



# SOLUTIONS IN THE SUBURBS

Document Control Sheet

Report Title: Solutions in the Suburbs  
(amenity, community & density)

Author: m3architecture

Approved by: Dr. Michael Lavery

Rev	Date
1	13.03.20
2	09.07.20
3	02.03.21
4	23.07.24
5	12.09.24
6	05.06.25

This document has been prepared purely for research purposes. No liability is accepted by m3architecture or any employee, contractor, or sub-consultant of this company with respect to its use.

Note: m3architecture acknowledges the work of Peter Skinner in collaborating on the medium density strategy (Chapter 5) and Peter’s review of an early draft of this report.

m3architecture

Image (front page) © CANSTAR Pty Limited 2020



We acknowledge the Traditional Owners of Country on which we design. We pay our respects to Elders past and present, and the continuation of cultural, spiritual and educational practices of Aboriginal and Torres Strait Islander peoples.

“...suburbs are not the city spread too thin, and in fact hold potential for a lived complexity as satisfying as that assumed to be available in inner cities.

...suburbs are increasingly recognised as part of a city’s wellbeing with their own alternative ideology and opportunities for urbanity and ecological sustainability.

...(recalibrated) structures can offer new possibilities for sustainably integrating living between generations and between established and arriving migrant communities.”

**Preface to Suburbia Reimagined, van Schaik and Bertram, 2019.**

Contents

<b>Introduction</b>	<b>1</b>
<b>1.0 Background</b>	<b>3</b>
1.1 Caring for Country	3
1.2 Study limits	5
1.2.1 Why do this?	7
1.3 Aspiration	9
1.4 The need	13
1.5 Key suburbs	21
1.6 Median house price growth forecast	23
1.7 Demographic diversity	24
1.8 Diversity of tenants/diversity of choice	25
<b>2.0 Appropriate Strategies for the Suburbs</b>	<b>26</b>
2.1 What we love, what we want & what we need	28
<b>3.0 Applied Strategies (small scale infill)</b>	<b>29</b>
3.1 Micro projects	54
<b>4.0 Applied Strategies (existing housing stock)</b>	<b>55</b>
<b>5.0 Applied Strategies (medium density)</b>	<b>59</b>
5.1 Incremental Medium Density	61
5.1.1 Sleeved Housing on the Street (Stage 1)	61
5.1.2 Sleeved Housing on the Street (Stage 2)	63
5.2 Terrace Housing	67
5.3 Walk up apartments with on street parking	89
<b>6.0 New Opportunities: Non-Residential Sites in the Suburbs</b>	<b>107</b>
<b>7.0 A Blueprint to Facilitate Change</b>	<b>116</b>
7.1 Current planning legislation	116
7.2 Technical upgrades/building codes	117
<b>8.0 Financial Models (an opportunity)</b>	<b>121</b>

## Introduction

### **SOLUTIONS IN THE SUBURBS**

Our suburbs breathe via private gardens. Family life and mature trees. Budding sporting stars thrive there. Imagine if we could keep all of this and make the suburbs more vibrant, more sustainable and more dense, with more amenity!



# 1.0 Background

## 1.1 Caring for Country

This research, whilst focussed on housing, is based on sustainability principles which inherently seek to “Care for Country”.

Wherever we can utilise or add to existing infrastructure (transport, sewer, stormwater, water, electricity, schools and hospitals etc) instead of building new, we are Caring for Country.

As opposed to the continuous expansion of our suburbs, these strategies are inherently more sustainable (i.e. less materials are used, more energy conserved), we are inherently caring for our ecology (not only is less green space removed, many of these strategies actually increase landscape space) and we are caring for and enhancing our communities (via improved

community outcomes allowing diverse family groups to stay connected through more flexible housing options in their own suburbs, via the new amenity that greater density supports, and by allowing our teachers, nurses and carers to live in the communities they work in).

Whilst this research explores strategies which allow for

these kinds of outcomes, we acknowledge that consultation with First Nations people around these issues will not only continue to improve these strategies it will be a vital requirement for those places and projects recognised as having significance to First Nations peoples.

The work is ongoing.

## 1.2 Study limits



**This proposition looks at Australia's impending need for housing through the lens of those things we value most about our suburbs. For the purposes of this study we have looked specifically at a particular suburban condition (the 600m<sup>2</sup>+ lot @ minimum 15m wide) to test what might be possible.**

We have undertaken this work to understand how we can grow our established suburban communities in ways which;

- are sustainable (minimising waste, maximising the adaptable and robust parts of our cities and their existing infrastructure.)
- protect and enhance what we value (e.g. retaining and enhancing existing communities/existing mature landscape including 'the backyard' etc.)
- provide for a diverse mix of residents and build safer, more engaged communities
- work with the existing scale of the suburbs

and

- respect and enhance the public realm

Identifying and summarising the key values of our suburbs as they relate to Australian cities, we have then set about applying concepts which retain and enhance them at different scales and at different densities, on sites which can typically be found throughout every city and town in the country.



Avoiding the temptation to build in the 'back yard' is an excellent example of something we can all aspire to. By simply avoiding the temptation to infill our cities back yards we can retain many of the things we associate with the very best parts of our existing lifestyle. i.e. We can; retain the lungs of our towns, keep amenity (light/breezes/ views/privacy) for our homes, retain private outdoor recreation areas, avoid the clash of infrastructure services (which often sit in rear yards), avoid exacerbating the 'heat island effect' of additional roofs, retain/improve natural overland flow, reduce the potential effects of flood waters and give ourselves the best opportunity to retain mature trees. Having identified something we value about our city, the strategies developed here then set out ways we can retain the things we value.

Image (above) © pxfuel.com License Creative Commons Zero  
Image (left page) © CANSTAR Pty Limited 2020

## 1.2.1 Why do this?

Adding density to our suburbs, when done at the right scale and at the right grain:

- enables more local amenity
- empowers individual land holders and local (small) business, keeping \$ in community
- provides the infrastructure for new local businesses
- creates activated streets and puts eyes on the street (making streets safer)
- creates pedestrian friendly active streets, improving health outcomes
- allows people to age in place
- allows family groups to stay together
- allows people of different economic circumstances to live near one another (teachers and nurses etc. can live where they work)
- enables green streets
- adds to a green heart
- sustainably uses existing infrastructure such as sewer, electricity communications, water, transport, schools, healthcare, etc.



Images (clockwise from top left)  
 Image © iStock Getty Images: robynmac  
 Image © Facebook: Dulverton Library 2022  
 Image © Unsplash, Tony Lee 2019  
 Image © Chuck Stanley Artist  
 Image © Volgren 2022  
 Image © McGregor Coxall, John Gollings  
 Image © commercialrealestate.com 2019  
 Image (centre) © collectiveimpactlab.com 2005

### 1.3 Aspiration

With respect to the suburbs and the potential for growth, could Australian's think more broadly? Are we too accepting of the status quo? What are our true aspirations?

We can ask these questions in many ways, for example; What values should be formative for our cities? What future do we want for our families? What would we give up to achieve this?

Exemplars provide us a powerful way of reflecting on these issues.

Q: Would you live in a place with 55,000 other people that was;

- 2.8km X 4.0km in size,
- filled with 4 to 6 storey buildings,
- had its garbage collected every night
- only for pedestrians (it contained no cars) &
- was a maximum 400m walk to public transport?

For many Australians the answer would be no!

Yet this is a place filled with vibrant public spaces, cafes, bars, culture and business. Its concentration of population allows for excellent public transport options, adaptive reuse is mandatory, it enables community, hosts world class events, attracts tourists, creates dynamic views and is surrounded by natural wonder.

This place is (of course) Venice.

How does the historical city of Venice compare to the suburbs of Brisbane?

Ashgrove and Enoggera, with an area several times that of Venice, have a population of approximately 18,000 people. Compared to the old city of Venice which currently holds 55,000 people.\*

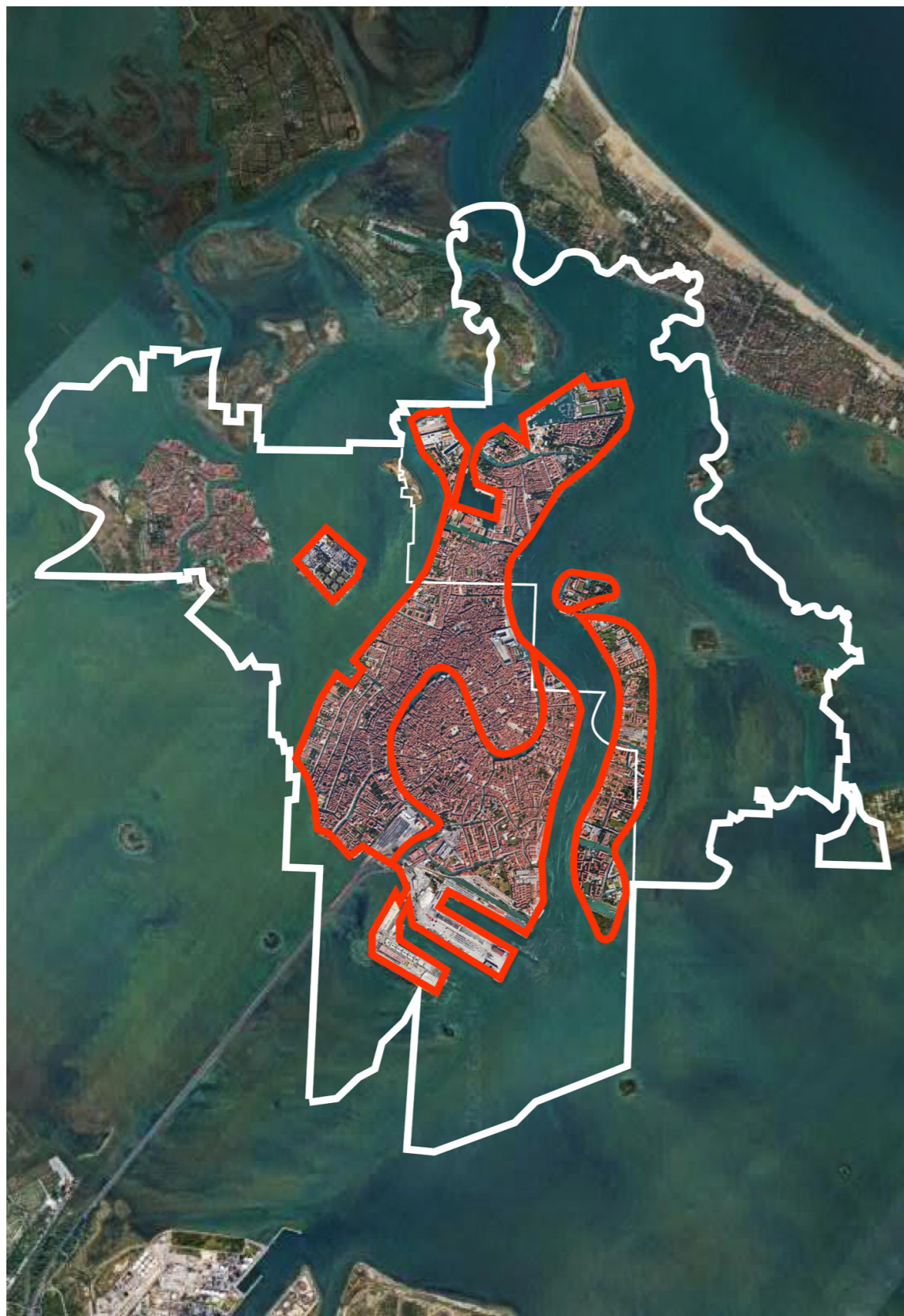
The intent of making this extreme comparison is NOT to (re)build Venice in the suburbs, but simply to illustrate that if we are prepared to think differently about issues like; the quality of our public space, density and transport, opportunities emerge.

Can we be more flexible and more aspirational? If the answer is YES, then the future becomes about opportunity and positive change, as opposed to the current dialogue which is defined by the battle to retain a small number of living models which are beginning to serve us (and our future) poorly.

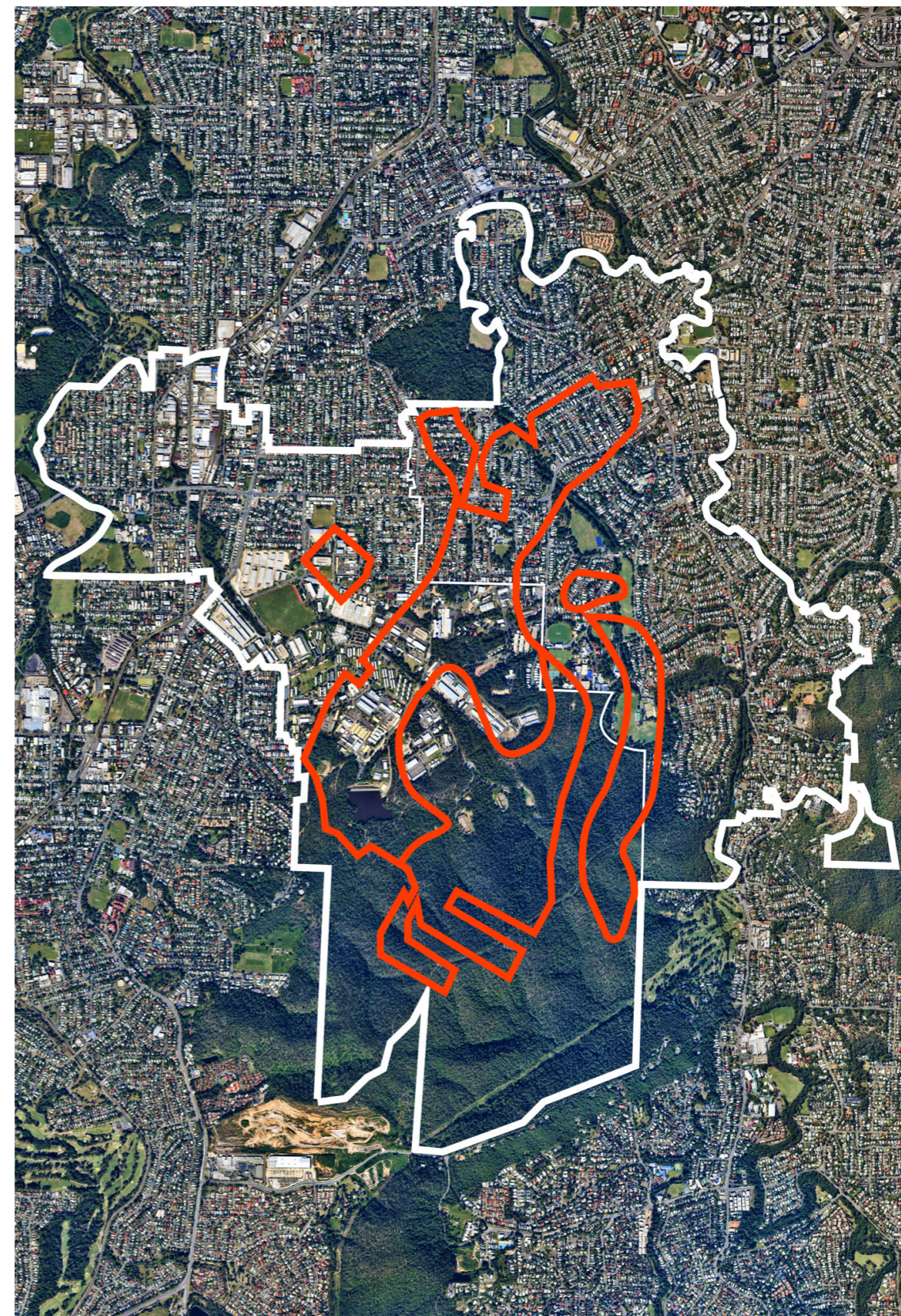
\*For 600 years, until the 1970's, Venice was home to more than 100,000 people. The effects of the 1966 flood, ongoing subsidence and continual flooding has seen an exodus of Venetians.



Historical City of Venice, ITALY  
Image © Google Maps 2020



Historical City of Venice, ITALY and Ashgrove & Enoggera, Brisbane, AUSTRALIA  
Image © Google Maps 2020



Ashgrove & Enoggera, Brisbane, AUSTRALIA  
Image © Nearmaps 2020

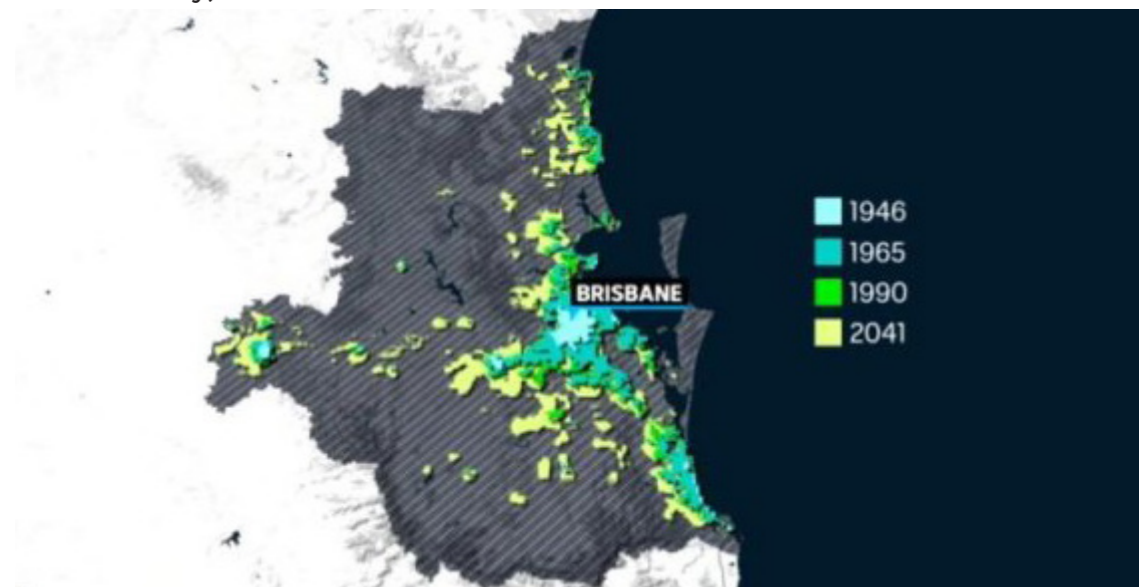
## 1.4 The need

The Australian population is projected to grow by 40% between 2016 and 2041 – from 24.2 to 34.0 million people.<sup>1</sup> The growth in places like Brisbane will be higher, with a 55% increase in population in the Greater Brisbane area by 2041.<sup>2</sup>

The need for new forms of housing (now!) is an issue with wide ranging effects. From macro land use (clever solutions will help reduce the loss of rural and native landscapes) to sustainability (reducing the need to build new infrastructure) and financial capability (e.g. addressing housing affordability and increasing the availability of rental properties/rental affordability).

Australia also has some of the largest houses among OECD\* member countries, with the average house size increasing almost 30% over the past three decades. New detached houses currently average at around 230.8m<sup>2</sup> per dwelling!<sup>3</sup>

In addition, South-east Queensland's urban footprint has expanded 20,000 hectares in the last decade.<sup>4</sup> Brisbane alone covers an area 20 times the size of New York City, with a quarter of its population and remains the lowest density city of Australia's state capitals. 76% of the housing stock in Brisbane is detached housing.<sup>5</sup>



Map showing urbanised areas in Brisbane over time

Original source of data: ShapingSEQ South East Queensland Regional Plan 2017

\*Organisation for Economic Co-operation and Development

1. ABS 2016 Census, Household and Family Projections, Australia, 2016 to 2041, 2016

2. Queensland Government population projections, 2018 edition; Australian Bureau of Statistics, Regional population growth, Australia, 2016 (Cat no. 3218.0).

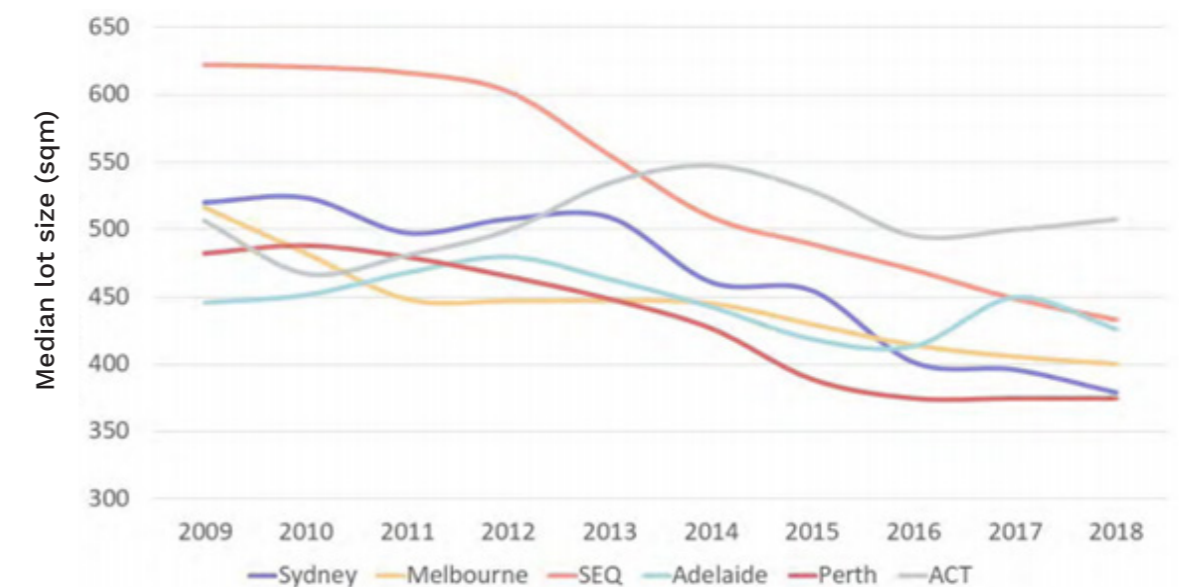
3. CommSec, 2018, Economic Insights 'Australian home size hits a 22-year low'.

4. Clark, 2019, ABC News 'Urban squeeze pushes great Australian dream to the fringes'

5. ABS 2016 Census

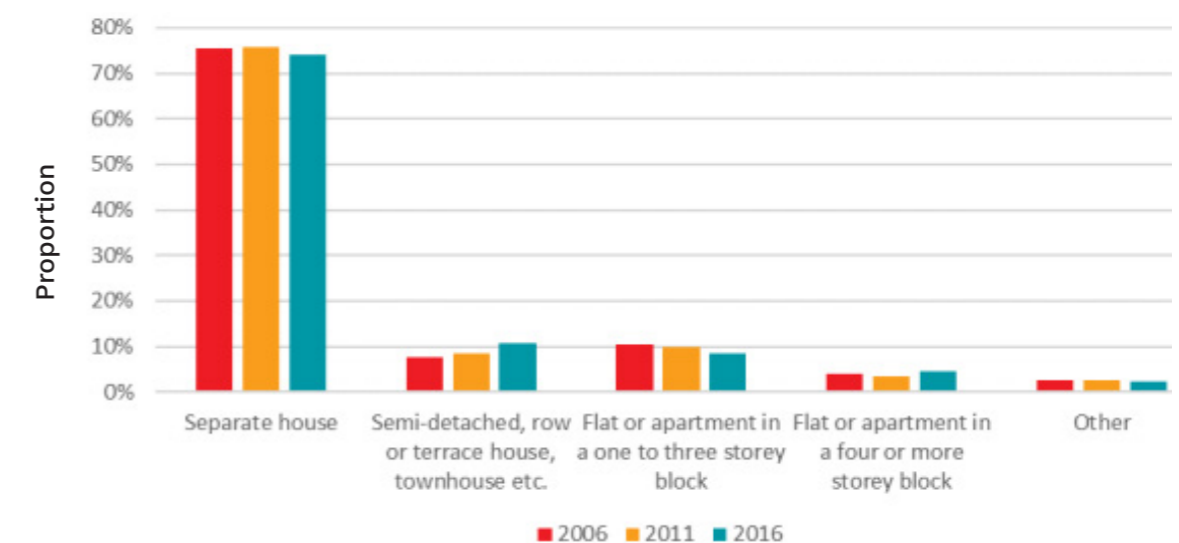
Despite this increase over the last two decades, the housing market in South-east Queensland suggests a growing appetite for living on smaller lots.

Median Lot Size



Source: Urban Development Institute of Australia, UDIA State of The Land, National Residential Greenfield and Apartment Market Study 2019

Proportion of Queensland household, by dwelling type

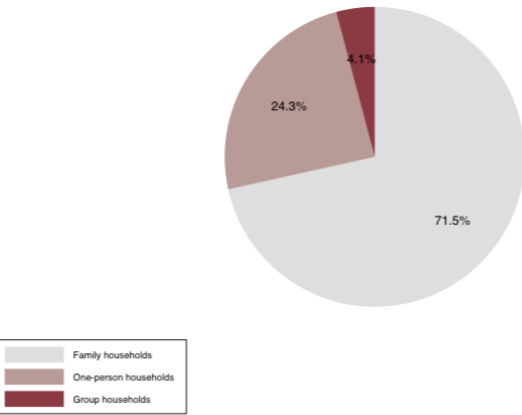


Source: Queensland Productivity Commission, QPC Housing in Queensland: Affordability and Preferences 2018

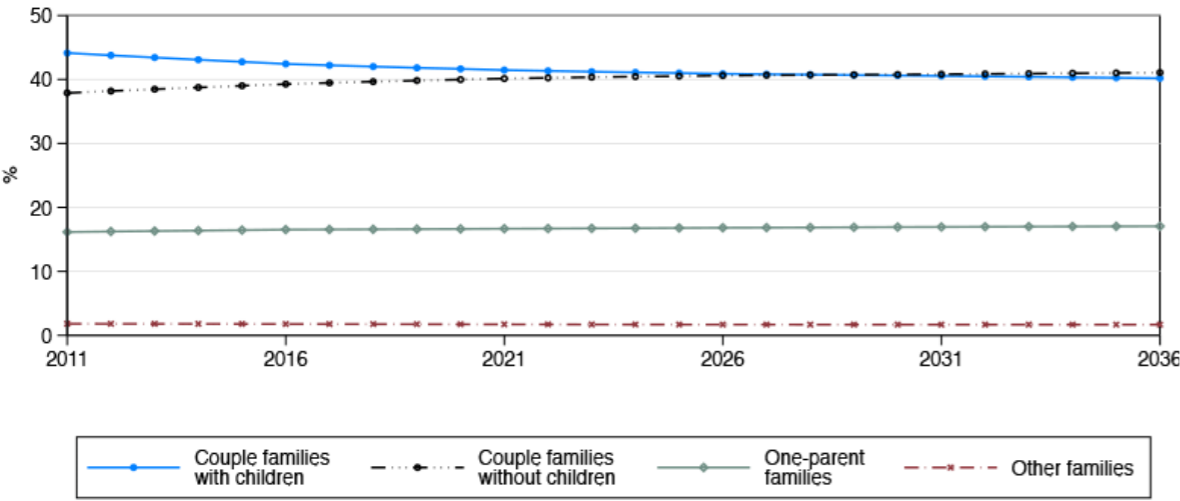
Family households make up the largest proportion of households in Australia. We also have an aging population, an increase in the number of single people and a decrease in the number of people having children.

We need a mix of dwelling types to cater to all household types. A proposition that supports both a family and one to two person lifestyles.

Household type, 2011



Family type projections, 2011-2036 (Australia wide)



Note (centre): The %'s are based on the Series B projections.  
Source: ABS 2015 'Household and family projects, Australia, 2011 to 2036.

Note (top right): Household types were classified based on usual residents. 'Visitors only' and 'other non-classifiable' households are not represented in the figure. Source: ABS 2011 Census.

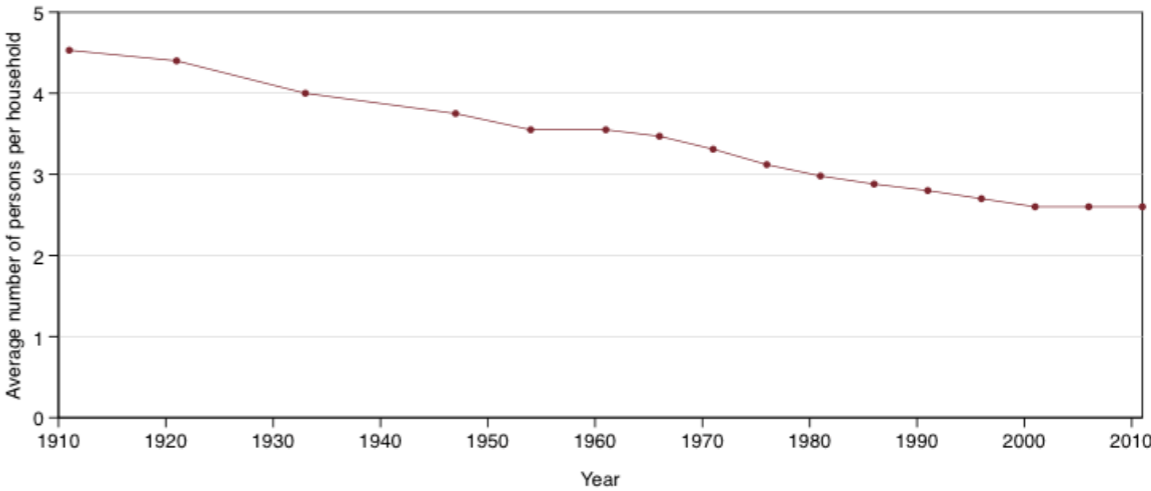


Image © realestate.com.au 2018

In 2016 the average household had 2.6 people, yet the suburbs remain full of 4 and 5 bedroom houses.

The question is how do we unlock the potential of the suburbs for growth?

Average household size, 1911-2011 (Australia wide)



Source: Hugo, G (2001). A century of population change in Australia (ABS - Yearbook 2001). ABS 2011 Census - Times Series Profile.

Unless we look in new ways at how we inhabit existing suburban properties, our aging population (our grandparents and parents) and our children might have no choice but to come home to and meet their neighbours in places like this...





What if in the future our  
kids, parents, grandparents &  
carers still had the choice to  
arrive home like this?

## 1.5 Key suburbs

This study is focused on the possibility presented by 600+m<sup>2</sup> rectangular lots in established suburbs.

The total estimated population of the typical target suburbs listed below is 331,545 (ABS Census 2016). The total projected population at 2041 is 513,894. This is a 55% increase in population.

Census data (2016) was collected for a number of suburbs located beyond a 2.5km radius of the Brisbane CBD\*, with emphasis on post-war suburbs due to their tendency to house larger homes on larger lot sizes.

These suburbs include: Alderley, Ashgrove, Belmont, Camp Hill, Chandler, Chermside, Clayfield, Enoggera, Ferny Grove, Ferny Hills, Gordon Park, Indooroopilly, Kalinga, Kedron, Keperra, McDowall, Mitchelton, Mt Gravatt, Norman Park, Nundah, Seven Hills, Stafford, Upper Kedron, Wavell Heights, Wilston, Windsor, Woolloowin and Zillmere.



Images © pxfuel.com License Creative Commons Zero

small scale = BIG CHANGE

If 25% of residential lots could add a second dwelling...

this would **reduce** the need to develop/subdivide **8,375 new lots.\***

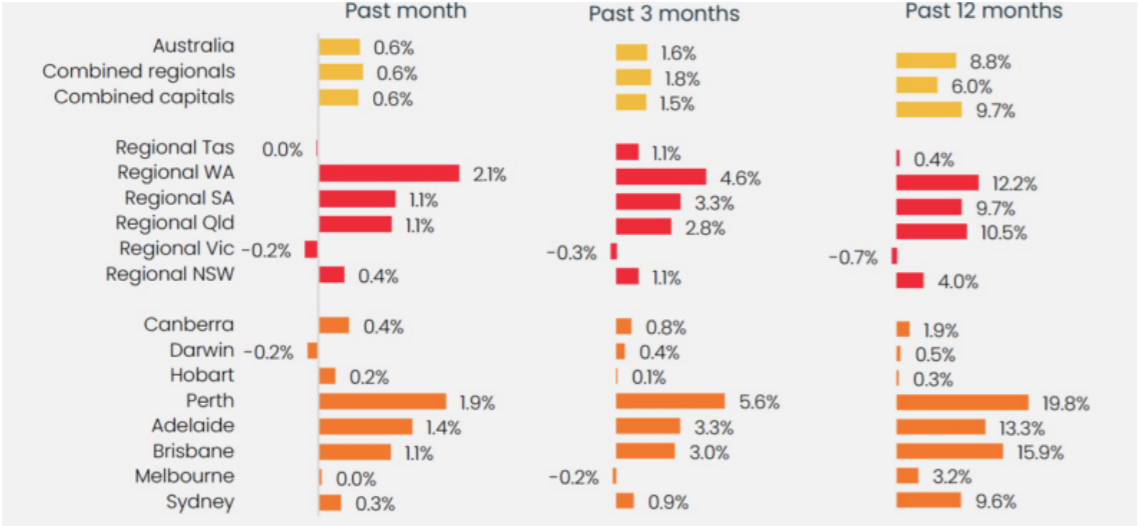
...that's more than 400 of these



\*This is equivalent to housing a total of 22, 111 additional persons at an average of 2.64 persons per dwelling, on a standard 15m wide lot.

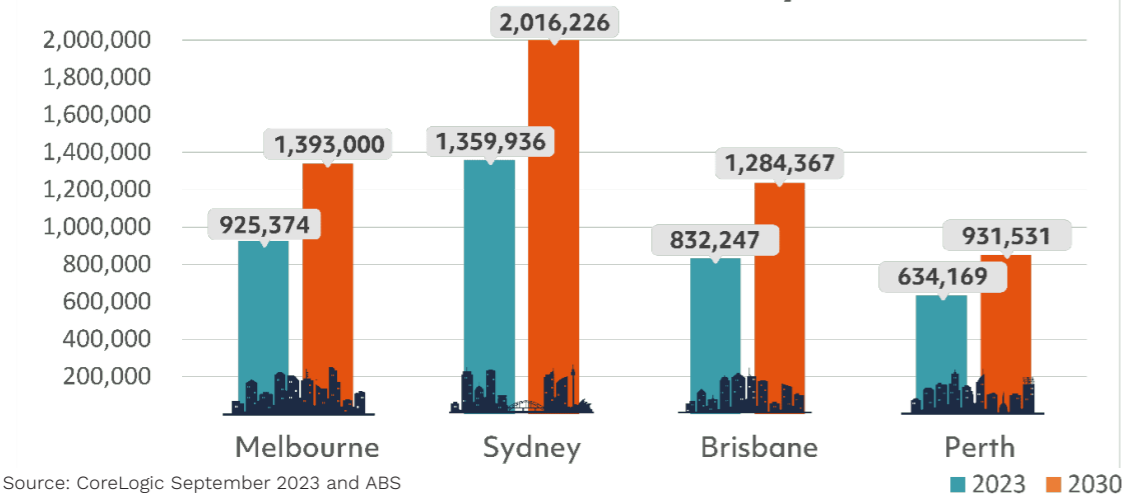
# 1.6 Median house price growth forecast

Change in dwelling values to end of March 2024



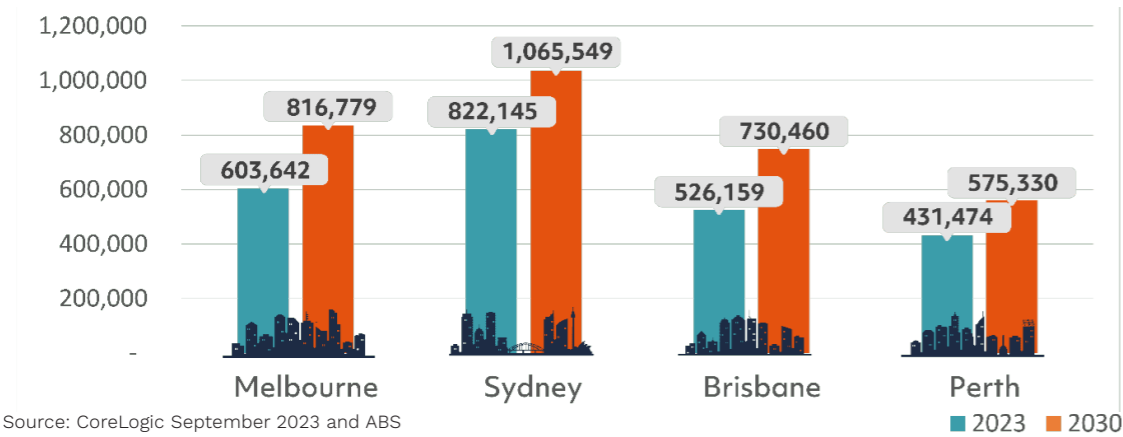
Source: Core Logic Home Value Index

Median house price by 2030



Source: CoreLogic September 2023 and ABS

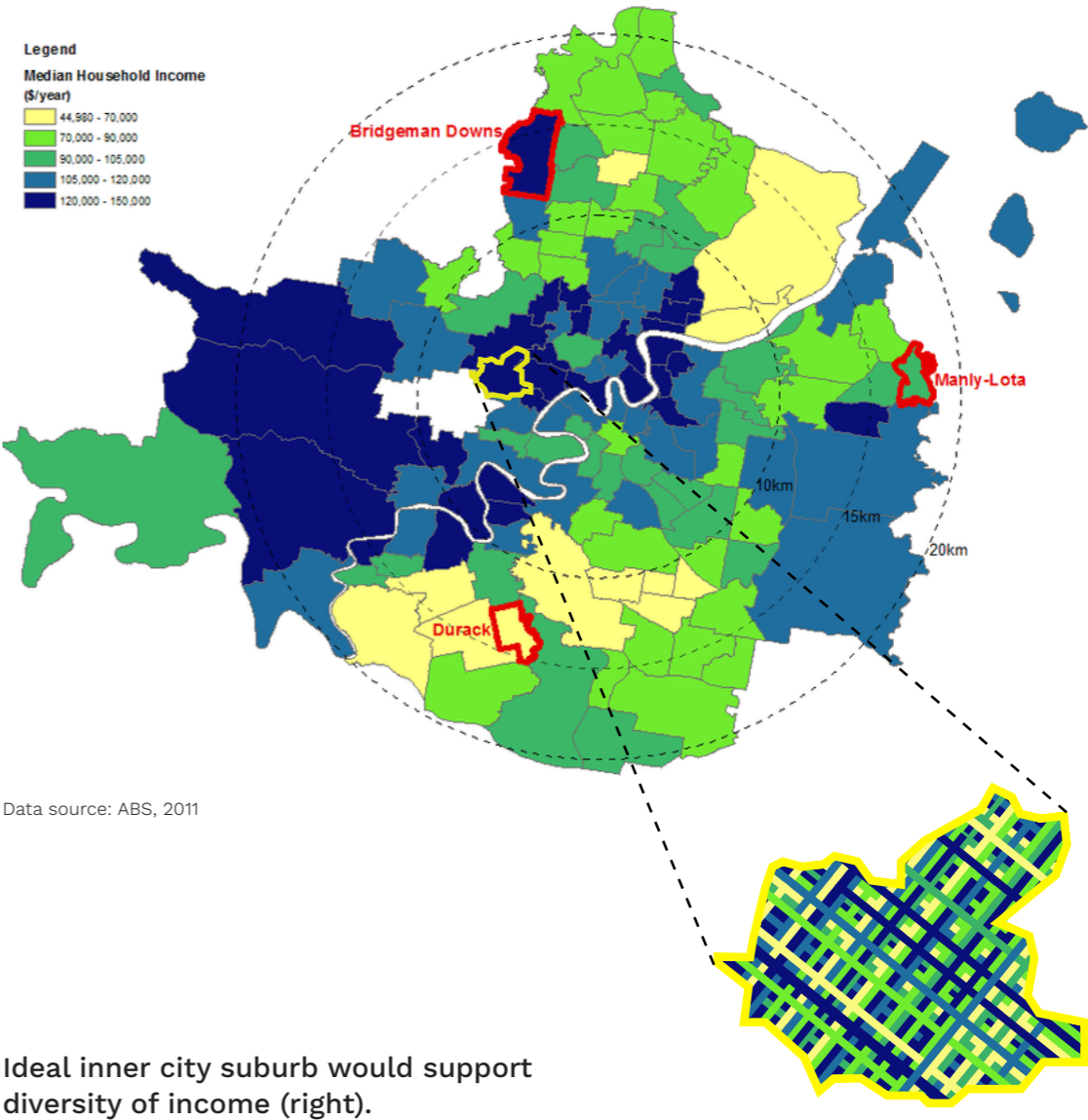
Median unit price by 2030



Source: CoreLogic September 2023 and ABS

# 1.7 Demographic diversity

A steady increase in house prices has meant “key workers” such as nurses, police officers and teachers are being pushed to the fringes of the cities. Cities need these key workers, as well as lawyers, bankers and executives living close to their places of employment. Diversity in all its forms adds amenity and strengthens community.



Data source: ABS, 2011

## 1.8 Diversity of tenants/diversity of choice

The following propositions cater to a mix of tenant types including:

- single people
- couples
- aging family members
- people with changing family circumstances
- adult children
- students
- carers
- service providers living in the community they serve (e.g. teachers, nurses/healthcare workers, police, fire brigade etc.)



## 2.0 Appropriate Strategies for the Suburbs

**STRATEGIES  
FOR URBAN  
ENGAGEMENT/  
BETTER  
COMMUNITIES/  
BETTER  
SUBURBS/  
IMPROVING  
DIVERSITY AND  
AMENITY, WITH  
DENSITY...**

**2.1 What we love, what  
we want & what we need**

- PROTECT BACKYARDS AND ESTABLISHED TREES
- UTILISE EXISTING INFRASTRUCTURE
- KEEP THE STREET AND CARS TOGETHER
- INCREASE DENSITY / INCREASE COMMUNITY
- ADD LANDSCAPE VALUE TO OUR STREETS
- INCREASE HOUSING VARIETY
- INCLUDE OPTIONS THAT MIGHT SUIT PUBLIC HOUSING
- NEW FUNDING OPTIONS
- ALLOW HOUSING OWNERS TO IMPROVE ON AND REALISE INCREASED PROPERTY VALUES
- PUT EYES BACK ON THE STREET
- ACTIVATE THE STREET AS IF IT WERE OUR MOST IMPORTANT, EVERYDAY PUBLIC SPACE

### 3.0 Applied Strategies (small scale infill)

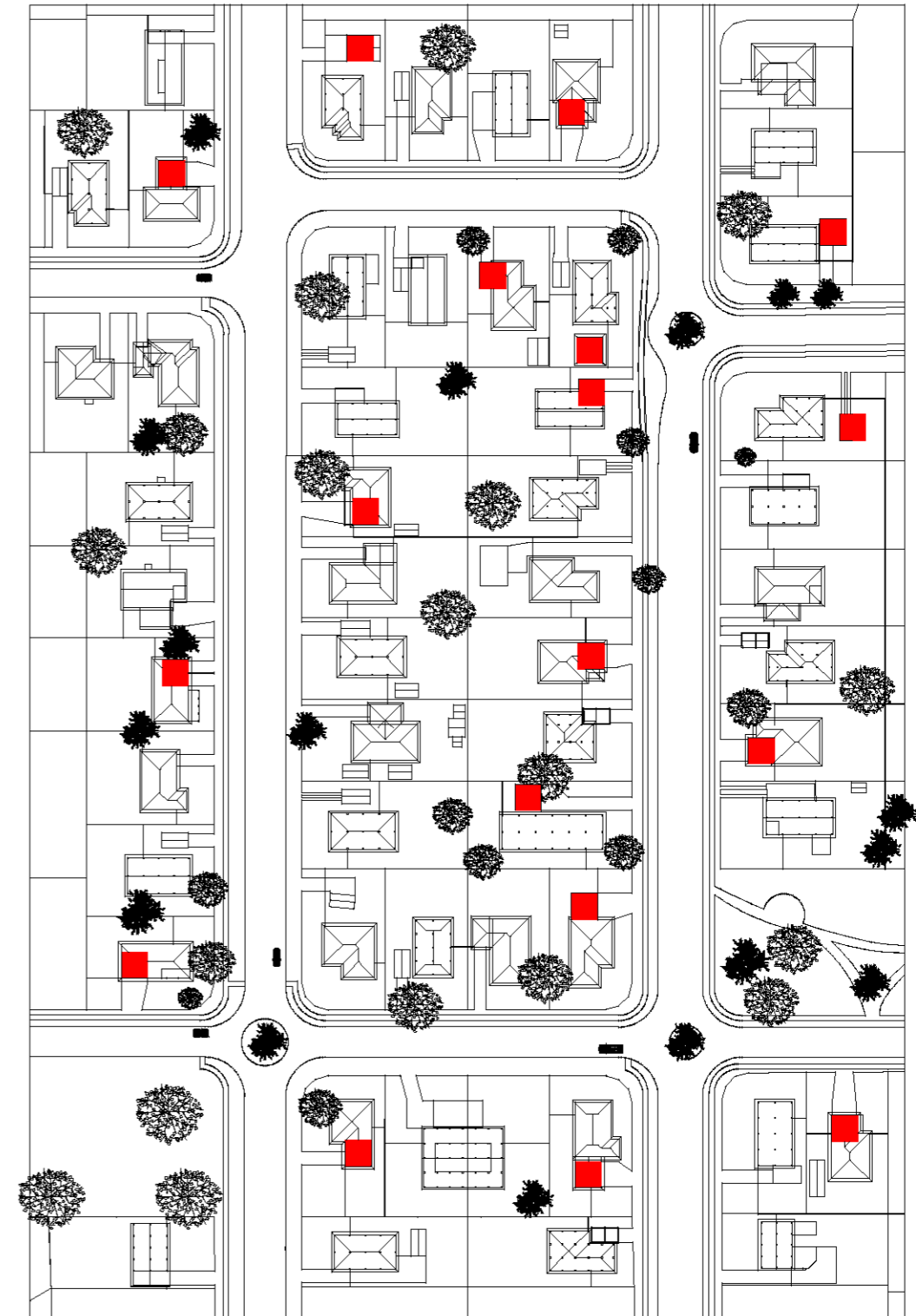
PROTECT BACKYARDS  
AND ESTABLISHED TREES



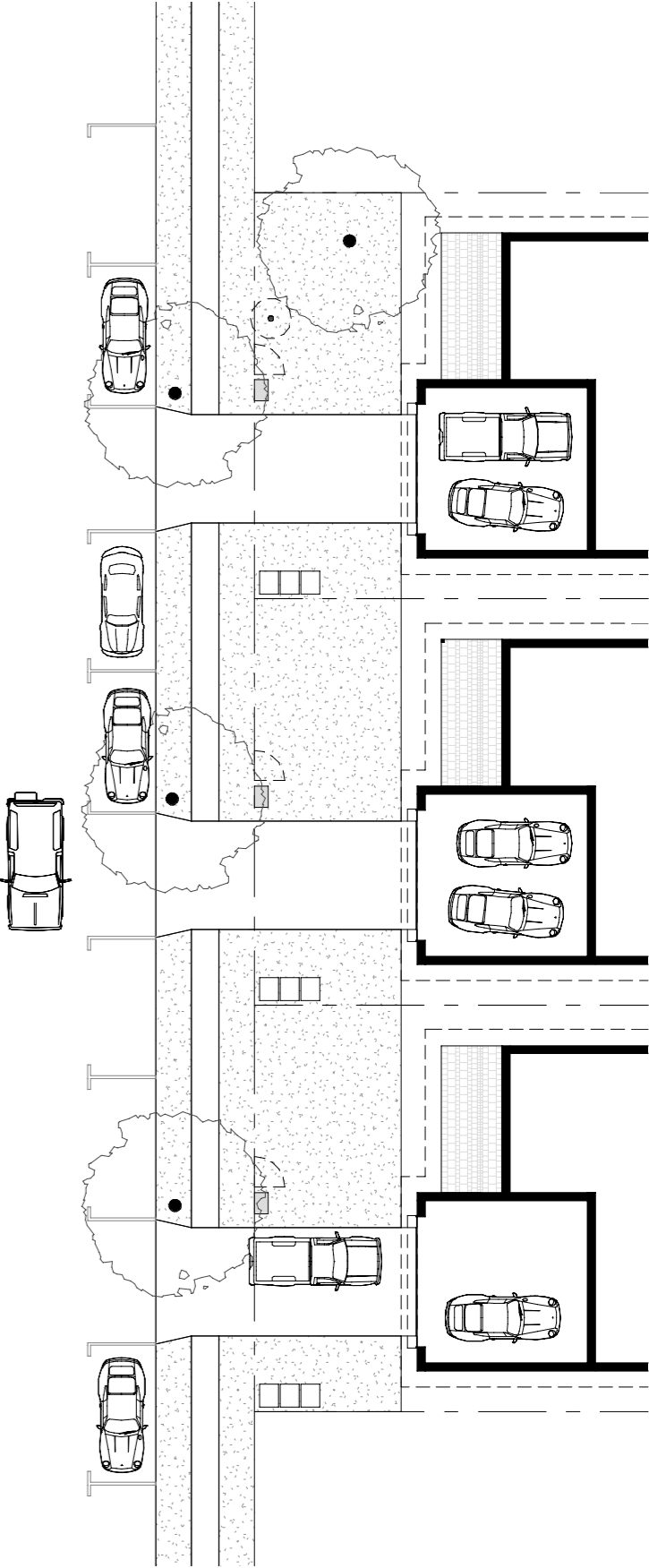
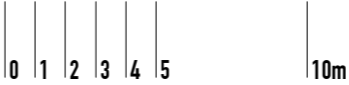
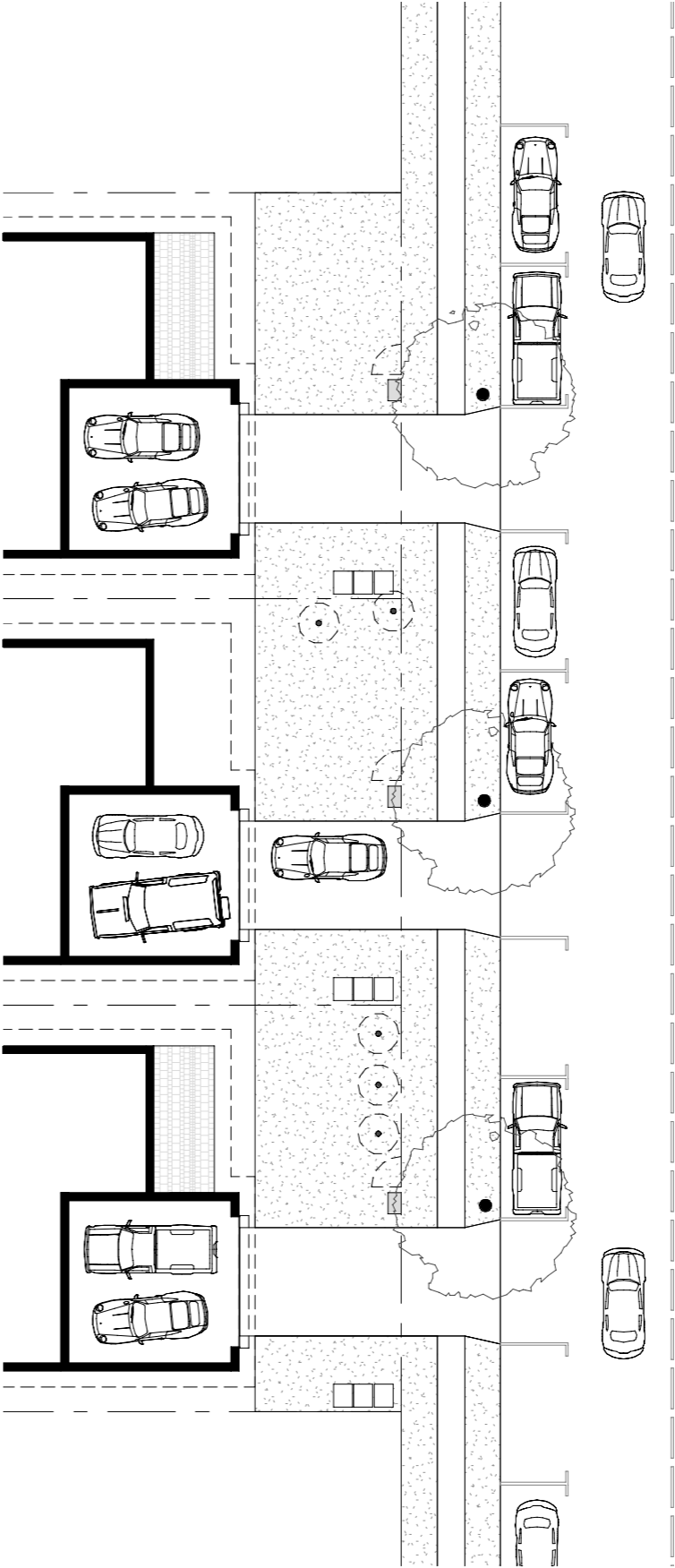
## UTILISE EXISTING INFRASTRUCTURE

NOTE: FOR EACH OF THESE  
SMALL SCALE INFILL OPTIONS,  
REFER TO SECTION 7.2  
TECHNICAL UPGRADES /  
BUILDING CODES.

IMAGINE  
LOW SCALE/LOW  
IMPACT OPTIONS  
UTILISING GARAGES  
& CARPORTS FOR  
DWELLINGS &  
COMMUNITY USE.

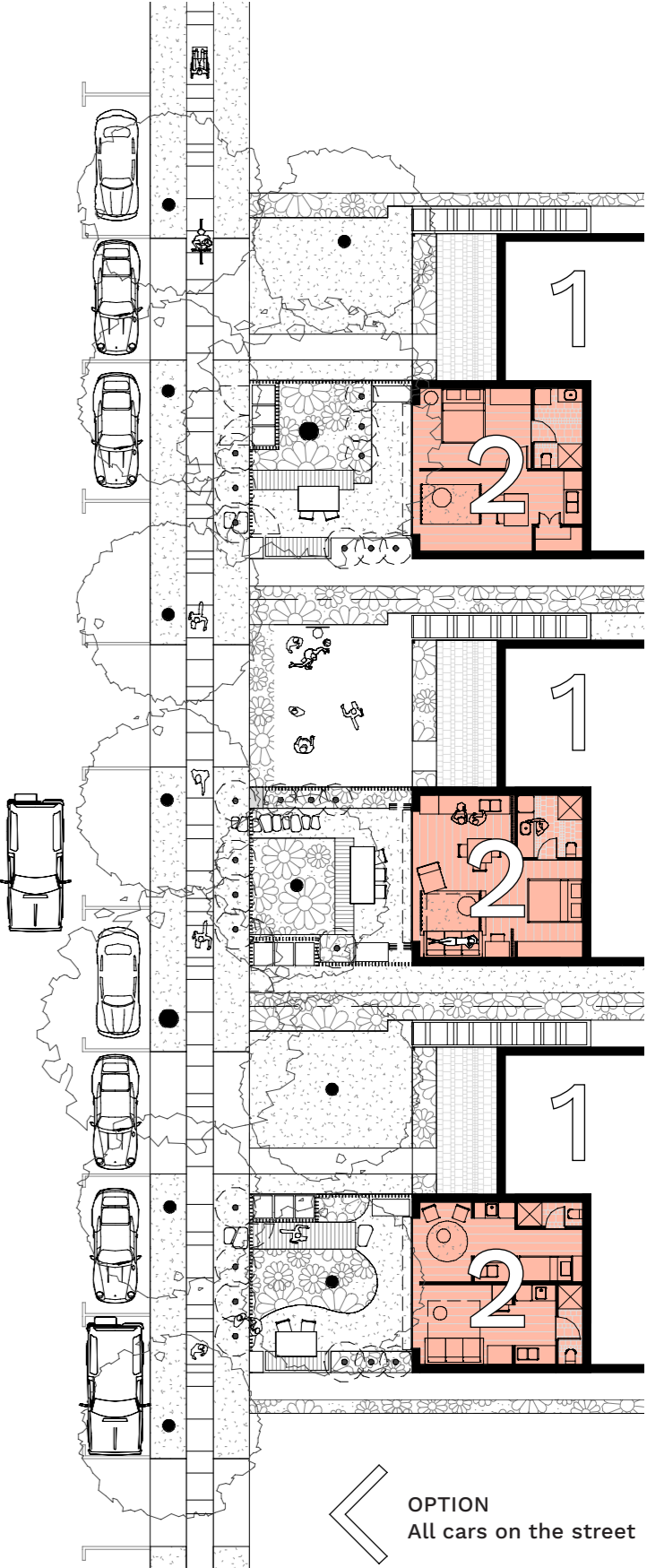
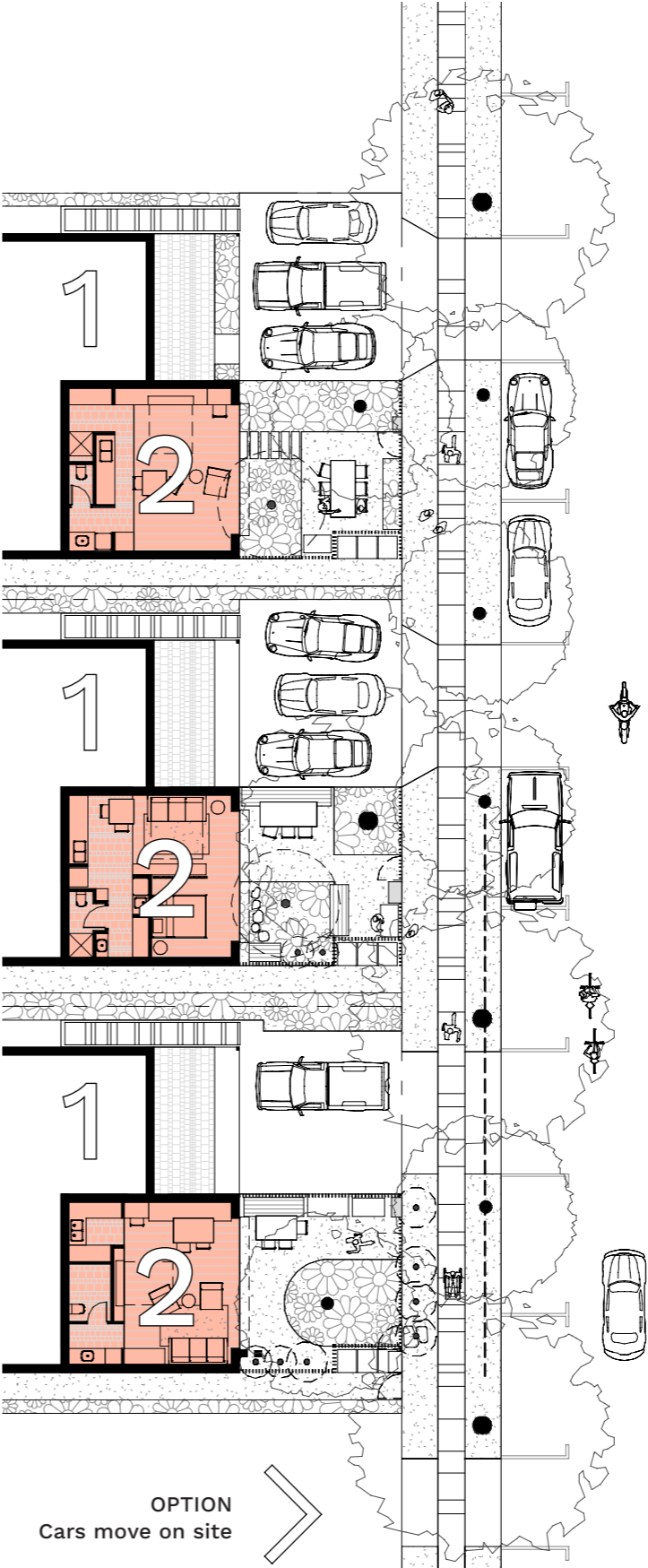


KEEP THE STREET AND  
CARS TOGETHER



TYPICAL (EXISTING) SUBURBAN STREET

INCREASE DENSITY  
/  
INCREASE COMMUNITY



TYPICAL (POTENTIAL) SUBURBAN STREET

## ADD LANDSCAPE VALUE TO OUR STREETS

FOR EXAMPLE, WORKING WITH  
INDIGENOUS IDEAS OF LANDSCAPE  
AND/OR VERGE GARDENS etc.



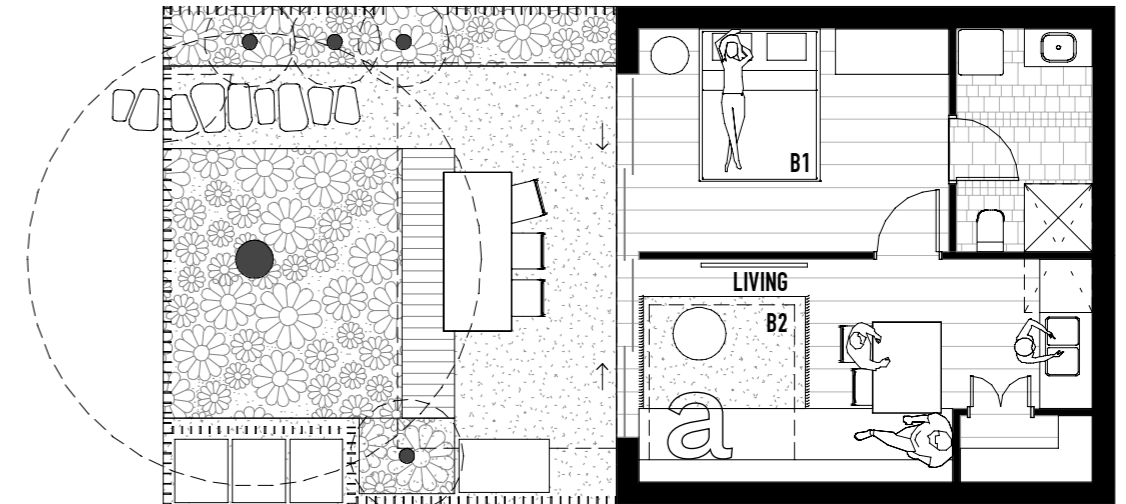
0 1 2 3 4 5

10m

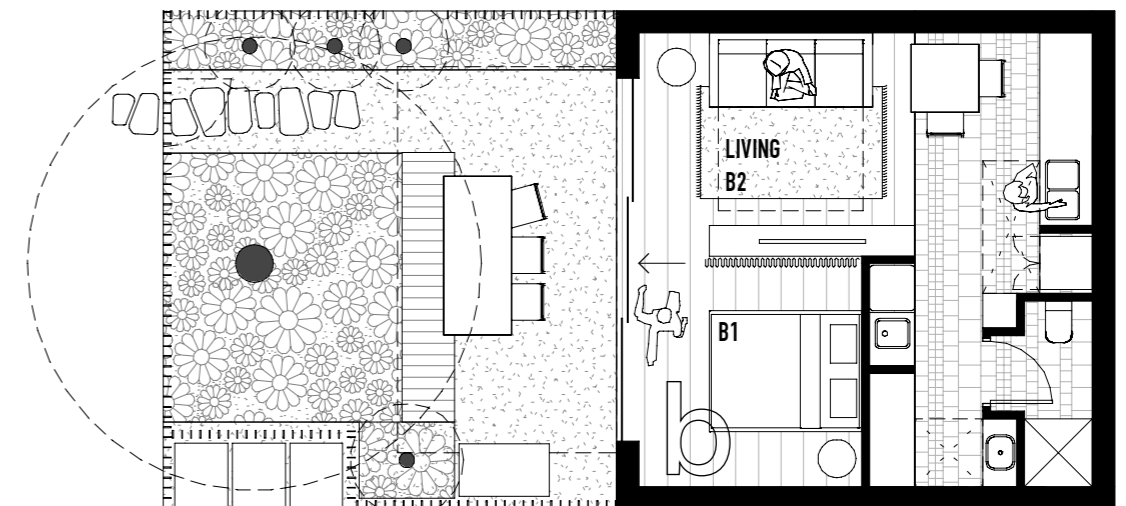
TYPICAL (POTENTIAL) SUBURBAN STREET

## INCREASE HOUSING VARIETY

(CARERS/AGING FAMILY MEMBERS/  
ADULT CHILDREN/OTHERS?)



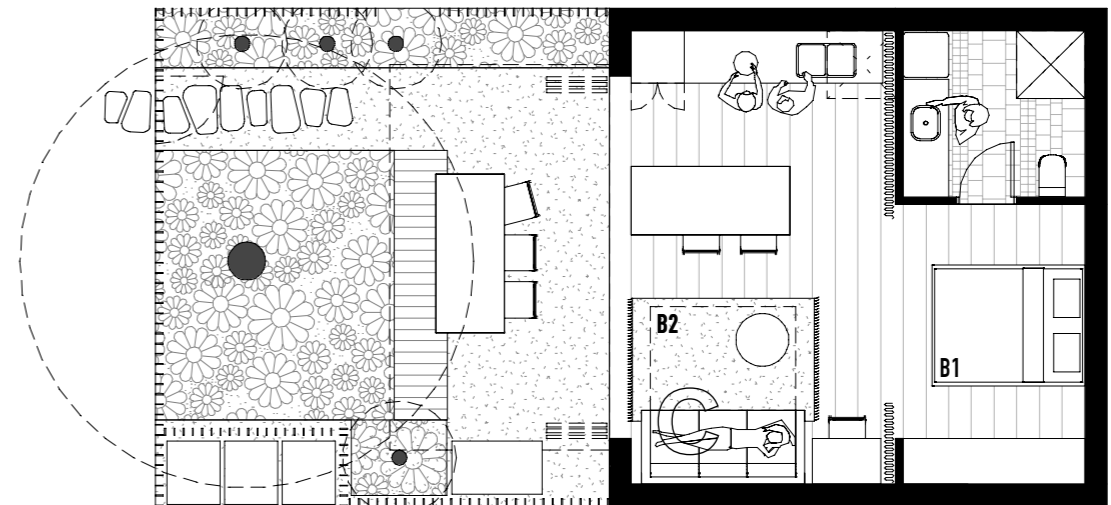
1 BED HOME option a



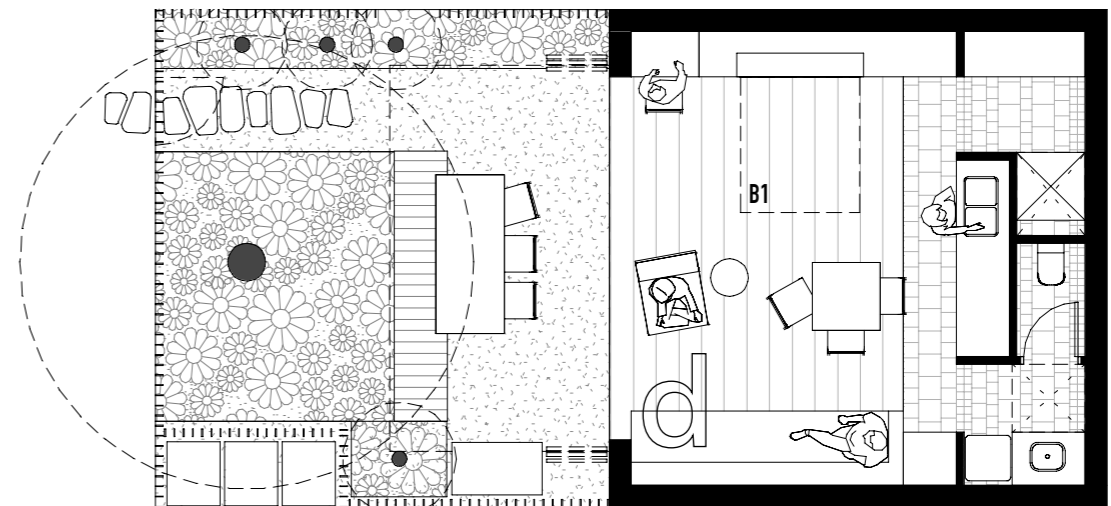
1 BED HOME option b



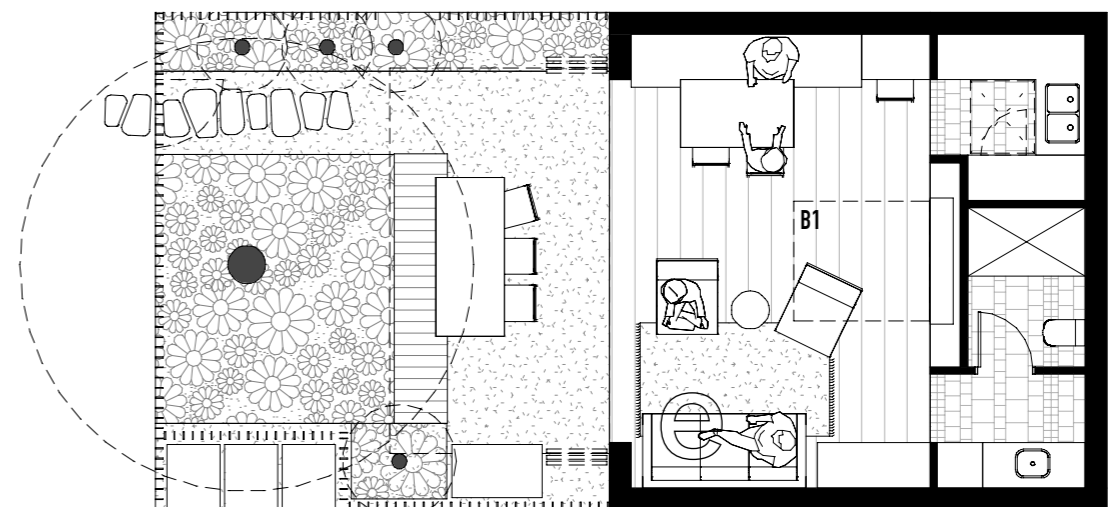
INCLUDE OPTIONS  
THAT MIGHT SUIT  
PUBLIC HOUSING  
  
(CONSIDER ACCESSIBILITY,  
PROXIMITY  
TO PUBLIC TRANSPORT AND ACCESS  
TO COMMUNITY FACILITIES)



1 BED HOME option c (including accessible amenities)



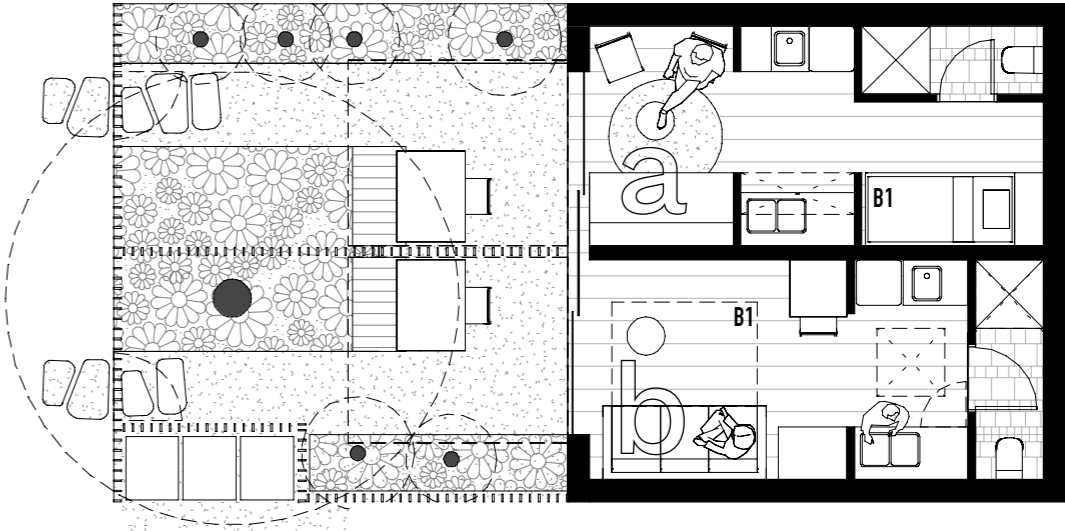
1 BED HOME option d



1 BED HOME option e



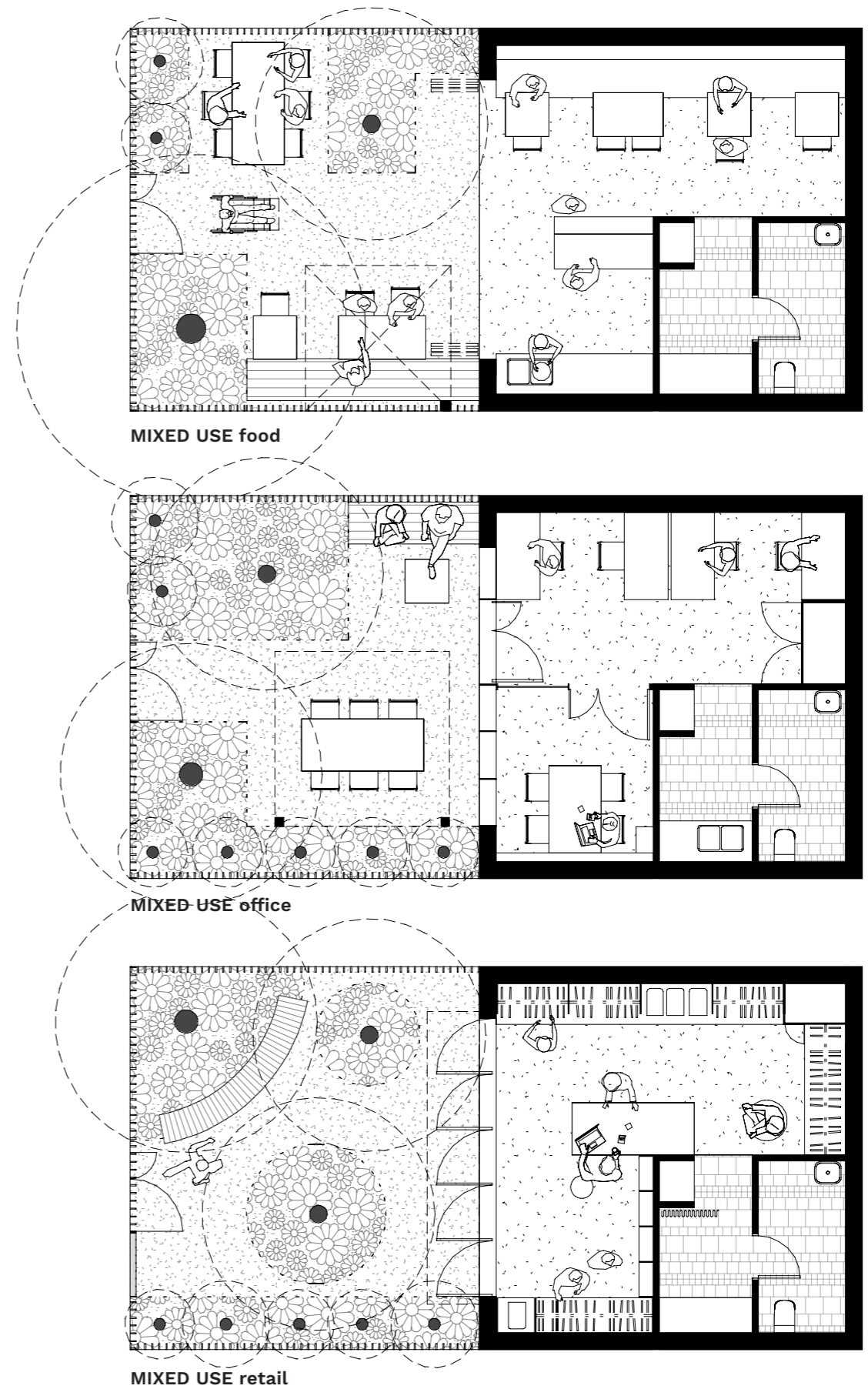
ALLOW FOR NEW  
FUNDING OPTIONS



2 BED SITS option a + b



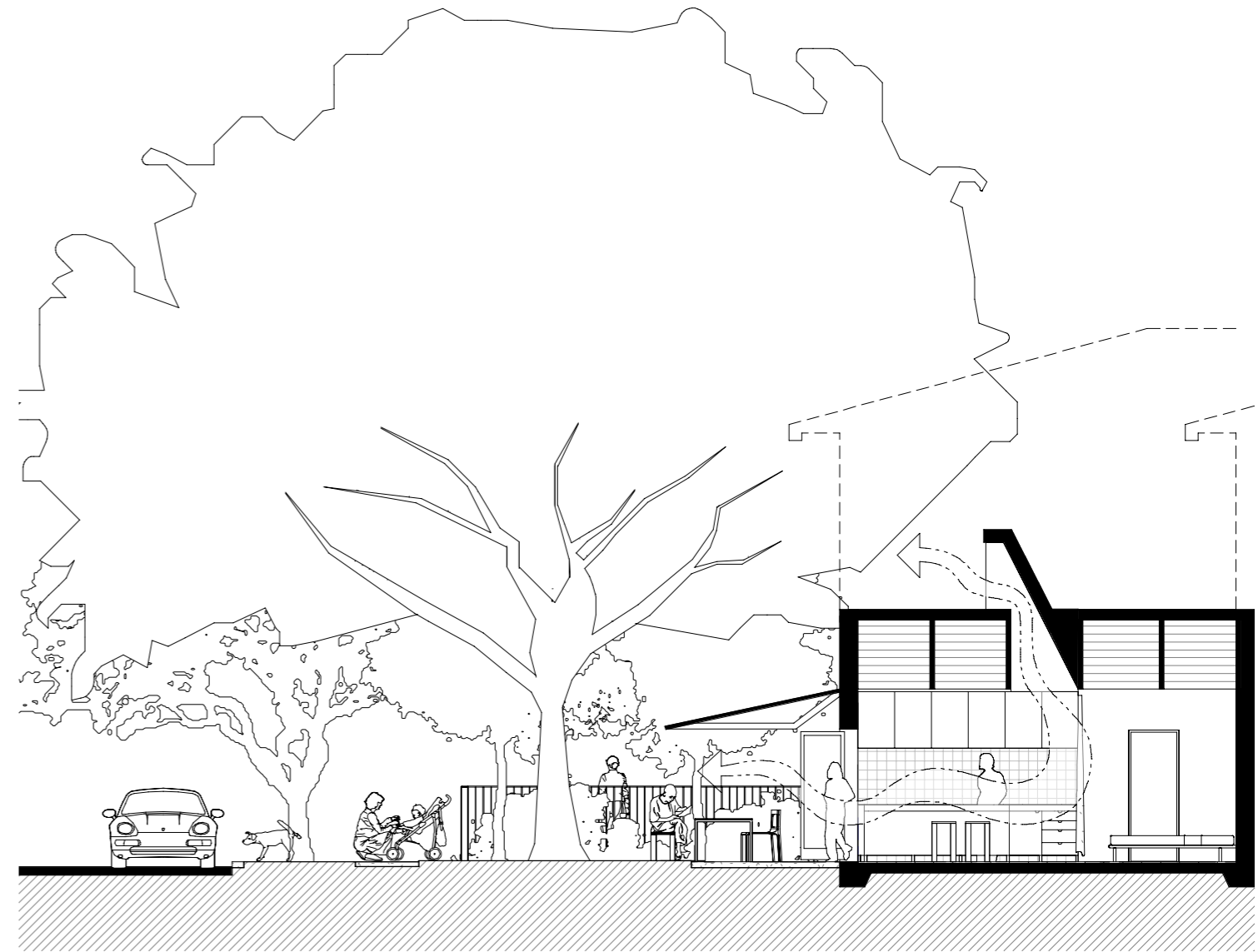
ALLOW HOUSING  
OWNERS TO IMPROVE  
THEIR EXISTING  
ASSET AND REALISE  
INCREASED PROPERTY  
VALUES



## PUT EYES BACK ON THE STREET

NOTE: THESE IDEAS ALLOW FOR  
POPULATION GROWTH WITHOUT  
BUILDING EITHER IN BACKYARDS OR  
CLOSER TO THE STREET ALIGNMENT  
(I.E. NO ADDITIONAL SITE AREA IS  
REQUIRED).

NOTE: OTHER OPTIONS WHICH EMPLOY THIS  
CONCEPT MIGHT ALSO BE CONSIDERED  
E.G. FLATS ABOVE GARAGES OR TWO STOREY  
APARTMENT OPTIONS MAY BE VIABLE IN  
SELECTED LOCATIONS.



ACTIVATE THE STREET  
AS IF IT WERE OUR MOST  
IMPORTANT, EVERYDAY  
PUBLIC SPACE



## Small Scale Infill - Public Housing Example

Typical outer suburban public housing sites defined by

- 600m<sup>2</sup>+ area. Approx. 17m wide X 37m deep
- housing setback anywhere between 5.0m and 8.0m from the street frontage with 13m to 18m set back from rear fences
- carports as opposed to garages provided (often located on the side of the house)

And in the case of Wagawn Street in Woodridge:

- the curtilage (footpath) is approximately 6m deep

What does this typology afford in term of amenity and increased density? Every front yard can take a stand alone 6m X 6m (or 7m X 5m) structure (i.e. a 1 bed PWD accessible living pod) as well as a double carport (if the cars do not remain in the side yard).

This arrangement leaves room for a traditional entry for the existing house from the street and there is enough width (between driveways) for street carparking (i.e. Parallel carparking for at least 2 cars per lot).

This is a new model, in the spirit of the infill garage model.

Its benefits are:

- existing houses can remain tenanted
- the real building works (Including fire ratings etc) could be limited to the new build portion
- the module can be prefabricated
- the street / footpath need not be amended (but is wide enough to take street trees and improvements to the public realm)
- as with the garage infill option(s) this strategy brings with it all the benefits of eyes on the street and increased amenity to the public realm, and it provides a flexible module for multiple forms of living/living arrangements.
- for the Wagawn Street example, the park at the rear presents a second genuine pedestrian frontage, where a third dwelling accessed from the park could be located. (Like the addition in the front yard, cars would be on the street). This option would still leave a generous rear yard for the original house.

Refer diagrams.



Potential outcomes

Legend.

- new street frontage dwellings. (approx. 6m square)
- new park frontage dwellings. (approx. 6m square)

Site plan illustrating infill options for typical outer ring public housing sites (not to scale)



West End Street Library. Architect Jonathon Goh.  
Image © Christopher Frederick Jones.

### 3.1 Micro projects

Activating the street is a concept that can be expanded upon. As the community grows and the demand for services expands, the opportunity for micro businesses and micro projects, such as street libraries, might also be considered.

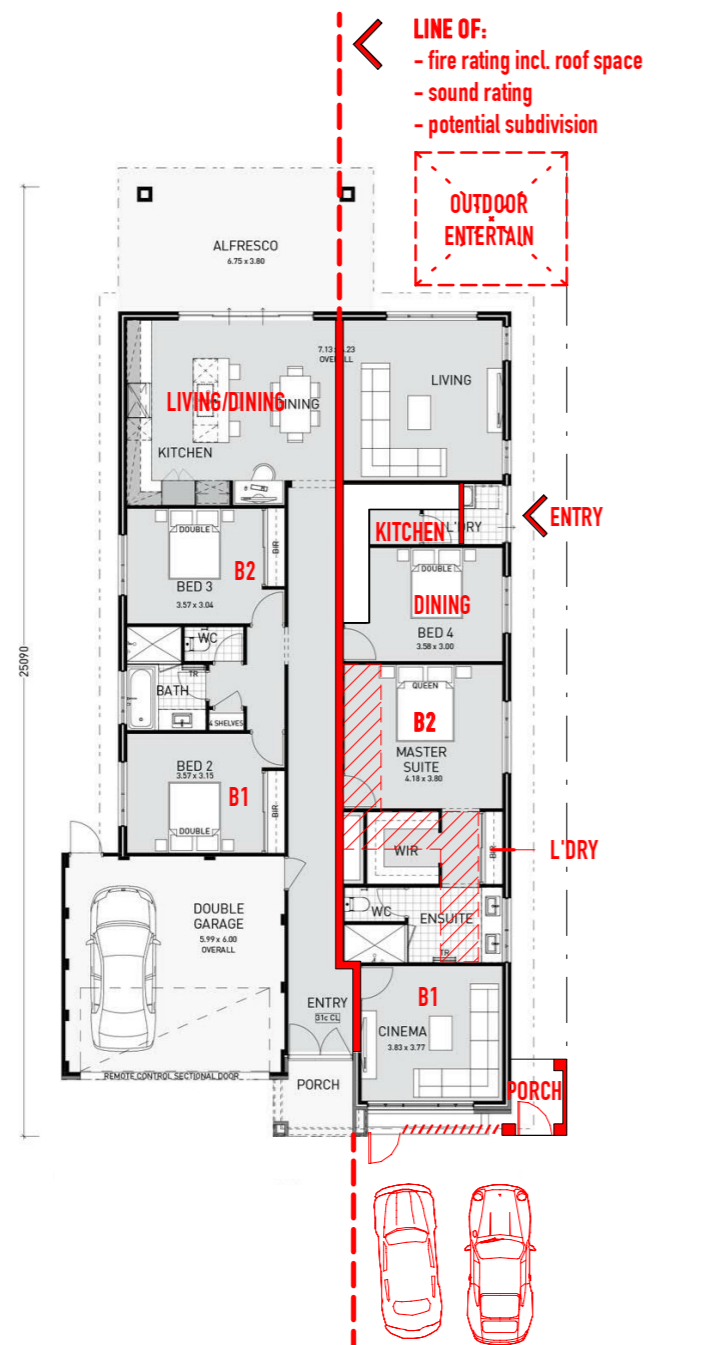
Micro projects present an opportunity, at the smallest scale, to interface (and sometimes \*blur the line) between the public and private realm. There is room for all these options in the suburbs.

\*When we blur the line between the public realm – the street – and the private realm, what we are doing is activating both. This is the moment where architecture and urban design enable ‘community’ to occur.

## 4.0 Applied Strategies (existing housing stock)

CAN WE USE THESE  
SAME STRATEGIES  
TO ADAPT TYPICAL  
EXISTING SUBURBAN  
HOUSING STOCK?

IF THIS WERE POSSIBLE, IT  
WOULD CONTINUE TO ADD  
VARIETY AND PROVIDE MORE  
HOUSING OPTIONS.



NOTE: For each of these small scale infill options, refer to Section 7.2 Technical upgrades / building codes.



**10m POTENTIAL ADAPTATION OF 1 STOREY HOUSE INTO ATTACHED HOUSING**



**10m POTENTIAL ADAPTATION OF 2 STOREY HOUSE INTO ATTACHED HOUSING**

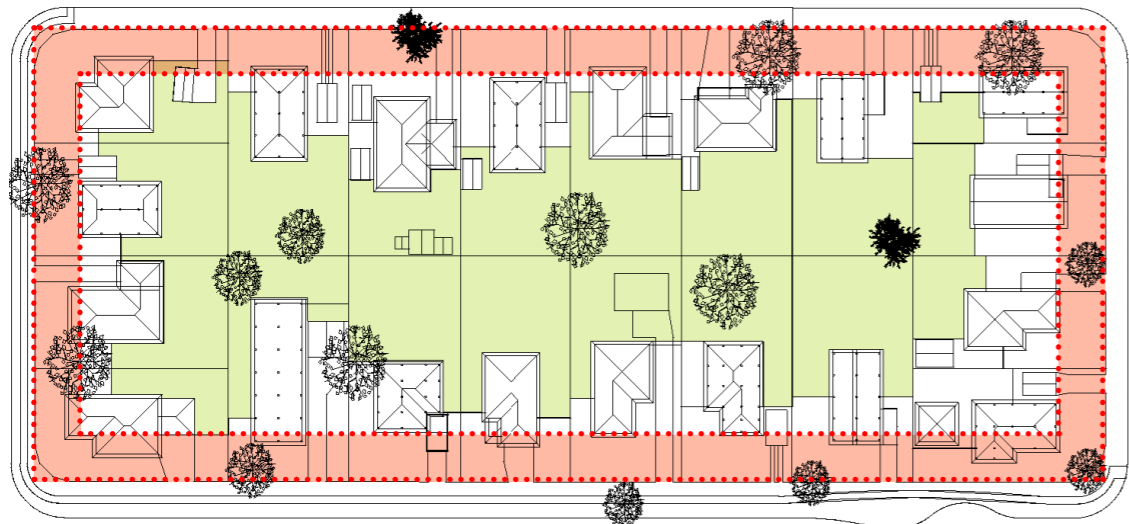
## 5.0 Applied Strategies (medium density)

ARE THESE SAME  
STRATEGIES ADAPTABLE  
TO OTHER SCALES AND  
GREATER DENSITIES?

THE FOLLOWING PROPOSITION  
WAS DEVELOPED TO TEST THESE  
IDEAS AT SCALE ON A REAL SITE  
LOCATED CLOSE TO TRANSPORT  
OPTIONS AND LOCAL COMMUNITY  
FACILITIES.

# 5.1 Incremental Medium Density

## 5.1.1 Sleeved Housing on the Street (Stage 1)



TYPICAL SUBURBAN BLOCK (IN TRANSITION - STAGE 1)

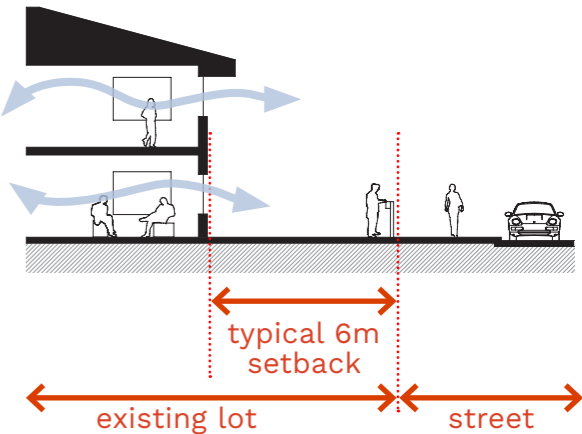
### LEGEND

STAGE 1

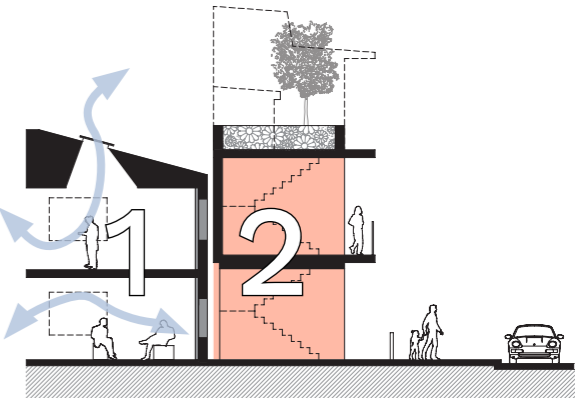
TYPICAL SUBURBAN BLOCK (and the street activating zone potentially available for development)

NOTE: Notionally once a standard residential block gets wider than 15m it may make ventilating existing rooms (sideways) more challenging in stage 1.

This approach (based on minimum 15m wide lots) could add anything from 1 (2 bed) to 4 (1 bed) dwellings per lot and can be undertaken on a lot by lot (house by house) basis.



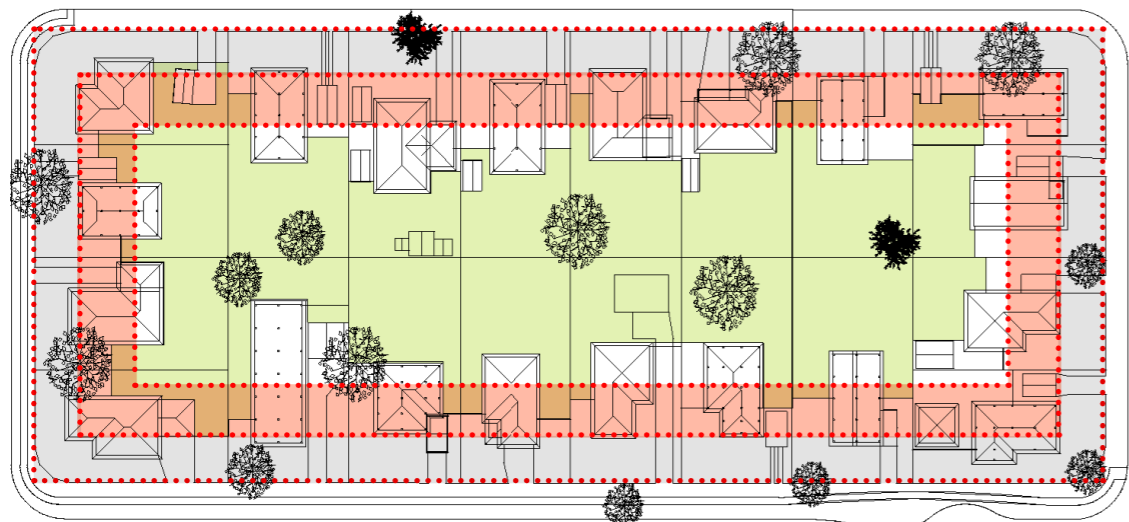
EXISTING SECTION



PROPOSED STAGE 1 AND 1A (nts)

(suburban infill in the 6m front setback zone)

### 5.1.2 Sleeved Housing on the Street (Stage 2)



TYPICAL SUBURBAN BLOCK (IN TRANSITION - STAGE 2)

#### LEGEND

- STAGE 1
- STAGE 2



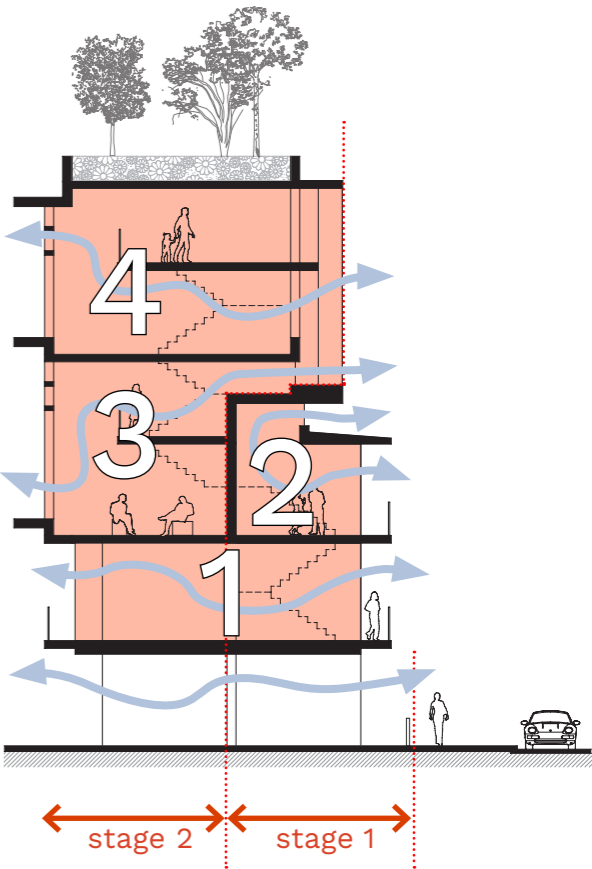
TYPICAL SUBURBAN LOT TRANSFORMED (WITH A 6 TO 8 FOLD INCREASE IN DENSITY AND AN INCREASE IN GREEN SPACE!)

### STAGED DEVELOPMENT OF THE TYPICAL SUBURBAN BLOCK

As traditional houses drop out in favour of greater density a second layer of housing can be added (or wider, traditionally cross vented housing adapted) with greater density and greater amenity.

Issues such as flow through ventilation and double-sided units versus central circulation zones (and alternative typologies) remain areas of exploration for the typology.

Note: Car/unit ratios have not been examined in detail, accepting that some allowance for cars is possible.



PROPOSED STAGE 1 AND 2 (nts)

SCALE / CONTEXT /  
EXPANSIONS  
  
(opportunities of the  
sleeved terrace housing  
typology)



Images (clockwise from top left)  
Image © 8a Architects  
Image © SiGo 2013  
Image © Wikimedia Commons Gryffindor 2006  
Image © Peter Barber Architects, Morley von Sternberg  
Image © Adobe Stock, Frouwina Harmanna va  
Image © Westend61, Christina Falkenberg

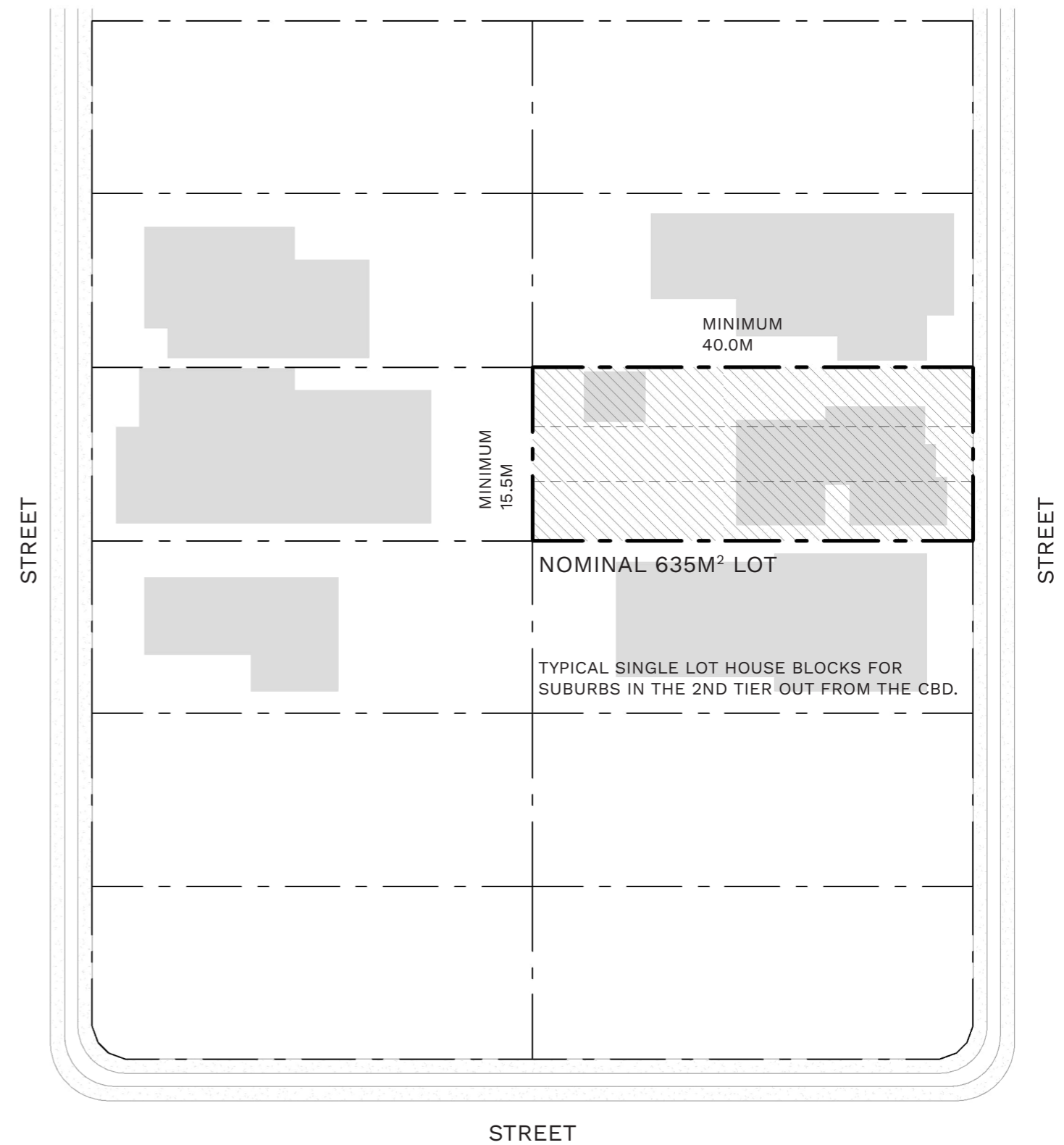
## 5.2 Terrace Housing

### STANDARD INDIVIDUAL LOTS AS MULTI-RESIDENTIAL HOUSING (NOMINAL LOT SIZE 635M<sup>2</sup>)

EACH STANDARD LOT IS DIVIDED INTO THIRDS, ACROSS WHICH A NUMBER OF 2 STOREY APARTMENT OR TERRACE TYPE HOUSING MODELS WITH LANDSCAPED YARDS CAN BE BUILT

The principles of reframing a “backyard”, supervision of the street, adaptability, and that cars belong to the street, have all been retained.

In scale terms, whilst the floor to floor heights are generous to ensure cross flow ventilation, the development examples are never more than 2 stories high.



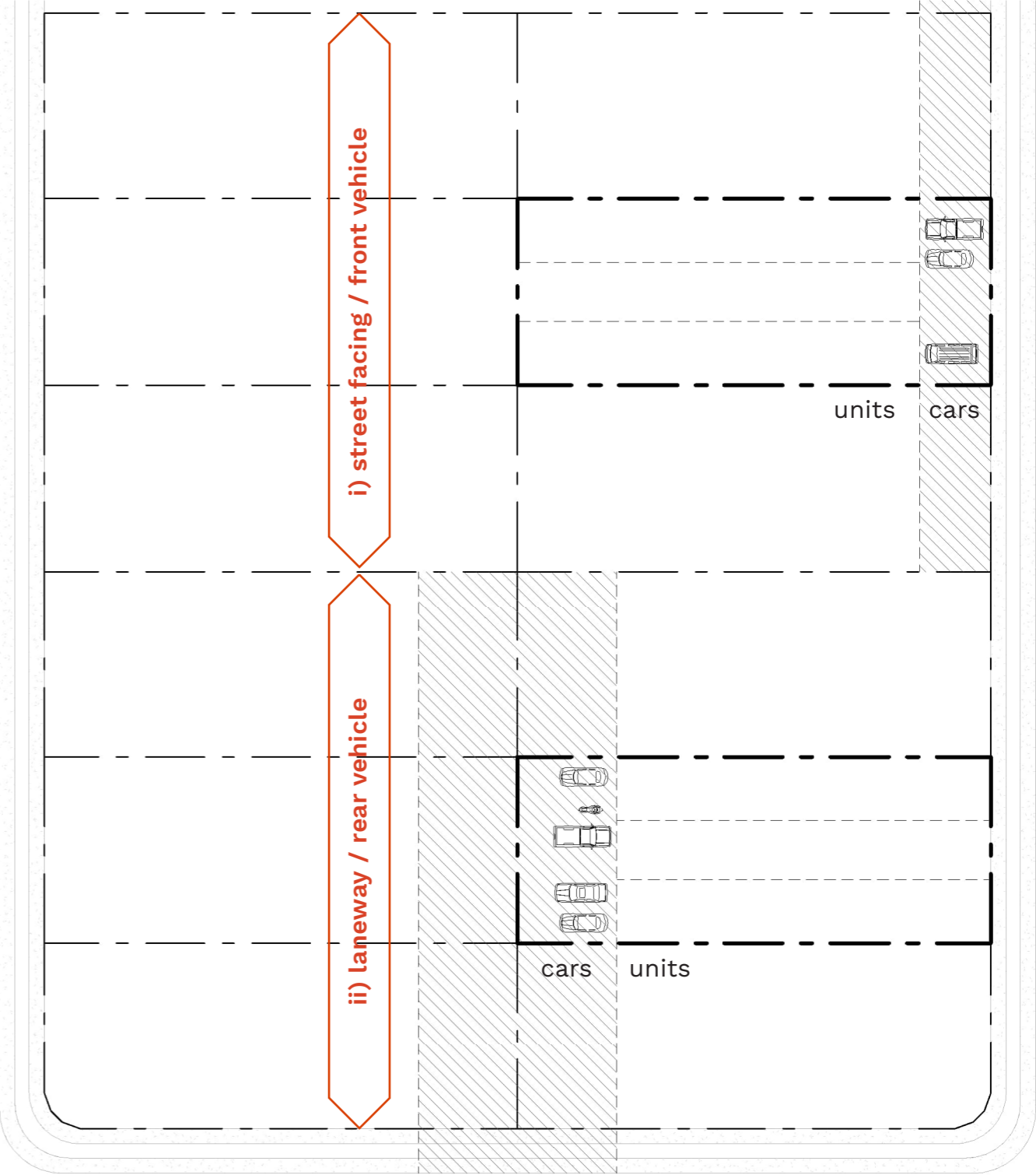
0 5 10 15 20 25m

TYPICAL (EXISTING) SUBURBAN STREET

THIS CONCEPT CAN BE  
APPLIED TO EXISTING  
INDIVIDUAL LOTS WITH  
EXISTING STREET  
ACCESS

OR

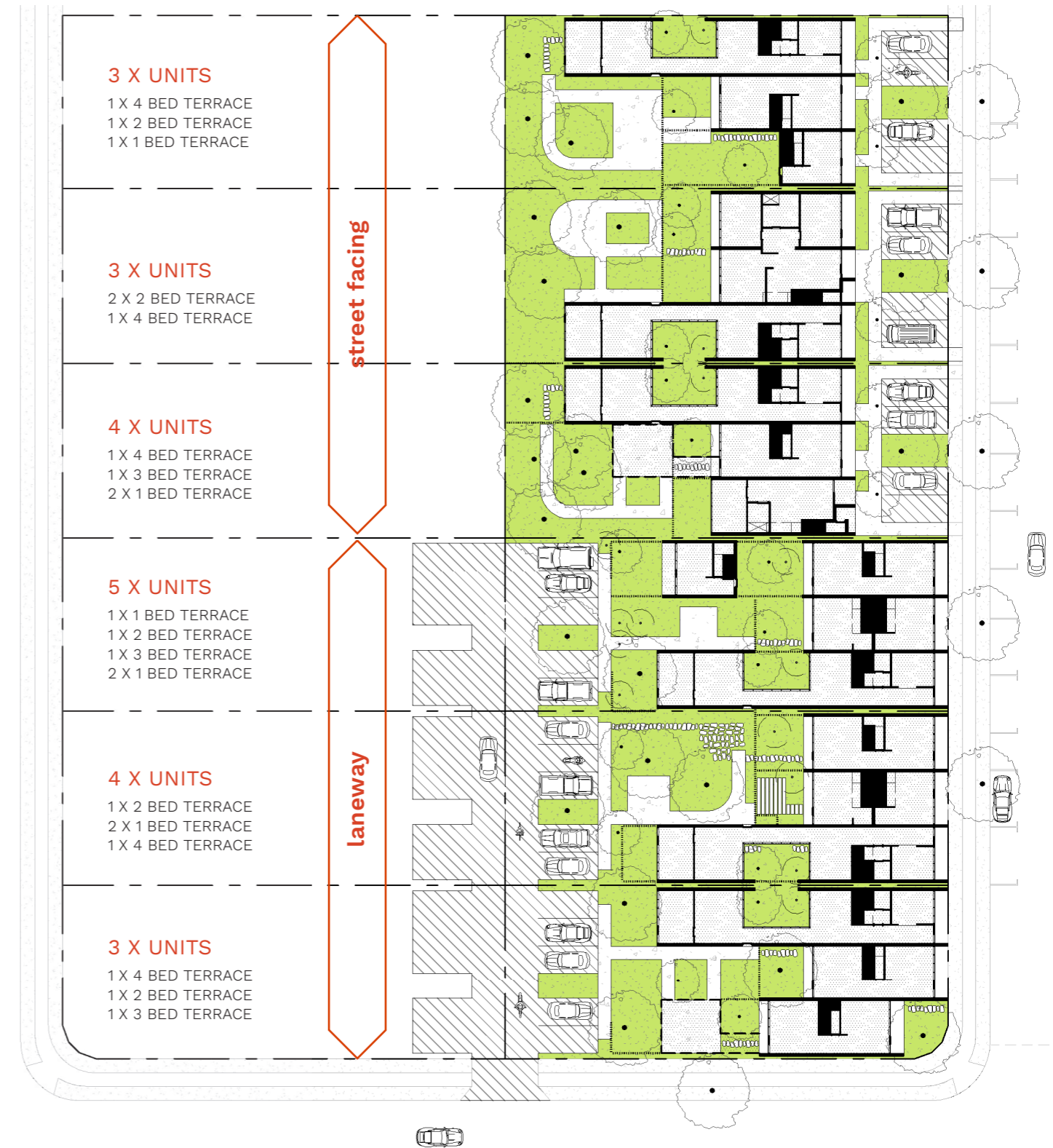
TRANSLATED ACROSS  
ENTIRE BLOCKS WITH  
REAR LANEWAY ACCESS



THE CONCEPT PROVIDES  
FOR ONE LONGER UNIT  
TYPE AND TWO SHORTER  
UNIT TYPES PROVIDING  
FLEXIBLE HOUSING  
OPTIONS WHILST LEAVING  
SPACE FOR BACKYARDS/  
LANDSCAPE

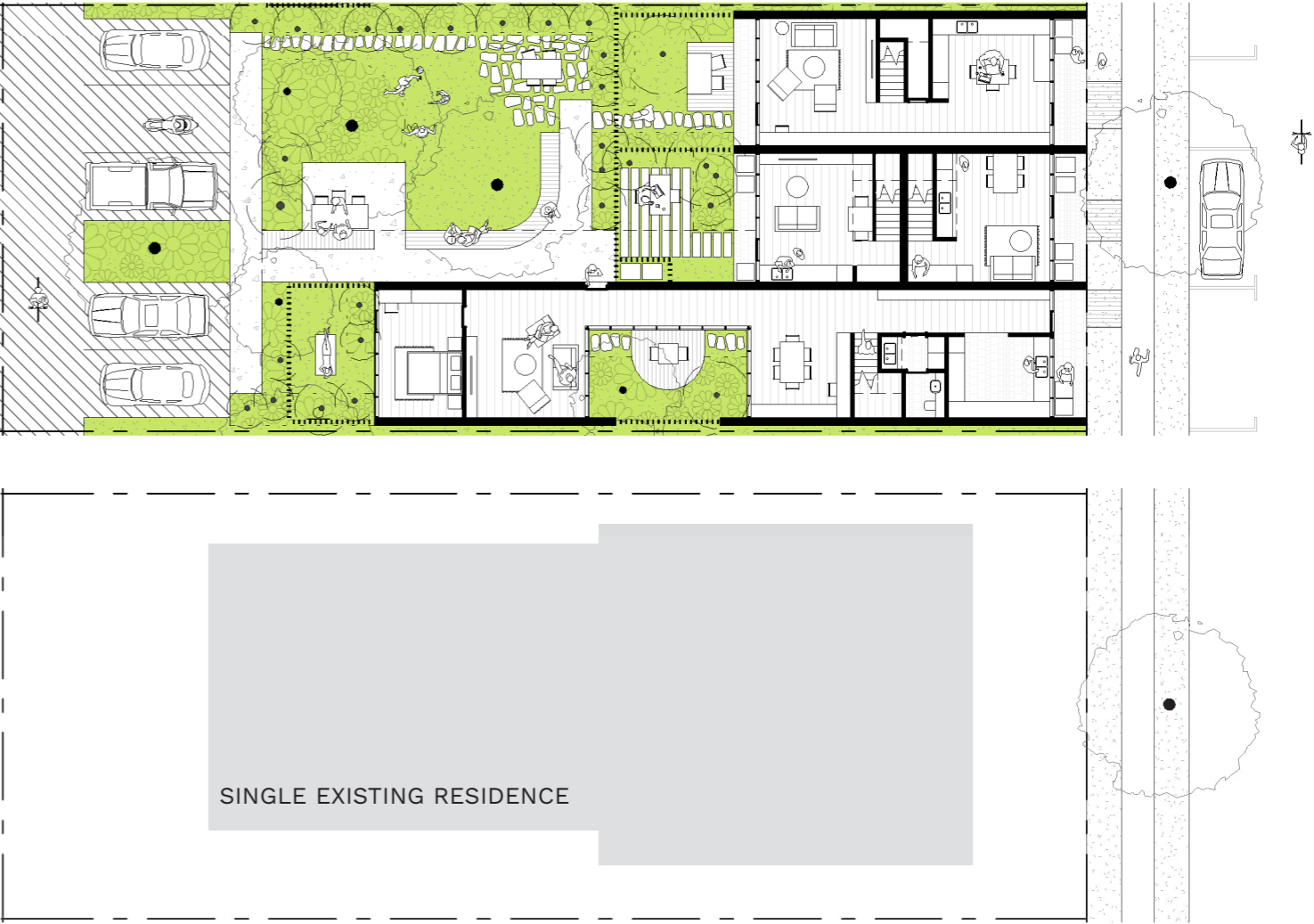
Units can be  
arranged in  
many different  
configurations on  
the lot

e.g.



Access to backyards  
and shared spaces is  
preserved and celebrated

THIS IS ACHIEVED BY KEEPING  
SITE COVER (INCLUDING CARS/  
LANEWAYS) UNDER 65%, WITH MOST  
OPTIONS SITTING UNDER 60%). (FOR  
MODELS WHICH ARE ACCESSED  
FROM THE EXISTING STREET, SITE  
COVER NEVER EXCEEDS 55%)



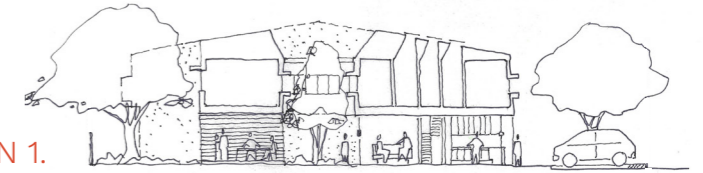
PROTECTING BACKYARDS  
AND CELEBRATING SHARED  
SPACE

(site by site, block by  
block)

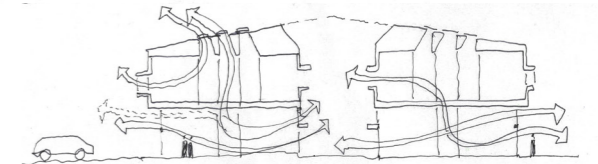


TALL FLOOR TO FLOORS  
(NOMINALLY 3.6M),  
COURTYARDS AND  
GENEROUS LANDSCAPES  
ENCOURAGE CROSS FLOW  
VENTILATION, OUTDOOR  
LIVING, SUPERVISION  
OF THE STREET AND  
RETENTION OF MATURE  
TREES.

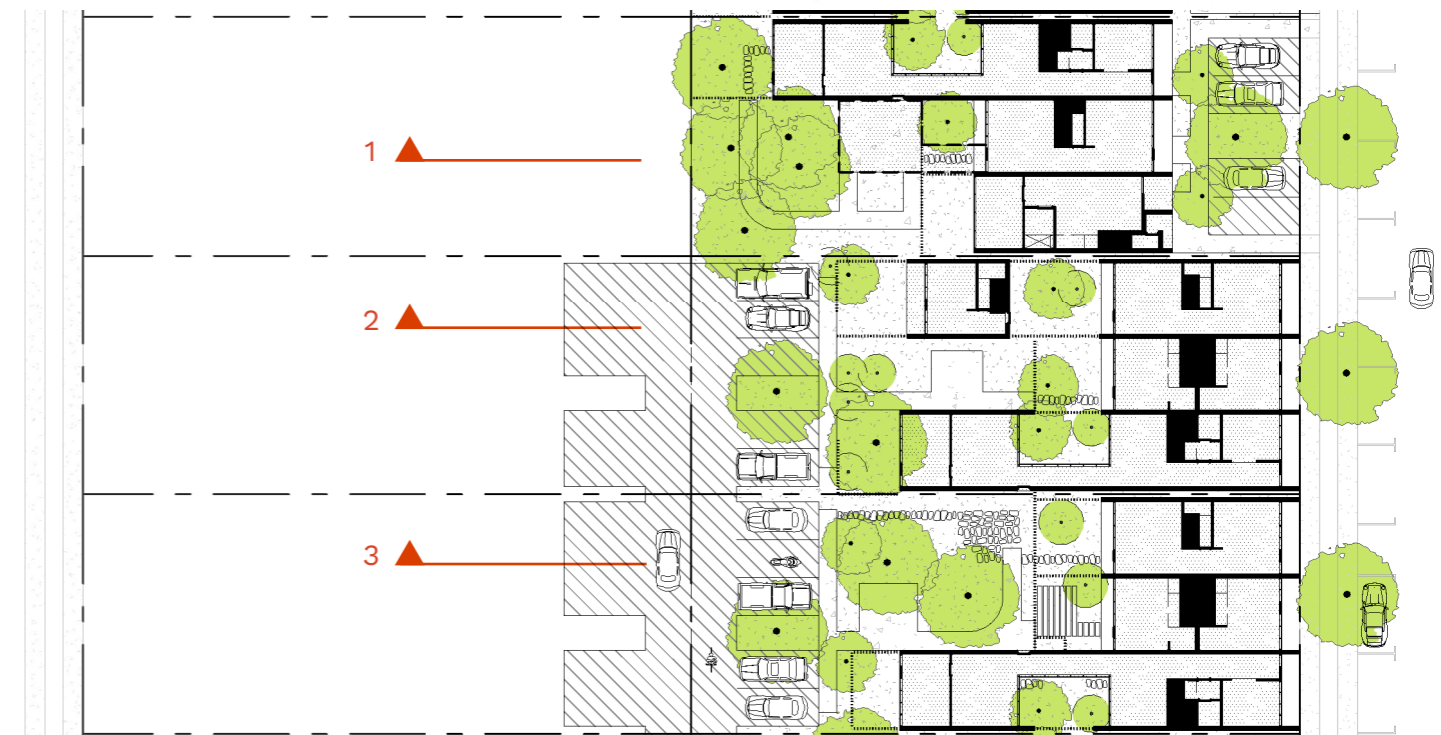
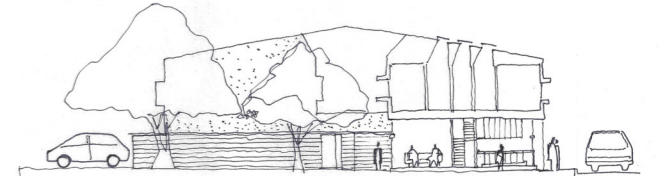
SECTION 1.



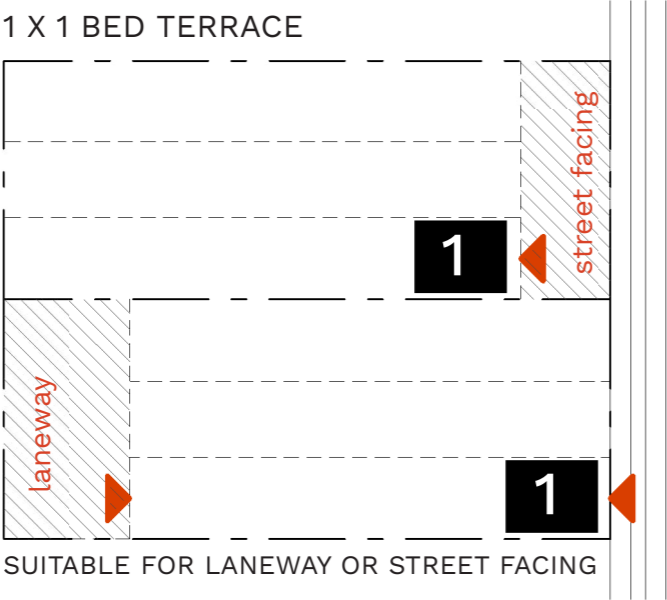
SECTION 2.



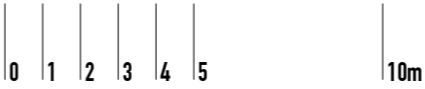
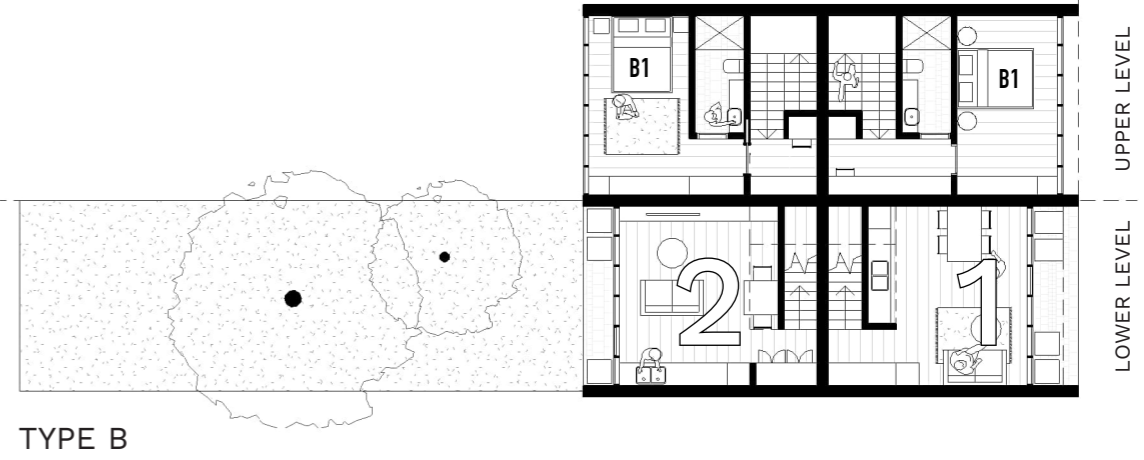
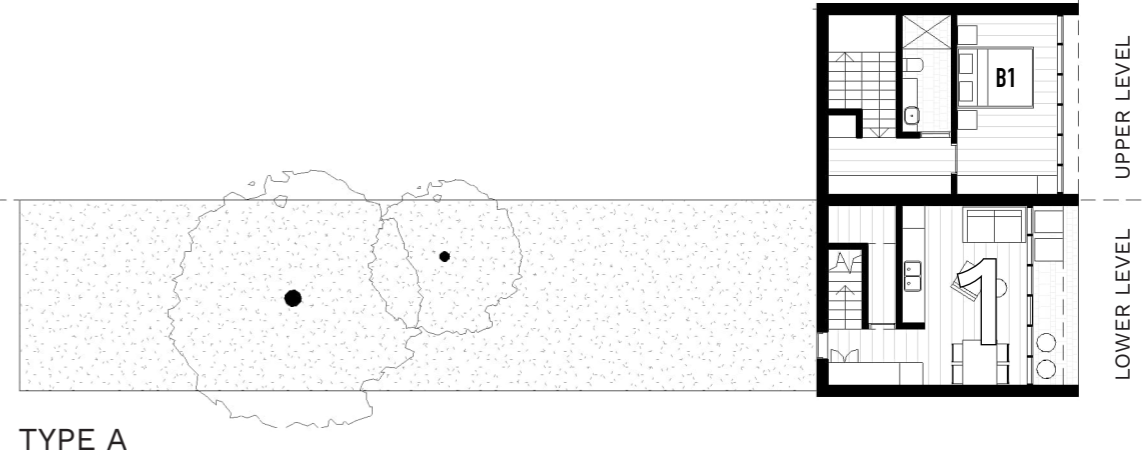
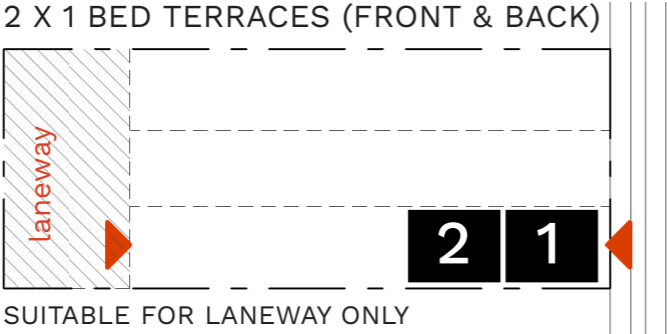
SECTION 3.



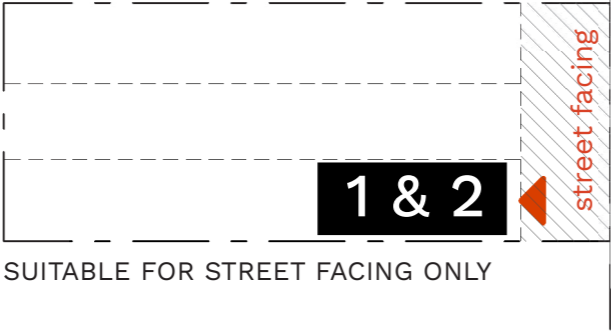
**TYPE A**  
1 X 1 BED TERRACE



**TYPE B**  
2 X 1 BED TERRACES (FRONT & BACK)



**TYPE C**  
2 X 1 BED UNITS (TOP & BOTTOM)



**TYPE D**  
1 X 2 BED TERRACE



TYPE C



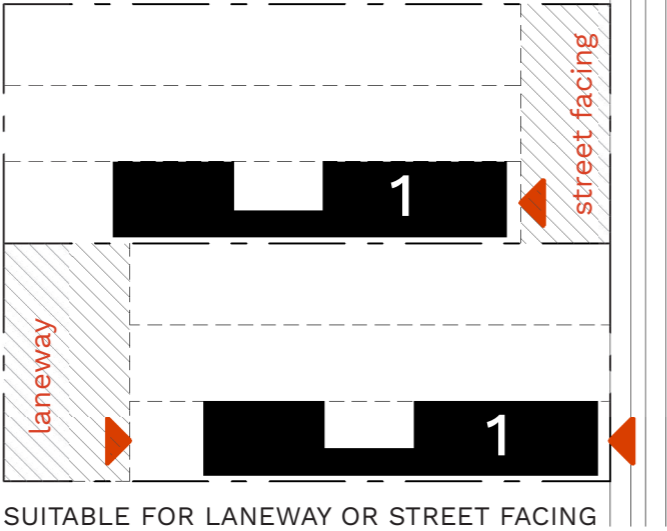
TYPE D



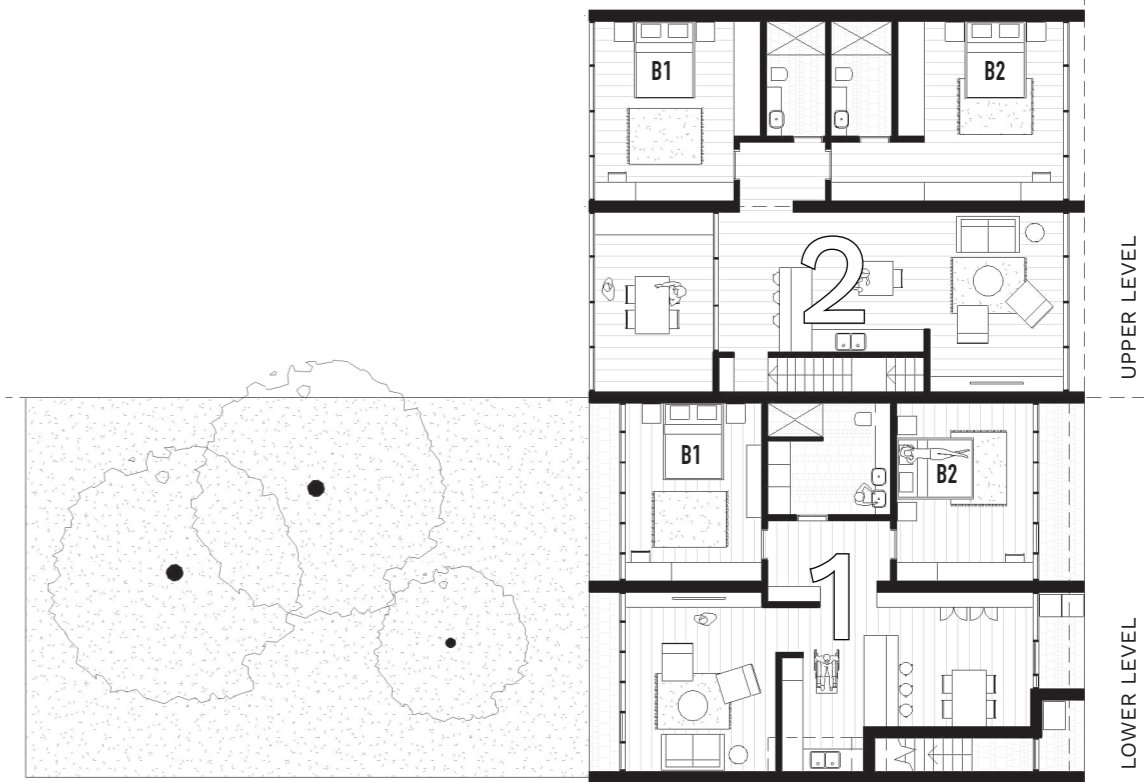
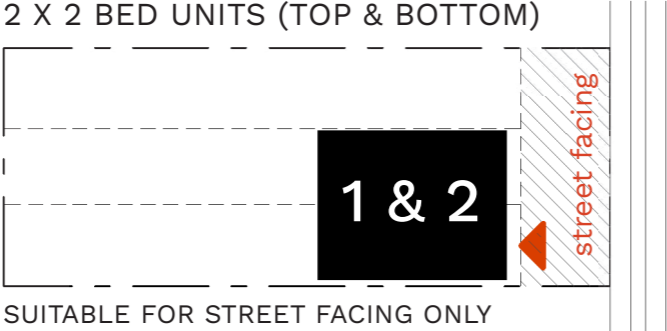
**TYPE E**  
1 X 3 BED TERRACE



**TYPE F**  
1 X 4 BED TERRACE / ADAPTABLE OFFICE



**TYPE G**  
2 X 2 BED UNITS (TOP & BOTTOM)



TYPE G (LOWER LEVEL ACCESSIBLE)





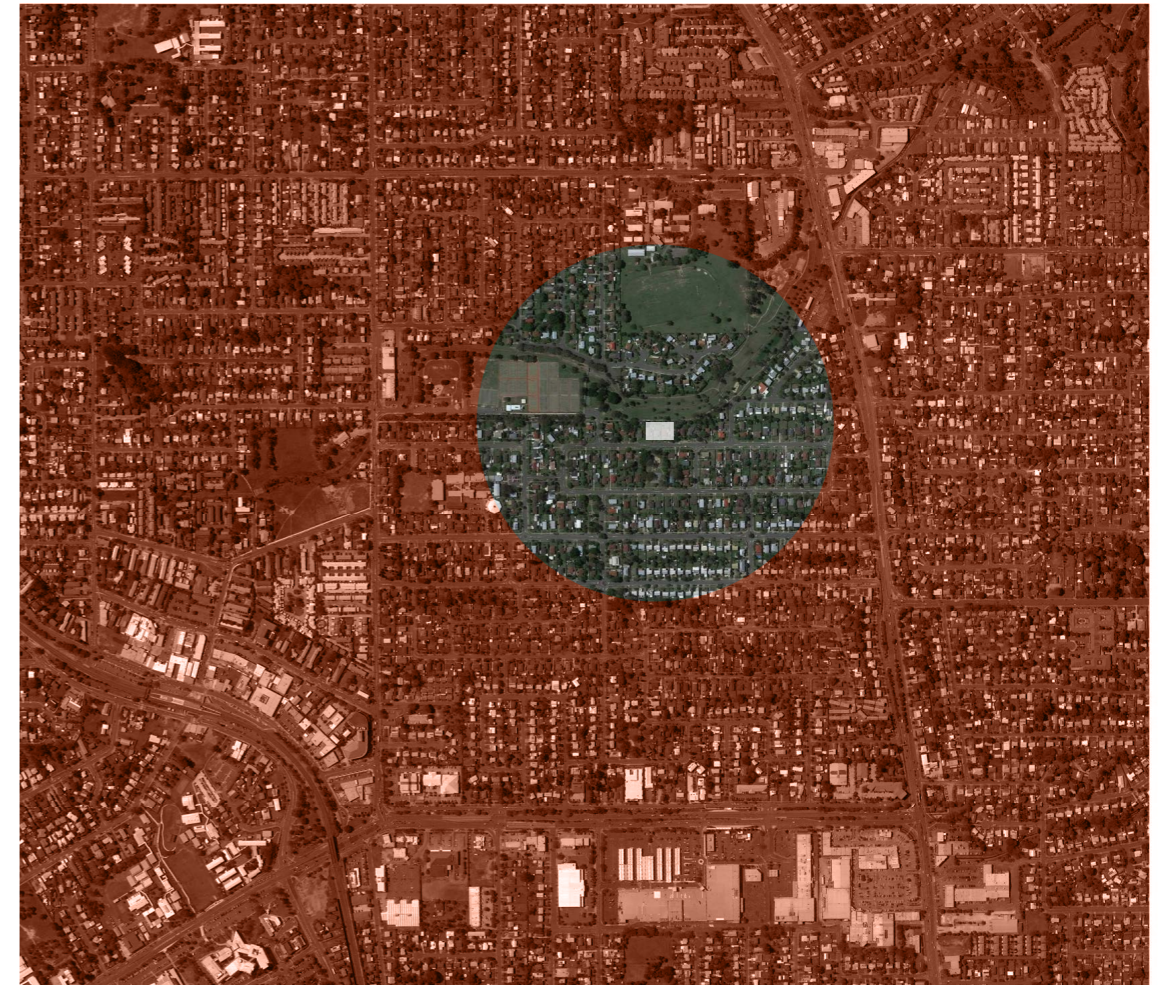
THE EXISTING SUBURBAN CONDITION  
 ≈ 16.7 DWELLINGS / HECTARE



THE TERRACE HOUSE / SHOP LOT MODEL  
 ≈ 50-80 DWELLINGS / HECTARE

### 5.3 Walk up apartments with on street parking

**WHEN YOU HAVE BEEN  
DOING SOMETHING FOR A  
LONG TIME,  
IF YOU WANT TO DO  
THINGS BETTER, YOU HAVE  
TO THINK ABOUT  
DOING THEM DIFFERENTLY**



Research Proposition  
Presentation February 2019

16-22 Wagawn Street, Woodridge

## THE DEVELOPMENT EQUATION

**MORE DENSITY** **MUST** **EQUAL** **MORE AMENITY**

### PROJECT PRINCIPLES

- DWELLINGS WITH VIEWS TO THE STREET AND VIEWS TO PRIVATE LANDSCAPE
- SUPERVISION/COMMUNITY ENGAGEMENT/SAFETY FOR THE STREET
- FINDING THE BALANCE BETWEEN THE PEDESTRIAN AND THE CAR
- NATURAL VENTILATION (addressing QLD Government climate policy issues)
- RETAIN MATURE LANDSCAPE IN REAR YARDS (addressing QLD Government climate policy issues)
- SUN TO REAR YARDS / SUN TO STREET

# Infill Density in Logan City

With increasing residential demand there are three general options for SEQ housing growth:

1. High density inner-city apartment development (conflicts in established suburbs)
2. Low density outer-fringe housing development (poor sustainability of urban sprawl)
3. Medium density in mid-range suburbs with townhouse and small apartment blocks.

This project explores the potential of mid-range suburbs to provide walkable, liveable and sustainable residential increases through modest increases in allowable densities and through innovation in building forms.

## Logan's post-war suburbs offer great potential to demonstrate medium density infill:

- Largish lots (600m2) and modest houses allow affordable redevelopment
- Few heritage or character constraints on demolition and rebuilding
- Established suburbs have good amenity, facilities, services and transport
- Good residential layout with grid of east-west streets and neighbourhood parks
- Established street and backyard trees provide shade and climate resilience
- HPW is ideally positioned to undertake innovative demonstration projects:
- Major landholder with significant stake in community success
- Long experience of working with the local community

- Greater housing mix allows tenants to downsize within their own suburb
- Owns neighbouring properties to redevelopment sites, easing risk of objection
- Government agency offers some freedom outside planning constraints
- Good partnership with Logan City allows testing and monitoring of innovations

## The proposed Wagawn St site has very good potential for increased densities

- Well located site with good access to amenities and transport, high WalkScore
- Overlooks linear park and cycleway with links to playing fields, adventure sports
- Linear park has long-term potential for future creek reconstruction, landscaping
- Increased residential density and height would improve surveillance of linear park
- Street offers ideal solar orientation: open to north; protected to east, west
- Orientation reduces overshadowing ensuring winter sun to neighbours
- Lots 16-22 also offer amenity and southern outlook to Wagawn Park

## Proposed site development strategies for 16-22 Wagawn Street:

- Make the street a valued, safe, active public space (treat the street and the people in it as if you care about them)
- Retain existing mature trees on site
- Ideally restrict building envelope between front and rear setbacks of neighbours
- Provide suitable side setbacks in relation to heights
- Provide recreation space in northern garden, elevated above the adjacent park

# Future Dense Development Mapping



Note:

Based on a suitably wide road type. (traffic volume and amenity/light/landscape potential to the street), proximity to schools, proximity to public transport, proximity to shops and proximity to parkland, the area designated on this diagram could be considered for densities from 100 dwellings per hectare. Higher for sites which face the parkland/overland flow path to the north (i.e. 3-4 storey walkup everywhere in this zone and up to 6-7 storeys against the park). The remainder of DPHW land outside the sites shown could be considered for sale to the private market.

LEGEND

- Medium-high density zone
- 20m wide road
- Parkland
- Land Owned by DPHW



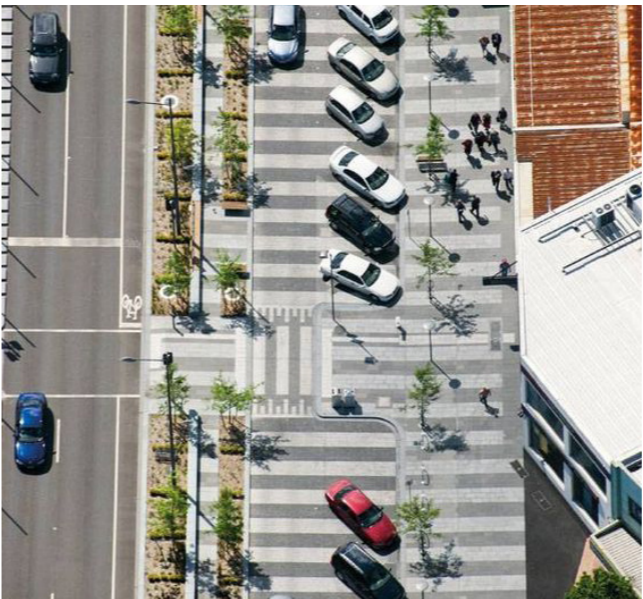
Street parking exemplars / shared environments / safety / amenity



Driveway(s) and pedestrians overlap on the property boundary

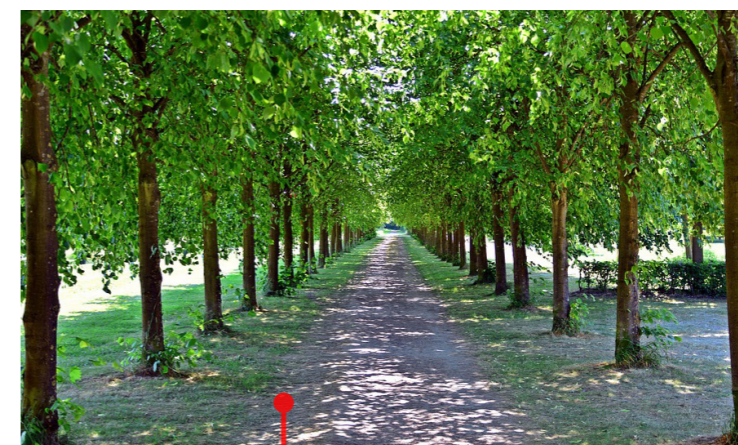
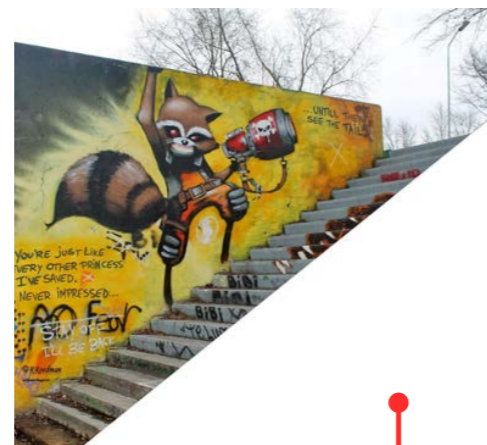
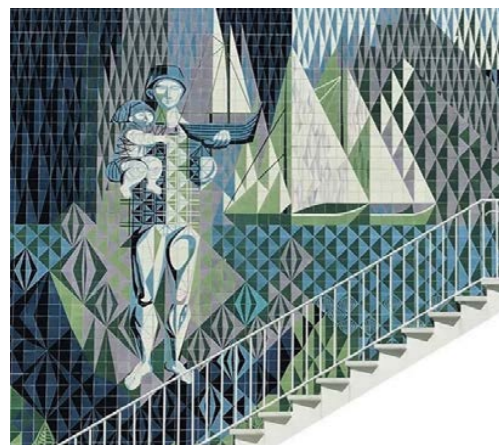


Pedestrians walk + cars seperated: cars / road connected



This page  
Image (top) © Royal Automobile Club of Victoria (RACV) 2020  
Image (bottom) © City of Hamilton 2015

Opposite page (clockwise from top left)  
Image © Houzz Inc. 2020  
Image © ABC 2019  
Image © Wikimedia Commons Ward 2014  
Image © Wikimedia Commons Mbzt 2011  
Image © John Gollings 2017  
Image © Property HQ 2019

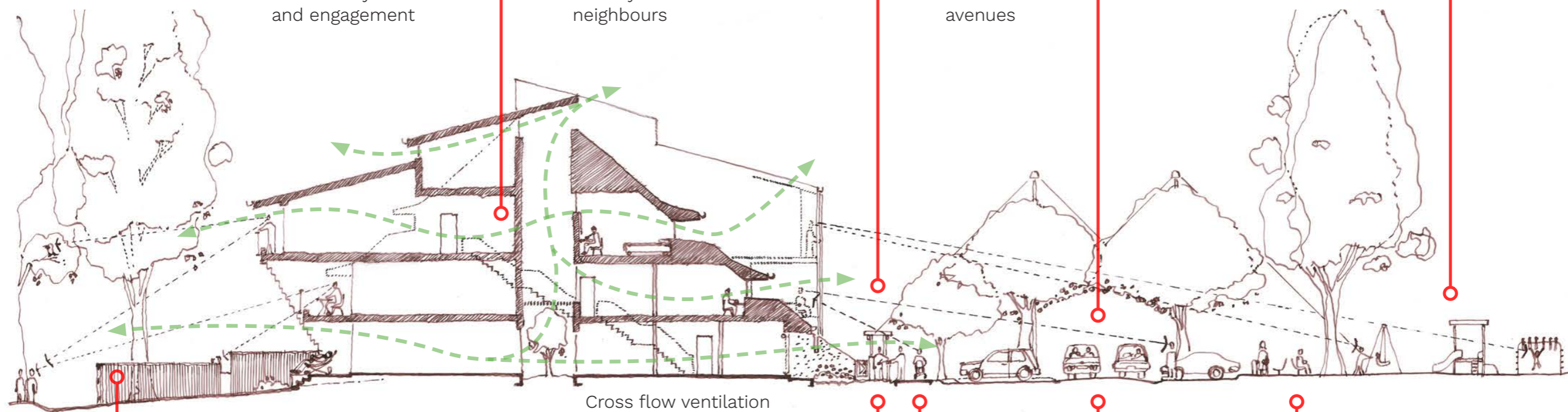


Community consultation and engagement

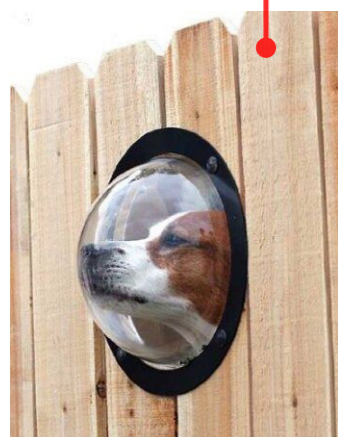
Identity and variation between neighbours

Tree lined avenues

Street furniture



Cross flow ventilation



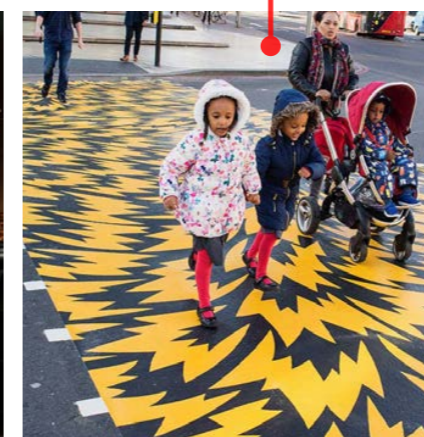
Enagagement between resident and the street



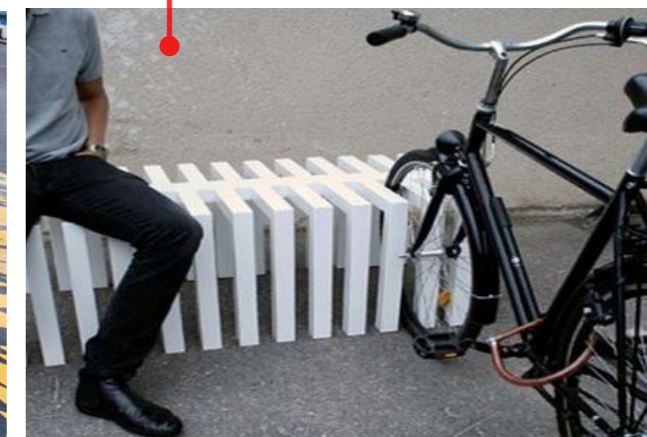
Identity for residents



Street lighting alternatives



Bright graphics



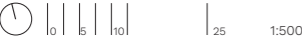
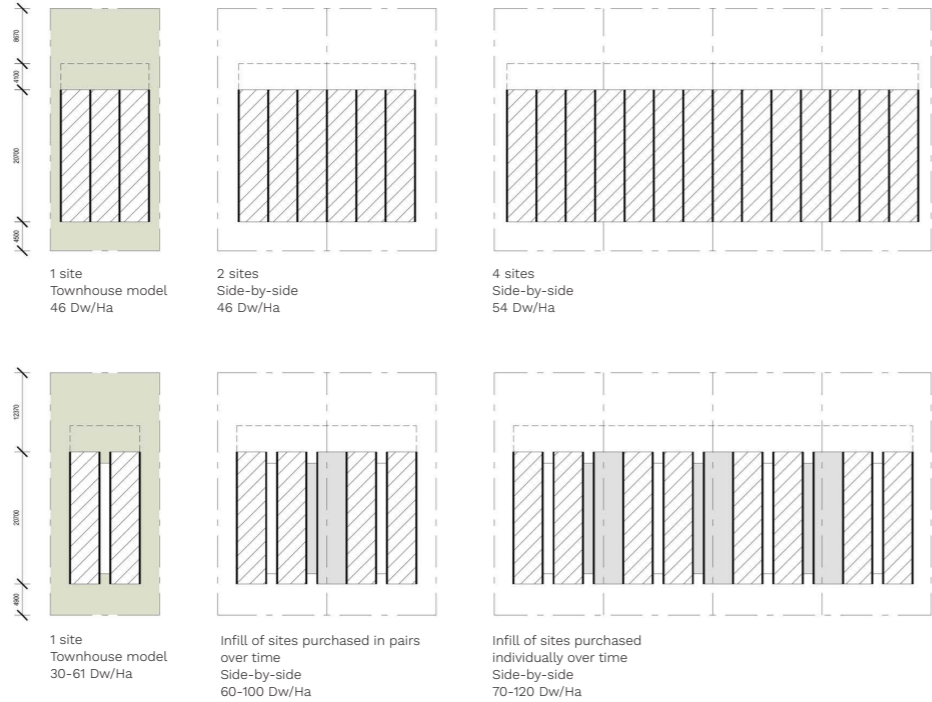
Street furniture

Clockwise from top left  
Image © Pinterest Joana Avelar Quintas  
Image © Wall Paints 2015  
Image © Publish Wall Radio Europa05 2015  
Image © Unsourced  
Image © Decorathing  
Image © Apartment Therapy 2017

Clockwise from top left  
Image © Pxhere  
Image © Architonic  
Image © Australian Built Urban Designs  
Image © Brixton Design Trail

Site planning strategies

**Notes:**  
Single dwelling on a single site  
= 1 dwelling / 650m<sup>2</sup>  
= 15.4 dwellings per hectare  
**Scale (proposed development)**  
- suggest development never exceeds 4 connected sites as 1 set of connected buildings



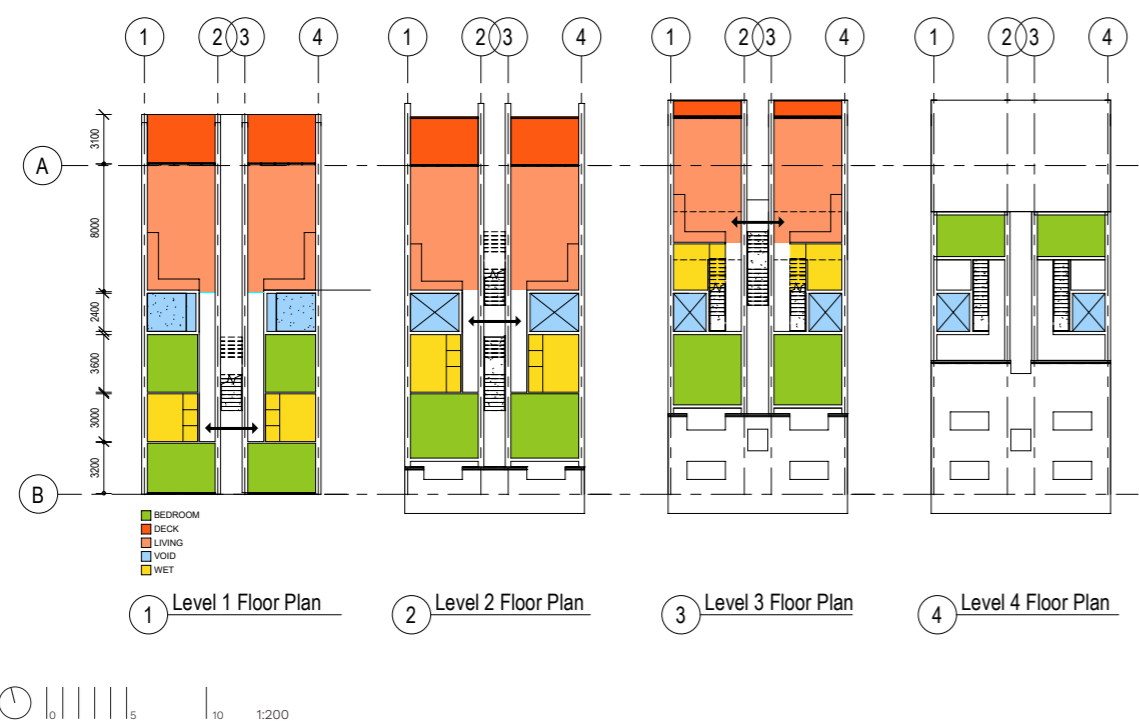
Proposal 16-22 Wagawn St.



Car parking on street (44 cars) Density = 108 Dwellings per hectare  
m3architecture + Peter Skinner Density and Diversity Done Well 2019

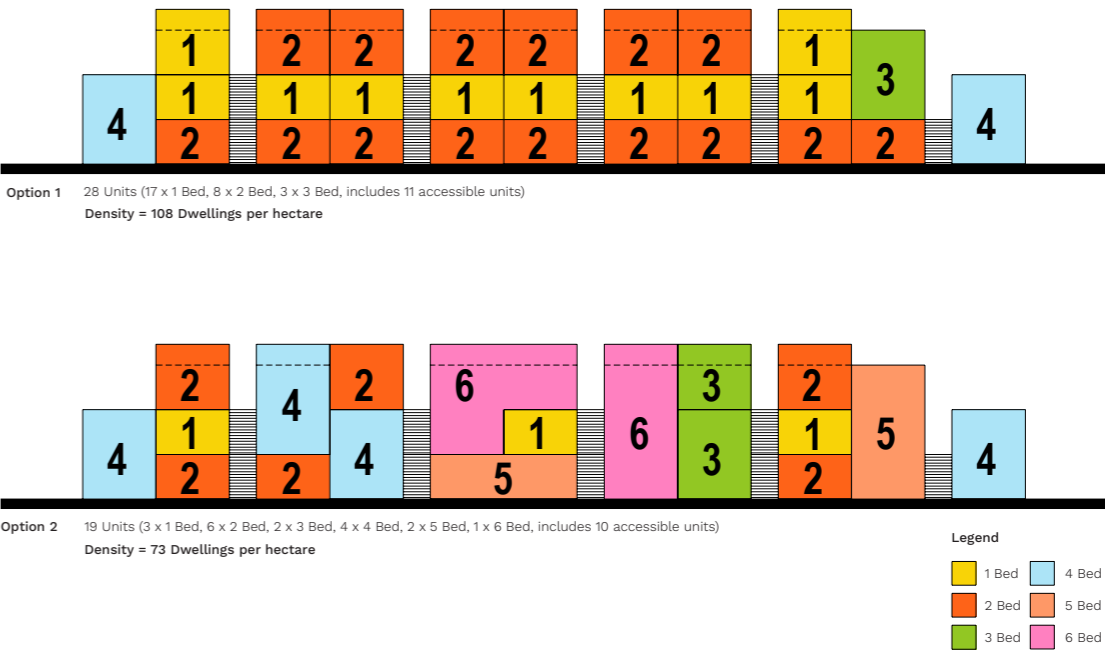


Unit model planning



Matrix planning

Mix (flexibility/adaptability) - social housing/affordable housing/community housing/potential local commerce





Existing Wagawn St. Woodridge



Proposed Wagawn St. Woodridge



Proposed Wagawn St. Woodridge  
Looking from Wagawn Park

## 6.0 New Opportunities: Non-Residential Sites in the Suburbs

Suburban shopping centres (big box retail) as a typology is defined by:

- largely windowless boxes (which do nothing to activate to the street)
- a scale of 2 to 4 stories in height
- often setback from the street (especially on odd shaped sites)
- often surrounded by large open field carparks
- commonly close to at least one or more of the following:
  - parks
  - transport networks
  - schools

Challenges

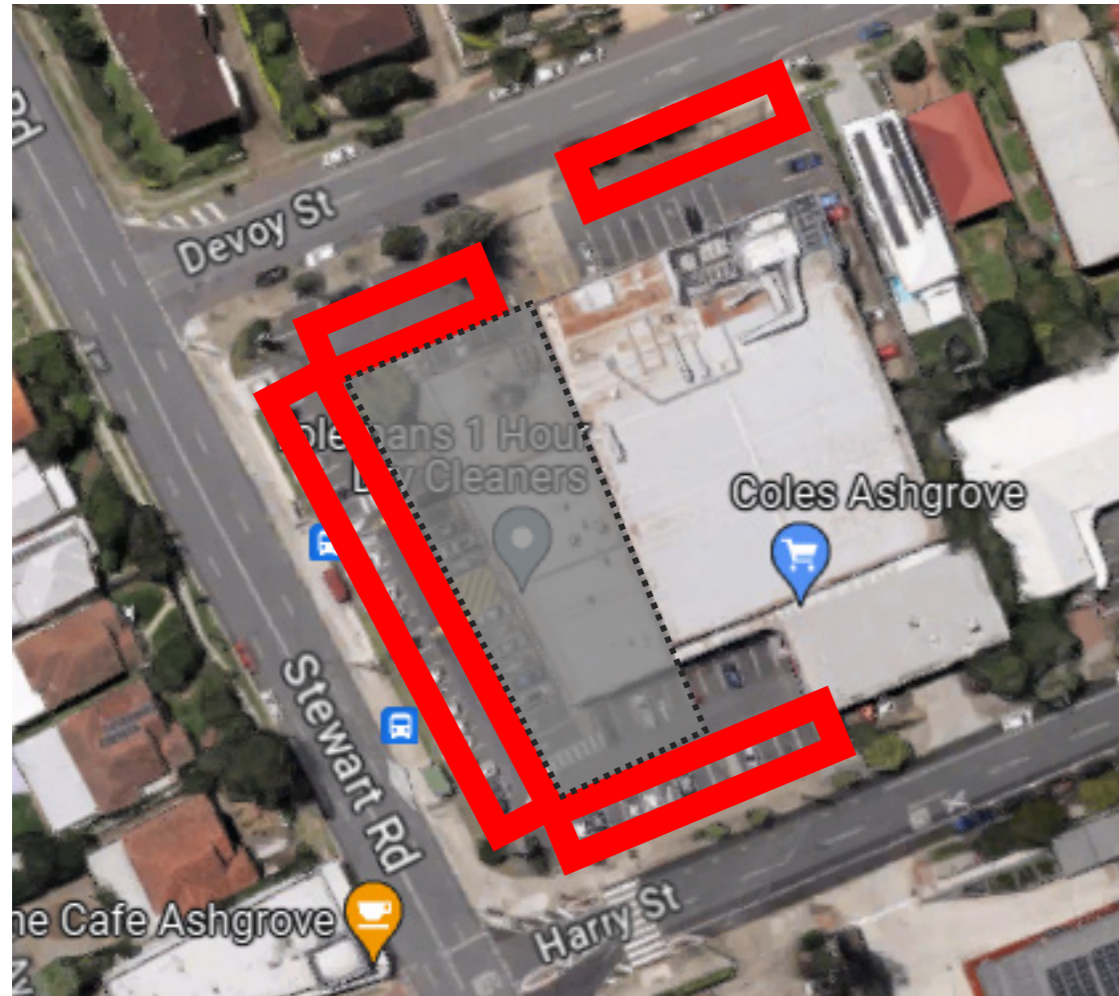
- planning regulation (including carpark numbers)
- property owners and tenants are always keen to retain their signage and presence (and this could be integrated into potential developments - if needed)
- property owners and tenants are often keen to ensure shoppers can actually see carparking from the street so that they can see its convenient (the need for this has been disproven)
- sleeving existing multistorey carparks may require new mech vent systems

- developing over existing carparks will require a second layer of carparks (for tenants) and may also require podium and rooftop developments to meet landscape and recreation provisions.
- future retail growth will be capped on these sites if residential uses are provided in lieu (retail generally is dying and by sleeving residential uses onto these existing developments we may be able to make a good case for adaptive reuse of big box shopping into alternative uses such as schools / libraries etc.)

**Question.**

**How prevalent are these sites? What could this look like? The following examples illustrate the broad potentials at the urban scale.**

## SLEEING BIG BOX RETAIL WITH RESIDENTIAL – SUBURBAN EXAMPLES



COLES ASHGROVE (not to scale)

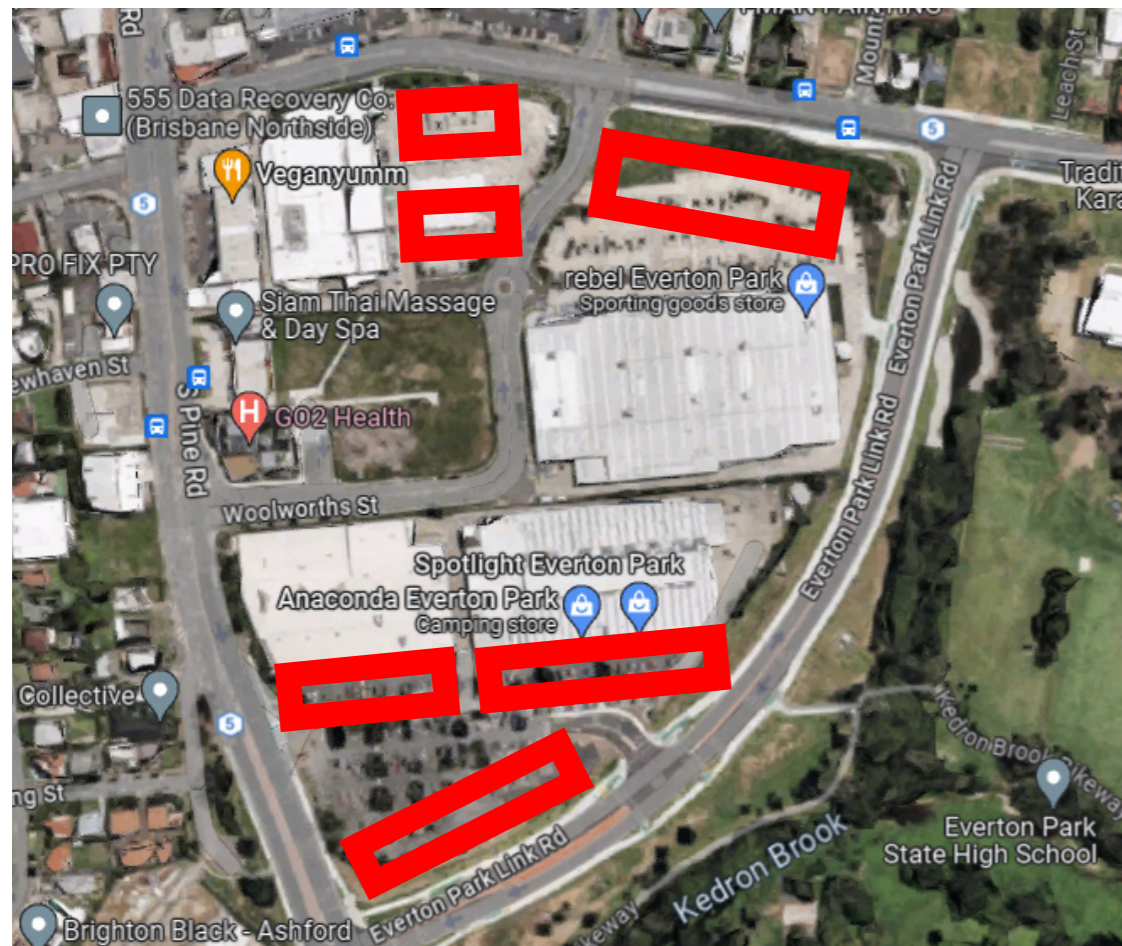
Opportunities exist to sleeve new street facing developments and build new over carparks

(The strip shop component would be rebuilt under at the street edges with residential over and cars brought inboard)



COLES ALDERLEY (not to scale)

Opportunities to sleeve street facing developments, activating streets and adding amenity.



EVERTON PARK - SPOTLIGHT/HARVEY NORMAN/WOOLWORTHS etc.  
(not to scale)

Opportunities to sleeve new developments and build over existing carparks.



BROOKSIDE MITCHELTON (not to scale)

Opportunities to sleeve new street facing developments and build new over carparks

EXAMPLES OF RESIDENTIAL ADDED INTO / ON TOP OF OR  
INTEGRATED WITH, CARPARKING STRUCTURES



Image (left) © ZED PODS Limited  
Image (right) © Herrmanns Architects

Image © Brisac Gonzalez Architects

To house 30% of the projected 2041 population for Greater Brisbane, we would need approximately 1,600 suburban blocks using walk up apartments (Wagawn St model). This is in contrast to subdividing approximately 8,000 new suburban blocks (or 860 hectares) with detached dwellings.

A suburban block is calculated here at 20 lots on 13,000m<sup>2</sup> including road reserve.

# 7.0 A Blueprint to Facilitate Change

To enable change, before any architect or planner can bring their skills in designing better communities to bear, fundamental structural change is required. These areas of fundamental change include: planning and related legislation (e.g. including traffic and waste collection), change to the NCC/BCA and change in financial structures including financial models and lending rules. The following notes set a few of the key issues in these areas.

## 7.1 Current planning legislation

Current planning legislation suggests the smallest scale proposition would be classified as a Granny Flat and not require planning approval, provided the tenants meet the requirements of a ‘household’. The dwelling could also be classified as rooming accommodation. We suggest that flexible planning and building legislation needs to be considered to support some outcomes (including more “as of right” developments).

### A household

A household can be:

- One person maintaining a household, or
- Two or more people related by blood, marriage or adoption, or
- Up to five children under the age of 18 that are not related and one or two adults who have care of them, or
- No more than five people that are not related.

### Granny Flats

A granny flat, referred to in the City Plan as a secondary dwelling, can be a maximum of 80 square metres in size. If the granny flat is for a member of your household, you do not need to apply for Council approval as long as you meet the accepted development, subject to requirements criteria in the Dwelling house code or Dwelling house (small lot) code.

You will need to lodge a development application if:

- the granny flat is bigger than 80 square metres in size, or
- it is more than 20 metres from the main house, or
- you are renting it to someone who does not form part of your household.

### Rooming accommodation

If there is more than one household living in the same house, it may classify as rooming accommodation. Student and boarding houses are common examples of rooming accommodation.

### Multiple dwellings

The City Plan defines a multiple dwelling as use of a premises where it contains three or more dwellings. Proposals for multiple dwellings require a planning application.

For the purposes of City Plan, a multiple dwelling is not:

- rooming accommodation
- dual occupancy
- duplex
- granny flat
- residential care facility
- retirement facility.

### Parking requirements

You must provide one car parking space on your site for a granny flat and one car parking space for the main dwelling house.

## 7.2 Technical upgrades/building codes

The long term success of any housing initiative(s), which could significantly contribute to the housing shortage, in a timely manner, is very much connected to streamlining approvals processes, addressing existing regulation and reviewing restrictive financial models.

In the case of approvals and regulation, the criteria will include:

- Planning Approvals\*
- National Construction Code Criteria based on dwelling type/use and classification including\*\*
  - Section C - Fire Resistance (including potential fire ratings and/or compartmentalisation)
  - Section D - Access and Egress (including access for people with disability for certain dwelling types)
  - Section E - Services and Equipment (including where required, lighting and ventilation, smoke detection, exit signage, sound transmission etc)
  - Section J - Energy Efficiency

(In addition to minimum requirements, consideration might be given to additional measures e.g. a requirement for power generation and water collection.)

\*Approvals will be dependant on the classification of use and the local planning regulations.

E.g. If the development is for related people and there are less than 5 adults living on site then no special planning approval may be required.

Miscellaneous approvals (e.g. Hydraulic/plumbing approvals) and statutory fees (e.g. infrastructure charges) may still apply.

In broad terms, side and front setbacks and heights will need to be addressed in future suburban planning schemes to encourage innovative infill.

\*\*In the first instance a performance based approval for separate uses such as class 2 (separate dwelling) and/or class 5 (office) or class 6 (shop) would be sought.

This could include the use of an integrated fire detection and alarm system for both sets of uses including detection and alarm in ceiling spaces.

NCC Regulation, Class 1a Exemplar.

(Applied Strategies for existing housing stock, including Garage conversions.)

The following applies to splitting existing dwellings into multiple dwellings and conversions of attached residential garages to habitable dwelling units, where the inhabitants are not part of the existing family unit.

In the situation where the existing dwelling is only 1 storey in height or the existing garage (Class 10) is attached to the dwelling (but not under the dwelling), this work moves a Class 1a (detached house) to a Townhouse/Row house classification (also Class 1a).

However, if any part of the existing house sits over / around a portion of a separate dwelling below, including an existing garage (Class 10) being converted to a separate dwelling, this work moves a Class 1a (detached house) into two (or more) Class 2 dwellings (apartment/sole occupancy units).

The following deals only with the Class 1a, Townhouse/Row house example noted above.

Walls. (Fire separation)

Load bearing common walls are to be upgraded to a fire rating of 60/60/60 (up from -/-/-)

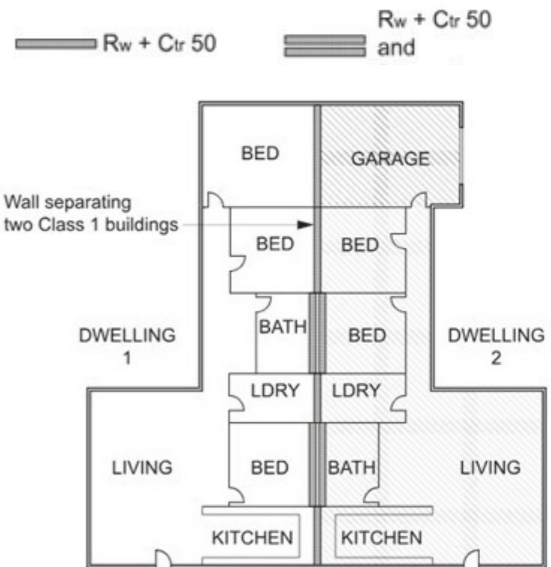
and

Non-loadbearing walls upgraded to -/60/60 (up from -/-/-)

These (new) ratings need to occur to the underside of non-combustible roof sheet and down to ground/onto footings and out to the internal face of claddings. They must be achieved from both sides of the wall.

Walls (Acoustic separation)

The NCC (2019) notes the following requirements for acoustic separation between Townhouses/Row houses.



NCC Volume 2 Figure 3.8.6.1 Required airborne and impact sound insulation — Plan view


Note.

The above is a guide to the issues involved. Further research/study of this issue is considered desirable. Ideally this might include the input of a certifier (regulation), a quantity surveyor (cost implications) and an experienced contractor (industry knowledge), in delivering projects such as these. This work might include the consideration of performance-based approval systems. (Both for the Class 1a (Townhouse/Terrace House) examples above, and the Class 2 examples referenced).

An example of the kind of system that achieves both the required fire separation and acoustic separation for adjacent Class 1a dwellings, includes:

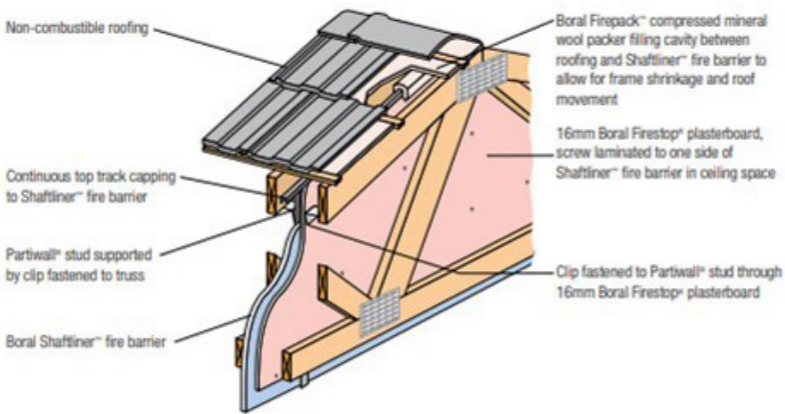
## Partiwall® Systems

FRL 60/60/60 (System Type 25TP)

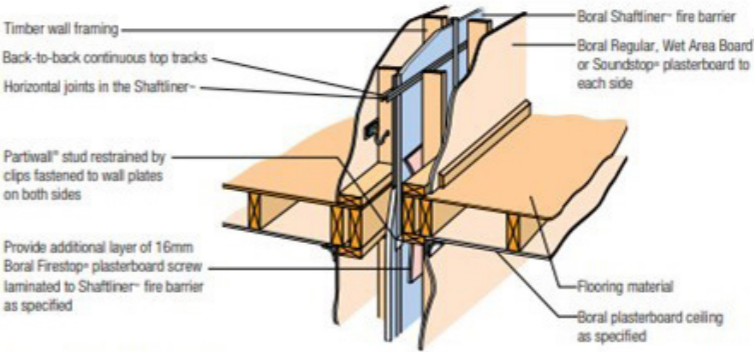
Assembly	System Reference	Nom Width (mm)	Stud Size (mm)	Pbd Weight (kg/m²)	Fire	Acoustic Ratings			Total R Value (m²K/W)
					FRL Basis	R <sub>w</sub>	R <sub>w</sub> +C <sub>tr</sub>	Insulation	
 (Insulation not shown for clarity)	25TP1010A 1x25mm Shaftliner® panel 1x10mm Soundstop® plasterboard to each side of timber frame	225	70	36.9	60/60/60 FCO-2256	60	47	R2.0 glass wool or 100P14 both sides	-
		225	70			62	50	90G32 both sides	5.88
		265	70 or 90			59	48	110mm thick Boral Partiwall® Acoustic batt one side only	-
		265	70 or 90			63	53	110mm thick Boral Partiwall® Acoustic batt both sides	5.27
		285	90			62	50	R2.0 glass wool or 100P14 both sides	4.84 or 4.98
		295	90			65	55	110mm thick Boral Partiwall® Acoustic batt both sides	5.76

Boral Partiwall® system shown.

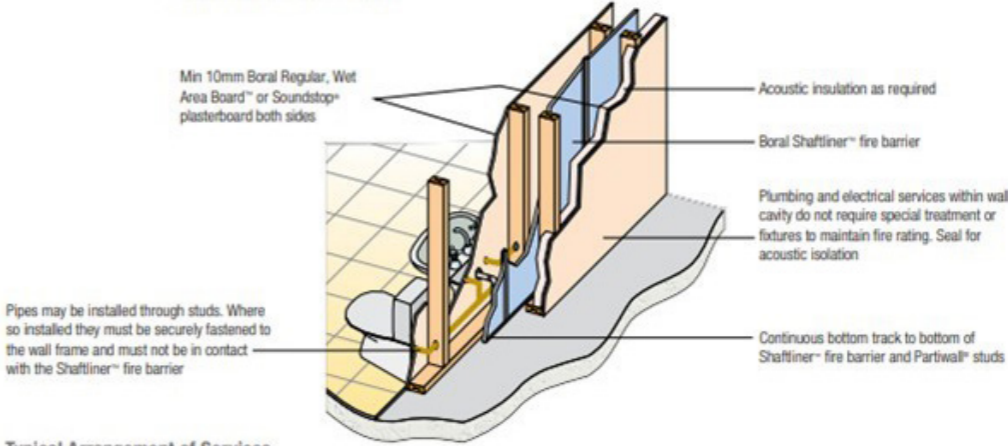
## Details



Perspective - Section at Roof



Typical Floor/Wall Junction



Typical Arrangement of Services

Boral Partiwall® details shown.  
<https://www.archiclad.com.au/wp-content/uploads/2023/02/partiwall-pdf.pdf>

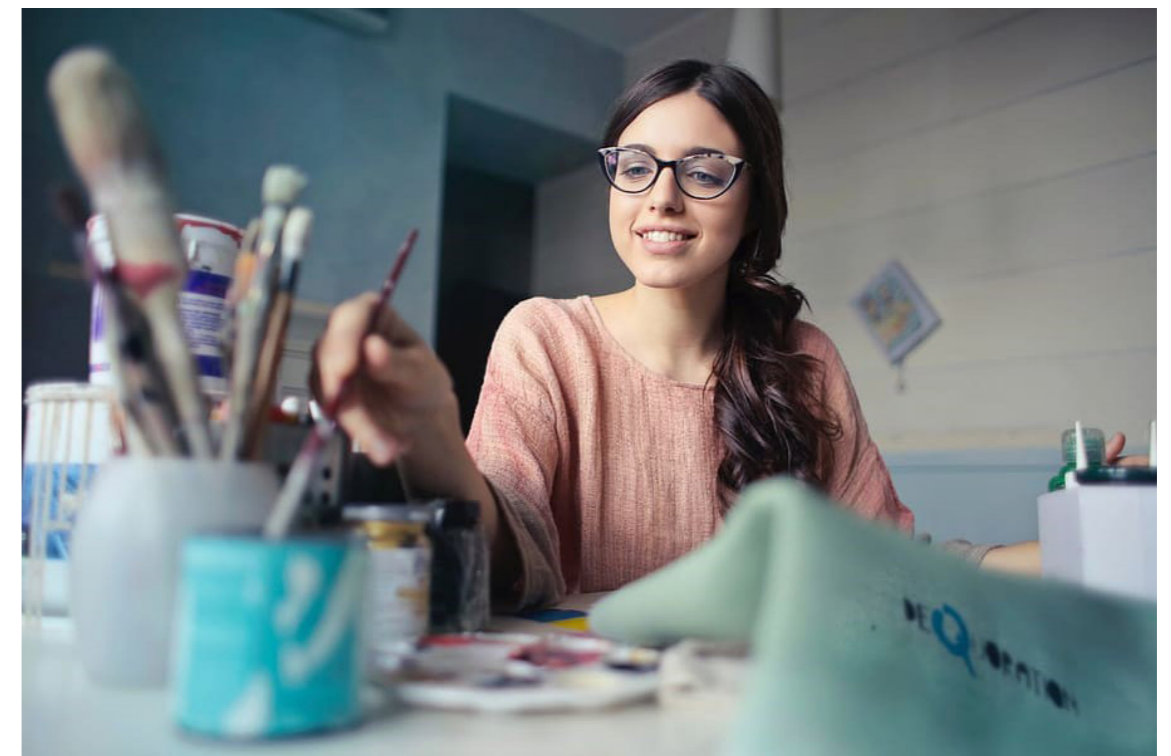
## 8.0 Financial Models (an opportunity)

An approach which allows the individual land owner/ householder/investor to improve their own property and realise additional value taps into:

- The mass scale represented by individual landowners\*
- The mass scale of small contractors and suppliers\*
- Reduced costs based on utilising existing infrastructure and existing building envelope
- The ability to tap into existing home equity
- The capacity to offset capital costs against alternative financial models and/or third party agreements (e.g. Dept of Housing or Housing Company fixed rental agreements prior to development OR State Development investment grants OR agreed rental arrangements for family members/carers etc.)

- Subdivision or alternative title arrangements (long-term) supporting new ownership models
- Encourages investment in the street (public realm)

\* i.e. large numbers of small self-funded projects as opposed to smaller numbers of large projects with bridging loans, complex financial arrangements, higher risk and large profit margins, all of which actually increase the costs of housing.



Images © pxfuel.com License Creative Commons Zero

WE CAN ALWAYS FIND  
REASONS NOT TO DO  
SOMETHING... BUT WHEN  
THE ISSUE IS IMPORTANT  
ENOUGH THERE ONLY  
NEEDS TO BE ONE GOOD  
REASON TO EFFECT

**C H A N G E**