIX IN THE DAREBIN LGA (2016)



Source: ABS Census 2016.

Note that only people in private dwellings are shown

When compared to the overall dwelling mix in Darebin, people aged 55+ are more likely to live in a separate house, somewhat less likely to live in a medium density dwelling and very unlikely to live in a high density dwelling. However, potential downsizers have quite different revealed housing preferences. While separate house was still the category in which the most people who fit the criteria to be potential downsizers lived, medium density dwellings were also quite common, and some (although less) people live in high density dwellings.

Single storey attached dwellings (which are a kind of medium density dwelling) allow level access, so people can continue to move around their houses as they age. While attached dwellings with one storey are less common in Darebin than other medium density dwellings, they were a more popular choice for downsizers.

Recent research by the Australian Housing and Urban Research Institute (AHURI) found that[1]:

- 30 per cent of older Australians (those aged over 55) are considering moving housing in the next five years, a much higher proportion than moved between 2011-2016 in Darebin.
- Around 69 per cent would like to own a separate house,
- 50 per cent want a home with three bedrooms and 20 per cent want a home with four or more bedrooms.
- 85 per cent of people living in houses were found to be happy with their current dwelling type,
- 80 per cent want to own their own home.

AHURI did not ask people about whether they would prefer a townhouse or other attached dwelling. Nonetheless, the high levels of satisfaction with current dwellings for people in houses and the high proportion who would like to live in a separate house align with the large number of older people living in separate houses in Darebin.

Downsizing is likely to continue to play a relatively limited role in Darebin given the low proportion of older people who moved dwelling between 2011-2016. People are more likely to remain in their home until declines in their mobility or ability to carry out core daily activities requires them to move in with a relative, or into a nursing home or other aged care facility. Expected increases in the number of older people in Darebin will mean that more aged care facilities and nursing homes are likely to be required in the future.

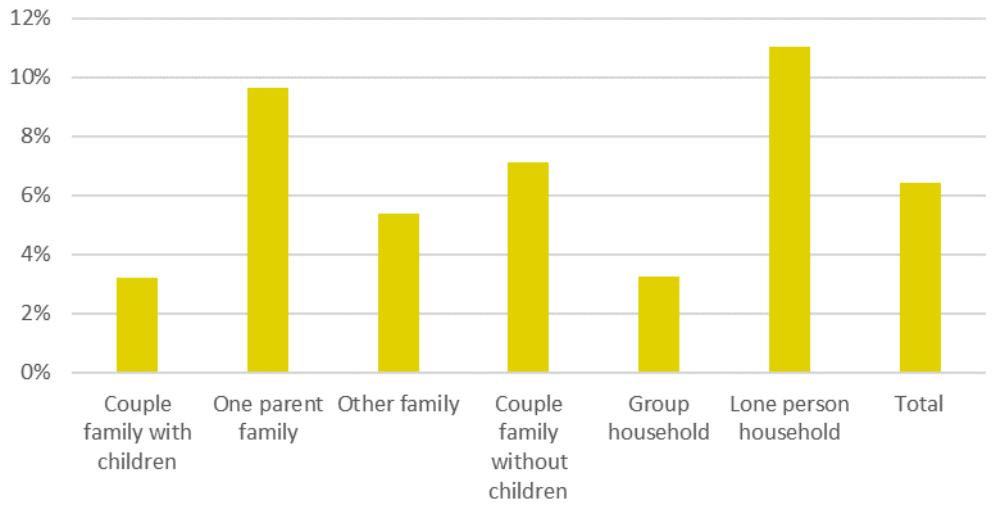
Ensuring that housing stock is available which meets older people's needs would provide opportunities for more older people to move. The preference for three bedroom dwellings expressed in the AHURI research, along with the prevalence of single storey attached and other medium density dwellings in the revealed housing preferences of downsizers, suggests that attached dwellings and large apartments could substitute demand for separate houses.

[1] Australian Housing and Urban Research Institute 2019, *Older Australians and the housing aspirations gap*, AJURI Final Report No 317

5.6 Accessible housing

Through the Census, the Australian Bureau of Statistics estimates the proportion of the population who need assistance with core activities due to disability. The proportion of Darebin's permanent population in each household type who need assistance is shown in Figure 42.

FIGURE 42: PROPORTION OF DAREBIN'S POPULATION WHO NEED ASSISTANCE WITH CORE ACTIVITIES



Source: ABS Census 2016

By comparing these proportions to the forecast dwelling demand from Section 5.3, it is possible to forecast how many households may need accessible dwellings catering to the needs of those with a disability. This result is shown in Table 18. Some people who need assistance with daily activities may not need an accessible dwelling, and so the number of accessible dwellings needed may be slightly less than the numbers shown in Table 18.

TABLE 18: APPROXIMATE NUMBER OF HOUSEHOLDS WHO NEED ASSISTANCE WITH CORE ACTIVITIES

Year	2016	2021	2026	2031	2036
Number of households	4,337	4,788	5,186	5,597	6,043

Source: SGS 2020, ABS Census 2016

It is not possible to determine what proportion of dwellings is currently accessible. At a minimum, if all of the current demand for accessible housing is met, an additional 1,706 accessible dwellings are likely to be needed by 2036. This is 6.4% of all additional dwellings expected to be needed in the LGA between 2016-2036.

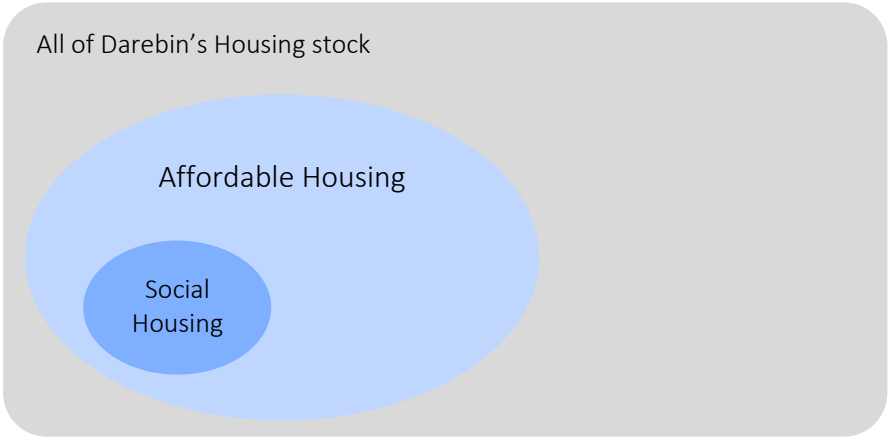
The additional accessible dwellings needed in the future will cater to people with a wide range of needs for assistance with core daily activities, from those for whom minimal changes to a non-accessible dwelling could be sufficient, to others with much higher needs. In some cases an existing dwelling be retrofitted to be accessible and so a new accessible dwelling may not be required.

6. AFFORDABLE HOUSING

This chapter discusses issues related to housing affordability as well as the supply and demand of social and affordable housing.

6.1 Affordable housing definitions

The terms housing affordability, social housing and affordable housing are often conflated but mean different things as illustrated in the diagram below.



Housing affordability refers to the relationship between household income and the cost of housing. If housing costs rise faster than incomes, housing becomes less affordable. If households need to spend a large proportion of their incomes on housing or are unable to access housing due to high costs, it is considered to be unaffordable.

Affordable housing is different to the concept of housing affordability and is often used synonymously with *affordable rental housing*. Affordable housing is defined under the *Planning and Environment Act 1987* as '*housing, including social housing, that is appropriate for the housing needs of very low, low and moderate income households'*. The specific delivery and operation models that affordable housing can take are many and varied.

Unlike the analysis of housing affordability, which considers people at all income levels, affordable rental housing is targeted at households with lower incomes. Affordable rental housing also focusses on the affordability of renting a dwelling, while the analysis of housing affordability is also concerned with property ownership. Some affordable property purchase schemes exist, but there are few of these and they are often limited in size.

Social Housing is rental housing provided by the government or a not-for-profit organisation for people on low incomes or with specific housing needs. It includes public housing and community housing provided by community housing organisations.

The Department of Health and Human Services is responsible for the resourcing of social housing in Victoria.

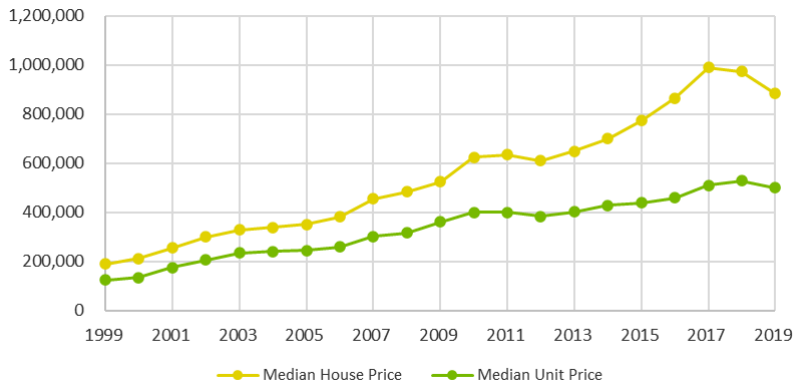
6.2 Private market housing affordability

Dwelling prices

Dwelling prices in the Darebin LGA since 2004 are shown in Figure 43. Prices have increased markedly over this time period, with a sharp rise recently during the housing boom from 2012-2017. Between 2014-2017, house prices increased by 12% per year on average, while unit prices increased by 6% per year. There has been a decline in house prices during 2018 and 2019, and in unit prices during 2019, and this is likely to continue due to the impacts of COVID-19 and associated potential for economic contraction. However, this is unlikely to have markedly increased affordability for purchasing for the majority of households.

The price difference between separate houses and units has increased over the time period shown in Figure 43. In 1999, houses cost 52% more than units. This percentage remained within the band of 45%-55% until 2009, but then increased to a maximum of 94% in 2017. This is likely to have the effect of differentiating the submarkets that these dwelling types serve, and so for example people who may have been able to choose between a well-located unit or a less well-located separate house in the past may now struggle to afford a separate house at all. This increases the importance of ensuring that there continues to be a diverse supply of apartments and attached dwellings of different sizes to cater to households who cannot afford a more expensive dwelling type.

FIGURE 43: MEDIAN DWELLING PRICES IN THE DAREBIN LGA 1999-2019



Source: Department of Environment, Land, Water and Planning 2020, *Property Price Statistics*

Recent changes in median dwelling prices are compared to changes in household incomes in the Darebin LGA in Table 19. The increase in house and unit prices outpaced growth in household incomes over this period, particularly the rise in house prices. This shows a deterioration in the affordability of dwellings to purchase in real terms.

While lower interest rates mean that households are able to afford larger mortgages now than they were in 2006, the increase in dwelling prices has made entry into the housing market increasingly difficult for first homeowners who need to save a large deposit. Recent changes to financial lending regulations have also made it more difficult to receive a mortgage. These factors mean that people are staying in the private rental market for longer. A greater number of people in the private rental market can cause increases in rental prices.

TABLE 19: CHANGE IN HOUSEHOLD INCOME, DWELLING PRICES AND RENTS IN THE DAREBIN LGA 2006-2016

	2006	2011	2016	% Increase
Median weekly household income	$905	$1,178	$1,423	57%
Median house price	$382,000	$635,000	$865,000	126%
Median unit price	$260,000	$400,000	$460,000	77%

Source: ABS Census 2006, 2011, 2016, Department of Environment, Land, Water and Planning 2020, *Property Price Statistics*

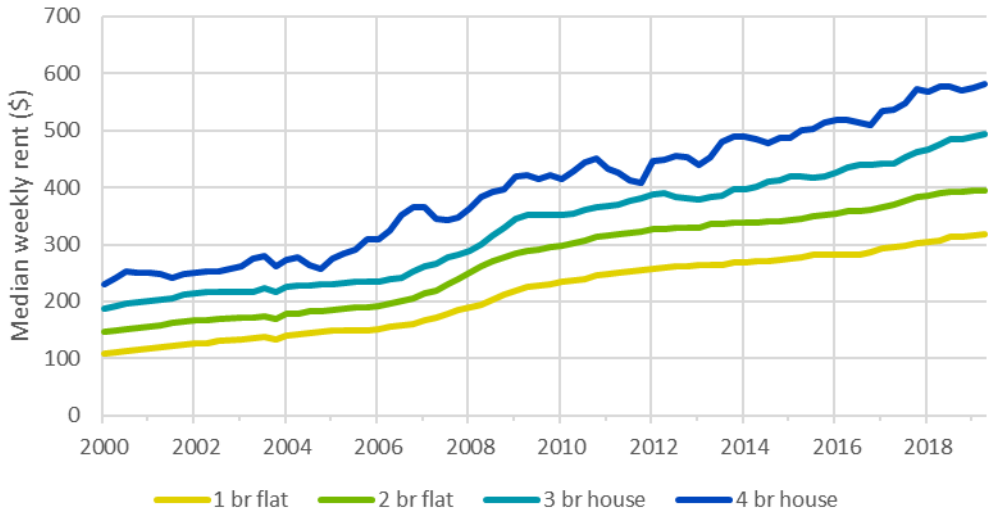
Dwelling rents

The growth in median rents across the Darebin LGA since 2000 is shown in Figure 44. Rents have grown substantially since 2000. However, their increases have not mirrored increases in house prices. During the recent house price boom from 2012-2017, house prices grew by around 62% while the median rent for a three-bedroom house increased by only 22%. Unit prices increased by 32% while the median rent for a two-bedroom unit increased by 16%.

As dwelling purchase prices have risen more than rents, the rental return for dwellings has become lower, requiring investors to be more focused on achieving capital growth instead of only rental returns. This effect is more pronounced for houses than for units. Houses are predominately owned by owner-occupiers and so purchase prices have risen more than those for units. Unit developments are often targeted towards investors, who are concerned with likely rental yield, and so purchase prices have risen less (greater rises in purchase prices compared to rents would further decrease rental yields).

The divergence of price rises between units and apartments is likely to impact on the feasibility of infill development converting a property containing a separate house to a townhouse or apartment development. Acquiring an existing house for infill development has become more expensive, while yields for the units which could be built have risen less.

FIGURE 44: MEDIAN WEEKLY RENT (MOVING ANNUAL AVERAGE) IN THE DAREBIN LGA



Source: SGS 2020, Department of Health and Human Services 2020, *Rental Report*

Recent changes in rents are compared to changes in household incomes in the Darebin LGA in Table 20. As with changes in house prices, increases in rents outpaced increases in household incomes between 2006-2016, creating a decline in average rental affordability. This problem is slightly more acute for units than houses.

TABLE 20: CHANGE IN HOUSEHOLD INCOME AND DWELLING RENTS IN THE DAREBIN LGA 2006-2016

	2006	2011	2016	% Increase 2011-2016
Median weekly household income	$905	$1,178	$1,423	57%
Median weekly rent (Census)	$185	$295	$339	83%
Median weekly rent - two bedroom unit (new bonds)	$200	$320	$360	80%
Median weekly rent - three bedroom house (new bonds)	$250	$400	$420	68%

Source: ABS Census 2016, Department of Health and Human Services 2020, *Rental Report*

6.3 Housing stress

The analysis in this section uses SGS's Housing Assistance Demand (HAD) Model to measure the number of renter households who are experiencing housing stress, or would experience housing stress if they did not live in SAH. A proportion of these households are likely to need housing assistance, which is discussed further in Section 6.4.

The micro-simulation model used in section segments households by demographic and spatial variables and forecasts the evolution of this need into the future. A full account of the methodology is available in Appendix B.

Defining housing stress

Continued increases in the costs of housing relative to incomes leaves households with less money to spend on essential items (food, utilities) and less disposable income. This problem is particularly acute for lower income earners who have relatively little disposable income.

The impact of rising housing costs on households can be measured in different ways. One of these is housing stress, which quantifies which households spend a high proportion of their income on housing. Households are commonly said to be in housing stress if they have moderate or lower incomes, and spend 30% of more of their income on housing.

In this section, census statistics are used to quantify the number of households in rental stress (paying more than 30% of their income on rent), and who are classified as having very low, low or moderate incomes based on the income bands defined by the Governor in Council order made under S3AB of the Planning and Environment Act 1987. These bands are shown in the table below. They are deflated for modelling purposes to be consistent with reported incomes in the 2016 census.

TABLE 21: INCOME RANGES FOR SOCIAL AND AFFORDABLE HOUSING IN GREATER MELBOURNE

Household	Very Low Income	Low Income	Moderate Income
Couple family with children	Up to $54,520	$54,521 to $87,250	$87,251 to $130,870
Couple family without children	Up to $38,950	$38,951 to $62,320	$62,321 to $93,470
One-parent family	Up to $54,520	$54,521 to $87,250	$87,251 to $130,870
Lone person	Up to $25,970	$25,971 to $41,550	$41,551 to $62,310

Source: Governor in Council Order, Victoria Government Gazette G23

People in mortgage stress (paying more than 30% of their income on mortgages for properties in which they live) are not modelled in this section, as they would not be expected to move into SAH if it was available.

People who are homeless are also included in this calculation as while homeless people are not experiencing rental stress, they are in acute need of housing assistance. As defined by the Australian Bureau of Statistics includes people in highly overcrowded dwellings, staying temporarily with others without a fixed address and those living in boarding houses as well as people sleeping rough. It is worth noting that the ABS survey typically undercounts the prevalence of homelessness so the number in Darebin may be higher than in the calculations presented in this section.

Housing stress in 2016

Table 22 provides the breakdown of housing stress by household type and income while Figure 45 shows the likelihood of housing stress for each household type. SGS estimates that 9,088 households in Darebin are in housing stress– this includes 3,787 lone person households, 1,819 couple families without children and 1,144 couple families with children. Households in rental stress or homeless represent 15% of all households (or 1 in 6.6).

Lone person households have by far the most households in housing stress, particularly when people who are homeless are included (people who are homeless are assumed to be lone person households).

Group households have fewer households in housing stress because they make up a smaller portion of all Darebin households. Despite this, they are the most likely household type to experience stress – 31% of group households experience housing stress. The next most likely group to experience housing stress is one parent families, at 25 per cent.

Housing stress is broken down into severe stress (households paying at least 50% of their income on housing), moderate stress (people paying at least 30% of their income on housing), and people experiencing homelessness.[2] Group households (16%), other families (10%) and lone person households (10%) are particularly likely to be in severe housing stress, compared to 7% of households overall.

The likelihood of experiencing rental stress is inversely related to the level of household income. Around 3,787 very low-income (28% of very-low income households) and 2,322 low-income households (25% of low income households) were experiencing rental stress in Darebin in 2016. Very low-income households are particularly likely to be in severe rental stress (19%). Households in this category may be at risk at homelessness.

TABLE 22: HOUSING STRESS IN DAREBIN, BY HOUSEHOLD TYPE AND INCOME (2016)

Category	Household	Severe Stress (rent >50% of income)	Mod. Stress (rent >30% of income)	Homeless	Total housing stress	% of Households
Household Type	Couple family with children	610	534		1,144	6.6%
	Couple family with no children	908	911		1,819	12.9%
	Group household	779	602		1,380	28.0%
	Lone person household	1,623	1,192	972	3,787	22.5%
	One parent family	420	335		755	12.9%
	Other family	115	88		203	18.3%
Income**	Very low income***	3,722	992	972	5,686	28.3%
	Low income	573	1,749		2,322	24.9%
	Moderate income	160	920		1,080	12.5%
Total*		**4,455**	**3,661**	**972**	**9,088**	**15.1%**

*Figures may not sum to totals due to rounding

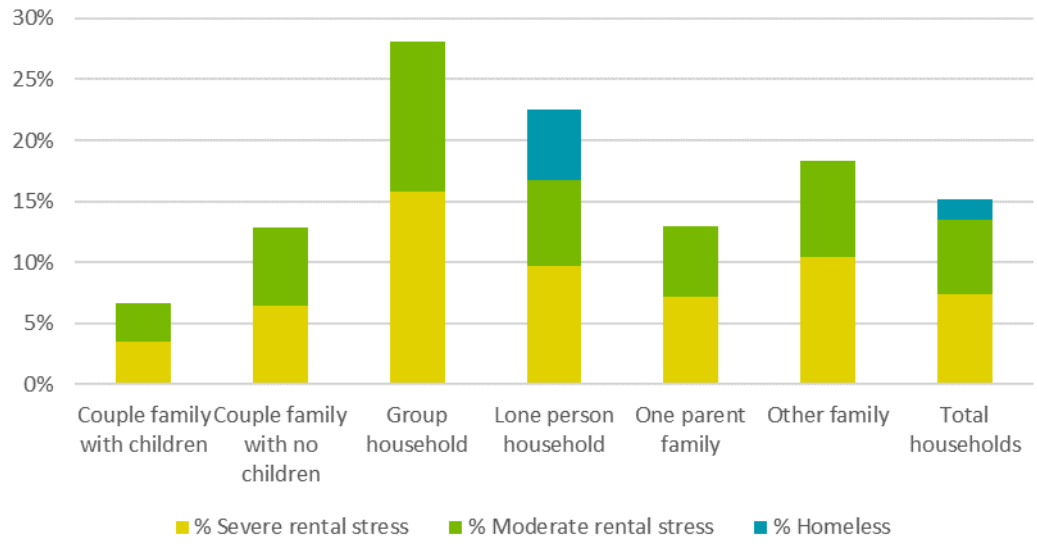
**Income bands follow DELWP definitions of very low, low and moderate income levels deflated to allow comparison with household incomes from the 2016 census

***All people experiencing homelessness are assumed to have very low income

Source: SGS 2020

[2] We note that people in social housing pay lower than 30 per cent of their income in rent, however, they are included here as an indication of need because they would most likely be in housing stress without the social housing services.

FIGURE 45: MEASURED NEED FOR HOUSING ASSISTANCE IN DAREBIN, BY HOUSEHOLD TYPE (2016)



Source: SGS 2020

Housing stress will likely grow in the future

The need for affordable housing is likely to increase as Melbourne's population grows. SGS's modelling based on the *Victoria in Future* population forecast for Darebin (as presented in Section 4.4) predicts that the total households in the LGA will grow by approximately 24,100 households in the 20 years from 2016 to 2036.

SGS used the Housing Assistance Demand model to forecast how the need for affordable housing might change with this population growth. Three scenarios were used to capture the uncertainty in predicting the housing market in the future. The base case, or central scenario, assumes that incomes and rents grow at the same rate over the next 20 years. The optimistic scenario assumes that incomes grow faster than rents and the pessimistic scenario assumes that rents grow faster than incomes. Table 23 details the differences in these assumptions.

TABLE 23: FORECAST SCENARIO ASSUMPTIONS

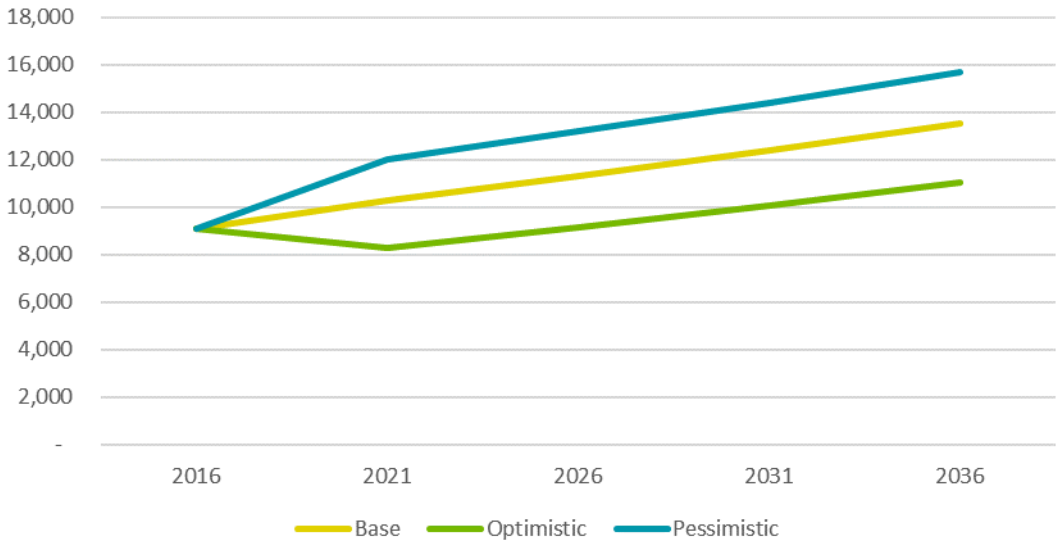
Base Case	Optimistic	Pessimistic
▪ Income growth = rent growth ▪ 20-year time horizon	▪ Year 1-5: Income Growth **>** Rent Growth (1% pt) ▪ Year 6-20: Income Growth = Rent Growth	▪ Year 1-5: Income Growth **<** Rent Growth (1% pt) ▪ Year 6-20: Income Growth = Rent Growth

Source: SGS 2020

The modelling suggests that, without any intervention, the number of households in housing stress in Darebin could rise from 9,088 by 49% to 13,540 by 2036. However, this could range from 11,045 (a 22 per cent rise) to 15,696 households (a 48 per cent rise), depending how incomes and rents change in the coming years.

Figure 46 shows the expected rise in demand for affordable housing. The scenarios diverge in the five years between 2016-2021 and then approximately rise at the same rate with population growth. This is due to the assumptions described in Table 23.

FIGURE 46: FORECAST HOUSEHOLDS IN RENTAL STRESS (2016-2036)



Source: SGS 2020

Table 24 shows the breakdown of expected rental stress by household type and income under the base case scenario. As with the 2016 results, the most vulnerable groups are lone person households and very low-income households. By 2036, there could be 5,242 lone person households and 7,904 very low-income households in rental stress under the base case. As in 2016, group households are particularly likely to be in housing stress. The number of people experiencing homelessness in Darebin is expected to rise to 1,352 by 2036.

TABLE 24: HOUSING STRESS IN DAREBIN, BY HOUSEHOLD TYPE AND INCOME (2036 BASE CASE)

Category	Household	Severe Rental Stress	Moderate Rental Stress	Homeless	Total*	% of Households
Household Type	Couple family with children	757	662		**1,419**	6.6%
	Couple family with no children	1,321	1,326		**2,647**	12.9%
	Group household	1,226	948		**2,174**	28.0%
	Lone person household	2,242	1,647	1,352	**5,242**	22.6%
	One parent family	517	412		**929**	12.9%
	Other family	136	103		**239**	18.3%
Income**	Very low income***	5,179	1,372	1,352	**7,904**	26.4%
	Low income	796	2,449		**3,245**	11.8%
	Moderate income	224	1,276		**1,500**	11.8%
Total*		**6,200**	**5,097**	**1,352**	**12,649**	**15.5%**

*Figures may not sum to totals due to rounding

**Income bands follow DELWP definitions of very low, low and moderate income levels deflated to allow comparison with household incomes from the 2016 census

***All households in social housing and people experiencing homelessness are assumed to have very low income

Source: SGS 2020

6.4 Households in need of housing assistance

Further analysis of the 2016 rental stress estimates was carried out to better understand how the need for housing assistance in Darebin aligns with the number of people in housing stress.

Research describes several reasons why households might choose housing that placed them within the technical definition of housing stress[3]. Households may voluntarily enter a situation where they pay more than 30 per cent of their income on housing to live in a better house, live in a better neighbourhood, or live in a location where other households expenses such as transport costs are lower.

The research also notes that it is normal for some households to experience a temporary periods of housing stress. This can be due to temporary changes in circumstances such as the birth of a child, short term unemployment, or adjusting to the breakdown of a relationship. Consideration of these factors would suggest that measured housing stress, using the 30 per cent of income threshold, could overestimate the actual number of households that are likely to be experiencing housing stress in the longer term.

More recent research has been conducted, suggesting that there is likely to be additional demand for affordable housing from households unable to form under current market conditions[4]. These 'unformed' households might include younger family members that would prefer to leave the parental home but cannot afford to, elderly family members that must live with other family members to have affordable accommodation, or multiple families occupying a single dwelling.

These research findings show that the prevalence of housing stress does not neatly align with the need for housing assistance. Some of the factors identified above would inflate the need and others would deflate it. On the balance of evidence, a small discount has been applied to derive an estimate of the actual need. The discount is applied according to household income. The reduction is shown in the third column in table below and applies to very low, low and moderate-income households in rental stress. A smaller discount (10 per cent) is applied to very low income earners than the other groups because they are more likely to experience actual stress than higher income earners.

No discount is applied to people in social housing or those experiencing homelessness since all of those households require housing assistance.

Based on these calculations, the estimate of the need for assistance in 2016 is approximately 8,886 dwellings. This equates to 14.8 per cent of all households in Darebin (if homeless people are included in the household count). Under the base modelling scenario, this demand would grow to 13,827 dwellings in 2036, with the most demand made up by very low income households. The proportion of households in need of housing assistance would grow to 17%.

[3] Rowley and Ong 2014, *Do current measures of housing affordability reflect wellbeing?* Australian Housing and Urban Research Institute Research and Policy Bulletin No 166

[4] Rowley, Leishman, Baker, Bentley and Lester 2017, *Modelling housing need in Australia to 2025*, Australian Housing and Urban Research Institute Final Report No 287

TABLE 25: NEED FOR AFFORDABLE HOUSING ASSISTANCE IN DAREBIN IN 2016

Household type	No. of Households	Minimum target	Need for housing assistance	Need as a % of total households
People experiencing homelessness	972	100%	972	1.6%
Social housing	2,618	100%	2,618	4.4%
Very low-income households	2,730	90%	2,457	4.1%
Low income households	2,322	85%	1,974	3.3%
Moderate income households	1,080	80%	864	1.4%
Total	**9,723**		**8,886**	**14.8%**

Source: SGS 2020

TABLE 26: NEED FOR AFFORDABLE HOUSING ASSISTANCE IN DAREBIN IN 2036 (BASE SCENARIO)

Household type	No. of Households	Minimum target	Need for housing assistance	Need as a % of total households
People experiencing homelessness	1352	100%	1,352	1.7%
Social housing	2,618	100%	2,618	3.2%
Very low-income households	6,552	90%	5,896	7.2%
Low income households	3,245	85%	2,758	3.4%
Moderate income households	1,500	80%	1,200	1.5%
Total	**15,268**		**13,826**	**17.0%**

Source: SGS 2020

The need for housing assistance under the different scenarios is shown in the table below. Based on this analysis, the need for housing assistance is likely to be between 12,616 and 16,502 dwellings in 2036, an increase of between 1,945 and 5,831 dwellings from 2016.

TABLE 27: NEED FOR SOCIAL AND AFFORDABLE HOUSING IN DAREBIN, 2016-2036

Scenario	2016	2021	2026	2031	2036	Change 2016-2036
Optimistic	10,671	10,080	10,889	11,715	12,616	1,945
Base	10,671	11,754	12,703	13,667	14,717	4,046
Pessimistic	10,671	13,182	14,248	15,328	16,502	5,831

Source: SGS 2020

6.5 Supply of social housing

There are currently 3,641 social housing dwellings in Darebin. These are shown in Table 28 below, along with data from 2016 which can be compared with the modelled demand for housing assistance presented in the previous section. There was a small increase in the number of social housing dwellings between 2016 and 2019.

Around 3,277 of Darebin's social housing dwellings are owned by DHHS, with the rest community-owned. Almost half (47%) of dwellings are classified as medium density, which is the most common type of dwelling followed by houses and flats.

The social housing supply shown in Table 28 differs from the estimate of 1,610 households in social housing from Section 6.4 above. The data used in the housing assistance demand modelling shows number of households and is based on the 2016 Census. It is likely to reflect an undercount as a result of households not correctly identifying their landlord as a social housing provider as well as of any social housing dwellings vacant at the time of the 2016 census.

TABLE 28: SOCIAL HOUSING DWELLINGS IN DAREBIN (2019)

Year	House	Medium density attached	Medium density detached	Low-rise flat	High-rise flat	Movable Unit	Multiple unit facility unit	Other	Community owned	Total
2016	761	1,557	176	555	121	47	6	37	268	3,528
2019	712	1,540	172	648	120	53	6	26	364	3,641

Source: Department of Health and Human Services 2016, 2019, Additional service delivery data.

Table 11 below shows how the proportion of Darebin's households living in social housing has changed over time. The number of households recorded as living in social housing declined by 182 or 7% between 2006-2016, while the total number of households in the Darebin LGA increased by 14%. As a result of the divergence of these numbers, the proportion of households in the LGA living in social housing decreased from 5.2% to 4.3%. Unless additional social housing is built, the decline in social housing as a proportion of all households will continue in the future.

TABLE 29: CHANGE OF PROPORTION OF HOUSEHOLDS IN PUBLIC HOUSING IN DAREBIN LGA AND GREATER MELBOURNE, 2006-2016

Location	2006		2016		Change	
	Number of households	Proportion of all households	Number of households	Proportion of all households	Number of households	Proportion of all households
Darebin LGA	2,665	5.2%	2,483	4.3%	-182	-0.9%
Greater Melbourne	39,691	3.1%	41,320	2.6%	1,629	-0.5%

Source: ABS Census 2006, 2016.

There is little data available which shows how Darebin's social housing stock will change in the future. There is one public housing renewal project in Darebin, applying to the Walker Street Estate in Northcote. This development may increase social housing provision, but the scale of change will be very small relative to the total number of social housing dwellings in Darebin.

Given an overall lack of Government funding for social housing, there is unlikely to be large increase in the number of social housing dwellings in Darebin in the future.

6.6 Social and affordable housing gap

Subtracting Darebin's social housing provision (3,528 dwellings in 2016 and 3,641 dwellings in 2019 onwards) from the modelled need gives a provision gap, which is shown in Table 27 below. This gap quantifies how many additional dwellings would be needed to provide SAH to all households in Darebin who may need it.

TABLE 30: GAP BETWEEN SUPPPLY AND NEED FOR SOCIAL AND AFFORDABLE HOUSING IN DAREBIN, 2016-2036

Scenario	2016	2021	2026	2031	2036
Optimistic	7,143	6,439	7,248	8,074	8,975
Base	7,143	8,113	9,062	10,026	11,076
Pessimistic	7,143	9,541	10,607	11,687	12,861

Source: SGS 2020

This analysis shows that **7,143** additional SAH dwellings would be needed to meet the need for SAH in 2016. The gap will increase to between **8975 and 12,861 dwellings** in 2036.

SGS's housing demand modelling in Chapter 5 estimated that 26,800 additional dwellings would be needed in the Darebin LGA. On this basis, between 33% and 48% of new dwellings would need to be SAH to address the SAH provision gap by 2036. If only the *increase in SAH need* between 2016 and 2036 was addressed, between 1,945 and 5,831 additional SAH dwellings would be needed, or between 7% and 22% of all new dwellings.

It is unreasonable to expect that between 33% and 48% of all new dwellings delivered in Darebin could be SAH under any set of policy settings available to Council. For this reason, while Council could put policies in place to increase SAH provision, significant investment from other levels of government would be required to come close to addressing the gap.

7. HOUSING SUPPLY AND DEMAND ALIGNMENT

7.1 Overall capacity-demand balance

Bringing together likely housing demand and housing capacity under the current planning controls allows any lack of supply in the current controls to be identified. The housing demand (see Section 5.3 and 5.4) and capacity (see Section 3.3) across the LGA are shown in Table 31. Overall, there is substantially more housing capacity than demand for each dwelling type. Only 29% of the total capacity would be needed to house the expected population in 2036. On this basis, additional capacity does not need to be created to meet demand. However, the creation of additional capacity in the best locations may still be important to meet other strategic planning objectives like place-making and improving the sustainability of the dwelling stock.

TABLE 31: OVERALL CAPACITY-DEMAND BALANCE (2016)

Dwelling type	Capacity (2016)	Additional demand 2016-2036		% of capacity needed to meet demand	
		Base case demand	Adjusted demand	Base case demand	Adjusted demand
Separate house or medium density	53,160	18,981	13,895	36%	26%
High density or other dwellings	39,776	7,819	12,905	20%	32%
Total	**92,936**	**26,800**	**26,800**	**29%**	**29%**

As well as determining whether there is enough capacity across the LGA to meet likely housing demand, it is important to consider if that capacity is in the places in which demand is likely to be the highest. This question is considered below.

7.2 Housing forecast

A forecast has been created of how housing development between 2016 and 2036 would be distributed across the Darebin LGA to determine if there is any spatial mismatch between likely demand and available capacity. As the adjusted demand more closely aligns with recent development and the current development pipeline, it was used in this forecast. Demand was then allocated into the Lower, Central and Upper areas.

Until 2026, allocation has been projected based on development estimated to have taken place since 2016 and the current development pipeline.

Between 2026-2036, demand has been allocated to each area based on the proportional split of development into each area between 2006-2016, the development pipeline and the housing capacity. Greater weight has been assigned to the housing capacity rather than the current development pipeline between 2031-2036 on the assumption that the distribution of development across the LGA may change in the future as development becomes more feasible in a range of locations.

The dwelling forecast is shown in Table 32 and Table 36 below. Although these are based on current housing forecasts, development between 2016-2021 and 2021-2026 may be impacted by COVID and an associated economic downturn, and so less development may occur than shown below due to a reduced migration rate. There may also be a shift in the type of housing delivered.

The most development is expected to occur in the Central and Upper areas, where the number of dwellings is expected to increase by 72% and 40% respectively. This is driven by substantial amounts of expected medium density development in the Upper Area and high-density development in the Central Area. The Lower Area is expected to house less development, although the number of dwellings would still increase by 27%.

55% of medium density development in the future is expected to occur in the Upper Area. The dominance of the Upper Area is a continuation of recent trends in which almost half (49%) of recent medium density development and the medium density development pipeline is located in the Upper Area. Additionally, 55% of medium density capacity across the LGA is within the Upper Area, with large amounts of capacity in the GRZ1.

50% of high density development between 2016-2036 is expected to occur in the Central Area. This is driven by the recent trends, the pipeline and development capacity, with 52% of high density development between 2006-2016, 53% of the high-density development pipeline, and 44% of high-density capacity in the Central Area.

TABLE 32: DWELLING FORECAST FOR THE DAREBIN LGA

Area	Dwelling type	2016	2021	2026	2031	2036	Change
Lower	Separate and medium density	21,690	22,715	23,103	23,672	24,285	2,596
	High density and other	1,862	2,564	3,391	4,486	5,588	3,726
	Subtotal	23,552	25,279	26,494	28,158	29,874	6,322
Central	Separate and medium density	12,156	13,462	14,308	15,015	15,775	3,618
	High density and other	1,791	2,755	4,476	6,220	8,239	6,448
	Subtotal	13,947	16,216	18,784	21,235	24,014	10,067
Upper	Separate and medium density	25,211	26,980	29,001	30,895	32,892	7,681
	High density and other	757	1,512	1,957	2,614	3,487	2,730
	Subtotal	25,968	28,491	30,958	33,510	36,378	10,411
Total	Separate and medium density	59,057	63,156	66,411	69,583	72,952	13,895
	High density and other	4,409	6,830	9,825	13,320	17,314	12,905
	Total	63,467	69,987	76,236	82,902	90,266	26,800

Note that the values in this table have been rounded so the sum of the rows or columns may be different to the reported total. In these cases the reported total is more accurate.

TABLE 33: FORECAST CHANGE IN NUMBER OF DWELLINGS BETWEEN 2016-2036

Area	Dwelling type	2016 - 2021	2021 - 2026	2026 - 2031	2031 - 2036	Total change
Lower	Separate and medium density	1,025	387	570	613	2,596
	High density and other	702	827	1,095	1,103	3,726
Central	Separate and medium density	1,305	847	707	760	3,618
	High density and other	964	1,721	1,744	2,019	6,448
Upper	Separate and medium density	1,769	2,021	1,895	1,996	7,681
	High density and other	755	446	657	872	2,730
Lower	Total	1,727	1,214	1,664	1,716	6,322
Central		2,269	2,568	2,450	2,779	10,067
Upper		2,524	2,467	2,552	2,869	10,411

Cells in the table are coloured to show their size in comparison to other cells. Red cells contain the highest amounts of development and blue the least.

The remaining capacity in five year intervals is shown in Table 34. This is the current capacity (which is shown in Table 34 in the 2016 column) from which expected development under the housing forecast is subtracted. Greater capacity than demand is needed to ensure the housing supply is not constrained, as only a small proportion of sites would be expected to be developed in any one year.

TABLE 34: REMAINING CAPACITY FOR HOUSING DEVELOPMENT IN THE DAREBIN LGA UNDER THE HOUSING FORECAST

Area	Dwelling type	2016	2021	2026	2031	2036	% Take-up
Lower	Separate and medium density	10,756	9,731	9,343	8,774	8,160	**24%**
	High density and other	8,020	7,318	6,491	5,396	4,294	**46%**
	Subtotal	18,776	17,049	15,834	14,170	12,454	**34%**
Central	Separate and medium density	13,310	12,005	11,158	10,452	9,692	**27%**
	High density and other	17,605	16,641	14,919	13,176	11,157	**37%**
	Subtotal	30,915	28,646	26,078	23,627	20,848	**33%**
Upper	Separate and medium density	29,095	27,326	25,305	23,411	21,414	**26%**
	High density and other	14,151	13,396	12,950	12,293	11,421	**19%**
	Subtotal	43,246	40,722	38,256	35,704	32,835	**24%**
Total	Separate and medium density	53,161	49,062	45,807	42,636	39,266	**26%**
	High density and other	39,776	37,355	34,361	30,865	26,871	**32%**
	Total	92,937	86,417	80,167	73,501	66,137	**29%**

As noted in Section 7.1, there is much more capacity than expected demand when the LGA is considered as a whole, with only 26% of medium density and 33% of high density capacity needed to be taken up between 2016-2036. The same is true broadly for each smaller part of the LGA, with generally only 20-35% of capacity expected to be taken up between 2016-2036.

The greatest take up percentages are for high density capacity in the Lower and Central areas, with 47% and 38% of capacity needed respectively. A greater proportion of high density than medium density capacity take-up would be expected, as the value uplift is greater for high-density development and so there is typically a greater margin for site acquisition and amalgamation. On this basis, the capacities in the Lower and Central areas are likely to be sufficient to ensure housing supply is not constrained. In addition, there is substantial additional capacity in the Upper Area which could compensate for any shortfall in the Central and Lower areas if higher density development were to become more feasible in the Upper are in the future.

7.3 Alignment between housing delivery and demand

The table below compares recent rates of housing development (as discussed in Sections 2.3 and 5.4) with the number of additional dwellings needed per year between 2016 – 2036 (as discussed in Section 5.3).

TABLE 35: COMPARISON OF DWELLING DEVELOPMENT RATE BETWEEN 2006-2016 WITH MODELLED DEMAND BETWEEN 2016-2036

Number of bedrooms	2006 – 2011 (Census)	2011 – 2016 (Census)	2016 – 2020 (Cordell Connect)	2016-2036 (Demand model)
Number of additional dwellings per year	643	971	941	1,340

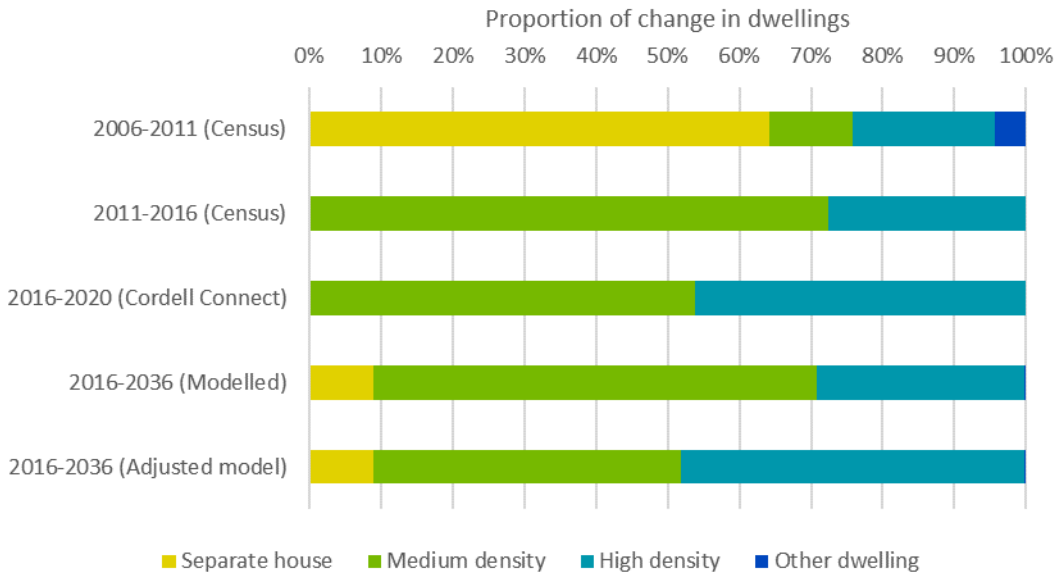
Source: ABS Census 2006, 2011, 2016, SGS 2020

To accommodate for forecast population growth, more new dwellings will be required each year between 2016 - 2036 than were built each year on average between 2006 – 2011, 2011 – 2016 or 2016-2020. As shown in the previous section, there is enough capacity under current planning controls for this to occur, and the size of the development pipeline across multiple different housing types indicates that there are not constraints preventing particular kinds of dwellings from being developed.

Dwelling type

As well as assessing if there is enough housing capacity, it is also important to assess if the types of housing being delivered are aligned with the housing needed by the future community. A comparison of dwelling type in recent development and modelled demand is shown in Figure 47 below. Recent development trends and modelled demand are well aligned.

FIGURE 47: COMPARISON OF DWELLING TYPE IN RECENT DEVELOPMENT WITH MODELLED DEMAND BETWEEN 2016-2036



Source: SGS 2020, ABS Census 2006, 2011, 2016, Cordell Connect Database

Separate houses and medium density combined made up around 70 – 75% of new housing between 2006 – 2011 and 2011 – 2016, and make up a similar proportion of modelled demand between 2016 – 2036. As such, recent development trends are consistent with the

types of housing likely to be required in the future, even if an increased rate of development will be needed.

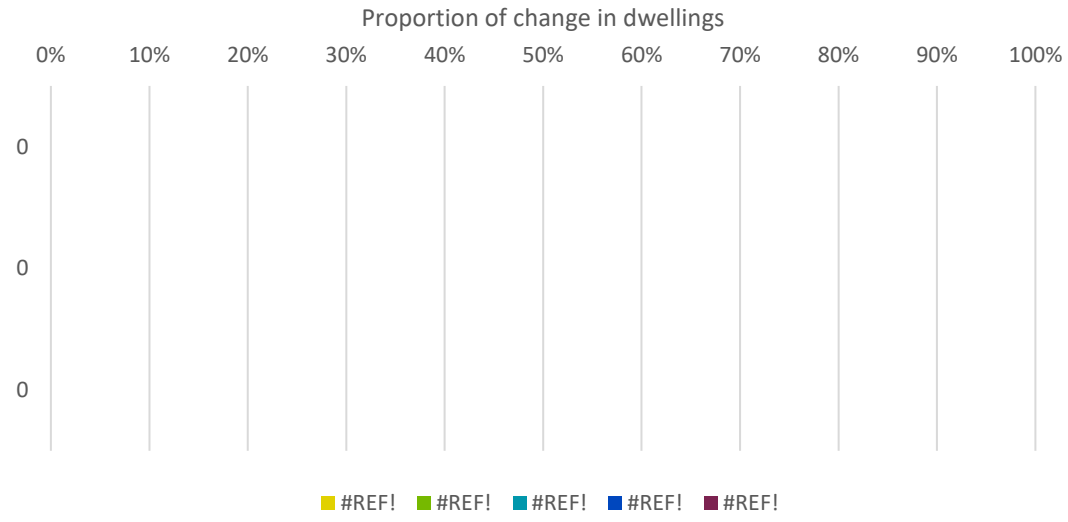
Most new dwellings between 2006 – 2011 were separate houses and there was no net increase in separate houses between 2011 – 2016. However, as noted in Section 5.3 it is not possible to continue to accommodate more separate houses in a developed LGA like Darebin, so increasing demand for this household type should instead be accommodated in larger medium density dwellings. As such, these categories can be considered together when assessing the suitability of the dwellings being delivered for the future population.

The adjusted demand scenario illustrates how dwellings of the size required by the future community (as expressed by the number of bedrooms) could be accommodated through an increased amount of higher density development. It is closely aligned with the observed with the estimated development mix between 2016 and 2020. As such, the recent development mix which contains a higher proportion of high density development could also suitably accommodate the future community.

Dwelling size

A comparison of dwelling size (number of bedrooms) in recent development and modelled demand is shown in Figure 48 below. As it is not possible to determine how many bedrooms new dwellings recorded in the Cordell Connect database contain, development between 2016-2020 is not shown. The distribution of demand between different sizes of dwellings is the same in the modelled and adjusted demand scenarios, so only the modelled scenario is shown.

FIGURE 48: COMPARISON OF DWELLING SIZE IN RECENT DEVELOPMENT WITH MODELLED DEMAND BETWEEN 2016-2036



Source: ABS Census 2006, 2011, 2016, SGS 2020

Overall, recent development trends and future modelled demand are relatively well aligned, except for the provision of three bedroom dwellings, which will be discussed below.

There is a similar proportion of one bedroom dwellings in recent development and in the modelled demand, and the proportion of two bedroom dwellings between 2011 – 2016 closely mirrors the modelled demand.

A greater proportion of four bedroom dwellings have been delivered in the past than are included in the modelled demand. The increase in four bedroom dwellings is predominately associated with replacements and renovations of existing separate houses. A similar number

of these developments per year is likely to continue to occur in the future. Coupled with an increased rate of construction of other dwellings to meet modelled demnd, this would reduce the proportion of all new dwellings which have four bedrooms to be more in line with modelled demand. As such, the higher proportion of development with four bedrooms in the past than in modelled demand is not a cause for concern.

There may be an under-provision of three bedroom dwellings in the future if recent development trends observed between 2011 – 2016 continue. There was almost no increase in the number of three bedroom dwellings between 2011 – 2016. This was a result of a decrease in the number of three bedroom houses, and most new medium density dwellings in the Upper Area having two bedrooms.

8. SYNTHESIS OF FINDINGS

This chapter synthesises results from the previous chapters of the reports to provide key findings for Council along with potential policy responses, although other policy responses may also be appropriate.

Housing diversity and supply-demand balance

The Darebin LGA contains a diverse range of housing types and sizes. While development dynamics vary in different parts of the LGA, housing is becoming more diverse over time as more high density and medium density dwellings are built. This is a positive outcome for housing diversity, choice and affordability and indicates that current planning controls are performing well.

A mix of one two, three and four or more bedroom dwellings are being built in every area, although two bedrooms are the most common size. Increasing housing diversity is in line with SGS's housing demand model, which shows a roughly even split between likely demand for medium and high density housing development, as well as with policy goals.

Modelling of likely housing demand (based on population projections) and current housing capacity shows that there is a substantial amount of housing capacity in the LGA, with only a small proportion needing to be developed in each areas to meet demand.

Darebin's development pipeline contains a wide variety of development types across the LGA, showing that planning controls are successfully facilitating a wide variety of housing forms. In this sense, the policies put in place by Darebin Council during previous planning for housing are successfully meeting objectives relating to housing diversity and supply.

Key finding	Potential policy response
Darebin's current housing policies are facilitating housing development of a variety of types and sizes, increasing housing diversity in line with modelled demand and meeting policy objectives around housing diversity, choice and affordability.	Reinforce and build on current policy approaches

Three-bedroom dwellings

The exception to the alignment between development trends and modelled demand is that there was only a very small increase in the number of three bedroom dwellings between 2011-2016. This is a result of the replacement or expansion of existing three bedroom houses, couples with the predominant delivery of two rather than three bedroom townhouses in the Central and Upper areas in the LGA. A continuation of these trends could lead to the under-delivery of three bedroom dwellings.

This point is compounded by demand modelling showing potential future demand for an increase in separate houses. This is unlikely to be able to be accommodated in the LGA due to its developed nature, meaning that larger attached dwellings (generally of three or in some cases four bedrooms) are likely to be needed instead.

Key finding	Potential policy response
There may be an under-provision of three-bedroom dwellings in the LGA in the future based on modelled demand and recent development trends	Potential responses include: ▪ Undertake further investigation of why so many two-bedroom townhouses are being delivered, through for example consulting with the development and real estate industries ▪ Monitor the size of new dwellings being proposed and constructed to determine if trends seen between 2011-2016 have continued ▪ If trends remain unchanged, encourage or require the delivery of three bedroom dwellings in medium and high density developments

The right housing in the right places

As noted above, current policy settings appear to be working well with regard to dwelling diversity and overall supply, and so Council does not need to create more development capacity. In this context, it is important to ask whether planning controls are facilitating development in the right places (for example in and around centres and near public transport, parks, schools etc). This is a policy question that depends on Council's vision for the LGA and its constituent parts in the future. It may be appropriate to restrict growth in some areas, as long as it is facilitated in others and the overall capacity for housing delivery is not compromised.

The pattern of development in Darebin is shifting over time. While recent development has seen housing of a variety of typologies across the LGA, the predominant development types in both recent development data and the housing development pipeline are:

- High density housing development in centres such as along High Street in Northcote and in Central Preston. Relatively little of this development is occurring in the Upper Area due to low feasibility.
- High density housing development along transport corridors outside of historical shopping strips. This is much rarer than development within centres.
- Opportunistic site-by-site medium density infill development in the Central and Upper areas, particularly in Reservoir and some parts of Preston. Much less of this development occurs in the Lower Area, partly due to small lot sizes and high land values.
- Consolidated key site or precinct development which contains a mix of housing types, often including medium density. This occurs in multiple parts of the LGA including the Lower Area and several precincts near Latrobe University. It is often on brownfield sites.

There is capacity for all of these development types to continue to occur, and so both medium and high density development are likely to continue to occur. However, as the opportunities for brownfield redevelopment are exhausted, there is likely to be less medium density development in the Lower Area due to the low amount of infill redevelopment.

Key finding	Potential policy response
The high level of housing capacity in Darebin creates opportunities to reconsider what the best places for additional housing are.	Ensure that intended future housing characters and the intended overall distribution of housing development align with the vision of Council and the community.
There is little medium density infill development occurring in the Lower Area.	Ensure that large site or precinct developments in the Lower Area provide housing diversity, including medium density.
The amount of medium density redevelopment in the Lower Area may decrease in the future if brownfield development opportunities are exhausted.	Seek to deliver dwellings that function similarly to medium density dwellings in apartment developments, including three bedroom dwellings and dwellings with ground floor entrances that function as terraces.

Feasibility

In the northern parts of the LGA, townhouse development is much more feasible than the four-storey apartment development permitted under the Residential Growth Zone. Apartment development also appears to be unfeasible in centres like Reservoir, although there are some development projects in the current pipeline.

Key finding	Potential policy response
Apartment development appears to be unfeasible in Reservoir and some other areas.	Increased feasibility can be facilitated by allowing design responses to carpaking besides basements, or by improving local amenity through public domain and infrastructure improvements. These actions may not be appropriate to make development feasible, or may not be a priority. In this case, development will only become feasible once property prices rise in these areas.

Ensuring good design outcomes

Along with ensuring that development is being delivered in the right places, it is important to ensure that housing development is creating good design outcomes which improve amenity and sustainability. Current development types may pose design challenges that Council may wish to address. For example, site-by-site medium-density infill development generally has high levels of site coverage and low amounts of impermeable surface.

Key finding	Potential policy response
Housing development in Darebin can mostly be grouped into the four categories listed above.	Ensure that good design outcomes are achieved in each category by periodically reviewing planning controls.

Neighbourhood character

Capacity results in Section 3.3 showed that the vast majority of Darebin's suburban areas are available for medium density infill development. This is one of the factors leading to Darebin's success in achieving diverse housing development. However, while infill development has been most concentrated in particular parts of Reservoir and Preston, if more dispersed infill housing development occurs in the future this may compromise neighbourhood character, and may be difficult to service with infrastructure. Where and to what degree neighbourhood character needs to be protected is a matter for Council, considering the community's views.

Key finding	Potential policy response
The vast majority of Darebin's suburbs are available for infill housing development.	Consider applying the NRZ or additional schedules in the GRZ in limited areas where protection of neighbourhood character is desired, as long as this does not unduly compromise housing capacity and mix.

Housing which meets the community's needs

SGS's modelling has investigated the kinds of housing needed to house many different kinds of people in Darebin, with results aggregated into the housing demand modelling. Particular groups require additional consideration due to their

Housing for families

The number of families with children living in Darebin is expected to increase in the future. Currently, most families in Darebin live in separate houses or medium density dwellings. Few families live in high density dwellings and this is not forecast to change in the future. This underpins the need to ensure that medium density dwelling supply continues to be available to cater to families, and that there are high density dwellings with sufficient space and appropriate design to cater to a family.

Key finding	Potential policy response
The number of families living in Darebin is expected to increase.	Support the delivery of medium density dwellings, including with three bedrooms, as well as of high density dwellings with a size and design to cater to families.

Housing for older people

Most older people stay in their homes as they age, with only a small portion downsizing. Those who do move to a new dwelling favour medium density, with a smaller proportion living in high density dwellings. Research shows that many older people would prefer a moderately sized dwelling (for example with three bedrooms) if they were to downsize.

As they get older, some people move in with relatives or into retirement living facilities or nursing homes (these facilities accommodate a minority of people in every age group). Expected increases in the number of older people will mean that more aged care facilities and nursing homes are likely to be required in Darebin.

Key finding	Potential policy response
While only a small portion of people downsize, those who do mostly live in medium density dwellings, with less in high density dwellings.	Ensure that some medium density dwellings, including with three bedrooms, are delivered near centres to cater to potential downsizers.
More nursing homes, aged care facilities and retirement living facilities are likely to be required as the number of older people in Darebin increases.	Facilitate development of additional nursing homes, aged care facilities and retirement living facilities in appropriate locations in the Darebin LGA.

Accessible housing

Modelling shows that around 4,337 of Darebin's households need assistance with core activities. This number is expected to grow in the future, creating the potential demand for around 1,700 additional accessible dwellings by 2036 (6.4% of additional dwellings demand). The level of assistance needed will vary significantly between different people, and in some cases renovation of existing houses may be appropriate to increase accessibility.

Key finding	Potential policy response
Around 1,700 additional accessible dwellings will be needed by 2036.	Potential responses include: ▪ Consult with the disability housing sector regarding the types of housing needed and in short supply ▪ Facilitate the delivery of accessible dwellings in new developments.

Affordable housing

SGS's modelling illustrates that there is significant demand for social and affordable housing (SAH) from people who currently live in social housing, who are homeless, or who are in housing stress. There was an underprovision of SAH of around 7,143 dwellings in 2016, and this is projected to grow to between 8,975 – 12,681 dwellings by 2036. Addressing this gap through new development would require between 33%- 48% of dwellings to be SAH, which is highly unlikely to occur. While Council policies can increase SAH provision, they will not be able to close the gap by themselves.

A multi-pronged approach across several levels of government would be needed to address the SAH gap. This could include increased provision of affordable housing when government-owned land is development, contributions of direct provision of affordable housing resulting from other private housing development and substantial investment in social housing by the Victorian and Commonwealth governments.

Key finding	Potential policy response
There is a substantial unmet demand for SAH of around 7,143 dwellings in 2016, which will grow over time to between 8,975 – 12,861 dwellings by 2036.	Actions Council could take to increase SAH provision include: ▪ Creation of an affordable housing strategy. ▪ Delivery of SAH through redevelopment of Council owned sites. ▪ Direct funding of SAH. ▪ Imposition of a development levy or inclusionary zone requiring a contribution to be made to SAH in the area (subject to legislative requirements). ▪ Partnering with the community housing sector to facilitate community housing development at appropriate densities to ensure feasibility. ▪ Collaborating with the Victorian Government on redevelopment of existing social housing sites which increases social housing provision.
The size of the SAH provision gap (between 33%-48% of all forecast new dwellings between 2016-2036 would need to be SAH to bridge the gap) means that Council cannot address demand on its own.	Advocate to the Victorian and Commonwealth governments for increased funding for SAH.

Housing affordability

Housing affordability has declined in Darebin recently, with growth in dwelling prices and rents outpacing growth in household incomes. Increases in prices have been higher than rises in rents, and house prices have increased more than unit prices. This has several impacts:

- More people are in housing stress, increasing demand for SAH
- People are spending more time renting, particularly young people
- The household size has increased since 2006 as people put off forming a new household and stay with others (for example their parents or in group households)
- People may be displaced from the Darebin LGA to other more affordable areas

Much new medium and high density development appears to be targeted at investors, with most of the resulting dwellings rented rather than lived in by owner-occupiers. While this is positive for the availability and affordability of rental housing, it sets up a potential market failure whereby developers build the kind of housing which is low risk and easy to sell to investors rather than sustainable housing that people want to live in.

Key finding	Potential policy response
Housing has become less affordable to purchase, particularly in the Lower Area and particularly for separate houses	Support innovative higher density housing delivery models like the Nightingale Model which are targeted at owner occupiers at a more affordable price. This would allow young people to purchase a high amenity dwelling in the Lower Area.
Rental housing has become less affordable	Support the provision of SAH and continue to facilitate the delivery of diverse housing across the LGA in line with demand.

Uncertainty and COVID-19

There is a high degree of uncertainty currently regarding the impacts of the COVID-19 pandemic and any associated economic downturn.

COVID-19 is likely to decrease migration, particularly international migration. International student numbers are also likely to be reduced. While how long this impact will last is unknown, reduced migration and international student numbers will likely reduce population growth rates and housing demand. These impacts are likely to be more acutely felt in the northern parts of the Darebin LGA near Latrobe University and in areas with more multi-cultural communities.

Economic shocks, such as the one likely to follow COVID-19, are associated with downturns in the housing market. This is likely to mean that people putting off purchasing a dwelling, particularly investors. Some housing projects which have not yet started construction are likely put on hold. Impacts are likely to be more pronounced for high density than medium density development. This is because of the increased development risk, greater difficulty accessing finance, greater number of sales required and greater reliance on investors that typifies high density development when compared to medium density.

As a result of the uncertainty relating to COVID-19 and how it may impact on population projections and housing development markets, Council should review planning for housing in the future when impacts of COVID-19 are better known.

APPENDIX A: DEVELOPMENT DENSITY ANALYSIS

Development density assumptions used in the capacity analysis for Darebin are listed in Section 3.2. These assumptions include the capacity of development which is likely to occur in different land zones. This appendix contains data showing how these densities were derived.

Density of recent and proposed development in Darebin

Residential zones

The density of development which has been completed recently or is in the development pipeline in residential zones (except the Mixed Use Zone) in the Darebin LGA is shown in Figure 49.

HOW TO READ BOX AND WHISKER PLOTS

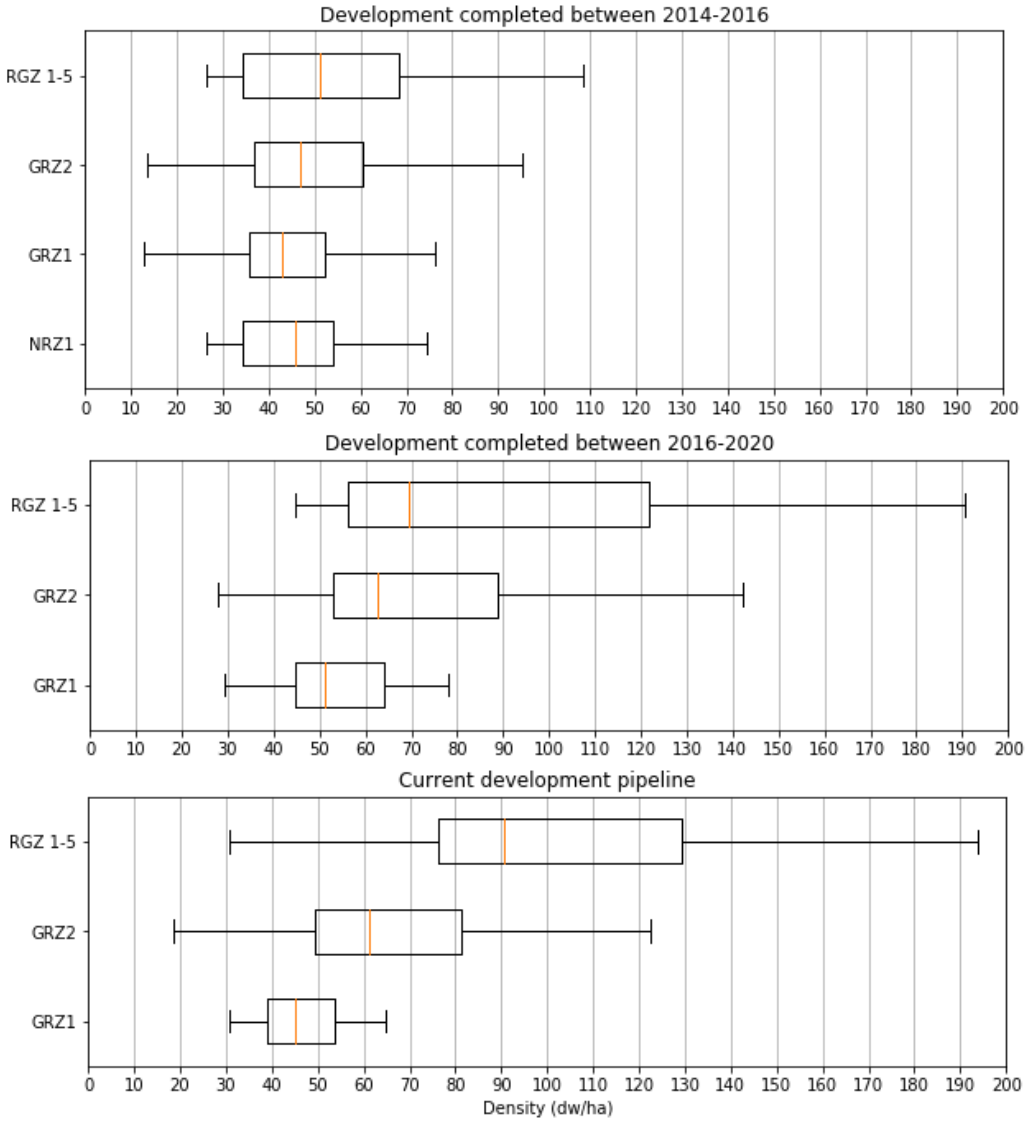
The density data in figures in this section is shown in box and whisker plots.

The line in the middle of each box shows the median value.

The box covers the area between the 25th and 75th percentiles. This is the area in which the middle half of values lie.

The whiskers show the range in which data outside the middle 50% lies. The top and bottom of these whiskers show the most extreme values, excluding any distant outliers.

FIGURE 49: DEVELOPMENT DENSITY IN PREDOMINATELY RESIDENTIAL ZONES IN DAREBIN



Source: SGS 2020, Cordell Connect database, Department of Planning 2019 *Housing Development Data*

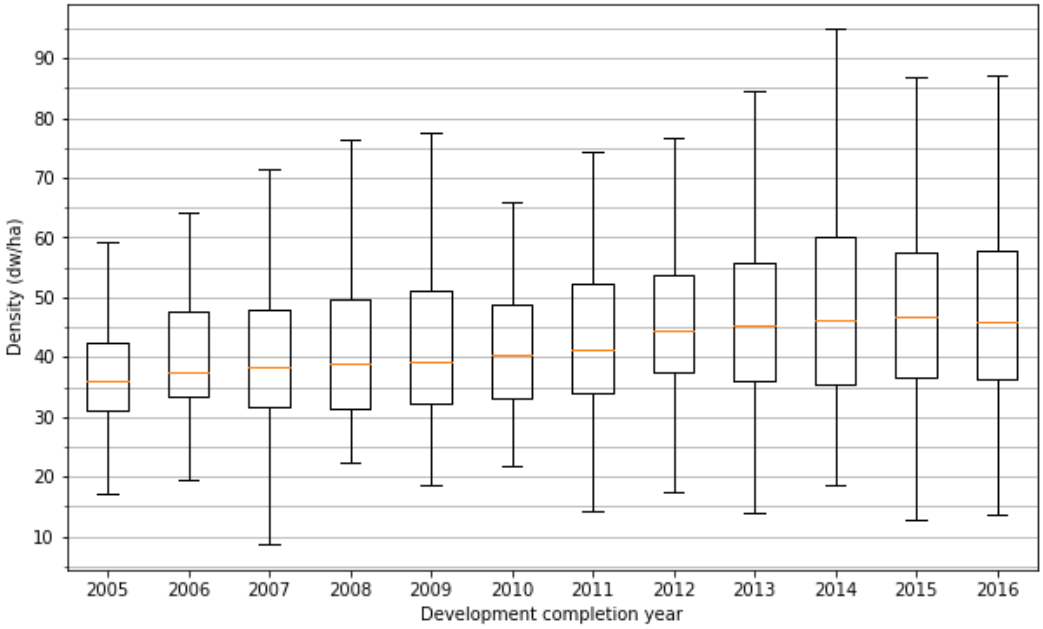
Recent development is broken into two periods, 2014-2016 for which the Victorian Government's Housing Development Data (HDD) is available and 2016-2020 for which the Cordell Connect Database has been used. The HDD is likely to be comprehensive in capturing all development in the Darebin LGA, while the Cordell Connect Database is likely to capture a large sample of lower density and almost all higher density development. The NRZ1 zone is not shown in the 2016-2020 data or the development pipeline as few developments are recorded in the Cordell Connect Database. Similarly, there are few developments proposed under each of the schedules to the residential growth zones, so they are grouped together.

There is a large difference between densities observed between 2014-2016 and those observed between 2016-2020 and in the development pipeline. The Cordell Connect database is less likely to include small and lower-density developments, and so may overstate likely development densities in the GRZ1 and GRZ2 zones where townhouse developments predominate. The exception to this is where low-rise apartment developments are proposed, of which there are several in the development pipeline for the GRZ2 zone.

Some increase in development densities over time in the General Residential Zone, Neighbourhood Residential Zone and Residential Growth Zone is consistent with trends seen in the HDD, which are shown in Figure 50. Average development density in these zones

increased from around 36 dwellings/hectare in 2005 to a peak of around 47 dwellings/hectare in 2015. Density was relatively consistent between 2013-2016 at between 45-47 dwellings/hectare.

FIGURE 50: CHANGE IN DEVELOPMENT DENSITY IN THE RGZ, NRZ AND GRZ ZONES OVER TIME, DAREBIN LGA



Source: SGS 2020, Department of Planning 2019 *Housing Development Data*

The NRZ1, GRZ1 and GRZ2 zones were not introduced in Darebin until 2014, and so development completed between 2014-2016 may have been approved under the previous R1Z zone. The differences between the R1Z zone and GRZ zone were relatively minor, and so similar development densities are likely to be observed, while the NRZ1 zone was more restrictive at the time.

There were few apartment developments completed in the Residential Growth Zone between 2014-2016, while there are several present in data showing more recent completions and the development pipeline. In this case, the upper end of the density spectrum seen for the RGZ zone in Figure 49 is likely to represent apartment developments, while densities of 100 dwellings/hectare or lower are generally townhouse developments.

Site density assumptions – NRZ and GRZ zones

When determining development density in the NRZ and GRZ zones, it has been assumed that average development density in the future will be similar to densities delivered recently. The following densities were used:

- 45 dwellings/hectare in the GRZ1 zone, which lies between the observed medians of development in the GRZ1 completed between 2014-2016 (43 dwellings/hectare), completed between 2016-2020 (51 dwellings/hectare) and in the pipeline (45 dwellings/hectare).
- 60 dwellings/hectare in the GRZ2 zone. This is higher than the medium density of completed development between 2014-2016 (47 dwellings/hectare) but closer to that in development completed between 2016-2020 (63 dwellings/hectare) and in the development pipeline (61 dwellings/hectare). Having a greater expected density in the future than that observed between 2014-2016 reflects the potential for some apartment developments to occur in this zone as observed in the development pipeline.

- 45 dwellings/hectare in the NRZ1 zone, as this is close to the median density delivered between 2014-2016 (45.7 dwellings/hectare). While the NRZ1 zone was only introduced in 2014 and so some of the profiled development was likely approved under the previous R1Z zone, in 2014 the NRZ1 zone capped the number of dwellings allowable on a single development site. That cap has since been lifted and so average development density is likely to be similar to that seen under the GRZ1 zone.

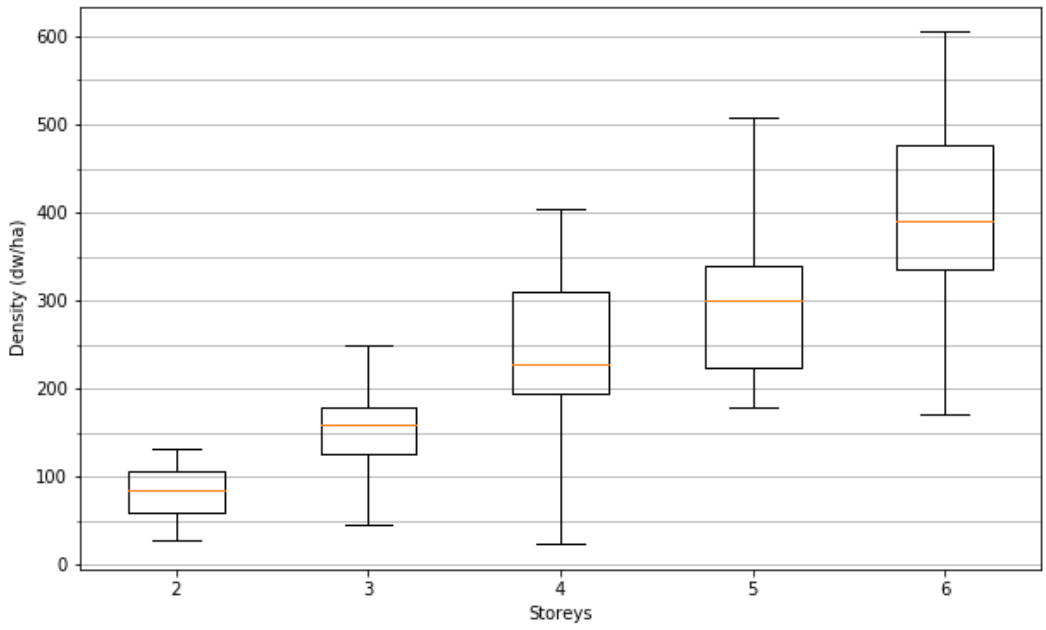
Likely density in the residential growth zone is discussed below with that of other kinds of mixed-use and apartment development.

Mixed use and higher density development

Density of proposed mixed-use development

The density of mixed-use apartment developments completed since 2016 or in Darebin's development pipeline is shown are Figure 51, filtered by the reported number of storeys. Only developments up to six storeys are shown, as there are too few higher developments to present an accurate picture of likely density. Density increases on average by 70-90 dwellings/hectare for each additional storey added to development.

FIGURE 51: DWELLING DENSITY OF MIXED-USE DEVELOPMENTS IN THE DEVELOPMENT PIPELINE



Source: SGS 2020, Cordell Connect Database

Site density assumptions – multi-storey mixed use development

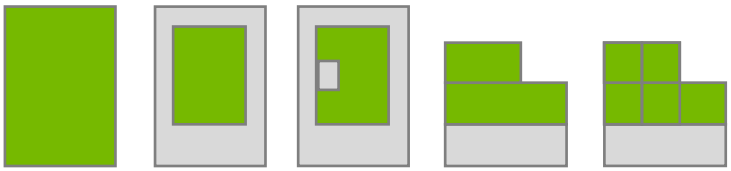
Given the potential of commercially zoned lots to see more intense (multi-level) development above six stories a built form model was used to create a refined estimate of potential dwelling yield on available sites zoned C1Z, PDZ 1-2 or MUZ. It was also applied to estimate yield under residential growth zones in which residential-only apartment developments are expected.

The built form approach applies a number of standardised assumptions around multi-level development (see Figure 52 below) to estimate the likely number of dwellings. These assumptions are:

- Site coverage – how much of the land a building would likely cover

- Building efficiency – how much of the building footprint is useable (ie. not including floorspace used by lifts or stairwells in apartment buildings)
- Building height and setbacks - the number of stories, how many are for residential uses and if upper levels need to be setback from the street or neighbouring buildings
- Dwellings size - the average size of a dwelling within the development.

FIGURE 52. BUILT FORM APPROACH



Source: SGS 2020

Planning controls can often be more complex than what is captures by these assumptions, and every site has unique challenges which means in reality a specific development will vary from these broad assumptions. However, the approach seeks to provide a framework for reasonably estimating dwelling yield across a large number of sites with consideration of planning controls and without having to complete detailed design work for every site.

It was assumed that all lots have:

- A site coverage of 70 per cent[5] (unless otherwise specified for residential growth zones)
- A building efficiency of 80 per cent
- An average dwelling size of 75 square metres.
- Additional setbacks on the three upper storeys (except if these are part of the first two storeys)

For mixed use development, it was assumed that non-residential (for example retail) uses will be delivered on the ground floor in 1-7 storey development, the first two storeys in 8-13 storey development and the first three storeys in development of 14 or more storeys. In residential growth zones, it was assumed that 25% of the ground floor is required for lobbies, services, vehicle entrances to underground carparks and other non-residential uses.

The approximate densities resulting from this analysis were modified slightly to place them within expected ranges density ranges from the development pipeline as shown in Figure 51, with generally 70-100 dwellings/hectare difference per additional floor of residential use.

[5] For most small scale developments this assumption is directly relevant and consistent with a need to provide car parking, open space and setbacks from neighbouring buildings. For larger scale developments site coverage can be more complex. While the ground/first floor (podium) can cover as much as 100 per cent of site the 'tower' above typically does not cover the entire site.

TABLE 36: ASSUMED DEVELOPMENT DENSITIES FOR MIXED USE AND APARTMENT DEVELOPMENT

Zone	Number of storeys	Assumed development density (dwellings/hectare)
RGZ1	4	230
RGZ 2-4	4	290
C1Z, PDZ 1-2 or MUZ	4	220
	6	420
	8	520
	12	840
	20	1,480

Source: SGS 2020

APPENDIX B: HOUSING ASSISTANCE DEMAND MODEL METHODOLOGY

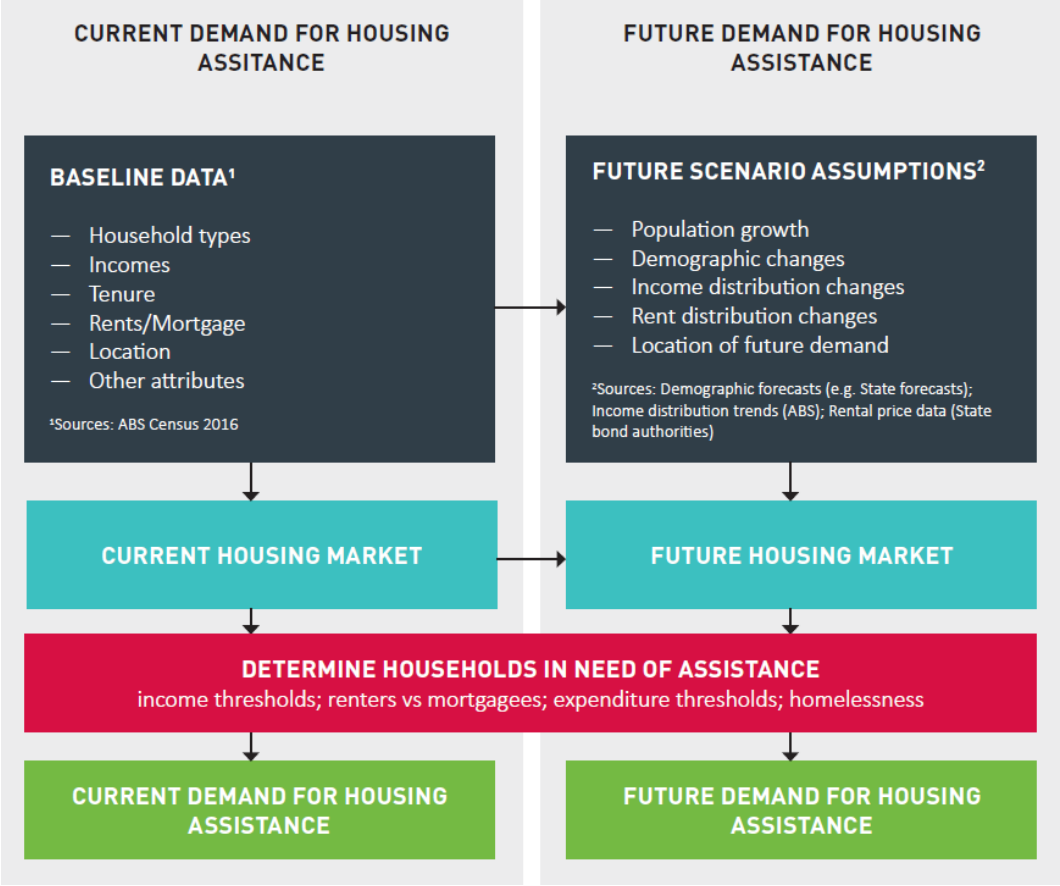
Overview

The SGS Housing Assistance Demand Model measures the number of households who currently need affordable housing, segmented by demographic and spatial variables, and forecasts the evolution of this need subject to factors such as expected population growth, demographic shifts, changes in household incomes, and the evolution of rental rates.

The model uses the following key datasets:

- ABS Census 2016. A detailed list of ABS Census data appears in Table 38
- 2016 ABS estimation of homelessness (cat 2049.0)
- Forecasts of household by type – Victoria in Future 2016

FIGURE 53: HOUSING ASSISTANCE DEMAND MODEL OVERVIEW



Source: SGS Economics & Planning

Methodology

The structure of the Housing Assistance Demand model follows three key steps:

- Preparation of an initial market state, based on 2016 ABS Census data
- Evolution of the market state over time, based on user-defined assumptions (e.g. changes in household incomes and rents)
- Query for the count of households in need of affordable housing

Initial market state

An initial market state is prepared using 2016 ABS Census data, and household forecast data (VIF 2016 and City of Melbourne forecasts). The main data inputs are 2016 census data, which is used to prepare a detailed attribute-by-attribute market state distribution. Household forecast data provides control totals against which the market state is adjusted, ameliorating systematic errors in Census data (e.g. undercount). The attributes necessary to identify financial stress appear in Table 37.

TABLE 37: CENSUS ATTRIBUTES

Variable	Use
Weekly rent	Weekly rent is used to identify households spending a large proportion of their income on rent.
Weekly household income	Weekly household income is used to identify households spending a large proportion of their income on rent.
Household type	Lone person, Group household, or several family sub-types. The appropriate housing response for households in need of SAH will vary based on household type.
Tenure type	Used to differentiate between home-owner households, rental households, social housing households, and households with no tenure types (includes homeless households).
LGA	Spatial component used to show distribution of SAH demand across NSW
Weekly equivalised income[6]	Equivalised income converts household income to a 'Lone-person household equivalent' income. This allows for the incomes of different household types to be compared, which is necessary in order to identify 'low income' households. Use of equivalised income in such a way is an OECD[7] standard.

Source: SGS 2020

Ideally, census data could be obtained to identify the number the households fitting any criteria with any given set characteristics. However, for reasons of privacy, ABS products will not provide accurate data where the number of persons fitting a category is small, returning a small random number instead. Because of the detailed breakdown, using ABS Census Table Builder to obtain a cross tabulated table with all the variables listed above returns unreliable numbers.

Therefore, data is collected more carefully and in a more sophisticated manner than a simple query of ABS data. Aggregate data comparing two attributes are a time data is collected at an LGA level to build a quintuple-attribute model. The data tables in Table 38 were obtained from ABS Census Table Builder and used in the preparation of the market state.

[6] Despite being included, this is an unused variable for the purpose of this analysis, as income thresholds are defined based on total household income and not income percentiles (the 40th income percentile is a common alternative)
[7] Organisation for Economic Cooperation and Development

TABLE 38: CENSUS 2016 INPUT DATA TABLES

Single attribute tables	Double attribute tables
▪ LGA by HCFMD Family Household Composition (Dwelling) ▪ LGA by TENLLD Tenure and Landlord Type ▪ LGA by RNTRD Rent (weekly) Ranges ▪ LGA by HIND Total Household Income (weekly) ▪ LGA by HIED Equivalised Total Household Income (weekly)	▪ LGA by HCFMD Family Household Composition (Dwelling) and HIED Equivalised Total Household Income (weekly) ▪ LGA by HCFMD Family Household Composition (Dwelling) and RNTRD Rent (weekly) Ranges ▪ LGA by HCFMD Family Household Composition (Dwelling) and RNTRD Rent (weekly) Ranges ▪ LGA by HIND Total Household Income (weekly) and HCFMD Family Household Composition (Dwelling) ▪ LGA by HIND Total Household Income (weekly) and HIED Equivalised Total Household Income (weekly) ▪ LGA by HIND Total Household Income (weekly) and RNTRD Rent (weekly) Ranges ▪ LGA by HIND Total Household Income (weekly) and TENLLD Tenure and Landlord Type ▪ LGA by RNTRD Rent (weekly) Ranges and HIED Equivalised Total Household Income (weekly) ▪ LGA by TENLLD Tenure and Landlord Type and HCFMD Family Household Composition (Dwelling) ▪ LGA by TENLLD Tenure and Landlord Type and HIED Equivalised Total Household Income (weekly) ▪ LGA by TENLLD Tenure and Landlord Type and RNTRD Rent (weekly) Ranges

A model of the market state is prepared at a local government area level, using a process called iterative proportional fitting (statistics), or the RAS algorithm (economics). The goal is to use the 10 double-attribute and 5 single-attribute tables to prepare a seed for the 4-attribute target table. This is performed LGA by LGA. The process is as follows:

1. Scale all tables listed in Table 38 so that each sums to 1.
2. As a preliminary step, for each double-attribute table, use the RAS algorithm to align it to the margins provided by the two corresponding single-attribute tables. This is a necessary to ensure consistency needed in the following steps.
3. Prepare a collection of 5-attribute tables by combining two double-attribute tables and one single-attribute table, without repeating factors. For instance
    - LGA by HCFMD Family Household Composition (Dwelling) and HIED Equivalised Total Household Income (weekly)
    - LGA by TENLLD Tenure and Landlord Type and RNTRD Rent (weekly) Ranges
    - LGA by HIND Total Household Income (weekly)
4. Take the average of all these tables, to produce one 5-attribute table that combines all the data input tables. This is the seed for the following step.
5. Use the table prepared in step 3 as the seed in a final use of the RAS algorithm. In this step, the 10 double-attribute tables adjusted in step 2 are the margins against which the seed is aligned.
6. The output of step 5 is a five-attribute data table that aligns with all tables in Table 38
7. As the census household types do not align with the VIF family types, the 5-attribute table output above is aggregated to align with the he household types in that publication.
8. The five-attribute table is scaled (by household type) to align to the control totals of VIF 2016. This gives the data of the market state for a given LGA in 2016.

Future market state

Time evolution of the market state is inspired by a Markov-like process: a household with certain attributes (*a*) in year *y* may become a household of another type (*a'*) in year *y+1*, occurring with a certain probability. Global parameters in the Model, determine those probabilities.

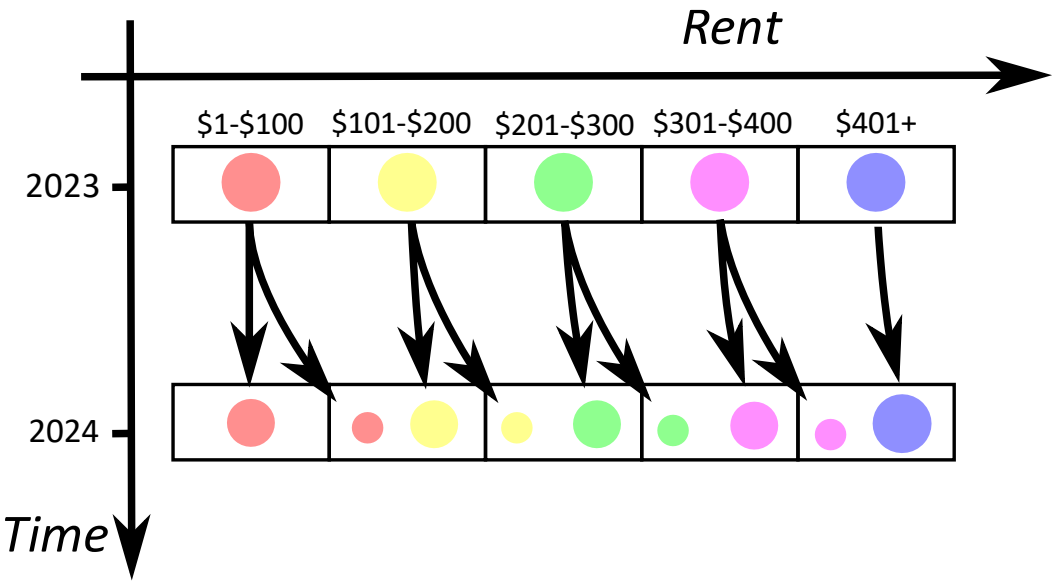
The implemented model differs from a true Markov process in two ways:

- It is deterministic – the large volume of households tracked means probabilistic effects are washed out in practice.
- To make the Model more intuitive, household rent increases over time in alignment with global assumptions, rather than in a distributional manner.

Additionally, new households are added to the existing market state in alignment with existing household projections. These new households are assigned to the market in proportions matching the existing market state.

Scenario-defined parameters specify how the state of the market steps forward in time. In each time step, households are re-allocated to other attribute sets based on their initial set of attributes. This process is portrayed in Figure 54. For this analysis, it is assumed that there will be **no future change in the relative distribution of rents and incomes** (i.e. transition process depicted in Figure 54 does not allow for changes in category)

FIGURE 54: ATTRIBUTE REALLOCATION



Query of financial stress

Finally, for each year in the forecasting period, households with attributes that fit the criteria of a household in need of affordable housing are identified and counted.

To understand the definition of demand for social and affordable housing, consider first the base year of 2016. A household is considered if it falls within any of the following categories:

- Rental stress - The household income is below a certain threshold (defined further below) and the proportion of income spent on rent is above a certain threshold
- Very low income households in rental stress (paying over 30 per cent of income on rent)
- Low income households in rental stress (paying over 30 per cent of income on rent)
- Moderate income households in rental stress (paying over 30 per cent of income on rent)
- Social housing - The household resides in social housing, indicating that they would be in financial stress were it not for this assistance. This implicitly assumes that these are very low income households.
- Homeless or no tenure - The household is homeless, indicating that they need of affordable housing despite not experiencing rental stress. This implicitly assumes that these are very low income households.

The model identifies households that comprise demand based on their attributes (weekly rent, weekly household income, household type, and tenure type). The query of the above categories from the initial market state is as follows:

- Rental stress - Weekly rent and weekly household income are used to compute whether a household earns a moderate income or lower, and the proportion of income spent on rent[8].
- Social housing – The tenure and landlord type of the household is defined as either 'Rented: State or territory housing authority' or 'Rented: Housing co-operative, community or church group'
- Homeless or no tenure – This group consists of households who are not counted in either of the previous categories but are nonetheless in financial stress. They are most commonly 'homeless' individuals who were residing in non-private dwellings (boarding houses or supported accommodation with no tenure). To account for this category, the Model incorporates an external estimate of these individuals (assumed to be lone person households) and adds them to the query of the two other categories. This external estimate draws on the ABS Homelessness Estimate (Cat. 2049.0), and is defined as the sum of:
- Homeless persons in 'Improvised dwellings, tents or sleeping out'
- Homeless persons in a 'Hostel for homeless, night shelter, or refuge'[9]
- Homeless persons staying in boarding houses

In forecast years, the Model queries the number of households in rental stress based on the same attributes, which have evolved due to population growth and various user-defined assumptions. When considering the 'social housing' and homeless or no tenure' categories, it is important to note that the Model does not forecast changes to the social housing supply or the incidence of homelessness. Rather, it ensures that the individuals in these categories are represented in the query of demand for affordable housing.

[8] Note that some households may not be counted as being in rental stress due to them receiving assistance (i.e. rental assistance). However, data limitations at the time of analysis did not permit this to be accounted for, as the proportion of households who both receive rental assistance and remain in rental stress can't be determined

[9] Differs to ABS homelessness estimate definition, which includes persons in private dwellings which were identified as being used for 'supported accommodation'. However, these households should be captured under the second category (social housing) of the module

WHO ARE VERY LOW, LOW AND MODERATE INCOME HOUSEHOLDS?

The annual household income ranges for all households across Melbourne are shown in the table below.

Household	Very Low Income	Low Income	Moderate Income
Couple family with children	Up to $52,940	$52,940 to $84,720	$84,720 to $127,800
Couple family without children	Up to $37,820	$37,820 to $60,520	$60,520 to $90,770
One-parent family	Up to $52,940	$52,940 to $84,720	$84,720 to $127,800
Other family*	Up to $52,940	$52,940 to $84,720	$84,720 to $127,800
Group household**	Up to $37,820	$37,820 to $60,520	$60,520 to $90,770
Lone person	Up to $25,220	$25,220 to $40,340	$40,340 to $60,510

Planning and Environment Act, Section 3AA(2)
* Other family set equivalent to couple family with children
** Group household set equivalent to couple family without children

To contextualise these income ranges, consider the annual income for the following key worker occupations (only applicable to lone person households)

- **Moderate-income:** Music professionals ($46,000), Registered nurses ($60,000)
- **Low-income:** Commercial cleaners ($33,000), Aged and disabled carers ($39,000)
- **Very low-income:** Café workers ($21,000)

APPENDIX C: ADDITIONAL DEMOGRAPHIC INFORMATION

Dwelling tenure compared to age and sex

TABLE 39: DWELLING TENURE AGAINST AGE AND SEX (2016)

		Owned outright	Owned with a mortgage	Rented (not social housing)	Rented (social housing)	Other	Total
Children and teenagers (0-20)	Male	2,741	7,005	4,457	117	27	*14,336*
Children and teenagers (0-20)	Female	2,685	6,617	4,281	112	40	*13,732*
Young adults (20-35)	Male	2,177	3,908	10,838	154	42	*17,124*
Young adults (20-35)	Female	2,062	4,412	11,531	154	36	*18,196*
Established adults (35-50)	Male	2,744	6,521	5,251	146	57	*14,709*
Established adults (35-50)	Female	3,003	7,465	5,167	117	68	*15,812*
Older workers and pre-retirees (50-65)	Male	4,204	3,223	2,240	78	47	*9,786*
Older workers and pre-retirees (50-65)	Female	4,821	3,466	2,324	80	45	*10,735*
Older people and retirees (65+)	Male	5,825	620	1,086	62	27	*7,612*
Older people and retirees (65+)	Female	7,668	719	1,189	69	48	*9,688*
Total (Male)		*17,691*	*21,277*	*23,872*	*557*	*200*	*63,567*
Total (Female)		*20,239*	*22,679*	*24,492*	*532*	*237*	*68,163*
Total (All)		*37,930*	*43,956*	*48,364*	*1,089*	*437*	*131,730*

Source: ABS Census TableBuilder (2016)

Dwelling tenure compared to household type

TABLE 40: DWELLING TENURE AGAINST HOUSEHOLD TYPE (2016)

	Owned outright	Owned with a mortgage	Rented (not social housing)	Rented (social housing)	Other	*Total*
Couples only	9,215	6,038	10,502	191	85	26,026
Couples with children	15,788	28,780	13,917	416	142	59,050
Single parent	4,266	3,227	5,583	118	63	13,250
Other family	609	362	1,312	27	8	2,322
Multiple family	1,470	1,344	1,134	11	-	3,961
Lone person household	5,790	3,039	6,442	192	80	15,548
Group household	596	1,023	9,073	86	40	10,814
Total	*37,734*	*43,813*	*47,963*	*1,041*	*418*	*130,971*

Source: ABS Census TableBuilder (2016)

Housing type compared to age and sex

TABLE 41: HOUSING TYPE AGAINST AGE AND SEX (2016)

		Separate house	Medium density	High density	Other	*Total*
Children and teenagers (0-20)	Male	11,321	3,594	312	61	*15,271*
Children and teenagers (0-20)	Female	10,680	3,574	334	42	*14,638*
Young adults (20-35)	Male	9,460	7,640	1,586	166	*18,856*
Young adults (20-35)	Female	9,337	8,580	1,787	134	*19,841*
Established adults (35-50)	Male	10,153	4,870	670	109	*15,813*
Established adults (35-50)	Female	10,896	5,337	607	97	*16,940*
Older workers and pre-retirees (50-65)	Male	7,766	2,465	260	69	*10,569*
Older workers and pre-retirees (50-65)	Female	8,403	2,871	257	67	*11,590*
Older people and retirees (65+)	Male	6,666	1,500	200	33	*8,401*
Older people and retirees (65+)	Female	8,417	2,079	181	20	*10,696*
Total (Male)		*45,366*	*20,069*	*3,028*	*438*	*68,910*
Total (Female)		*47,733*	*22,441*	*3,166*	*360*	*73,705*
Total (All)		*93,099*	*42,510*	*6,194*	*798*	*142,615*

Source: ABS Census TableBuilder (2016)

Dwelling suitability compared to age and sex

TABLE 42: DWELLING SUITABILITY AGAINST AGE AND SEX (2016)

		Additional bedrooms needed	0 bedrooms spare	1 bedroom spare	2+ bedrooms spare	*Total*
Children and teenagers (0-20)	Male	2,146	5,629	4,864	1,423	*14,071*
Children and teenagers (0-20)	Female	2,024	5,332	4,682	1,410	*13,458*
Young adults (20-35)	Male	2,689	6,459	5,275	1,881	*16,325*
Young adults (20-35)	Female	2,397	7,172	5,821	2,025	*17,428*
Established adults (35-50)	Male	1,133	4,754	5,868	2,573	*14,322*
Established adults (35-50)	Female	1,251	5,312	6,309	2,462	*15,336*
Older workers and pre-retirees (50-65)	Male	553	2,676	3,526	2,548	*9,307*
Older workers and pre-retirees (50-65)	Female	641	2,684	3,954	2,906	*10,178*
Older people and retirees (65+)	Male	240	1,068	2,439	3,727	*7,489*
Older people and retirees (65+)	Female	281	1,436	3,399	4,456	*9,601*
Total (Male)		*6,761*	*20,586*	*21,972*	*12,152*	*61,514*
Total (Female)		*6,594*	*21,936*	*24,165*	*13,259*	*66,001*
Total (All)		*13,355*	*42,522*	*46,137*	*25,411*	*127,515*

Source: ABS Census TableBuilder (2016)

Dwelling suitability compared to household type

TABLE 43: DWELLING SUITABILITY AGAINST HOUSEHOLD TYPE (2016)

	Additional bedrooms needed	0 bedrooms spare	1 bedroom spare	2+ bedrooms spare	*Total*
Couples only	637	3,480	10,223	11,934	*26,268*
Couples with children	6,482	21,732	22,116	6,802	*57,133*
Single parent	2,203	5,675	3,987	725	*12,585*
Other family	395	1,036	727	183	*2,344*
Multiple family	1,643	1,300	613	272	*3,831*
Lone person household	-	3,981	6,580	5,155	*15,716*
Group household	2,012	5,328	1,904	386	*9,635*
Total	*13,351*	*42,535*	*46,149*	*25,460*	*127,503*

Source: ABS Census TableBuilder (2016)

APPENDIX D: MAPS OF EXCLUSIONS FROM AVAILABLE LAND

FIGURE 55: SITES EXCLUDED FROM AVAILABLE LAND BECAUSE OF HERITAGE OVERLAYS

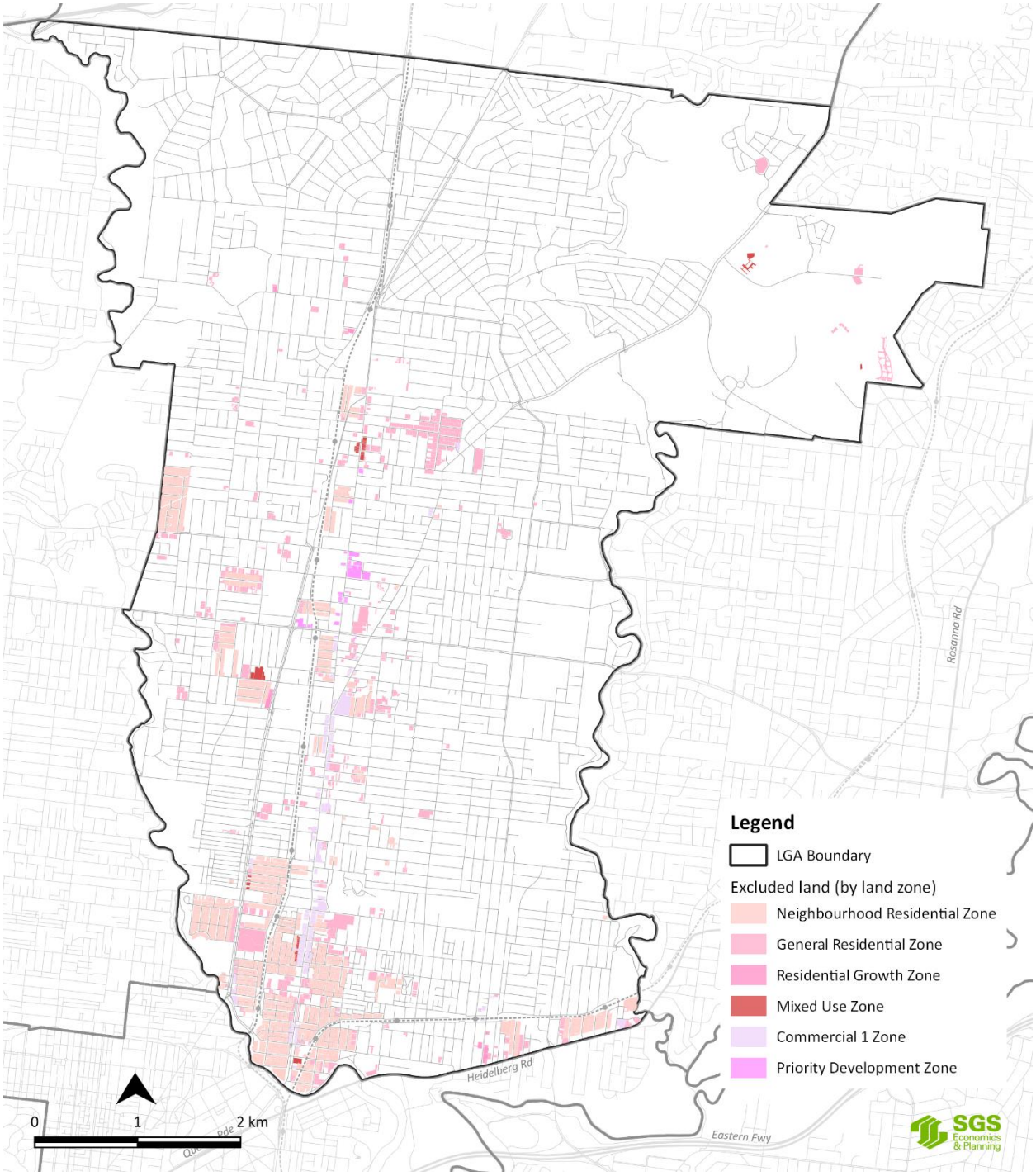


FIGURE 56: SITES EXCLUDED FROM AVAILABLE LAND BECAUSE THEY CONTAIN STRATA-SUBDIVIDED OR MULTI-UNIT DEVELOPMENT

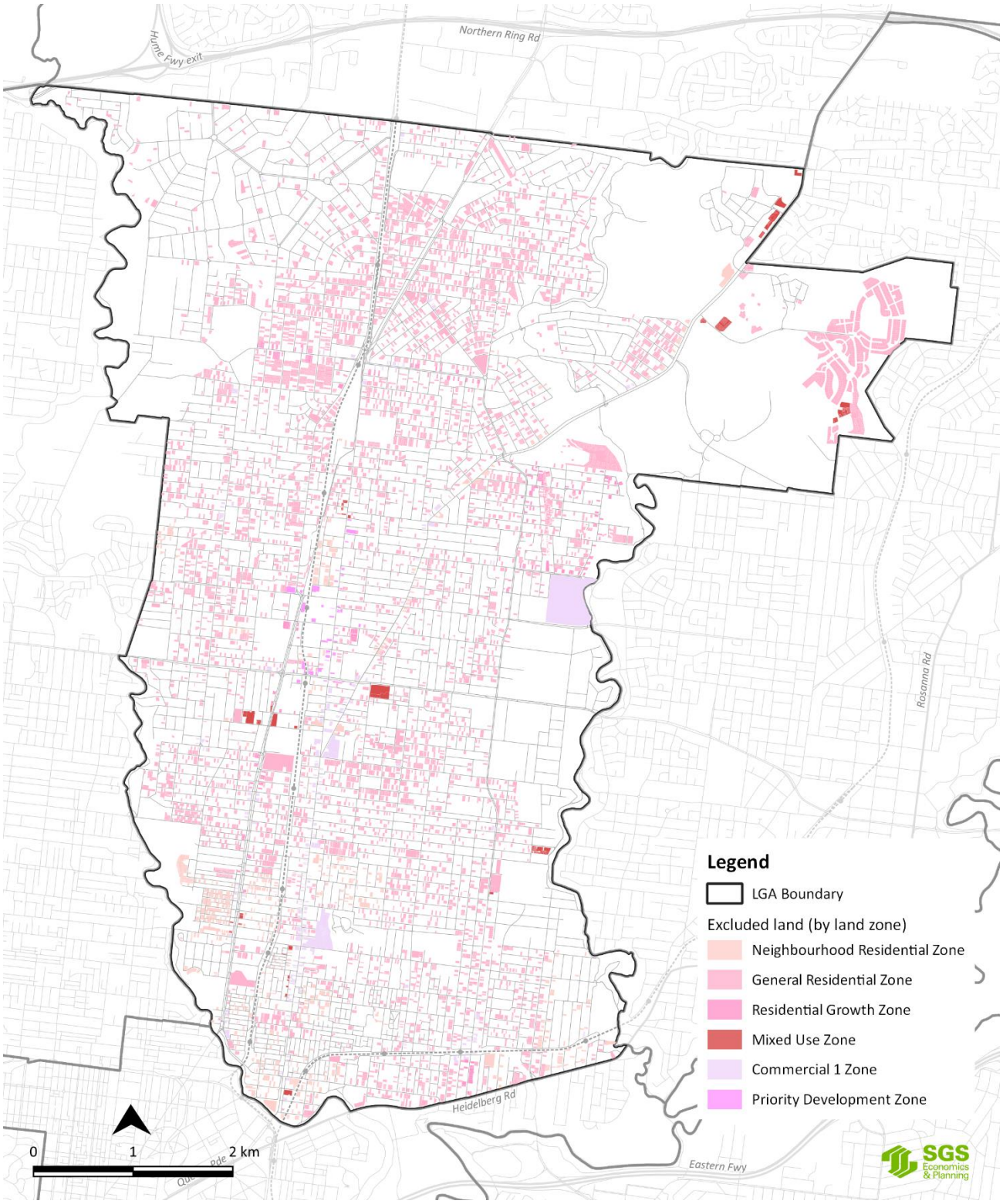


FIGURE 57: SITES EXCLUDED FROM AVAILABLE LAND BECAUSE THEIR AREA OR FRONTAGE IS TOO SMALL

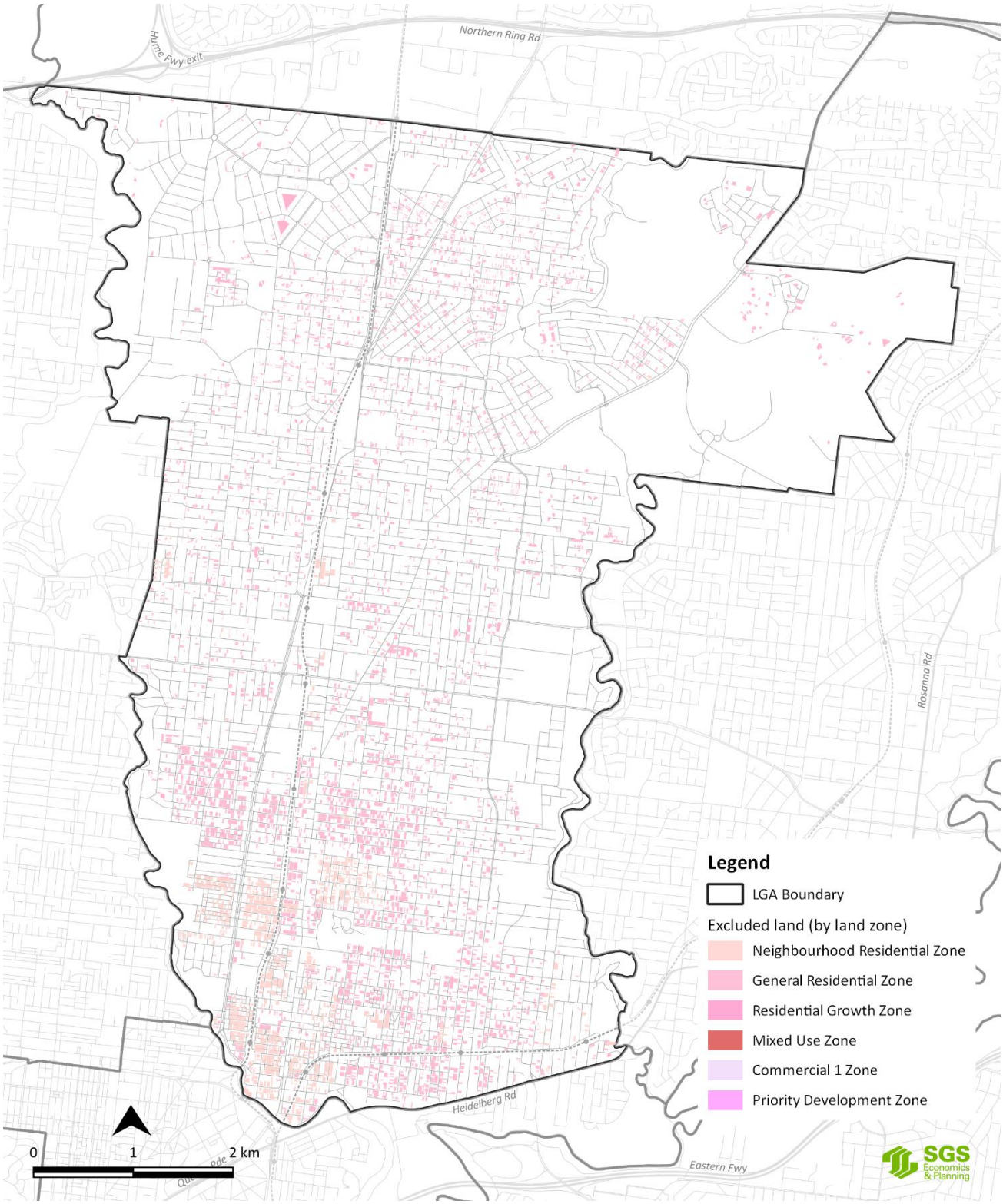


FIGURE 58: SITES EXCLUDED FROM AVAILABLE LAND BECAUSE THEY CONTAIN COMMUNITY INFRASTRUCTURE, ASSETS OR OTHER NOTABLE LAND USES LIKELY TO RESTRICT REDEVELPOMENT

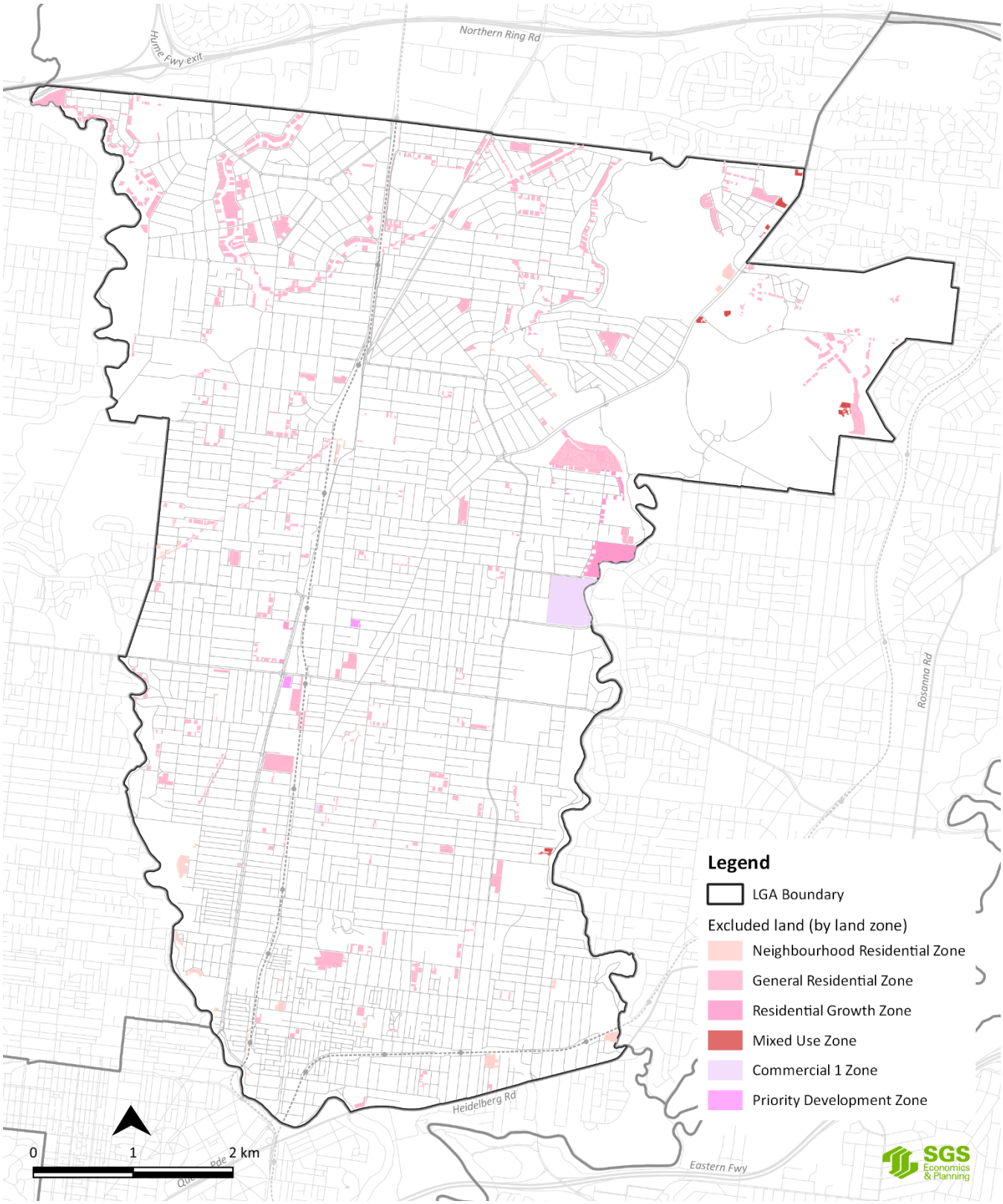


FIGURE 59: SITES EXCLUDED FORM AVAILABLE LAND BECAUSE THEY WERE RECENTLY DEVELOPED

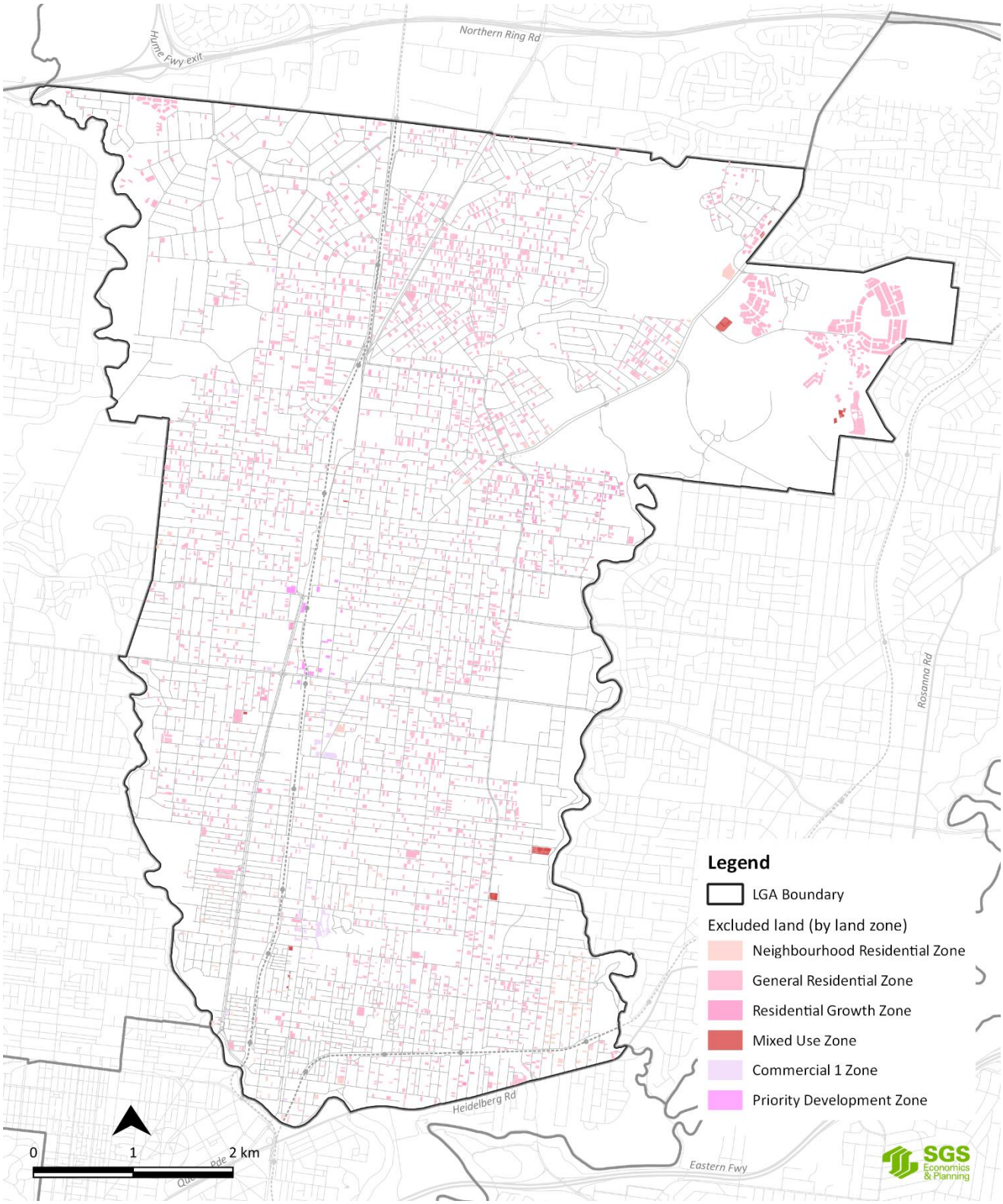
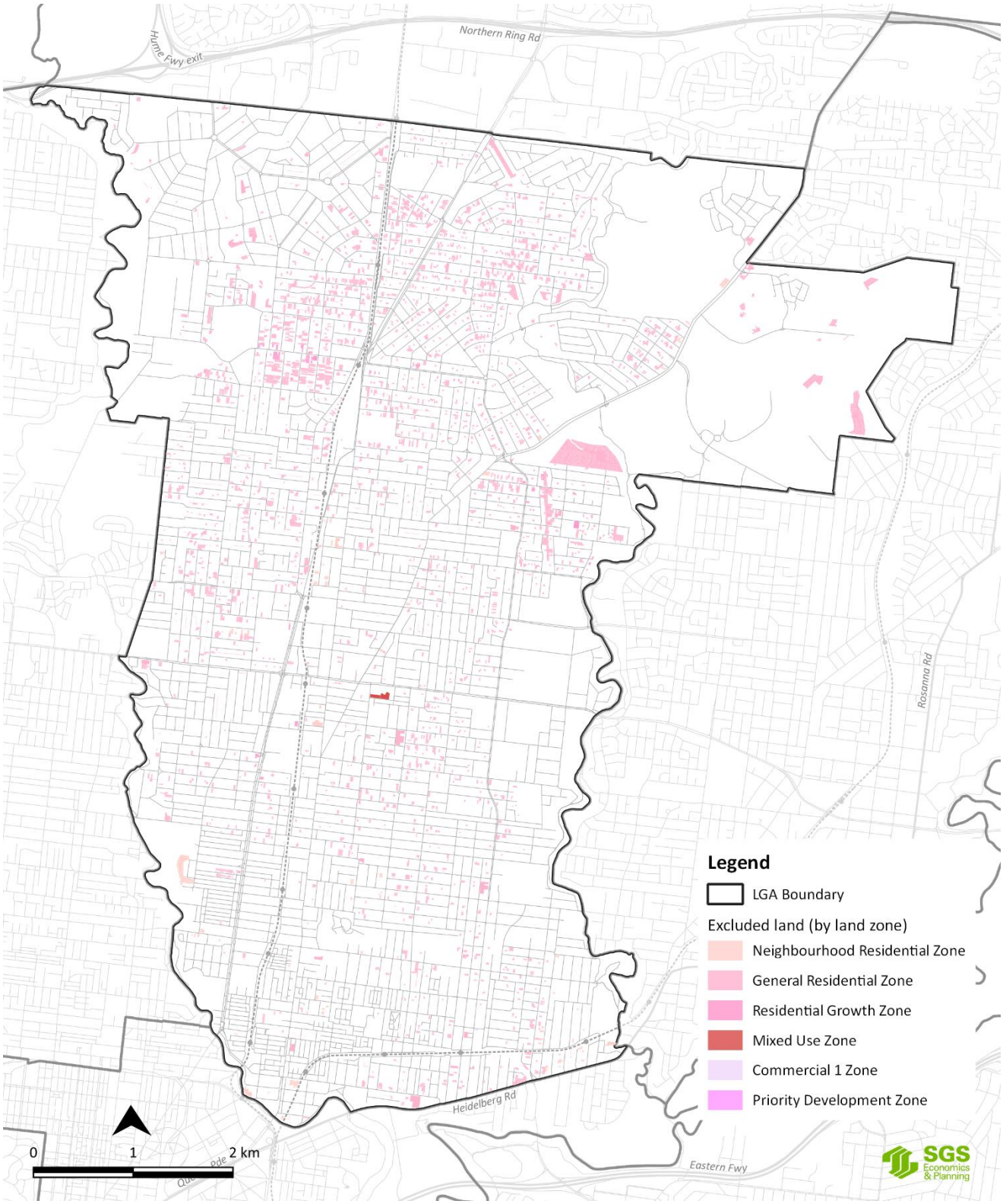


FIGURE 60: SITES EXCLUDED FORM AVAILABLE LAND BECAUSE THEY HAVE AN IRREGULAR SHAPE OR FOR ANOTHER REASON NOT COVERED ABOVE (INCLUDING BEING IDENTIFIED AS LIKELY TO BE UNAVAILABLE DURING MANUAL CHECKING OF RESULTS)



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