

Knox Housing Monitoring Program

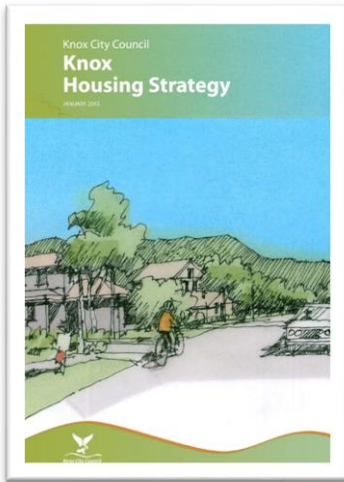
Annual Report for 2021

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1. This document

This is the 14th annual Knox Housing Monitoring Program report. It presents measures of progress against the six objectives of the *Knox Housing Strategy 2015* for the 2021 calendar year:



Objective 1: A diversity of housing is provided in appropriate locations.

Objective 2: Residential development better responds to the community's current and future needs, and allows people to age-in-place.

Objective 3: Energy, water, and waste efficient design are increased in dwellings.

Objective 4: Housing design better responds to neighbourhood identity and creates a stronger sense of place.

Objective 5: Protect and enhance the landscape and environmental values of natural areas of significance.

Objective 6: Development responds to neighbourhoods in an integrated and balanced manner.

2. Net vs. total dwelling change

Approved planning permits for subdivisions and additional dwellings are used in this report as an indicator of what dwellings are likely¹ to be built, and where. Two approaches for counting the number of dwellings approved in planning permits are used in this report:

- **Total new dwellings** is all new dwellings possible from approved planning permits. This measure does not account for demolitions and provides the best information about the size and type of dwellings being approved. Total new dwellings is used to demonstrate how permit approvals align with the objectives of the *Knox Housing Strategy 2015*.
- **Net new dwellings** is the increase in dwellings possible from approved planning permits, beyond what exists in Knox already. It subtracts demolitions from total new dwellings. Net new dwellings is a measure of growth in Knox's housing supply.

To illustrate, an approved planning permit for replacing a detached house with four townhouses would be four total new dwellings and three net new dwellings.

3. Policy context

Plan Melbourne 2017-2050 is the Victorian Government's strategy for supporting jobs, housing and transport, while building on Melbourne's distinctiveness, liveability and sustainability. One of the underlying goals of *Plan Melbourne 2017-2050* is to direct new housing toward areas near existing services, jobs and public transport.

The *Knox Housing Strategy 2015* is consistent with *Plan Melbourne 2017-2050* in that it is designed to encourage more

¹ Approved planning permits are indicative of what may be built, but not all are planning permits are enacted. Planning permits typically expire after two years, although extensions can be granted for an additional two years.

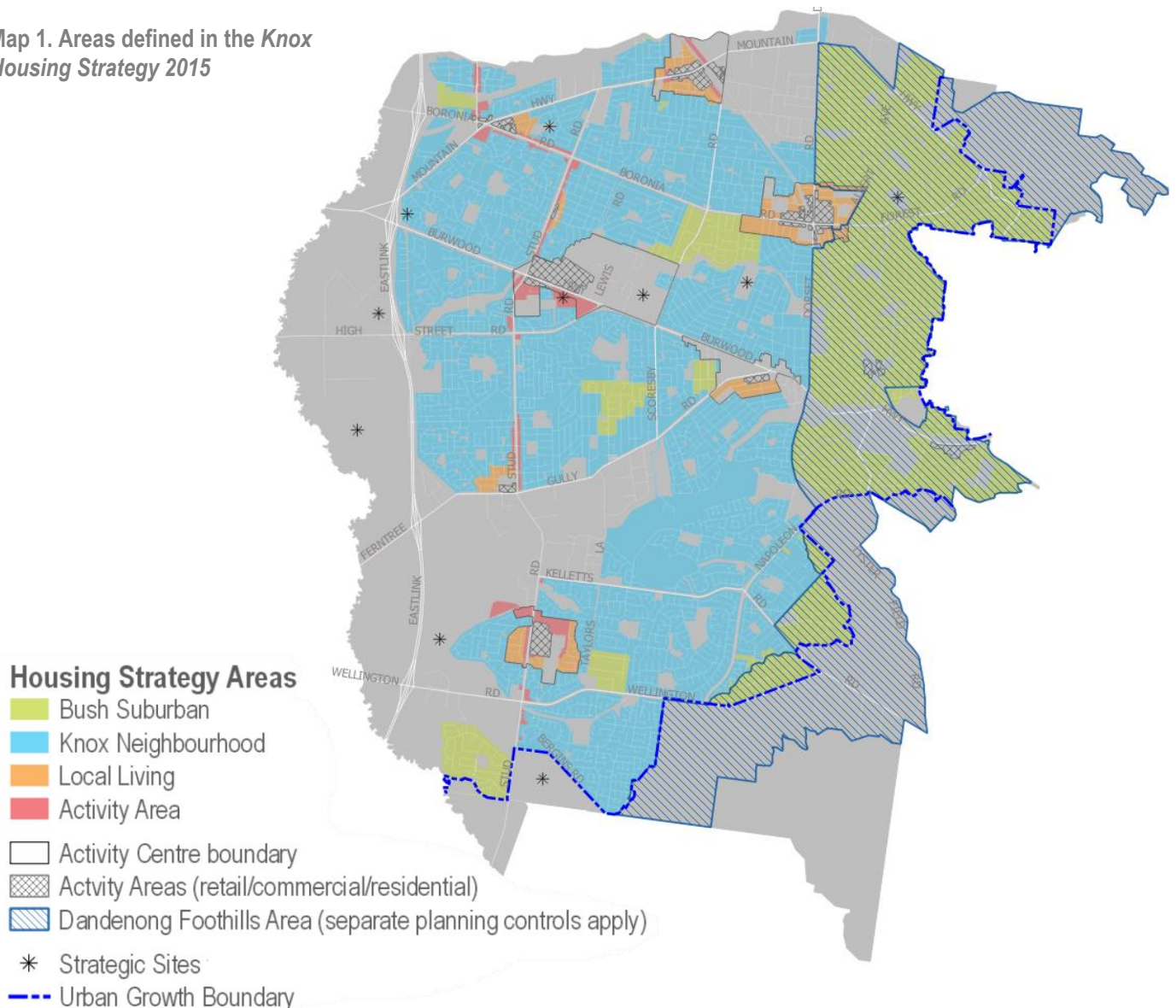
and different types of dwellings in areas closest to transport, shops and services. In doing so, it also aims to limit development in most neighbourhood streets, particularly those with significant environmental and landscape values.

The *Knox Housing Strategy 2015* divides Knox into four Housing Strategy areas (Map 1), each with different levels of change anticipated and different types of dwelling preferred:

- **Bush Suburban** and **Knox Neighbourhood** areas are expected to undergo less change, preserving areas of environmental significance (including native vegetation and wildlife habitat), landscape value and neighbourhood character.
- **Local Living** and **Activity Areas** are expected to see more change, accommodating medium and higher density development to provide additional housing capacity and choice to serve the city's changing needs.

In 2021, Council adopted a new Community Plan and a new Council Plan which both highlight the continuing importance of housing as a critical focus for Council. A key direction of the *Community Plan 2021-2031* is "Neighbourhoods, housing and infrastructure", which supports greater housing mix and better access to public transport as important outcomes. The *Council Plan 2021-25* commits Council to a number of actions to achieve positive housing outcomes for the community, including commencing a review of the *Knox Housing Strategy 2015*.

Map 1. Areas defined in the *Knox Housing Strategy 2015*

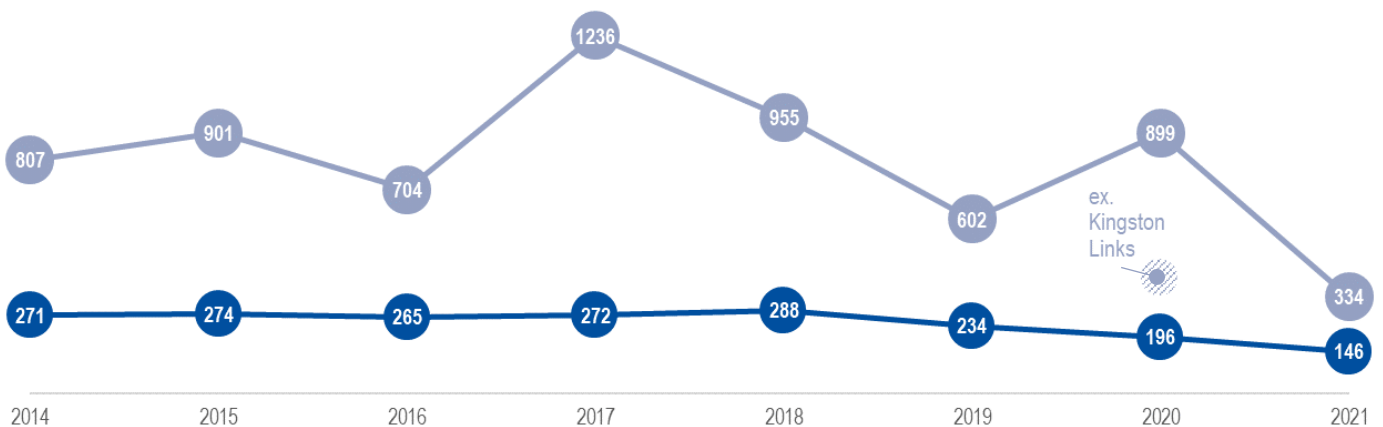


4. Overview: planning permits approved in 2021

146	planning permits resulting in at least one additional dwelling were approved in 2021. This is the lowest number since the years following the global financial crisis (2009 and 2010). This is likely due, at least in part, to the COVID-19 pandemic.
334	net new dwellings are possible from the planning permits approved in 2021, less than half the 2020 figure.
214	beds in a residential aged care facility were approved in a planning permit in 2021, as were two Specialist Disability Accommodation dwellings.
1	application for apartments was approved in 2021, which will yield four apartments. This is the lowest number of approved apartments recorded in the Housing Monitoring Program, which began in 2009.
37%	of net new dwellings possible from approved planning permits were in Ferntree Gully or Boronia.

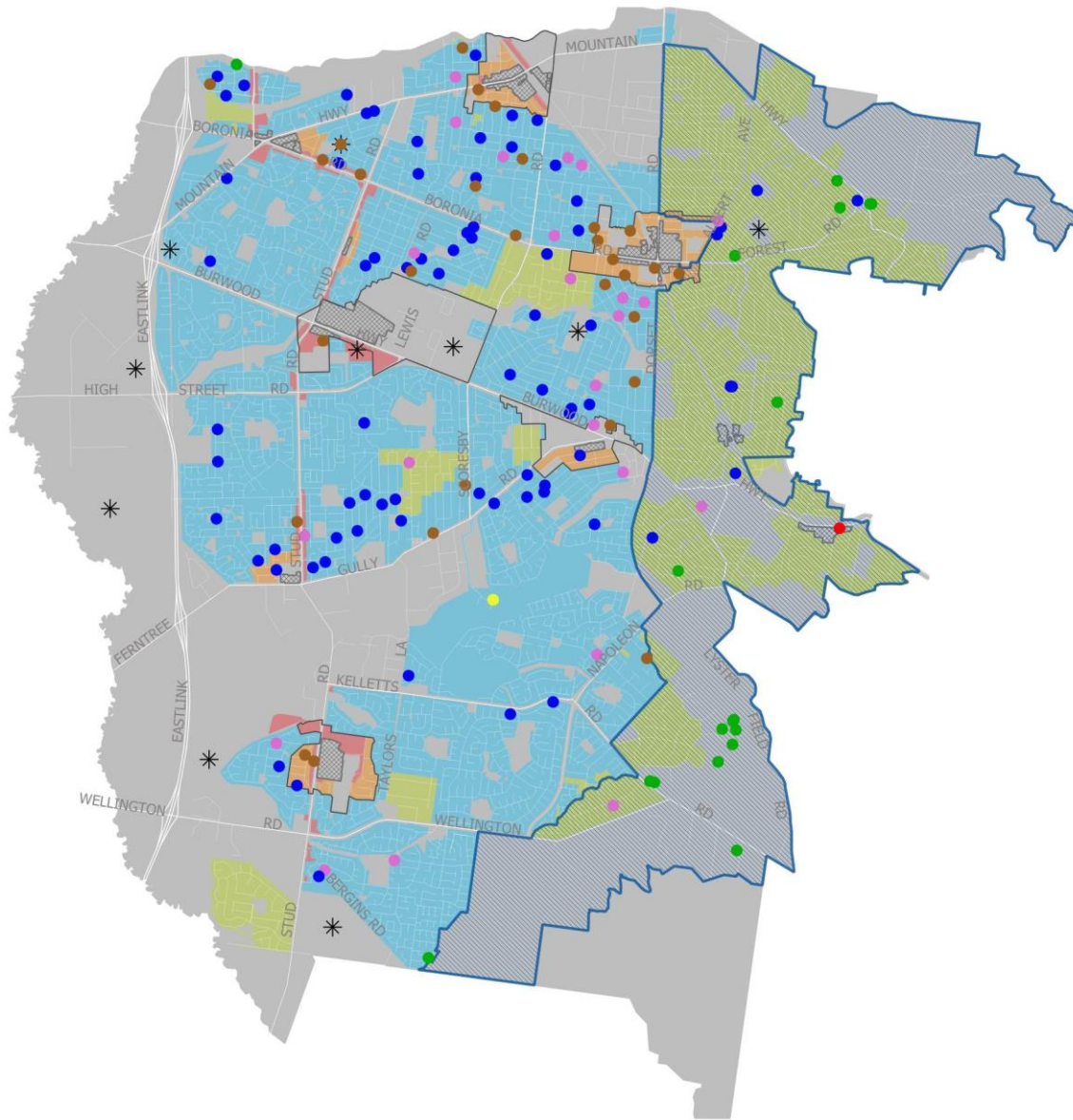
Potential net growth in dwellings from planning permits approved² in 2021 was unusually low, in line with the low number of permits granted (Figure 1).

Figure 1. The number of approved planning permits resulting in at least one net new dwelling, and potential net growth in dwellings from these permits were low in 2021 compared to previous years.



² This includes planning permits approved by Council at the direction of VCAT.

Map 2. Planning permits approved in 2021 that will yield at least one net new dwelling if enacted



Housing Strategy Areas

- Bush Suburban
- Knox Neighbourhood
- Local Living
- Activity Area
- Activity Centre boundary
- Activity Areas (retail/commercial/residential)
- Dandenong Foothills Area (separate planning controls apply)

* Strategic Sites for housing

Dwelling type

- Aged care
- Apartments
- Townhouse
- Villa Units
- Dual Occupancy
- Detached dwellings

5. A diversity of housing is provided in appropriate locations (Objective 1)

5.1 Why is this important?

While demand for larger detached dwellings in Knox will continue, having a mix of housing options ensures the city caters to current and future residents at all stages of life and of diverse economic means. Council also seeks to protect and enhance the “green and leafy” character of Knox that the community values. This means encouraging diverse housing with increased densities in Activity Areas and Local Living areas (close to transport, shops and services) to provide more housing options, while discouraging intensive development in Bush Suburban and Knox Neighbourhood areas to preserve these neighbourhoods’ green and leafy character and areas of environmental significance.

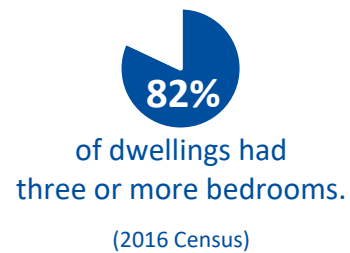
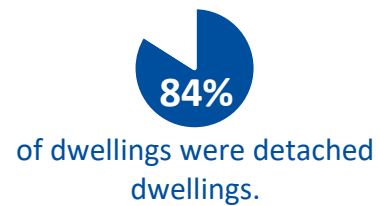
5.2 How are we tracking?

About half of the total new dwellings approved in 2021 were townhouses³ (Figure 2). This is typical of most years. Of the 28 townhouse developments approved, 14 were of six or more dwellings and 14 were of three or four.

Table 1 shows the number of dwellings in approved planning permits, and the preferred dwelling type for each Housing Strategy area. A number of the townhouses and villa units approved in 2021 were in Bush Suburban or Knox Neighbourhood areas where they are not a preferred housing type. Section 5.3 outlines the factors that played a role in these approval decisions.

Figure 3 shows the proportion of total new dwellings that were the preferred dwelling type, Figure 4 shows the net number of new dwellings approved per hectare of each of the four Housing Strategy areas. See Attachment B for net growth in dwellings, by type, over the past six years.

In Knox in 2016:



³ See Attachment A for dwelling type definitions.

Figure 2. In 2021, townhouses accounted for more **total new dwellings in approved planning permits** than any other type of dwelling. All but two **demolitions in approved planning permits** were detached dwellings.

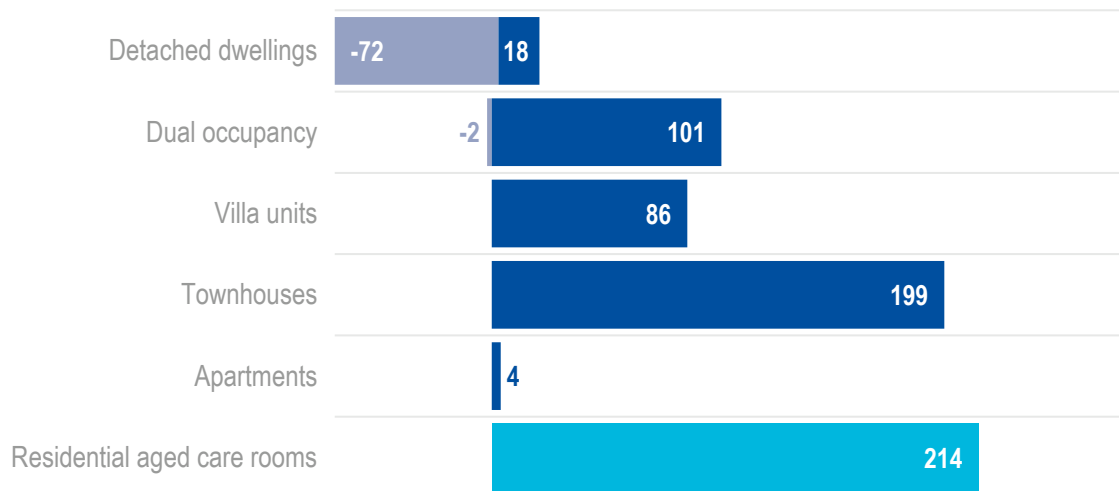
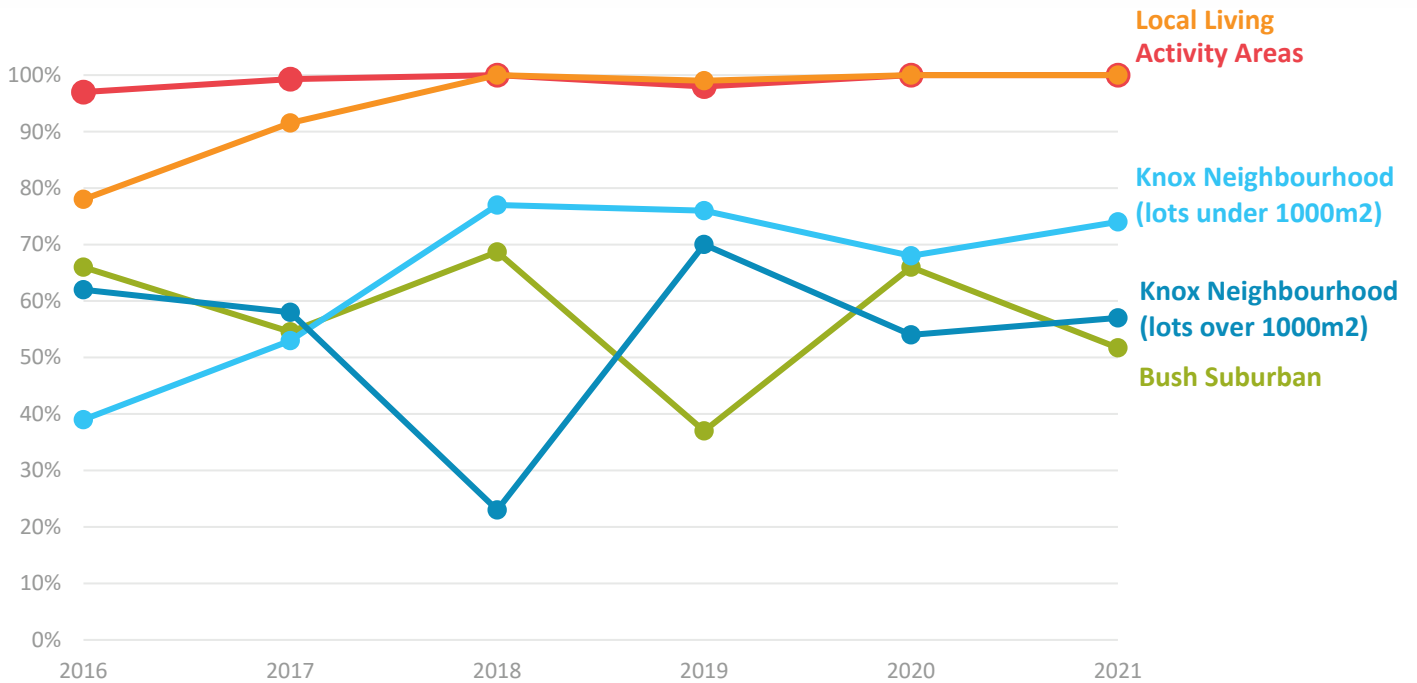


Table 1. Number of new dwellings by dwelling type and Housing Strategy area

Area type		Net new dwellings	Total new dwellings	Detached dwellings	Dual occupancy	Villa units	Townhouses	Apartments / Mixed use
Outside the Urban Growth Boundary	All lots - includes rural and other non-residential zones	9	9	9	0	0	0	0
Bush Suburban	All lots - min. subdivision requirements apply	26	29	7	8	14	0	0
Knox Neighbourhood	Lots under 1000m2	86	121	2	85	18	16	0
	Lots over 1000m2	73	92	0	4	48	40	0
Local Living	All lots - additional controls from local plans may apply	36	43	0	3	3	37	0
Activity Areas	All lots - additional controls from local plans may apply	41	51	0	0	3	48	0
Commercial Areas	All lots - additional controls from local plans may apply	12	12	0	1	0	7	4
Strategic Sites (Wantirna Heights school site)	All lots - additional controls from local plans may apply	51	51	0	0	0	51	0

PREFERRED HOUSING TYPE

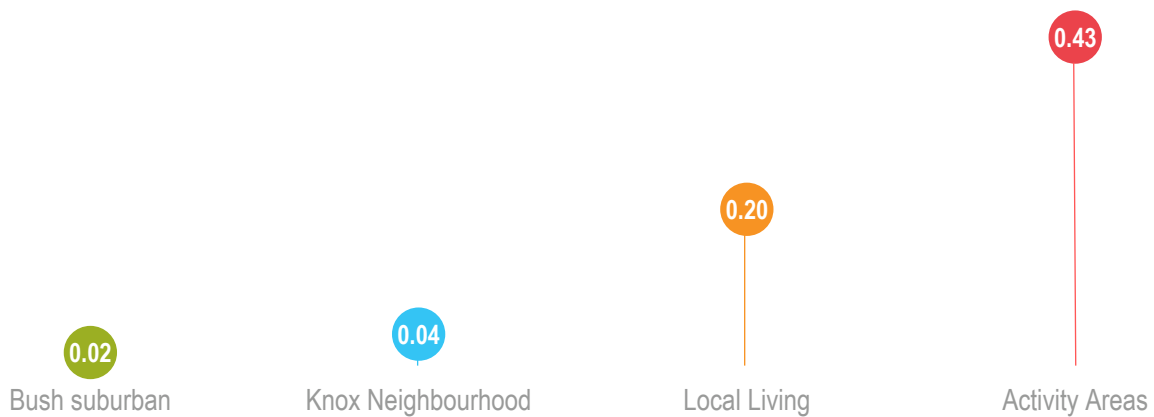
Figure 3. Almost all new dwellings approved in **Local Living** and **Activity Areas** since 2017 have been the preferred type for the Housing Strategy area in which they are located. Areas where lower densities are preferred tend to perform less well.



Note: The unusually low 2018 figure for large Knox Neighbourhood lots was influenced by a single application for 294 townhouses at the site of the former Wantirna Caravan Park that was approved at VCAT after being refused by Council.

Figure 4. The net number of new dwellings per hectare approved in 2021 was much higher in **Local Living** and **Activity Areas** than **Bush Suburban** areas.

This is in line with the approach to development described in the *Knox Housing Strategy 2015*.



5.3 Analysis

- In a return to the pre-2020 pattern, townhouses were the most numerous approved dwelling type in 2021. The disruption to this pattern observed in 2020 was due to the approved subdivision of the former Kingston Links Golf Club site, which will yield a large number of detached dwellings.
- Approvals in 2021 suggest a net loss of detached dwellings. This is typical of most years (see Attachment B for a time series).
- There were 20 planning permits approved on Bush Suburban area sites in 2021. With a total count of only 20 approved planning permits, a few developments of non-preferred dwelling types have a relatively large impact on the proportions shown in Figure 3. Four developments in Bush Suburban areas were of a non-preferred dwelling type but likely still represent good development outcomes from perspectives other than typology. All were villa unit developments, three of which were on large lots (of greater than 1900m²) and all had building coverage of less than 39% of the site area.
- The number of approved dwellings per hectare by Housing Strategy area is a measure of change. In line with the direction set out in the *Knox Housing Strategy 2015*, more change occurred in places considered most appropriate for change, that is, Local Living and Activity Areas.
- In 2021, the proportion of dwellings approved for large Knox Neighbourhood lots that were of the preferred type remained at below 60% after a 2019 peak. In 2021, there were nine approved developments of non-preferred dwelling types on large Knox Neighbourhood lots:
 - Developments of more than two dwellings that include at least one pair of dwellings with shared living walls are classified as townhouses in this analysis, even if the other dwellings would otherwise be classified as villa units. In developments of only a few dwellings, this can actually result in better outcomes with respect to vegetation and open space than traditional villa units. Eight approvals on large Knox Neighbourhood lots fit into this category in 2021.
 - Three were for lots of more than 1,900m². These were the only approved developments in Knox Neighbourhood areas that allowed for more than four total new dwellings.
 - A three dwelling townhouse development on Cassia Court in Wantirna was approved by VCAT. The Tribunal did not agree with Council's concerns regarding the landscaping, tree protection or setbacks associated with this development.
- The proportion of dwellings approved on smaller (less than 1000m²) Knox Neighbourhood lots that were the preferred type was broadly in line with previous years. The non-preferred approvals were 11 villa unit and townhouse developments for 34 total new dwellings. These approvals included a range of factors that played an important role in these decisions by Council. For example:
 - Smaller developments of three to four dwellings have become more common over recent years. Ten of the eleven villa unit and townhouse developments approved in 2021 on smaller Knox Neighbourhood lots were of three dwellings, and the remaining one was of four dwellings.
 - Of the six approved villa unit developments on smaller Knox Neighbourhood lots, five were on lots of 970m² or greater, which puts them close to the threshold lot size for large Knox Neighbourhood lots (1000m²), where villa units are a preferred dwelling type.

6. Residential development better responds to the community's needs, and allows people to age-in-place (Objective 2)

6.1 Why is this important?

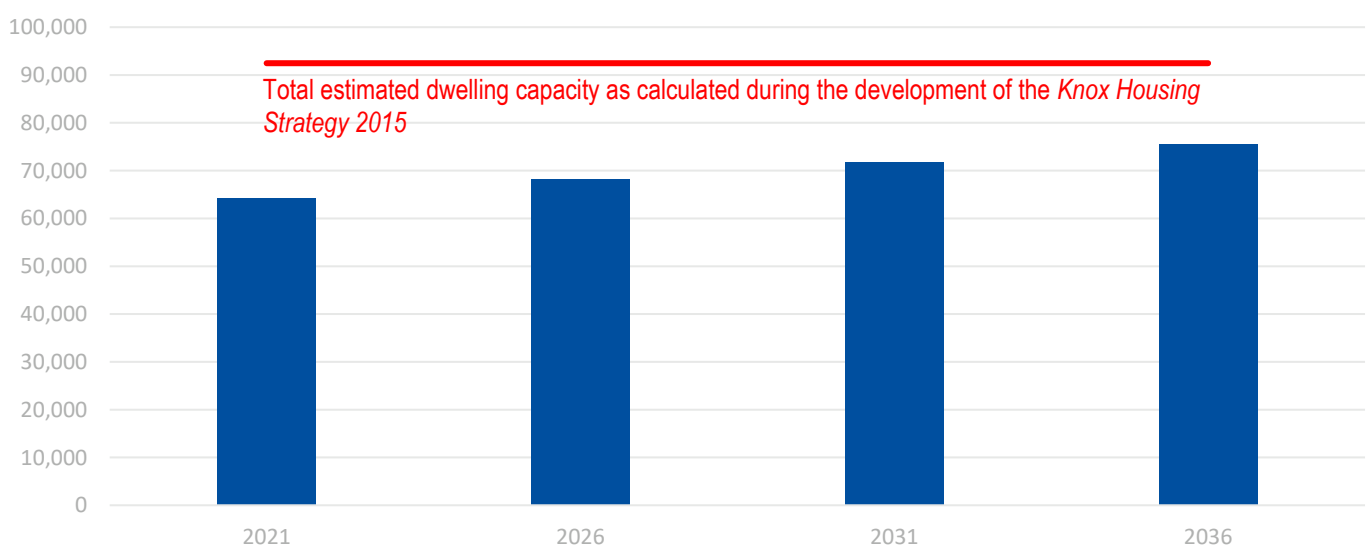
The *Knox Housing Strategy 2015* seeks to bring the mix of available housing into alignment with the future needs of the community – specifically by encouraging more small dwellings that can cater for small households and improve affordability.

It is also important that Knox residents can remain part of their community as they age, rather than be forced to relocate to find suitable and affordable accommodation. Aged care places and smaller dwellings both help with this.

6.2 How are we tracking?

The *Knox Housing Strategy 2015* estimated that Knox had capacity for 36,000 additional dwellings (approximately 92,500 dwellings in total) if each lot were developed to its full potential within the constraints of the planning provisions that applied at the time. Based on the Victorian government’s Victoria in Future projections (DELWP 2019a⁴), future growth can be accommodated within this estimated capacity until at least 2036 (Figure 5). These capacity estimates are based on broad assumptions made within the policy context of the *Knox Housing Strategy 2015* and will be revisited at the review of Knox’s Housing Strategy.

Figure 5. It appears that **forecast dwelling numbers in Knox** can be accommodated within applicable planning provisions (**estimated capacity**) until at least 2036.



Average household size in Knox is declining. The number of couple and lone person households in Knox is forecast to surpass the number of families with children in 2024.

([Knox Profile .id](#), [Knox Forecast .id](#))

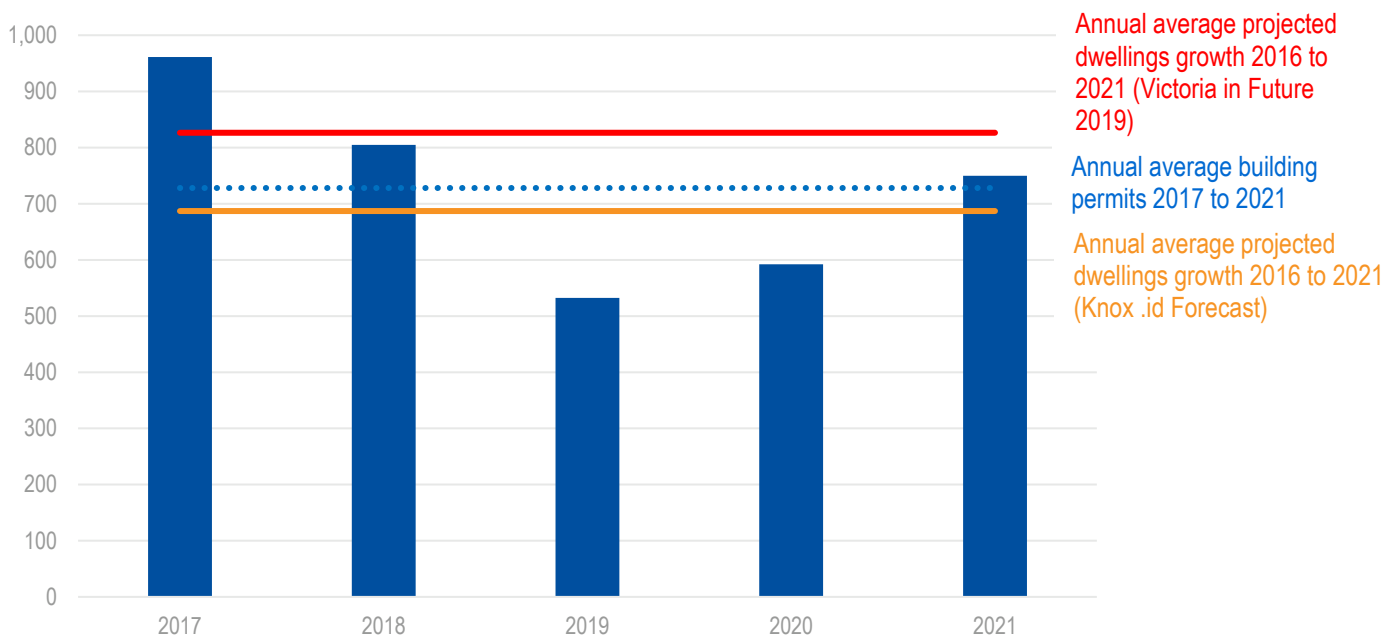
⁴ DELWP’s Victoria in Future (VIF) dwelling projections are applied here as they are calculated using a top-down model. In contrast to the forecasting method employed by .id on behalf of Council, in which only local factors are taken into account, the VIF projections include assumptions about state level growth and allocate this to local government areas. VIF forecasts greater dwelling growth for Knox than is forecast by .id, and therefore the VIF forecasts are a more conservative benchmark for capacity assessment.

One way to assess the actual number of new dwellings built against forecasts is to look at data on building permits. Building permits certify that plans and specifications comply with building regulations, and allow building work to commence. They are therefore a better indicator of actual dwelling growth than planning permits, which show what could be built in the next two to four years.

Building permits were granted for the construction of 4,302 dwellings in Knox during the five years 2017 to 2021 (ABS 2022), equivalent to an annual average of 860 dwellings. However, this overestimates the actual increase in dwellings because it does not take into account demolitions. To estimate the number of dwellings that were demolished to make way for new dwellings in building permits, the relationship between demolitions and new dwellings in planning permits has been used.

Between 2017 and 2021, there was one dwelling demolished for every 6.5 dwellings approved in *planning* permits. Applying that rate to *building* permits gives an annual average of 728 new dwellings built across Knox between 2017 and 2021. That figure is between the State Government’s Victoria in Future projection of 826 new dwellings per year and the forecast calculated by .id on behalf of Council of 687 new dwellings per year (Figure 6).⁵

Figure 6. The number of new dwellings in building permits (adjusted for assumptions about demolitions) in Knox remains broadly in line with dwelling growth projected by the Victorian Government and that forecast on behalf of Council.



⁵ Alignment between building permit data and the dwelling forecasts prepared by the Victorian Government and on behalf of Council is expected because building approvals are taken into account in calculating these forecasts.

For the fourth year in a row, dwellings of four or more bedrooms were more prevalent in approved planning permits than other dwelling sizes in 2021 (Figure 7). A net total of 78 small dwellings⁶ (two bedrooms or fewer) were approved in Knox in 2021, lower than in previous years (Figure 8).

Figure 7. The planning permits approved in 2021 would see almost half of net growth being four bedroom dwellings.

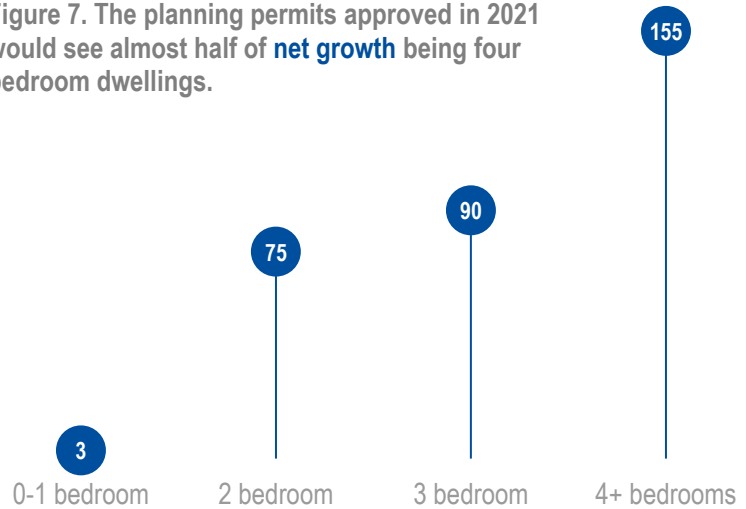
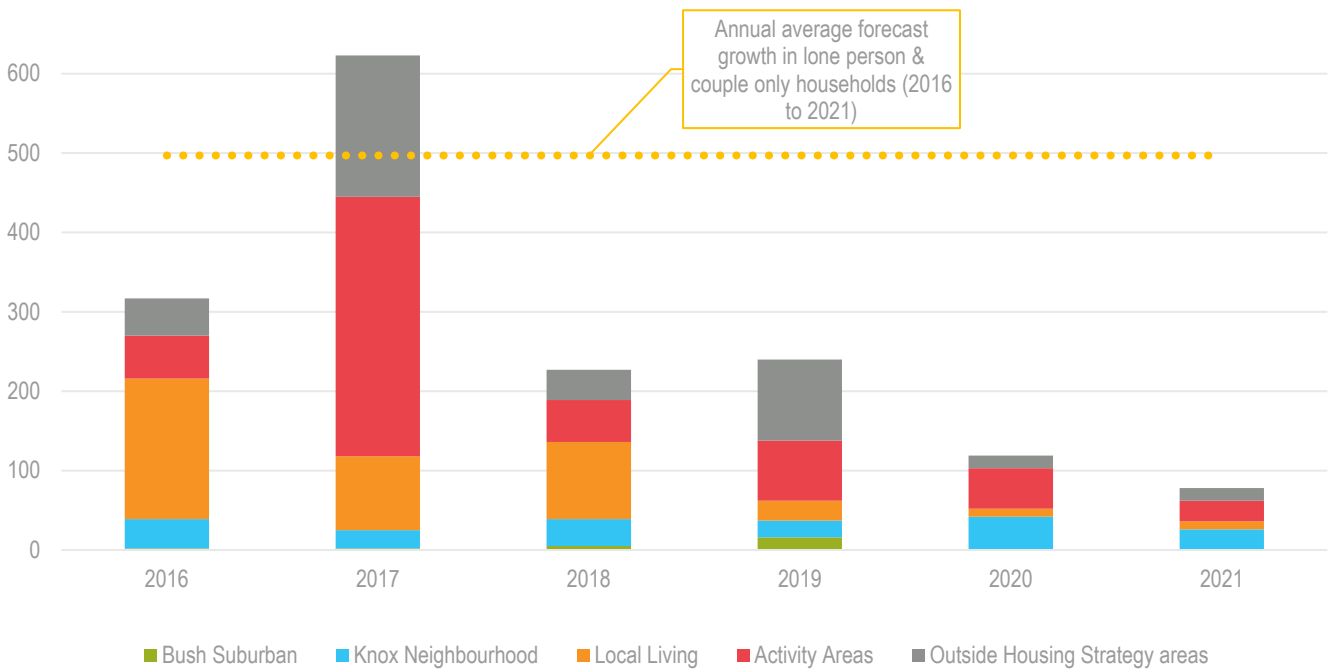


Figure 8. Relative to the previous five years, few net new small dwellings (two bedrooms or fewer) were approved in 2021. Growth in small dwellings is lower than forecast growth in small households.



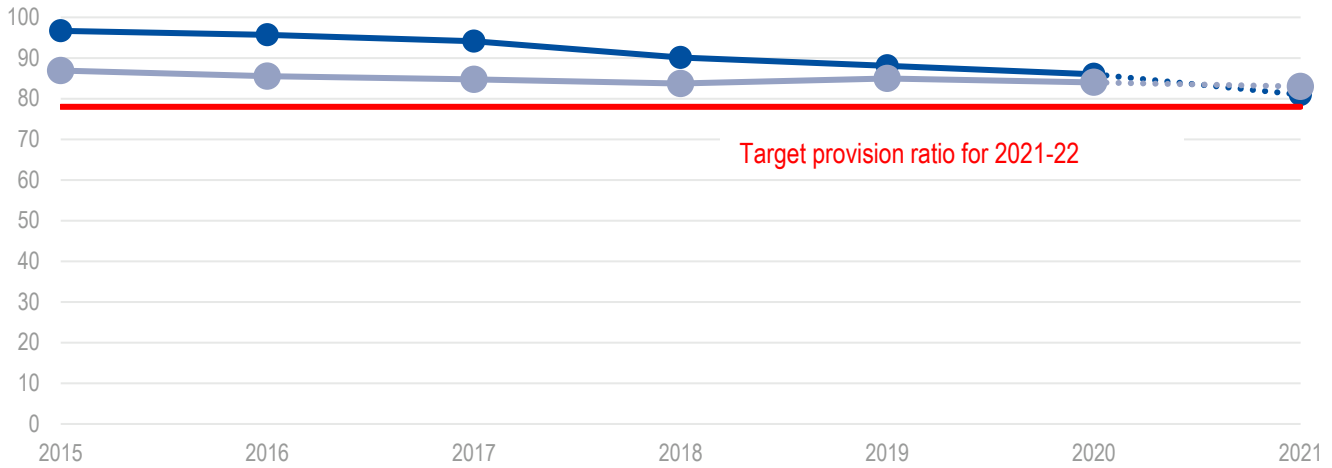
Note: Residents of non-private dwellings, such as residential aged care facilities, are not included in household forecasts.

There were 1,606 places (typically a single room with en suite) in residential aged care facilities in Knox in June 2021 (AIHW 2021) and approximately 19,800 residents aged 70 years and over living in Knox at that time (Knox Forecast .id), which is equivalent to 81 places in residential aged care facilities per 1,000 residents aged 70+ (Figure 9). This ratio is down from previous years, since population has increased while the number of places in aged care has not. The Australian Government target provision for residential aged care places was⁷ 78 places per 1,000 residents over the age of 70 by 2021-22 (ACFA 2020), placing Knox above the target provision level.

⁶ This figure excludes the 214 new rooms in an aged care facility approved in 2021.

⁷ Past tense is used because the separate target ratios for residential and home care places are likely to be replaced by a single “overall” ratio. This is to allow the Government flexibility to direct funding to home care or residential care in response to consumer preferences (ACFA 2019).

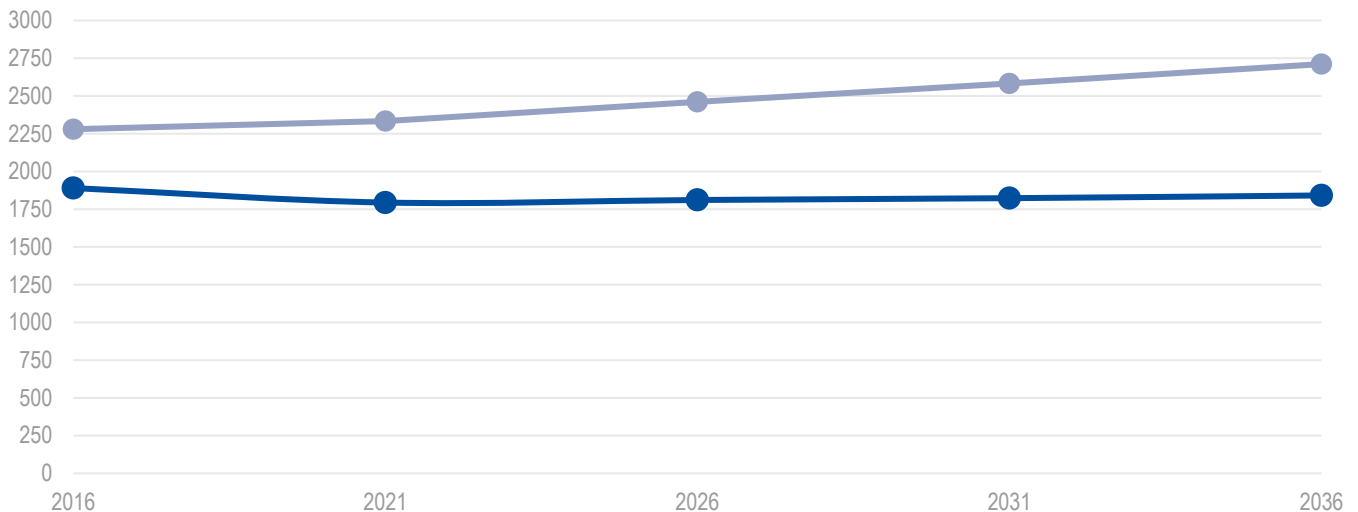
Figure 9. In 2021, there were approximately 81 residential aged care places in **Knox** per 1,000 residents aged 70+. This is similar to the ratio across the **Eastern Metropolitan Region**.



Note: 2021 results are presented as dashed because the ratio is based on population forecasts rather than population estimates.

There were 1,499 social housing dwellings in Knox at June 2021. This is up six dwellings from June 2020 (DHHS 2021). Based on the availability of social housing and affordable lettings, the shortfall of social and affordable dwellings in Knox was estimated to be 540 in 2021. Without intervention, this shortfall is projected to increase (Figure 10).

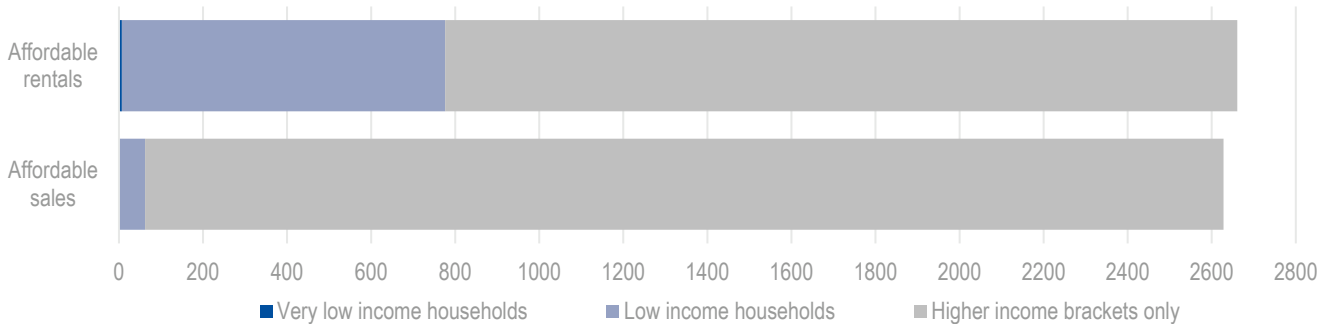
Figure 10. There is a persistent gap between **supply** and **estimated need** for social and affordable housing in Knox. If the number of affordable or social housing dwellings in Knox does not grow, this gap will increase.



The median house price in Knox was \$929K in June 2021. The median unit price was \$648K ([Housing .id](#)). Only 62 of the more than 2,500 dwellings sold in Knox during 2020-21 were affordable⁸ to low-income households (\$43,000 to \$69,000 per annum). Even fewer sales and rentals were affordable to households on a very low-income (less than \$43,000 per annum) (Figure 11).

⁸ Affordable is defined as costing up to 30% of gross household income.

Figure 11. In the year to June 2021, only two sales and seven rentals were affordable to households on a very low-income. Low-income households had more rental options, but still very few dwellings affordable for purchase.



6.3 Analysis

- Knox planning provisions are likely to accommodate population growth forecast by the Victorian Government at least until 2036. Indeed, the Victorian Government’s population forecasts have not been updated since the COVID-19 pandemic, which has inhibited overseas and interstate immigration and may, over the longer term, result in lower than anticipated population growth in Knox (.id 2020a, .id 2020b).
- More building permits were issued in 2021 than in the previous two years. This pattern mirrors the national trend. The national downturn evident in 2018 and 2019 was attributed at the time to tighter curbs on lending and falling house prices (e.g. Bleby 2019), while the 2021 upturn has been attributed to strong buyer demand and a large pipeline of residential construction work which is now being delivered as COVID-19 restrictions ease (e.g. Felsman 2021). The results of the 2021 Census, to be released in stages commencing June 2022, will provide an updated count of the number of dwellings in Knox in 2021.
- Growth in small dwellings does not appear to be matching likely growth in small households. Of the net new dwellings approved in planning permits in 2021, 24% had two bedrooms or fewer. This was lower than is typical, especially for years where no large subdivisions are approved (e.g. 40% in 2019, 44% in 2017 and 37% in 2016). This is likely due in part to the low number of apartments, which tend to be smaller than other dwelling types, approved in 2021. The gap between growth in small dwellings and small households highlights a potentially increasing challenge for Knox in terms of providing sufficient options for those seeking smaller dwellings.
- In 2020 and 2019, apartments were the largest category of small dwelling, but in 2021 only one apartment development (of four apartments) was approved.
- In 2021, as is typically the case, few small dwellings are in Bush Suburban areas, and more than half are in Local Living or Activity Areas (with 2019 being the exception), which are close to shops and/or transport.
- Supply of residential aged care places in Knox meets the Australian Government target and will increase if the 214 bed residential aged care facility approved in 2021 (or any of the three residential aged care facilities approved during 2019 and 2020) are built.
- There are very few dwellings (including units) in Knox that a household on a very low-income (less than \$43,000 per annum) could afford to buy or rent. Low-income (\$43,000 to \$69,000 per annum) households have more rental options, but will still find very few dwellings affordable for purchase. Evidence of an affordability challenge is the 2,210 applicants on the waiting list for social (public and community) housing in Outer Eastern Melbourne (Knox, Maroondah and Yarra Ranges combined) in June 2021 (DFFH 2022), up from 1,919 in June 2020.
- According to the DHHS (2020 and 2021), the number of social housing dwellings in Knox increased slightly between July 2020 and June 2021, but not enough to meet projected growth in demand. The social housing

dwellings at Stockland’s Waterlea development in Rowville likely contributed to this increase, with HousingFirst reporting having taken delivery of four of the total nine social housing dwellings to be built as part of the project. Opportunities for further social housing growth include the former Kingston Links Golf Club site and the former Norvel Road Quarry site, the owners of which have agreements with Council that secures the provision of future social housing on those sites. Other Strategic Sites identified in the *Knox Housing Strategy 2015* that could incorporate new social housing include the former Boronia Heights School and the former Boral Quarry.

7. Energy, water, and waste efficient design are increased in dwellings (Objective 3)

7.1 Why is this important?

Extreme weather events like heatwaves, storms, and floods are becoming more frequent, and the impact of climate change on the Knox community and its infrastructure, economy, and natural systems is a key challenge for Council, as outlined in the *Climate Response Plan 2021-2031*.

Almost one quarter of the CO₂ equivalent emissions generated in Knox are from residential energy use ([Snapshot emissions report 2020](#)).

7.2 How are we tracking?

To help ensure new buildings meet appropriate environmental performance standards, Council requires that any planning permit application for two or more new dwellings be accompanied by an assessment of the sustainability of the development. Consideration of measures for reducing potable water consumption and greenhouse gas emissions must be included.

The best practice target of a 25% reduction in potable water consumption was met by all developments assessed during 2020-21. Most met the greenhouse gas emissions target of a 50% reduction (Figure 12).

7.3 Analysis

There are no set targets for the proportion of new buildings that must meet best practice in greenhouse gas emissions or potable water consumption, and the means through which each development achieves reductions varies. Things taken into account in assessing emissions include the energy efficiency star rating of the home and of the proposed heating, ventilation and air-conditioning products. Things taken into account in assessing potable water consumption include rainwater storage and the water efficiency of showerheads.

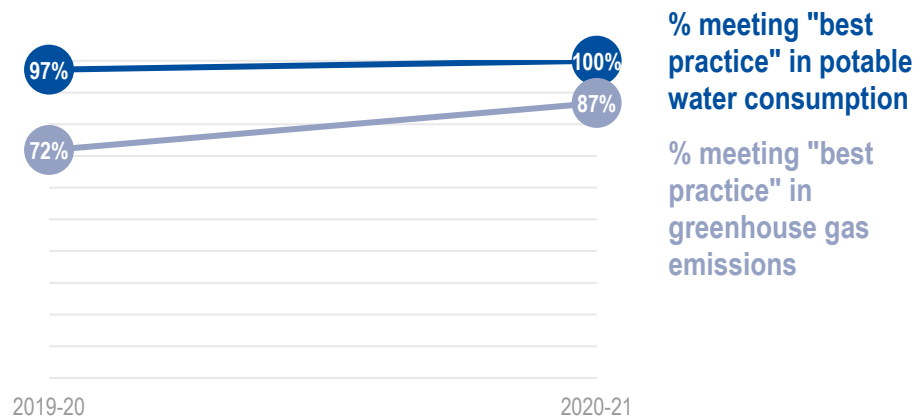
Council revised its approach to Environmentally Sustainable Design permit conditions and the endorsement of developments in 2019-20, to better ensure that Environmentally Sustainable Design commitments are reflected on development plans and actually delivered upon construction. Because of the change, data for 2020-21 offers the first look at change in this measure.



An estimated 2.3 million tonnes of CO₂ equivalent emissions were generated in Knox in the 12 months to June 2020 – 24% from residential energy use.

[\(Snapshot emissions report 2020\)](#)

Fig. 12 The proportion of applicable* new buildings assessed as meeting sustainability targets is increasing.



*includes permit applications for two or more new additional dwellings.

8. Housing design is improved to better respond to neighbourhood identity and create a stronger sense of place (Objective 4)

8.1 Why is this important?

Knox is known for its green and leafy neighbourhoods, quiet streets, and a mix of city and country feel. However, this form of development has also led to a dependence on cars, which in turn has resulted in reduced amenity for Knox residents.

In addition, as land values in Knox have increased, redevelopment has introduced new types of housing that are changing the look and feel of Knox’s neighbourhoods.

8.2 How are we tracking?

Walk Score is an index that quantifies the walkability of a place based on its proximity to local shops, services, schools, entertainment, and jobs. Walk Score also takes into account indicators of pedestrian friendliness, like population density and intersection density. Walkability varies across Knox. The activity centres of Bayswater, Boronia and Ferntree Gully are near to train stations, have main streets lined with shops, and score higher on Walk Score as a result. In contrast, much of Rowville, Lysterfield, and the Dandenong Foothills are classed “car dependent.” Knox’s most walkable suburb (Wantirna) has an overall walkability score 63, which makes it “somewhat walkable” according to the Walk Score Index.

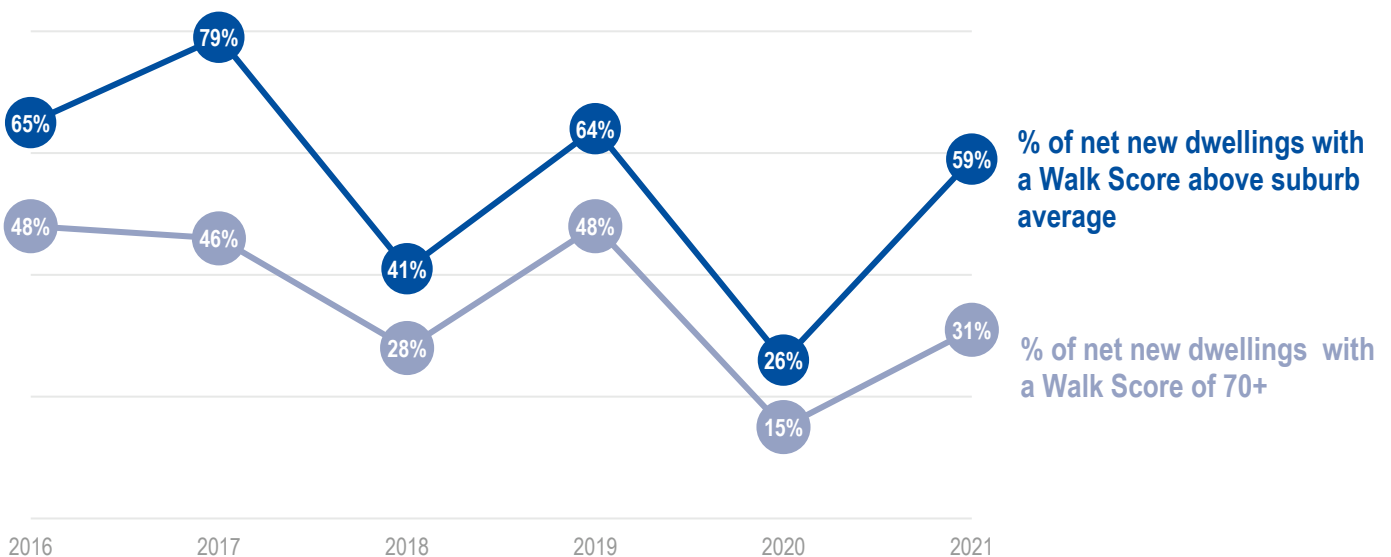
On a scale of 1 to 100, areas with a Walk Score greater than 70 are considered “very walkable” or “walkers’ paradise,” a rating which applies to the location of around one in three new dwellings approved in Knox in 2021 (Figure 14).

Figure 14. The proportion of net new dwellings approved in the more walkable areas of Knox increased in 2021.



The Knox population increased by around 15,300 people between 2001 and 2021.

(ABS 2021 & ABS 2001)



One measure the *Knox Housing Strategy 2015* describes for the objective related to neighbourhood identity is loss of trees and backyard space in Bush Suburban and Knox Neighbourhood areas. The Research and Mapping team are

examining various measures for this. Data recently published by DELWP (see DELWP 2022 for more detail) suggests that there were around⁹ 250,000 trees on residential zoned land in Bush Suburban and Knox Neighbourhood areas. It is anticipated that future releases of this data may provide an indicative measure of change over time.

In the meantime, the results presented in Figure 4, which show that few new dwellings per hectare were approved in Bush Suburban and Knox Neighbourhood areas relative to the Local Living areas and Activity Areas, are also relevant to the responsiveness of Council decision-making to neighbourhood identity.

8.3 Analysis

- More than half of the net new dwellings approved in planning permits in 2021 were located in the more walkable parts of their respective suburbs. Despite the low to moderate walkability of Knox’s suburbs overall, the planning permits approved in 2021 would see around one in three resulting dwellings located in highly walkable locations.
- Despite the few apartments approved in 2021, walkability remained within the range observed over previous years. Apartment buildings typically accommodate a large number of dwellings relative to other types of development, and tend to be located in or near activity centres where walkability tends to be high. Each approved apartment development, therefore, often contributes substantially to the number of highly walkable dwellings approved. An unusually low number of apartments were approved in 2021, which means that the relative high walkability in 2021 was driven by other typologies.

⁹ DELWP (2022) report that their “Tree Urban” data, which is derived from high resolution aerial photography and machine learning, does not identify every tree, and is known to underestimate tree counts in areas of dense canopy where many trees overlap.

9. Protect and enhance the landscape and environmental value of natural areas of significance (Objective 5)

9.1 Why is this important?

Knox enjoys a spectacular natural setting, located at the foot of the Dandenong Ranges and crisscrossed by creeks and wetlands that provide habitat for native animals and peaceful respite to residents.

As the Knox population grows, it will be increasingly important to ensure that new development does not erode Knox's unique sources of environmental value.

Council has well-established policy and planning controls that aim to protect the landscape and environmental values of the area through constraints on residential design, including requirements for new open space and canopy trees. There are also 118 Sites of Biological Significance in Knox that include remnant and indigenous vegetation. These sites also have specific planning controls that restrict the removal of vegetation, and residential design guidelines that require greater provision of canopy trees.



Knox's 118 sites of biological significance cover approximately 4000 hectares, around one third of Knox's total land area.

9.2 How are we tracking?

Bush Suburban areas have significant flora and fauna that is important to both Knox and Greater Melbourne. In these areas, the *Knox Housing Strategy 2015* prioritises protection of the natural environment over urban development. As shown in Figure 4, around one net new dwelling per 50 hectares was approved in Bush Suburban areas in 2021.

The *Knox Housing Strategy 2015* also refers to the importance of maintaining a very low scale of change in the Dandenong Foothills (see Map 1), which overlaps much of the Bush Suburban area. In 2021, permits were approved for one net new dwelling per 83 hectares in the Dandenong Foothills area. This is a lower rate of change than all of the Housing Strategy areas.

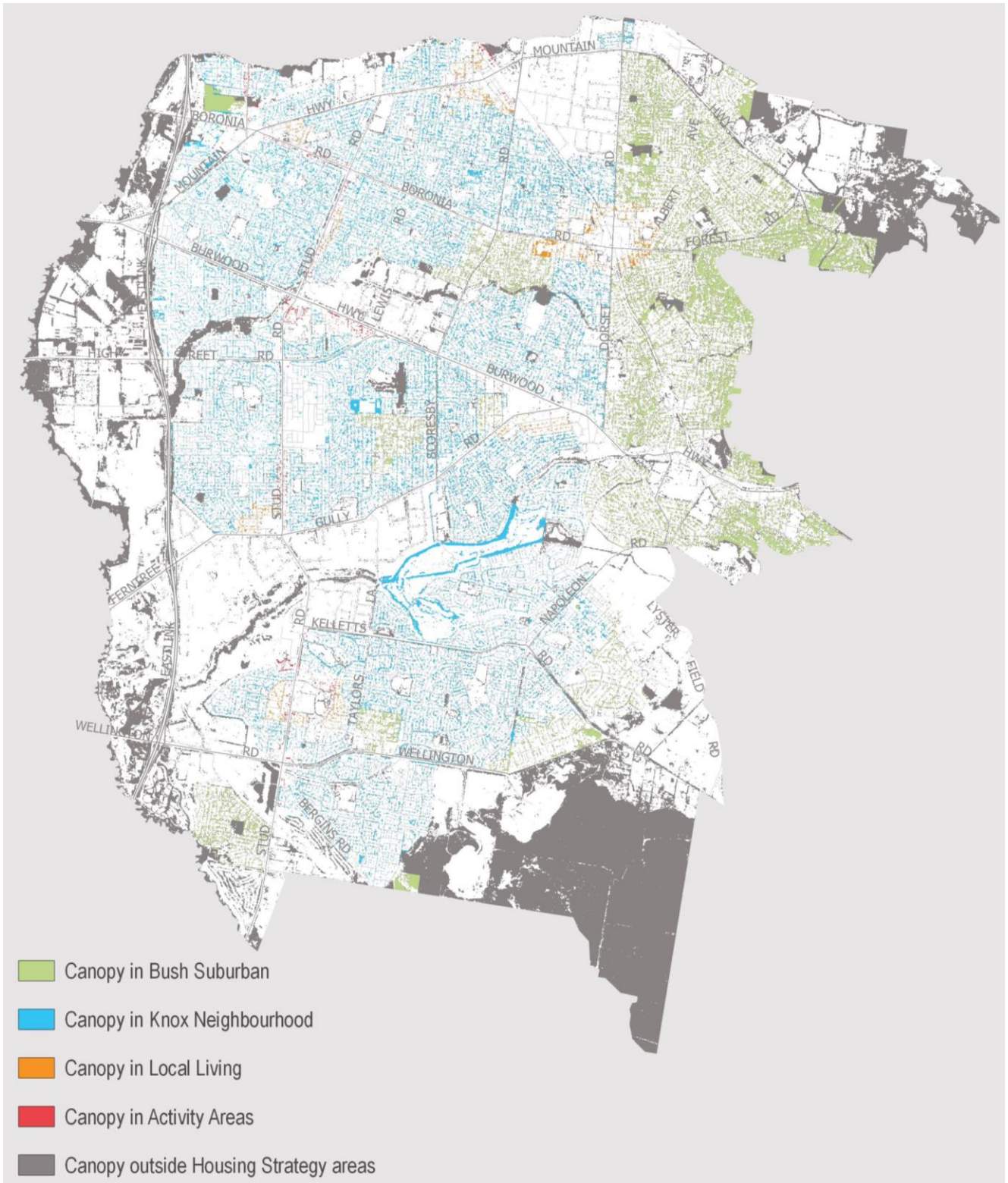
Maintaining tree canopy is one challenge for urban areas experiencing redevelopment. Where large canopy trees are removed for multi-dwelling developments, the associated reduction in private open space may provide limited opportunity for tree planting and good tree health. There was an overall loss of 115 hectares of canopy cover from Knox's urban areas between 2014 and 2018, equivalent to a reduction of 6.5%. The urban areas of the Eastern Region saw a loss of 9.2% over the same period (DELWP 2020).

DELWP has recently published a first release of tree canopy data (captured mainly in early 2020) that was produced using machine learning. For this data set, a tree is defined as "woody vegetation over approximately two metres in height"¹⁰. According to this dataset, around 16% of Knox's Housing Strategy areas is covered by tree canopy (further detail is provided in Attachment C). Map 3 provides more detail of how this cover is distributed.

Time series analysis is not yet possible as the recent data release is the first of its kind, but this data set will be monitored for future releases.

¹⁰ This data is not comparable to the tree canopy data that DELWP published in 2019 (DELWP 2019b) and which was reported on in previous Housing Monitoring Reports.

Map 3. Although Bush Suburban and Knox Neighbourhood areas have a similar amount of tree canopy cover, the canopy in Knox Neighbourhood is dispersed over a greater area. Exceptions to this include sections of Corhanwarrabul and Monbulk creeks.



Source: This tree canopy data is part of the Vicmap Vegetation – Tree Extent dataset produced by the Victorian Department of Environment, Land, Water and Planning in 2021 (<https://www.land.vic.gov.au/maps-and-spatial/spatial-data/vicmap-catalogue/vicmap-vegetation>).

9.3 Analysis

- In line with the *Knox Housing Strategy 2015*, very few net new dwellings per hectare were approved in Bush Suburban and Dandenong Foothills areas relative to other Housing Strategy areas.
- Much of Knox’s densest canopy cover is outside of Knox Housing Strategy areas, along creek corridors, within Lysterfield Park and Dandenong Ranges National Park.
- Previous versions of this document have reported on an earlier tree canopy dataset published by DELWP. This dataset indicated that in 2018, 16.3% of Knox’s urban area¹¹ was covered by tree canopy (DELWP 2019b). The DELWP dataset indicated that in 2018, 79% of tree canopy cover in Knox’s residential areas was over private land as opposed to road reserves and other public infrastructure. Around three times more “private residential” partial mesh blocks in Knox saw tree canopy loss than saw tree canopy gain between 2014 and 2018. While Knox has implemented policies and plans to protect the green and leafy character of Knox’s neighbourhoods (including the Knox Housing Strategy 2015, Vegetation Protection Overlays, the Dandenong Foothills Policy, and others), Council’s ability to control canopy loss on private property is only indirect.
- The 2020 dataset presented in this report is not directly comparable with the 2018 result due to a range of factors including different data creation methods and different geographical aggregations. Indeed, one of the key benefits of the 2020 dataset is the ability to look at customised geographical areas, like Housing Strategy areas (see Attachment C).
- DELWP have reported that the 2020 tree canopy dataset is created using a method that will enable it to be regularly updated. Although no indication of future release dates has been provided, it is hoped that future data releases will enable examination of tree canopy change over time across Knox, at a very fine-grained geographical level.

¹¹ Excludes some of Rowville and Lysterfield, including Lysterfield Lake Park and the Green Wedge Zone along Lysterfield Road.

10. Development responds to neighbourhoods in an integrated and balanced manner (Objective 6)

10.1 Why is this important?

The Knox Planning Scheme outlines Council’s goals and policies for the development of the city. It is the official reference for all decisions related to planning made by Council, planning officers, and VCAT. Consistency between Council policy, the Knox Planning Scheme, and Council decision-making processes is critical for the efficiency of Council’s planning decisions and the quality of the outcomes these decisions deliver.



VCAT decided 14 residential planning applications for Knox in 2021, down from 26 in 2020, 32 in 2019 and 42 in 2018.

10.2 How are we tracking?

Planning applications decided by Council can be appealed to VCAT, which hears the case and makes a final ruling on whether to issue a permit, based on the Knox Planning Scheme.

Figure 15 and Figure 16, which relate to VCAT decisions on planning permits that would yield at least one net new dwelling, show that VCAT upheld more Council decisions than it overturned in 2021, which is unusual for recent years.

Figure 15. In 2021 VCAT upheld more Council decisions than it overturned. All overturned decisions had been Council refusals.

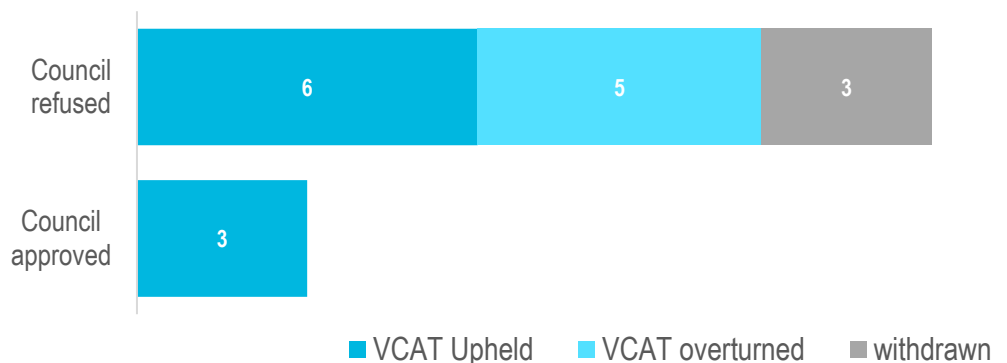
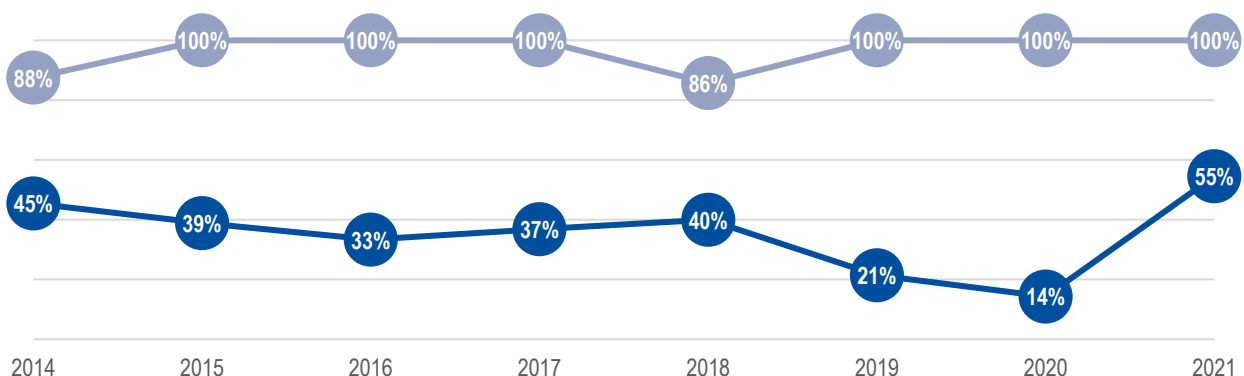
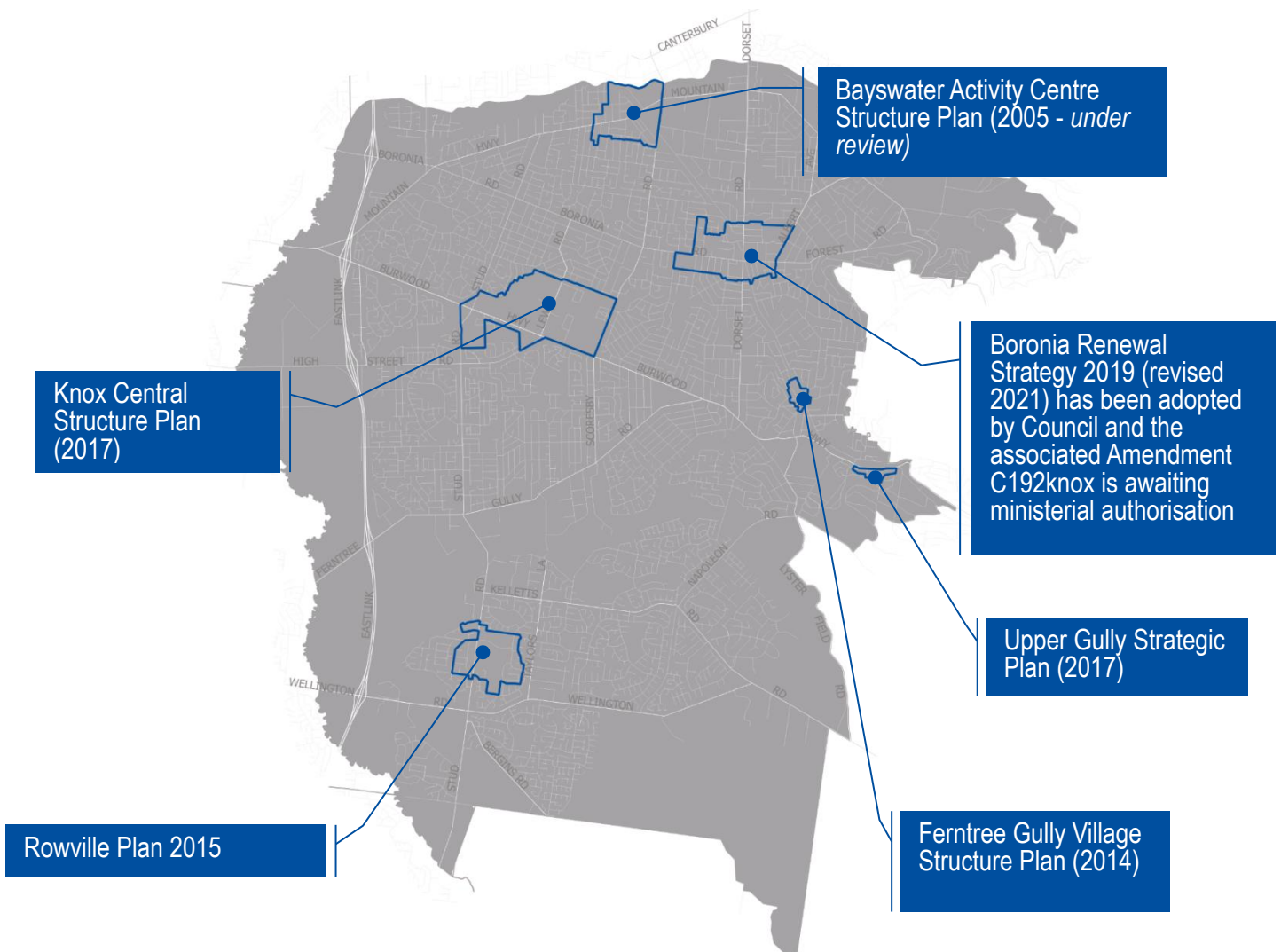


Figure 16. VCAT upheld most Council approvals, and no more than 55% of Council refusals over recent years.



In addition to the *Knox Housing Strategy 2015*, Council has developed structure plans and other local strategic plans that support place-specific planning controls and rezoning, and provide guidance for decisions on infrastructure and community services (Map 4).

Map 4. Plans and strategies that support place-specific planning controls.



10.3 Analysis

- In 2021, VCAT upheld more Council decisions than it overturned, representing a change from the previous five years.
- In 2021, VCAT decided 11 planning applications that were initially refused by Council. VCAT upheld Council’s refusal in six of these cases and directed that permits be granted for the other five developments. For two of the five developments the plans taken to VCAT were varied sufficiently after Council’s original refusal to address Council’s concerns. Ultimately, VCAT directed Council to grant permits for three developments of a combined 16 net new dwellings to which Council remained opposed.
- There were three VCAT decisions in 2021 for applications that Council initially gave a Notice of Decision to issue a permit. Appeals against Notices of Decision are often lodged by neighbours opposing the development, but in 2021, all three appeals were by the developer against permit conditions imposed by Council. The applicant for the largest of these developments lodged amended plans with VCAT showing changes that

resolved Council's concerns. Ultimately, VCAT approved two of these permits (for the development of three net new dwellings) in a form opposed by Council.

- Three cases were referred to VCAT but withdrawn by the applicant. All three had been permit refusals and therefore ultimately no permits were granted.

11. Next steps

The Housing Monitoring Report will be repeated in 2023, after 2022 data becomes available.

The Research and Mapping team are seeking a consistent, reliable data source for tree canopy measures. Some baseline statistics from a potential source of such data (DELWP) have been presented in this report. Although DELWP have made no specific commitment, it is anticipated that future tranches of tree canopy data will be published to enable an examination of tree canopy cover change that can be presented in future Housing Monitoring Reports. Ultimately, this might include examination of tree canopy cover over lots before and after planning permits have been granted.

The next Housing Monitoring Report will also reference 2021 Census data, which will be released from June 2022. The 2021 Census data will provide an updated count of the number of dwellings in Knox (by bedroom count and dwelling type) and also underpin revised population and household estimates and forecasts.

The release of 2021 Census data will present a unique opportunity for cross-validation of the combination of occupancy certificate and demolitions data to produce an intercensal indicator of housing stock within Knox. This would have the benefit over the building permit data produced by the ABS of being available to Council by street address, thereby enabling analyses by geographies of interest, including Housing Strategy areas.

Lastly, the Research and Mapping team will work to produce an interactive dashboard to support more efficient reporting on Annual Report KPIs related to dwellings growth in Knox.

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Attachment A – Dwelling type definitions

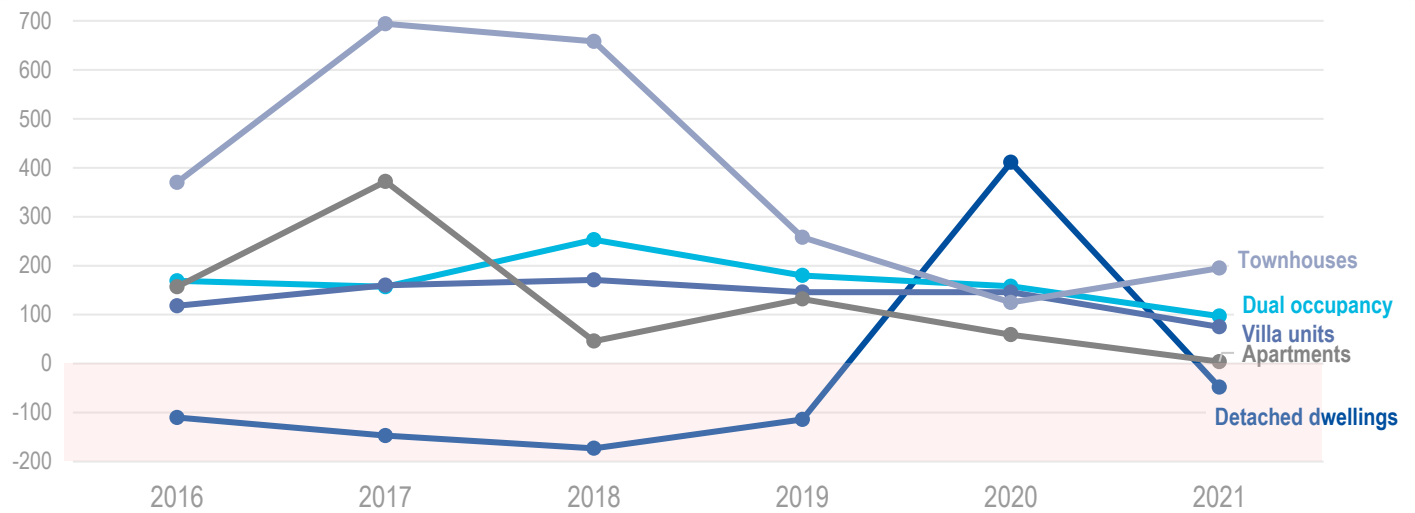
Housing types defined in the *Knox Housing Strategy 2015*:

- Detached dwelling: one dwelling on a lot.
- Dual occupancy: two dwellings on a lot (can include retention of an existing dwelling).
- Villa units: three or more dwellings on a lot with no shared walls.
- Townhouses: three or more dwellings on a lot sharing a wall or roof.
- Apartments: development of three or more stories in a single mass or multi-unit dwelling, usually with a common entrance.

Further detail is available in the [Knox Residential Design Guidelines 2015 – revised 2019](#).

Attachment B – Net growth in dwellings by type 2016 to 2021

Figure 17. **Townhouses** have been the predominant dwelling type in terms of net growth between 2016 and 2021.



Notes:

- Includes dwellings not in a Housing Strategy area (that is, outside the urban growth boundary and within Strategic Sites or Commercial Areas).
- For 2016 to 2018, calculations of net growth by type are based on an assumption that all demolished dwellings were detached dwellings. Analysis of demolitions information for 2019 to 2021 indicates that this was true of 97% of demolitions.

Attachment C – Tree canopy cover in Housing Strategy areas in 2020

Figure 18. In early 2020, Knox’s Bush Suburban area was more densely covered by tree canopy than the other Housing Strategy areas, which all had a similar proportion of cover.

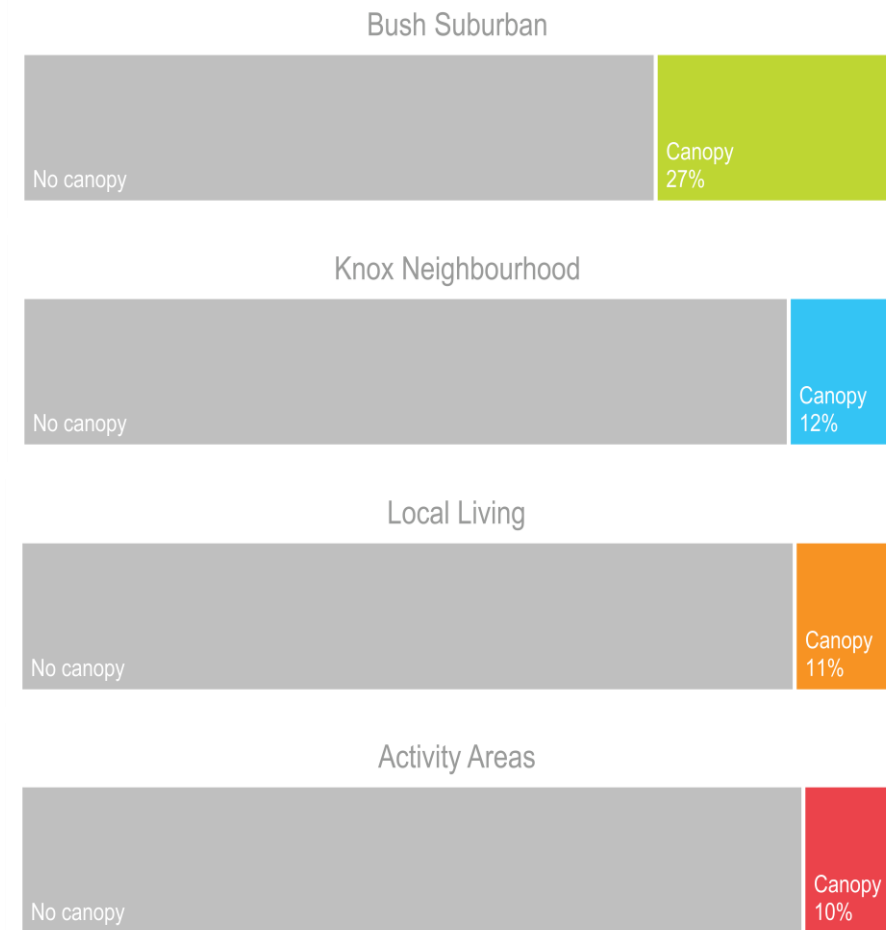


Figure 19. In early 2020, Knox’s Bush Suburban and Knox Neighbourhood areas each had around 4.5 square kilometres of tree canopy cover.

