INFILL HOUSING
DESIGN RESEARCH

FOR THE BETTER APARTMENTS
DESIGN COMPETITION

DEPARTMENT OF ENVIRONMENT, LAND, WATER + PLANNING
OFFICE OF THE VICTORIAN GOVERNMENT ARCHITECT

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12/02/20
Acknowledgements:

The authors gratefully acknowledge the contributions of Tim Westcott and Amy Mak from the Department of Environment, Land Water and Planning, and Cara Wiseman and Matthew Borg from the Office of the Victorian Government Architect.

In accordance with the probity requirements for the Better Apartments Design Competition, this design research report should be considered CONFIDENTIAL and for internal circulation to nominated team members only.
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EXECUTIVE SUMMARY

The Victorian State Government is planning to announce a design competition for Building Better Apartments in Melbourne's middle suburbs in December 2019 (expected to run in February–March 2020). This design research report provides background information to support Government decisions about the competition structure and spatial parameters for the design brief.

The motivations for the design competition, and the overarching drivers for this research, are to:
• Promote the application of the Better Apartment Design Guidelines (2017)
• Generate ‘blue prints’ of good quality apartment designs in middle suburban contexts
• Identify planning levers that could facilitate increases in the speed and volume of housing supply.

The competition structure will be a 2-stage process. Site-specific design outcomes from the first-stage design entries are intended to form the basis of a second-stage process that explores the planning and delivery mechanisms needed to implement innovative and affordable apartment designs across other middle suburban locations.

Known factors for competition
• Braybrook context (de-identified)
• General Residential Zone = 3 storey limit
• Design of 2-lot and 3-lot amalgamations
• Advantages of consolidation (5-6 lots)

Research considerations
• Logic for potential density target + dwelling mix
• Replicable sites and opportunities in middle suburbs
• Capacity of site types: orientation, access etc.
• Maximised yield vs design quality
• Hybrid dwelling models (apartments + townhouses)
• Impact of design guidelines + planning controls
• Potential need for Residential Growth Zone (Stage 2)
• Affordability + ownership considerations

The inter-relationship between the complex range of issues being considered for the competition brief means discrete benchmarks or ideal solutions may not be able to be determined. To support Government decision-making, this research provides site-specific and multi-scalar spatial investigation as a basis for identifying strategic priorities for the design competition.

The research shows that high-quality, low-rise apartments are a gap in the current housing market. The design competition is an ideal vehicle for addressing this gap, and an opportunity to set quality benchmarks for diverse, affordable and sustainable living options in the middle suburbs. Furthermore, encouraging innovative design explorations in the first stage of the competition would enable the Better Apartment Design Guidelines to be tested in middle suburban residential contexts, extending the application of the new standards (currently geared towards larger building types in more urbanised outcomes).

The speculative growth scenarios demonstrate the importance of small-scale infill in the middle suburbs for an integrated approach to future housing supply. By harnessing the speed and location of redevelopment in these contexts, a suite of housing solutions can be delivered over time. An ambitious growth scenario for Braybrook suggests that 885 new dwellings will be delivered through infill redevelopment in the General Residential Zone.

The site-scale design tests demonstrate that, three key planning levers would be needed to optimise the quality of redevelopment outcomes, while meeting housing demand: street setbacks, parking provisions and design-led responses to overlooking.
RESEARCH SCOPE AND APPROACH

Small-scale infill housing
The Better Apartments Design Competition responds to the pressing need to deliver a diversity of more affordable, sustainable and high quality housing to accommodate Melbourne’s unprecedented population growth within established urban areas. The middle suburbs represent well-serviced, high amenity locations with the capacity to accommodate substantial volumes of new housing supply. However, the residential fabric in established suburbs has received very little design attention, when compared to more urbanised centres and fringe expansion. Market-led responses to housing demand in the middle suburbs has resulted in the replacement of ageing post-war dwellings with two (or sometimes three) detached units or townhouses on the original ‘garden suburb’ allotment. The collective impact of lot-by-lot redevelopment has adversely impacted the ecological performance of suburban settlements, and severely diminished the ‘leafy green’ qualities of suburban living. The proposed design competition will focus on improving the density, diversity and quality of small-scale infill housing in these contexts.

Better apartment design
Apartment development has become increasingly common in activity centres and transit corridors in the middle suburbs, where land values, parcel sizes and development controls provide viable conditions for redevelopment. However, the yield-driven outcomes are often poor quality examples of apartment living, and have detrimental impacts on the existing built environment. The Apartment Design Guidelines for Victoria were developed to support better apartment outcomes in the current housing market. The first iteration focused on the internal arrangement of apartments and the Victorian State Government has since started to introduce site and amenity standards into the relevant planning provisions. The design competition presents a vehicle for advancing the Apartment Standards with principles tailored to the context-specific issues and constraints of residential suburbia. For instance, new overlooking standards specific to apartment developments under 5-storeys refer to common spaces in projects of 40 or more dwellings. Many small-scale infill projects on 2 or 3 typical residential allotments will find it challenging to reach these dwelling yields. Other privacy measures, such as overlooking private open spaces and habitable rooms, are guided by discretionary ResCode provisions (Clause 55), which have historically developed through site and building relationships intended to maintain the characteristics of single dwelling contexts. This research aims to explore such spatial challenges and opportunities for achieving high quality apartment designs in General Residential Zones under the current standards.
Melbourne’s middle suburbs: what is an appropriate density?

The density of low-rise apartments in middle suburban contexts can vary significantly, depending on the physical attributes of specific sites, the development controls in place, development viability (including land size and value), and the desired dwelling mix (e.g. maximising yield with 1BR apartments; or accepting less yield in order to provide larger apartments for, say, multi-generational households). These are quality and capacity decisions that play out at the site scale and can be considered bottom-up influences for the purposes of this research. Through a comparative series of preliminary designs tests on 2- and 3-lot assemblies, the research examines the potential densities that can be achieved and the trade-offs between housing quality, site amenity and regulatory controls.

What constitutes an appropriate density for future suburbs must also be considered in relation to a number of top-down considerations. For example, how fast and far will Melbourne grow? Will current settlement patterns change to accommodate growth in a sustainable and strategic manner? What proportion of growth needs to be taken up in various parts of the suburbs? This research has generated three speculative scenarios for Melbourne’s growth through a combinatorial review of current population projections, future dwelling targets set by local and metropolitan planning strategies and the physical outcomes achieved by different development models. The work provides a top-down framework for determining the potential volume of housing that middle ring suburbs will need to accommodate, relative to other development activity across the city.

A multi-scalar research approach

A simultaneous investigation of bottom-up and top-down consideration enables a reciprocal dialogue to develop around issues of housing need and quality, better utilisation of middle suburban contexts, stewardship of the future character of the suburbs, and viability versus desirability of different transformation strategies. The dialogue not only contends with the immense housing pressures that Melbourne confronts, but also works towards enhancing the qualities and performance of our future suburbs through design intelligence. By integrating data-driven projections (to ABS mesh block level) with future urban initiatives (desirable spatial outcomes) and an understanding of what is achievable at a built-form level (real outcomes), the research speculates on the impacts, challenges and advantages of different types and distribution of future housing supply. The range of spatial evidence can be used as a means of framing potential parameters to be addressed by the Better Apartment Design Competition, with design-led, multi-scalar and context-specific reasoning of brief inclusions/exclusions.
The speculative growth scenarios outlined in the next section are based on a combination of population projections provided by Victoria in Future 2019 (VIF) and the Australian Bureau of Statistics (ABS Series A). ABS Series A suggests that Melbourne will reach 9.6 million people by 2051 and that at least 2 million more dwellings will be needed to accommodate growth. This exceeds current figures outlined by VIF (9 million people by 2056).

VIF does not currently provide a breakdown of 2056 projections for smaller statistical areas within greater Melbourne. Due to the transferability of ABS statistical data and finer-grain geospatial information in Melbourne, we have selected the upper estimate for the scenario calculations and crossed referenced the distribution of VIF dwellings and households to 2036, as well as the strategic growth patterns encouraged by current planning strategies.

By employing the upper growth estimates in ABS Series A, this research tests the adaptive capacity of the residential fabric and begins to build-in a ‘spatial preparedness’ into the speculative scenarios. In recent decades, Melbourne has outstripped both the amounts and time-frames stipulated by statistical projections, resulting in urban development policies that are in a constant state of ‘catch-up’.

For example, swift and expansive built form changes have been delivered through lot-by-lot infill in the middle suburbs. Plan Melbourne 2017–2050 acknowledges that redevelopment in low-density established suburbs has been generally uncoordinated and unplanned in the past. The resultant built form patterns present a new context for contemporary design responses in these contexts, and new policies are being developed to encourage better quality and more sustainable outcomes from incremental housing change. The speculative scenarios presented here provide a contextual framework for the design competition around future growth and identify key challenges and opportunities that might inform how planning instruments could steward small-scale infill in the short- and long-term.

The accelerated growth scenarios also bring to the fore timing and delivery issues associated with different development approaches, including the infrastructure demands in various locations. For instance, the cost and complexity of higher-order intensification strategies, such as at Box Hill or Sunshine, means that priority precincts and transit-hubs will likely be realised...
in the latter part of a 2051 time-frame.\textsuperscript{10} While major renewal initiatives promise to deliver large volumes of housing, with new amenity and infrastructure to support the influx of new residents in the long-term, what they can contribute to the abatement of immediate housing pressures is much less certain.\textsuperscript{11} This points to the need for a two-speed approach to redevelopment within established suburbs, elevating the importance of small-scale infill in middle suburbs.

Similarly, when and how large strategic sites are consumed for new housing and their potential value in long-term growth scenarios for alternative land uses (e.g. schools, community infrastructure) is a consideration reflected in the speculative scenarios. Opportunistically expending isolated Major Residential Sites (MRS) in the middle suburbs to alleviate immediate housing pressures eliminates possibilities for strategic, integrated transformation in future. Whereas, conserving valuable sites for future use as other needs arise will reciprocally increase the housing demands placed on other parts of the suburbs.

Development data, dwelling numbers and the future distribution of redevelopment/dwelling supply used in the spatial scenarios has been extracted from a combination of:

- ABS Dwelling & Population Statistics
- ABS mesh blocks
- VIF 2019
- UDP major residential sites, broadhectare sites
- Capital City Zone
- Precinct Structure Plans
- Plan Melbourne (DELWP)
3 X FUTURE GROWTH SCENARIOS: MELBOURNE @ 9 MILLION

The speculative growth scenarios provide a comparative method for determining potential dwelling targets for coordinated redevelopment of Melbourne’s middle suburb. The scenarios begin to frame a new role for small-scale infill by depicting future outcomes in the middle suburbs relative to other development activity across the city. The scenarios are: 1) business as usual (BAU) redevelopment and housing distributions; 2) best practice approaches to intensification; and 3) an ambitious urban renewal strategy that creates opportunities for ongoing transformations.

Each of the scenarios can be read in reference to Plan Melbourne 2017–2050, which encourages that 65% of future housing supply be supplied in established urban areas and 35% on the fringe. Using this as a starting point for BAU growth, the best practice and ambitious scenarios decrease the proportion of fringe supply by a further 5% and 10% respectively. The remainder of the housing-need is differently distributed across the established city to reflect the strategic directions adopted in each scenario and the range of development models employed. The comparative outcomes allow us to weigh up the benefits and limitations of each model and consider the extent of change that is needed or desirable (acceptable to existing residents) within the residential fabric of middle suburbs. What is deemed ‘acceptable’ will vary with the design quality of built-form outcomes and the neighbourhood upgrades provided by the various development models.

Business as Usual: 65% infill 35% fringe
Population growth exceeds existing urban boundary.
• reliance on low density fringe
• consumption of strategic sites
• poor ‘city-making’

Best practice: 70% infill 30% fringe
Accommodate growth through priority development.
• Reliance on high-capital models.
• All strategic sites are consumed.
• Delivery timing?
• Infrastructure provisions?

Ambitious: 75% infill 25% fringe
Higher proportions and more diversity of middle suburban infill.
• Less conventional hsg distributions.
• 2-speed development
• Stage major development sites and provision of supporting infrastructure
Priority development is defined here as high-capital, mixed-use and infrastructure-intensive models, such as the expanded Capital City Zone or transit-oriented development in Metropolitan Activity Centres nominated by Plan Melbourne. This category of redevelopment also distinguishes Major Residential Sites (MRS) nominated under the Urban Development Program from more typical models of residential redevelopment.\textsuperscript{14}

Built-form transformations that will contribute to the regeneration of Melbourne’s middle suburbs are included as a secondary category of intensification for the purposes of the growth scenarios. These include high-density outcomes in Residential Growth Zones, along major transit corridors (tram and bus networks), and within second-tier activity centres and National Employment and Innovation Clusters (NEIC), where new employment opportunities are intended to emerge.\textsuperscript{15}

Local transit and amenity corridors introduce a new tier of intensification in the middle suburbs, where recurring opportunities for redevelopment could be used to upgrade and better utilise community infrastructure.

Finally, small-scale residential infill reflects built form changes in established neighbourhoods, in accordance with the General Residential Zone.

The scenarios suggest that the speed and diversity of dwelling delivery that could potentially be provided by local corridors and small-scale infill offers huge benefits for both the quality and sustainability of strategic growth. A summary of each scenario is quantified in Table 1, and more detailed descriptions provided overleaf.

<table>
<thead>
<tr>
<th>Table 1. Speculative Scenarios</th>
<th>2016 Current 4.8 million people</th>
<th>2051 New dwelling supply 9.6 million people</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Development type</strong></td>
<td><strong>Dwellings</strong></td>
<td><strong>BAU</strong></td>
</tr>
<tr>
<td>Priority development areas</td>
<td>103</td>
<td>6%</td>
</tr>
<tr>
<td>• Capital city zone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Metro Activity Centres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Major residential sites, renewal precincts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regeneration of middle suburbs</td>
<td>1,652</td>
<td>94%</td>
</tr>
<tr>
<td>• Major transit/activity + NEICs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Local transit + amenity corridors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Small scale residential infill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Detached / heritage retained</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fringe expansion **</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL ***</td>
<td>1,755</td>
<td>100%</td>
</tr>
</tbody>
</table>

** Fringe areas are calculated as new housing supply only. Based on data available in the public domain, very few broad hectare sites and precinct structure plans over-lap with mesh block dwelling counts in 2016, indicating that the majority of fringe development as defined by Plan Melbourne 2017 had not been completed (prior to the last census).

*** Total dwellings are taken from ABS mesh block counts 2016, which varies from VIF household numbers.
Business as Usual: existing urban growth boundary exceeded

The BAU scenario extrapolates conventional patterns of development to 2051. The density and speed at which fringe settlements are currently delivered suggests there is insufficient land for release within the growth boundary to accommodate future dwelling need (700,000 dwellings). Under this scenario, peripheral development would need to continue beyond Melbourne’s urban extents. The 35% to 65% split of fringe and infill housing supply nominated by Plan Melbourne means an additional 1.3 million dwellings would be needed within established urban areas. Priority development zones will take up around 38% of this demand (25% of total supply), but all major residential sites would be consumed.

The bifurcation of housing supply through low-density fringe expansion and concentrated high-density nodes will also result in considerable levels of informal, market-led redevelopment in established suburbs, as is occurring today. An enormous number of private residential properties will be turned over as dual occupancy redevelopments to meet housing demand, irreversibly changing the built character of the middle suburbs and ‘locking up’ land for strategic transformation of these contexts in future.

In Braybrook specifically, the BAU scenario would see half of the existing residential lots (and all ‘developable’ sites – page 14) turned over at a rate of 1-for-2 dwellings. The potential loss of control to market speculation would generate an influx of population without an additional increase in services and amenities. While physically possible to accommodate growth under a BAU approach, the opportunity-cost would be substantial. The collective impact of uncoordinated development would diminish Braybrook’s ecological performance, while the poor quality and limited diversity of housing may eliminate affordable living options for a number of household-types.
Without policy intervention, the majority of housing need in Braybrook will be accommodated by uncoordinated dual occupancy redevelopment.
Current Best Practice: strategic development site consumed, timing uncertain

The best practice growth scenario plays out the compact city principles that underscore transit-oriented and activity-based intensification strategies in Plan Melbourne. The scenario adopts the aspirational ratio of fringe and infill housing supply presented in the metropolitan planning strategy (30% and 70% of future supply respectively) and seeks to concentrate development within priority development zones and along major transit corridors. To reduce pressure on an expanding urban boundary, the established city will need to deliver another 1.41 million dwellings, consistently averaging 44,000 dwellings per year to 2051.

Despite the emphasis on strategic consolidation, an extra 780,000 dwellings are still needed across the middle suburbs more broadly. In a best practice scenario, most of this growth would be directed into the NEICs and other major transit/activity centres. Almost 250,000 dwellings will be delivered through small-scale infill in General Residential Zones. The spectrum of suburban development would work towards achieving 20-minute neighbourhoods, while collectively diversifying and upgrading the middle suburbs through integrated renewal.

In Braybrook specifically, only 780 additional dwellings are projected due to the intensive redevelopment of surrounding priority development areas. Nevertheless, properties along major corridors would need re-zoning to facilitate higher density development adjacent to public transport networks. Mixed-use buildings of six or more storeys would flank the east-west arterial connections between Sunshine-Footscray-Highpoint on Ballarat and South Roads. The remainder of housing need would be met through a diversity of small-scale infill models of up to 3 storeys contained to strategic areas of General Residential Zones.

While termed ‘best practice’, it is noted that the scenario depends on high-capital, intensive redevelopment of the expanded CBD, eleven Metropolitan Activity Centres and all major residential sites within 30 years. Urban consolidation initiatives of this scale are likely to attract substantial infrastructure costs, and the complexity of planning, design, finance and construction risks over-shooting the required delivery times. Furthermore, the depletion of large, strategic sites leaves little flexibility for the provision of future open space, public services and amenity outside the network of Metropolitan Activity Centres. Should the execution of priority development take longer than expected, General Residential Zones across Braybrook would be completely transformed by small-scale infill.
Capital City Zone

Transit corridors

Strategic small scale infill

Local corridors + amenity

Detached / heritage retained

Fringe growth

32%
641,000

30%
609,000

38%
780,000

32%
641,000

Major residential sites

High intensity nodes
Ambitious: higher proportions and more diverse middle suburban infill

An ambitious growth scenario foresees 25% of new supply delivered on the fringe, and 75% delivered through infill. An estimated 500,000 new dwellings on the fringe sits comfortably within current Urban Growth Zones. The established city, however, will need to find innovative ways of accommodating an additional 1.5 million dwellings.

Under this scenario, the expanded CBD and the designated activity centres will take up about 1/3 of the housing demand within existing urban areas (522,000 dwellings; 26% of overall supply). Another 1 million dwellings will be accommodated in the middle suburbs through a coordinated approach to sustainable growth that employs a larger spectrum of low- and medium-rise redevelopment models. Compared to high-capital, infrastructure-intensive development models, low- and medium-rise infill projects are typically delivered in shorter time-frames. This reduces the immediate pressure on priority development areas, and curbs the depletion of large strategic sites, enabling an ongoing process of renewal to be sustained in the long-term. For example, major residential sites that have not yet been released will be reserved for future open space and amenity needs, sustaining the quality and vitality of strategic suburban networks ongoing.

In Braybrook, 885 dwellings would be delivered through a diverse range of infill models. Major and local corridors would be rezoned to facilitate higher-density redevelopment, supporting connections to Metropolitan level activity, transit and employment hubs. Mid-rise dwelling models (3–6 storeys) would emerge around open space reserves and community hubs along Churchill Avenue, making existing amenity work harder for more people, while offering opportunities to upgrade infrastructure and services in the area. Strategic sites in General Residential Zones would be used to strengthen the spatial structures in Braybrook, offering a diversity of affordable housing options while enhancing the qualities and character of the future suburb. Under this scenario, the integrated approach to middle suburban transformation would address immediate housing pressures, as well as lay the groundwork for sustainable and high quality built-form changes beyond 2051.
Capital City Zone
- 26%
- 522,000

High intensity nodes
- 25%
- 508,000

Major residential sites

Transit corridors
- 26%
- 522,000

Strategic small scale infill

Local corridors + amenity
- 49%
- 1,000,000

Detached / heritage retained

Fringe growth
- 25%
- 508,000
MIDDLE SUBURBAN CONTEXT: BRAYBROOK

Braybrook lies approx 11km west of Melbourne’s CBD. It is bounded by the Maribyrnong River in the north, the train line (Sunbury/Ballarat) in the south, and surrounded by priority development zones at Sunshine, Footscray, Highpoint, the Maribyrnong Defence Site and several other major residential sites (MRS) along the river. Braybrook, itself, has experienced fewer strategic transformations. Mixed-use redevelopment of the Central West Activity Centre on the eastern boundary of the study area has been proposed but remains uncertain. One MRS in the south-west corner of the study area will deliver 436 townhouses and detached dwellings over the coming years. Five smaller MRS account for another 104 dwellings, most of which are already completed. Almost 700 net new dwellings were supplied through small-scale redevelopment (up to 4 units) of 539 residential allotments between 2005–16. Without policy intervention, Braybrook’s future housing supply will likely be fulfilled by similar forms of incremental infill across the remaining General Residential Zone.

Building on the three growth scenarios explored at a metropolitan scale, the following section analyses the allotment and dwelling profile of Braybrook to ascertain strategic sites for infill design through the Better Apartments Competition. Table 2 shows that 1,524 lots meet the criteria for redevelopment.

Under a BAU scenario, all developable lots would turn over as dual occupancy units, and all MRS are consumed. Best Practice assumes that priority development zones outside Braybrook will undergo sufficient and timely intensification to relieve pressure on established neighbourhoods. Under this scenario, half of Braybrook’s developable lots would likely turn over as a mix of apartment and dual occupancy units, and all MRS are consumed. Under an ambitious growth scenario 885 dwellings would be delivered through an integrative and diverse range of infill models along local corridors, around open space amenity and through strategic redevelopment of select areas within the ‘typical’ residential fabric. This might equate to, say, 15 low-rise apartment projects on 2-5 lot-assemblies (see pages 26-40), with another 465 dwellings delivered along local corridors and around parks where neighbouring impacts from high density development are reduced.

Site selection criteria

Table 2. Developable lots

<table>
<thead>
<tr>
<th>Total # of lots:</th>
<th>2,894 (68 residential blocks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less HDD:</td>
<td>(813) * includes 1-for-1 dwelling replacements</td>
</tr>
<tr>
<td>Subtotal:</td>
<td>2,081</td>
</tr>
<tr>
<td>‘Developable’ lots:</td>
<td>1,524 (1,815 dw)</td>
</tr>
<tr>
<td>age:</td>
<td>~2000 or prior</td>
</tr>
<tr>
<td>size:</td>
<td>&gt;400m2</td>
</tr>
<tr>
<td>zone:</td>
<td>GRZ</td>
</tr>
<tr>
<td>overlays:</td>
<td>none</td>
</tr>
</tbody>
</table>

Table 3. Future dwelling need

<table>
<thead>
<tr>
<th>Existing dwellings:</th>
<th>3,483</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future need:</td>
<td></td>
</tr>
<tr>
<td>BAU</td>
<td>1,459</td>
</tr>
<tr>
<td>Best Prac.</td>
<td>763</td>
</tr>
<tr>
<td>Ambitious</td>
<td>885</td>
</tr>
<tr>
<td>Less MRS:</td>
<td>(531)</td>
</tr>
<tr>
<td>(531)</td>
<td>(200)</td>
</tr>
<tr>
<td>2051 total:</td>
<td>4,402</td>
</tr>
<tr>
<td></td>
<td>3,724</td>
</tr>
<tr>
<td></td>
<td>4,168</td>
</tr>
</tbody>
</table>

Above: existing condition of majority of housing stock
Below: typical infill redevelopment outcomes
Housing and demographic profile

Maribyrnong’s current Housing Strategy suggests there is future demand for all dwelling types. More diverse housing options are needed for couples without children and group households, while demand for 3+ bedroom dwellings continues to grow. There is also a need for smaller dwellings to accommodate younger families and an ageing population looking to relocate from their family home (within the same area).

Compared to Greater Melbourne, Braybrook has fewer separate houses and apartments, and significantly more semi-detached types. This supports the competition’s focus on apartment development, encouraging a diversity of living options within future housing supply. The majority of existing dwellings are 3-bedrooms, with higher proportions of 1- and 2-bedrooms compared to Greater Melbourne.

There is scant information available regarding the size of future dwelling-need in Braybrook, however analysis by others indicates that consumer preferences will favour semi-detached types. This is supported by current development trends (e.g. MRS delivering 436 townhouses and detached dwellings). Given the relatively high proportion of semi-detached types in existing stock, and the amount of current development activity for the same, high quality apartments may become a gap in future supply. Flexible design of 1, 2 and 3+ bedroom apartments would increase affordable housing choices for a broader mix of household types in Braybrook.

| Table 4: Housing and demographic make-up in Braybrook compared to Greater Melbourne |
|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| | Braybrook | Greater Melb | Greater Melb |
|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| **Household types** | 2016 | 2051 | 2051 |
| Families | Braybrook | Greater Melb | Braybrook | Greater Melb |
| | # | % | # | % | # | % | # | % |
| Couple with children | 2,168 | 70 | 1,676,173 | 70 | 2,995,603 | 70 | 1,318,842 | 32 |
| Couple without children | 563 | 17 | 779,535 | 35 | 1,164,058 | 27 | 461,462 | 11 |
| One-parent family | 960 | 28 | 613,237 | 24 | 550 | 16 | 252,252 | 10 |
| Other family | 95 | 3 | 31,148 | 1 | 95 | 3 | 31,148 | 1 |
| Group household | 191 | 6 | 113,393 | 5 | 191 | 6 | 113,393 | 5 |
| Lone person | 743 | 24 | 604,454 | 24 | 743 | 24 | 604,454 | 24 |
| **Dwelling types** | 2016 | 2051 | 2051 |
| Separate house | 1,502 | 50.4 | 1,067,637 | 67.8 | 1,502 | 50.4 | 1,067,637 | 67.8 |
| Semi-detached | 1,340 | 45.0 | 264,404 | 16.8 | 1,340 | 45.0 | 264,404 | 16.8 |
| Flat or apartment | 102 | 3.4 | 231,297 | 14.7 | 102 | 3.4 | 231,297 | 14.7 |
| Other dwelling | 25 | 0.8 | 6,400 | 0.4 | 25 | 0.8 | 6,400 | 0.4 |
| **# bedrooms** | Braybrook | Greater Melb | Braybrook | Greater Melb |
| Median house price | 2016 | 2051 | 2051 | 2051 |
| 1 bedroom | 239 | 8.0 | 90,018 | 5.7 | Braybrook $K 2019 | $570 house | $400 unit |
| 2 bedrooms | 770 | 25.7 | 319,669 | 20.3 | Braybrook $K 2019 | $645 house | $400 unit |
| 3 bedrooms | 1,277 | 42.7 | 662,460 | 42.1 | Braybrook $K 2019 | $828 house | $400 unit |
| 4+ bedrooms | 582 | 19.5 | 459,373 | 29.2 | Braybrook $K 2019 | $828 house | $400 unit |
| Other | 123 | 4.1 | 55,700 | 8.1 | Braybrook $K 2019 | $828 house | $400 unit |

Allotment profile

The quality, diversity and capacity of infill housing is directly influenced by the physical attributes of a development site. The selection of appropriate sites will be important for the Better Apartments Design Competition to ensure that replicable design models are developed. Understanding the characteristics of suburban sites may also inform the objectives of the competition brief. For example, the competition could be geared towards optimising design outcomes on large, valuable sites to ensure good quality outcomes are achieved in strategic locations in Braybrook, demonstrating a quality benchmark for market while creating conducive spatial conditions for ongoing redevelopment. Conversely, the competition might choose to tackle more difficult, but frequently occurring, sites as the most effective expenditure of design expertise for improving the overall quality of infill outcomes.

In addition to site size, the type and location of allotments within a residential block can support or restrict the typology and performance of the design models pursued. Dwelling densities and amenity achieved by different building typologies can, in turn, affect the viability, quality and affordability of redevelopment. For example, the orientation of an allotment will impact how passive performance is optimised for individual dwellings, while also impacting on the quality of private open spaces. Similarly, corner allotments offer spatial advantages unavailable to allotments in the middle of a block. Corners have fewer neighbouring conditions that need to be negotiated, two boundaries with street access providing flexibility for vehicle and pedestrian circulation, and setback constraints are often relaxed along the long boundary, typically regarded the ‘side boundary’ of the allotment.

Of the 1524 lots that met the criteria for site selection (page 14), 11% are corner-sites. The majority are rectangular sites with neighbours on either side (72%). Almost equal numbers of rectangular sites are oriented in east-west or north-south directions (37% and 35% respectively). Some clustering of north-south sites (yellow) can be found in the north of the suburb, and east-west (blue) clusters in the south. However, due to the speculative nature of historical settlement in post-war suburbs, there is no clear pattern to the arrangement of residential streets or block orientation overall. Cul-de-sacs and curvilinear ‘avenues’ are another historical remnant suburban settlement (considered best practice at the time), which have produced several irregularly-shaped allotments (14%), and a potential replicable condition for consideration by the competition.
Typical allotment sizes
Site area is a conventional indicator of ‘developability’, however the dimensions of a site are much more important constraints in design terms. Combined with envelope and siting controls, small shifts in site dimensions can mean the difference between a feasible or infeasible development. Site widths particularly impact parking arrangements and vehicle circulation, whereas site lengths can effect the efficiency of housing module arrangements.

Of the 1,524 sites that met the development criteria, the vast majority are 15-15.5m wide (41%). Allotment lengths vary across the array of site categories, represented by colour in the bar chart below. Around a third of all sites are 35-37.5m long (green), occurring in all width ranges but most commonly being 16-18m wide (17% of all sites). Note that the most typical site length is poorly represented within the largest width category of 15-15.5m. Conversely, only 12% of all sites are 45m or more in length, but represent the largest portion of 15-15.5m wide sites (yellow). Other recurring site types include lengths of 30–32.5m (blue, 20% of all sites) and 37.5-40m (magenta, 18%), many of which fall into 15-16m width range (13% and 10% respectively).

The profile of allotment types changes when the most common sites are isolated. 877 allotments met the development criteria and are 15-16m wide (or irregularly shaped). Most are oriented in an east-west direction, with similar numbers rectangular north-south sites and irregular sites. A much smaller proportion of ‘typical’ sites fall on the corner of residential blocks.

Like the physical attributes of individual sites, the assembly of multiple allotments can offer development advantages at building and site scales, as well as present context-specific opportunities for renewal. For instance, redevelopment of allotments forming the end of a cul-de-sac could be used to re-establish connective street networks and create strategic links to shared amenity and services for the broader community. The portion of the public street previously used for vehicle turning and property access at the dead-end might then be ‘reclaimed’, enlarging the developable site area to achieve better quality and more effective dwelling outcomes. The following pages demonstrate the spatial relationships for east-west, north-south and irregular site assemblies at a neighbourhood-scale.
Site-types: 15-16m wide, 877 allotments

Distribution of site-types in Braybrook with 15-16m frontages

Typical allotment sizes in Braybrook (all orientations)
Munitions’ Workers Housing, Braybrook (Heritage overlay)

Urban plan diagram of study area with east-west allotments
- Redveloped 2005–2016
- Selected assembly
- Potential amalgamations models
- Potential connections + upgrades

Aerial photograph of study area with east-west allotments
East-west sites

The cluster of east-west sites located in the south of Braybrook fall within an 800m radius of schools, local shops and community facilities, suggesting that higher dwelling densities could be supported. Several sites have already turned over as dual and triple occupancy developments, and the MRS further south will substantially increase the number of townhouses on offer in area. High quality, low-rise apartments would complement existing dwelling stock and increase the diversity of affordable housing choice for existing and new residents. Combined with adjacent munitions workers’ housing (under a heritage overlay), the overall mix and pattern dwelling forms would make for a variegated and engaging built environment that still retains a suburban quality.

The assembly of selected sites has been deliberately located away from the South Road corridor, which will likely be transformed by more intensified models of mixed use redevelopment (refer growth scenarios). The selected sites could be used to permeate the long, unbroken blocks that currently impede east-west movement patterns in this part of Braybrook, promoting localised connections between key amenity and services for pedestrians and cyclists. A replicable infill model that creates a rear laneway to a block-end could lay the groundwork for further consolidation or invite a cooperative approach to sustainable infrastructure and service provisions (e.g. district-wide water, energy and waste technologies).
Local shops at corner of Ballarat Road and Duke Street. Recent housing redevelopment of laneway behind shopping strip.

Urban plan diagram of study area with north-south allotments

- Selected assembly
- Potential amalgamations models
- Potential connections + upgrades

Aerial photograph of study area with north-south allotments
North-south sites

The cluster of north-south sites located in the north of Braybrook are serviced by a range of schools, shopping centres and community facilities, suggesting that higher dwelling densities could be supported. Several sites have already turned over as dual and triple occupancy developments, while a number of townhouse developments are emerging around the local shops on Ballarat Road. High quality, low-rise apartments would increase the diversity of housing choice for existing and new residents.

The assembly of selected sites could be used to enhance localised pedestrian networks. A new strategic link that is bookended by the recreation centre to the south, the shops to north and continuing onto the secondary college via the overpass on Ballarat Road would facilitate safe movement between each node, generating foot-traffic that could potentially support other productive uses (e.g. home offices) and encourage social interactions between residents, workers and students. A replicable infill model that maximises passive design outcomes on north-south orientation of sites would have a scalable impact in Braybrook and middle suburbs more broadly.
Existing community amenity in Braybrook
RecWest adjacent Kinder Reserve

Urban plan diagram of study area with cul-de-sac allotments

Aerial photograph of study area with cul-de-sac allotments
Cul-de-sac sites

The sheer area that can be ‘reclaimed’ for potential development by adjoining sites at the end of a cul-de-sac presents an opportunity to pursue a different infill model in the middle suburbs. The larger assembly has the potential to transform into a mini-hub in its own right. The consolidated area makes up a large proportion of the interior area of the existing residential block, offering the potential to create second frontages for the ring of properties that hem it in, which also face the public street. Continuing the former cul-de-sac through the block would facilitate the creation of connective networks at local level. Combined with the increased capacity of larger sites to accommodate higher density housing outcomes, a cul-de-sac infill model could represent a replicable and viable strategy for delivering new amenity and services to support pending population increases.

As with the previous two examples, several irregularly shaped sites at the ends of the cul-de-sac have already been redeveloped delivering outcomes with 2-4 dwellings. The underutilisation of these valuable sites can be considered a lost opportunity for sustainable future growth.
SITE AND DWELLING RELATIONSHIPS

Drawing on the large-scale examinations of sites and future dwelling supply, this section tests the capacity of 2-lot and 3-lot amalgamations at site and dwelling scale. The series of preliminary sketches investigate lower and upper dwelling yields that are achieved relative to:
- site-specific attributes and neighbouring contexts;
- a mix of building typologies and siting arrangements;
- grade parking and garden provisions
- maintaining/changing planning controls.

The east-west site assembly has been selected for the design tests, representing the most replicable site constraints and opportunities in Braybrook (page 18). The existing condition of properties in the immediate study area demonstrate the variability of the suburban fabric, with an ad hoc mix of modest post-war single dwellings, newer enlarged detached houses, dual and triple occupancy units and some townhouses. There is an equal variability of existing street setbacks, which can have a major impact on the quality and yield achieved by redevelopment. For instance, the 3 eastern sites in the selected assembly (below) have frontages ranging from approx. 5m–10m, continuing into a 2.5m side boundary at the north corner. The large front gardens tend to be under-utilised as private open space and, in some instances, the visual amenity is screened from the public street by high fencing.

The triple occupancy development on the south-west corner of the selected assembly has a hard-landscaped front yard, which would not meet current garden requirements. All of the infill projects have resulted in a doubling of cross-overs per original allotment, further diminishing the pedestrian nature of the streetscape.
Design principles

The preliminary designs test the spatial impacts and qualities of different building typologies and site arrangements. The building typologies employed are a maximum of 3-storeys, and include:

- **Slab block.** An affordable walk-up model that has the ability for a lift to be retrofitted. The shared point stair serves a max. of 6 dwellings, and a min. of 4 dwellings when large maisonettes are provided (internal stair). Modules can be joined by a party wall and all apartments are provided with dual-aspect.

- **Courtyard.** T-shaped module with shared circulation core, providing lift access to a maximum of 11 dwellings. Adjoining modules create a common courtyard offering a pleasant aspect to all dwellings and allowing solar access in multiple orientations.

- **Pilotti.** A long, shallow 2-storey apartment utilising the ‘airspace’ over 3 parking bays (shared). Lift access is not provided as it is unlikely to be economically viable for this type. Modules can be conjoined by a party wall.

Each test adheres to the building height limits set by the General Residential Zone and includes a consistent set of non-negotiable design provisions, considered a minimum quality standard for contemporary apartment living:

- **Maintain solar access.** ResCode setbacks are maintained at rear and side boundary ensuring solar gains to dwellings and open space, and pre-empting increases in on-site energy generation.

- **Garden area requirement.** 35% of site area.

- **1 carpark per dwelling, at grade.** Parts of Braybrook are not well-serviced by public transport. 1 carpark is considered sufficient in a context where car-sharing is increasing, car-ownership is reducing and future transport upgrades are intended. Should car-dependency reduce in future, grade parking can be readily converted into shared open space amenity or accommodate sustainable services and technologies. Basement parking is discouraged unless an adaptive re-use can be demonstrated for the garage space in future.

- **Accessible, flexible design.** The majority of upper level apartments should be designed with lift access, or have capacity for a lift to be retrofitted. This provision recognises the needs of an ageing population, and supports family-friendly apartment living. In addition, flexible internal dwelling arrangements and siting design should allow for different household make-ups and changing resident-needs.

Negotiable design parameters included in the design tests:

- **Front setback.** Given the variability of existing street conditions, reductions in the front setback would have minimal impact on streetscape uniformity but permits more effective and better quality development outcomes to be achieved overall.

- **Overlooking / interlooking.** Strategies for maintaining privacy provided under Clause 55 are discretionary. Where the potential for overlooking exists within 9m of another dwelling or private open space, the sketch designs assume that adequate privacy provisions are delivered through the design of internal room arrangements and building openings.

- **Mix of 1, 2 and 3 bedroom apartments.** The mix of dwellings varies across the series of test, but in all cases a mix of 1, 2 and 3 bedrooms must be provided to accommodate a range of household make-ups and encourage a diversity of affordable tenancies.

The dwelling densities shown for each test are site densities: dwelling yield / sum of the title boundaries (amalgamations of 2, 3 and 5 allotments for the respective tests). Larger scale examinations of suburban redevelopment may be considered against net densities (site plus access ways) or gross densities (net plus auxiliary land uses).
2-lot assembly

A comparison of the design tests on a typical 2-lot assembly in Braybrook shows that 3-storey apartment typologies can achieve densities of 90–110 dwellings per hectare, while meeting garden area requirements and providing 1 carpark per dwelling. Affordable and flexible dwellings coupled with high quality amenity offer a diversity housing choices for a range of households types.

The lowest density model (hybrid slab block + pilotti) provides larger dwelling options, with 6 x 3BR plus 6 x 2BR apartments. The higher density courtyard models provide 1 x 3BR and a higher proportion of 2BR apartments, demonstrating that potential density targets set by the competition brief must be considered in relation to the dwelling mix. Careful consideration of privacy treatments and their impact on solar access would be needed for the slab block + pilotti hybrid model.

The two different site arrangements shown for the courtyard model further illustrate the sensitive relationship between site and dwelling. The same number and types of dwellings are provided in both options, however the second option (far right) consolidates the garden in the centre of the site, gaining a small increase in area. Both options present benefits and limitations. Trade-offs include size and quality of on-ground private open space provisions, variety and separation of common areas, and engagement with the street scape.

The size and treatment of the frontage is a key issue for suburban infill, and can have a significant impact on the overall quality and yield delivered by small-scale redevelopments (depicted overleaf). A 3.5m impingement into regulated setbacks (in this case 7.4m) increases dwelling densities by 30%. A slightly wider and shorter site, representing the typical length of lots in Braybrook, similarly achieves densities of 90-110 dw/ha when front setback controls are relaxed. However, the quality and yield impacts of adhering to setback distances are much more pronounced on a smaller site.
Section A

Model Hybrid courtyard + pilotti

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<td>11 x 2BR</td>
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<td>2 x 1 BR</td>
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Section B

Model Hybrid courtyard + pilotti

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</tr>
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<td></td>
<td></td>
<td>11 x 2BR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 x 1 BR</td>
</tr>
</tbody>
</table>
Constraints | Street setback met, long allotment
---|---
Yield | density  | 11 dwellings | 85 dw/ha
Cars #  | 11  | Site area | 1,301m²
Garden area | 458m² | 35%

- Adhering to front setback reduces yield on long sites by approx. 30% (see previous spread).
- Setback controls have less impact on quality of longer sites, with garden, parking and solar access maintained in this option.

Constraints | Street setback met, short allotment
---|---
Yield | density  | 9 dwellings | 75 dw/ha
Cars #  | 10  | Site area | 1,207m²
Garden area | 365m² | 30% – requirement not met

- Adhering to front setback on shorter sites has considerable impact on quality and yield.
- Maximising yield results in car dominating site, garden requirement not met.
- Lowering dwelling yield further would reduce parking and increase garden but would not substantially improve the quality of outcomes.

Note: The front setback is shown as 7.2m, reflecting the average distance to the street of neighbouring properties, if redevelopment occurred in a more typical mid-block condition.
Constraints | Reduced setback, short allotment
---|---
Yield | density 11 dwellings | 91 dw/ha
Cars # | 12  Site area 1,207m²
Garden area | 450m² 35%
- Impinging on front setback allows parking to be relocated, garden requirement now met.
- Possible to increase yield while achieving good quality outcomes, due to changed number and arrangement of parking.
- Diminished quality and uniformity of streetscapes unlikely.

Constraints | Street setback met, comparative dwelling typology
---|---
Yield | density 10 dwellings | 83 dw/ha (setback met)
| 13 dwellings | 107 dw/ha (setback reduced)
Cars # | 13  Site area 1,207m²
Garden area | 546m² 45%  | 450m² 35% (13 dwellings)
- Efficiency and replicability of building typologies impacted when setbacks prioritised.
- In this case, vertical circulation for the front module only services half the number of dwellings
- Increase in yield possible while still meeting parking and garden provisions.
3-lot assembly

Adherence to setbacks has a different spatial impact for 3-lots, compared to the 2-lot models. The yield and overall building configuration are similar for the two courtyard designs (shown right), except that the building orientation is constrained to a single direction when extra site area is given over to the frontage – i.e. the length of the U-shaped building model (the overall dimension of two dwellings either side of a courtyard) cannot be accommodated in the buildable area behind a 7.2m setback. When the base of the ‘U’ is oriented along the street, parking is pushed to the rear of the site requiring the addition of one-way driveways along the side boundaries for access/egress. As a result, the garden area cannot be met unless yield and parking numbers are reduced. Impinging on the street setback (middle right) provides more flexibility in siting. The base of the U-shaped module can be oriented along the northern boundary optimising passive design opportunities. Car parking can be located on the southern boundary, in turn minimising vehicle circulation space and allowing for additional garden area.

A clustered distribution of slab block modules is possible on the 3-lot assembly (far right), which cannot be achieved on 2-lots. Dwelling yield is limited in this option by the number of grade carparks that can be delivered, while ensuring the garden area requirement is also met. The ground level is dominated by vehicle circulation, which risks producing a poor quality ground floor condition without considerate landscape design. Underground parking would benefit the built form quality and dwelling yield of this model. However, the advantage of grade parking is its readability for adaptation as other shared uses, if private car-ownership reduces in future. An alternative design response for redevelopment across multiple allotments would be to consolidate parking within a dedicated structure that could be shared by new and existing residents, and adapted for alternative uses at a later date.

**Model**  
Hybrid courtyard + pilotti  
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<th>2,106m²</th>
<th>Density</th>
<th>114 dw/ha</th>
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<td>Garden</td>
<td>678m²</td>
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<tr>
<td>Yield</td>
<td>24 total</td>
<td>2 x 3BR</td>
<td>19 x 2BR</td>
</tr>
</tbody>
</table>
Note: The front setback is shown as 7.2m, reflecting the average distance to the street of neighbouring properties, if redevelopment occurred in a more typical mid-block condition.
Site amalgamations
Consolidated redevelopment enables more effective use of setback spaces that would normally surround each allotment. When the 2-lot and 3-lot assembly are conjoined, the courtyard model (below right) can spill across the rear boundary to create two U-shaped courtyards, while treating the site as integrated whole. This option maintains the regulated setback from both street frontages. Imposing constraints from two-directions can create redundancies on the site, such as the ‘left over’ space adjacent to the parking on the southern boundary. When siting strategies are afforded more flexibility, underutilised spaces can often be redistributed to enhance the quality of other dwelling or site provisions. The dwelling yield is also constrained by the trade-offs of parking, garden and regulatory controls. While the courtyard model could accommodate more dwellings within 3-storeys, the achievable density is limited by the number of carparks delivered in this configuration (28 dwellings). The consolidated site only delivers 4 more dwellings than redevelopment on a 3-lot assembly alone, demonstrating that increases in housing supply do not directly correlate to increases in site area but rather depend on the spatial relationships and advantages delivered by different built-form approaches.

Affordability, sustainability and ownership
Threading shared amenity and infrastructure upgrades into the ageing suburban fabric via small-scale housing infill is a unique opportunity presented by this form of incremental redevelopment, which can contribute to more sustainable and affordable living options in these contexts. For example, the central parking area shared by the two U-shaped courtyard models connects two halves of the site with a new landscaped ‘street’ and provides for the potential extension of sustainable utilities and more effective servicing of neighbouring properties, who may elect to ‘opt-in’ in future. Similarly, the driveway on northern boundary has potential to become an active shared laneway in future, providing properties on the block-end with a dual frontage and creating conditions for, say, home-offices, community facilities or other shared capital that can support impending population increases in the middle suburbs.

Four of the many possible configurations of 5–6 suburban allotments are illustrated on the facing page. Each presents opportunities for positively transforming the residential fabric in Melbourne’s middle suburbs. For example, enhancing the ecology of an increasingly urbanised fabric through intelligent distributions of open spaces and deep-root planting zones, or sustainable technology upgrades for water treatment and re-use, energy production and waste management. Due to the sensitive relationships between site and dwellings in small-scale infill developments, the advantages achieved through consolidation will depend on the dwelling typologies and site-specific design strategies employed by individual proponents. An alternative to the U-shaped courtyards, for instance, may seek to maximise yield and prioritise the affordable purchase of apartments, but provide fewer benefits for suburban transformation more broadly.

Common property, shared amenity and sustainable infrastructure networks are becoming increasingly important in a contemporary economy, and for fostering sustainable modes of living (e.g. car-sharing, build-to-rent, renewable energy trading, water re-use, productive food gardens and so on). Ownership and access arrangements associated with these forms of shared exchange will have attendant spatial impacts for future housing redevelopment in the middle suburbs. The relationship between property ownership, housing tenure and affordable living has further relevance in Braybrook, given the high proportion of public housing stock that currently exists.

To foster a diversity of innovative design investigations during the first phase of the competition process, participants should be encouraged to choose an amalgamation pattern that can leverage the greatest uplifts in the quality and performance of their specific design approach, for both the development site and the surrounding suburban context. More detailed responses to ownership structures and shared services might be developed in subsequent stages of the competition process, with appropriate inputs from government and industry.
Model Courtyard

Site area 3442m²

<table>
<thead>
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<tr>
<td>4 x 3BR</td>
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<td>18 x 2BR</td>
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<td>6 x 1 BR</td>
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<tr>
<td>28 total</td>
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</tbody>
</table>

Density 81 dw/ha

Cars # 28

Garden area 1233m² 36%

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a) Rear laneway
New driveway installed to north of site, rear of allotments on block-end. Potential for future activated, shared laneway to be cooperatively developed between.

b) Corner ‘anchor’
High-density development built defines corner of the block. Takes advantage of perpendicular street frontages for access and siting benefits. Anchor development allows lower density models to be delivered in other parts of the suburbs.

c) Flexible tissue
Design expertise distributed across an irregular assembly of allotments, effecting a large surface area within the existing block. Housing infill performs a restorative role, stitching different eras of development together and augmenting existing amenity and services with high quality shared open space, sustainable services and new technologies.

d) Street extension
Development ‘jumps’ street. Opportunity to investigate future built character of suburbs and formulate a new frontage ‘zone’ that responds to contemporary contexts and needs.

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7.4m setback maintained

potential for shared active frontage

'reclaimed' setback area

potential for shared technology upgrades

potential for sustainable technology networks (e.g. water, energy, waste) to be extended beyond initial development

underutilised ‘left over’ site edges can be eliminated when street setback reduced

one-way lane

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Plan

[Diagram showing a) Rear laneway, b) Corner ‘anchor’, c) Flexible tissue, d) Street extension]
KEY RECOMMENDATIONS

The multi-scalar and design-led research outcomes provide a spatial understanding of the future dwelling need in middle suburbs and the transformative capacity of small-scale infill sites in General Residential Zones. Drawing on the comparative examination of the metropolitan growth scenarios, the built form characteristics of Braybrook and the site-scale design tests, the research team offers the following recommendations for the Better Apartments Design Competition brief. A summary of considerations discussed with DELWP and the OVGA throughout the research process is provided overleaf, which captures a fuller account of potential issues and decisions to be made by Government as more information is gathered through the process. These recommendations, supported by reasoning outlined in the report, provide a hierarchy of design parameters and planning levers for the first phase of the competition, which may inform secondary considerations for latter stages of development.

• **Building typologies**
  The competition aims to demonstrate a diversity of high quality apartment designs of up to 3-storeys that can enhance the quality and performance of future residential suburbs. Small-scale infill models will be an important mechanism for accommodating the rapid population increases projected in Melbourne over the next 30 years. An integrated approach to sustainable urban intensification will rely on the speed and distribution of small-scale infill housing supply to achieve a diversity living choices that are adequately supported by existing services and amenity, as larger-scale and longer-term renewal initiatives are realised. Good quality, affordable and sustainable low-rise apartments represent a gap in current market offerings in General Residential Zones in established middle suburbs, which the competition seeks to address.

• **Site sizes and consolidation strategies**
  Reflecting the variability of existing allotments in the middle suburbs, two site-types are proposed for inclusion in the competition. Design proponents could elect to operate on one or the other, based on the below parameters.
  34m wide x 35.5 long, 2-lot assembly. More difficult, but more frequently occurring, site type. Design proposals should be geared towards achieving collective impacts when high quality infill models are replicated at scale across the middle suburbs.
  46.6m wide x 45.8m 3-lot assembly. Less frequent occurrence, but potential for high-impact transformation of middle suburban contexts. Design proposals should be geared to demonstrating best-practice design benchmarks for high quality infill housing, and seeding spatial opportunities for sustainable built form changes by surrounding properties.

  **Amalgamations within a block:** Proposals to demonstrate the benefits that can potentially be achieved when the design models are extended across 5-6 allotments within one block.

• **Dwelling mix and density**
  Proposals should include a combination of 1, 2 and 3+ bedroom apartments, to support a sustainable mix of household types and affordable tenancies. The breakdown of dwelling types is left open, recognising that design proposals may negotiate yield, amenity, household/tenancy mix and affordability in a variety of ways. A minimum density of 85 dwellings per hectare is encouraged, however should the dwelling mix/yield specifically target large households, lower densities will be accepted. Design proposals should be encouraged to consider the trade-offs between yield, quality, development viability and affordability.
Planning levers and design standards

The competition seeks to advance the application of the Better Apartment Design Standards in General Residential Zones in middle suburbs. ResCode requirements can be varied in three key areas:

1) **Street setback:** street setbacks can be reduced to a minimum of 3m, recognising the existing variability of suburban streetscapes, the incremental reductions that are already occurring through accreted redevelopments, and prioritising high-quality private and open space strategies across the site overall. In combination with garden area and parking requirements, street setbacks contribute to over-constrained development sites. As a result, housing diversity is often limited, the sustainable performance of dwellings and sites adversely impacted, and viable densities for affordable housing options restricted. Design proposals should demonstrate how the street interface and/or site amenity is improved through setback reductions, and contributes to the future character of residential suburbs. (NB: the 3m allocation is consistent with the minimum distance for side street provisions on corner lots).

2) **Parking:** to be initially provided at a rate of 1 carpark per dwelling. Underground parking is discouraged, unless design proposals can demonstrate strategies for adaptive re-use of parking infrastructure as car-ownership and car-dependency reduces in future. This could include options for consolidate parking within a dedicated structure.

3) **Overlooking:** the 9m radius governing direct sight-lines into habitable rooms and private open space can be reduced if proposals demonstrate that adequate privacy is achieved through the considerate design strategies. Guidance is provided by the Better Apartment Design Standards.
NOTES


7. Plan Melbourne is working on the assumption that 1.5 million additional dwellings will be needed for a city of 7.9 million people in 2051. As Shimmin notes, the metropolitan plan was developed on VIF 2016 numbers, which were calculated before the ABS 2016 census results were released. Shimmin, Ian. "Fishermans Bend Amendment GC81 Economic Expert". Melbourne: Private submission, 2018. https://www.fishermansbend.vic.gov.au/__data/assets/pdf_file/0019/33517/EWS_Submitters-Various_Ian-Shimmin-of-Urbis_Economics.pdf


11. Melbourne’s residential building approvals in 2014–15 numbered 56,657; around 70 per cent of building approvals were for detached homes. However, 58 per cent of new dwellings were ‘other’ than detached houses (flats, apartments, townhouses, semi-detached units etc.). This proportion rose 95 per cent in the inner city, whereas in south-east Melbourne, west Melbourne and north-west Melbourne detached houses still represented most new dwellings. Commonwealth of Australia. ‘Liveability: Housing’. Australia State of the Environment. Canberra: Commonwealth of Australia, 2016.


14. Major Residential Sites are often large land parcels, have unique physical attributes or are strategically positioned within suburban networks. MRS could potentially accommodate a mix of new uses, making them more flexible (and arguably more valuable in strategic terms) than redevelopment of existing residential sites. Many are currently vacant or were formerly used for non-residential functions. As such, they represent a significant new source of housing supply however, if site remediation is required, MRS may be subject to different costs and time-frames than typical residential redevelopments.

16. “Over the past two decades, the ‘compact city’ model has become the urban form favoured by neo-liberal state governments worldwide, which have worked to implement the model’s three key pillars: dense and proximate development, well-linked by public transport systems and providing good accessibility to local services and jobs”. Raymond Bunker et al. ‘Managing the Transition to a More Compact City in Australia’. *International Planning Studies* 22, no. 4 (2017): 384. Also see the benefits of compact, higher-density neighbourhoods outlined by DELWP. ‘Plan Melbourne 2017-2050’. Melbourne: Victorian State Government, 2017, 46.


25. Research suggests that private garages in inner Melbourne are underutilised. If the middle suburbs are expected to transform into high amenity, vital places that well connected by public transport networks, then it would follow that patterns of carpark usage may begin to mimic more urbanised areas. Elizabeth Taylor. Transport Strategy Refresh: Background paper - Car Parking. Melbourne: City of Melbourne, 2018.

26. Also see diagrams and guidance provided in DELWP. Apartment Design Guidelines for Victoria. 2017


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