

STATE  
PLANNING  
COMMISSION

# Raising the bar on Residential Infill in the Planning and Design Code



September 2020



Government of South Australia  
Attorney-General's Department

# Introduction

Infill development is the single largest provider of new housing in Greater Adelaide, with a projected net annual increase of approximately 2500 residential dwellings.

Infill development refreshes our streets and helps create walkable neighbourhoods. In addition to protecting our valuable farming and environmental land, infill development is a response to a clear demand for new housing options in established areas.

It is estimated residential infill represents around one-third of the total dwelling stock growth in metropolitan Adelaide each year, dovetailing with *The 30-Year Plan for Greater Adelaide (2017 Update)* that intends for 85 per cent of all new housing to be built within the existing urban footprint.

Replenishing and upgrading conventional housing with new stock on smaller allotments helps to contain the spread of urban residential development and meet consumer demand for contemporary living, which include living close to jobs, shops and services.

In preparations to deliver the final installment of the Planning and Design Code (Code) - covering our large regional towns and metropolitan areas - key improvements have been made to the Residential Infill Policy (policy).

Consultation feedback — received from a series of infill forums and a public consultation process on the draft Code — was integral in informing the resulting proposed policy improvements, which focus on the following key themes:

- **Trees and Landscaping**
- **Stormwater Management**
- **Carparking and Garaging**
- **Street Appeal and Façade**

Consultation responses highlighted tree canopy and stormwater management as key concern areas. In response, the State Planning Commission contracted BDO EconSearch and Tonkin Engineering to produce **Options Analysis Reports**, in relation to Stormwater Management and Tree Canopy Cover. These reports are available on the PlanSA Portal.

This document provides an overview of the proposed policy improvements to residential infill and the benefits supported by evidence-based research. Through the policy, the Code intends to preserve and enhance residential amenity and supports the demand for well-designed, quality infill housing that reflects modern living.

The policies discussed in this brochure are the ‘deemed-to-satisfy’ criteria which a new house must meet to gain guaranteed planning consent within five business days of lodgement. If one or more of the deemed-to-satisfy criteria are not met, the house would be assessed on its merits against ‘performance outcomes’.



2006-2016 percentage change of residential infill in SA

Diagram 1

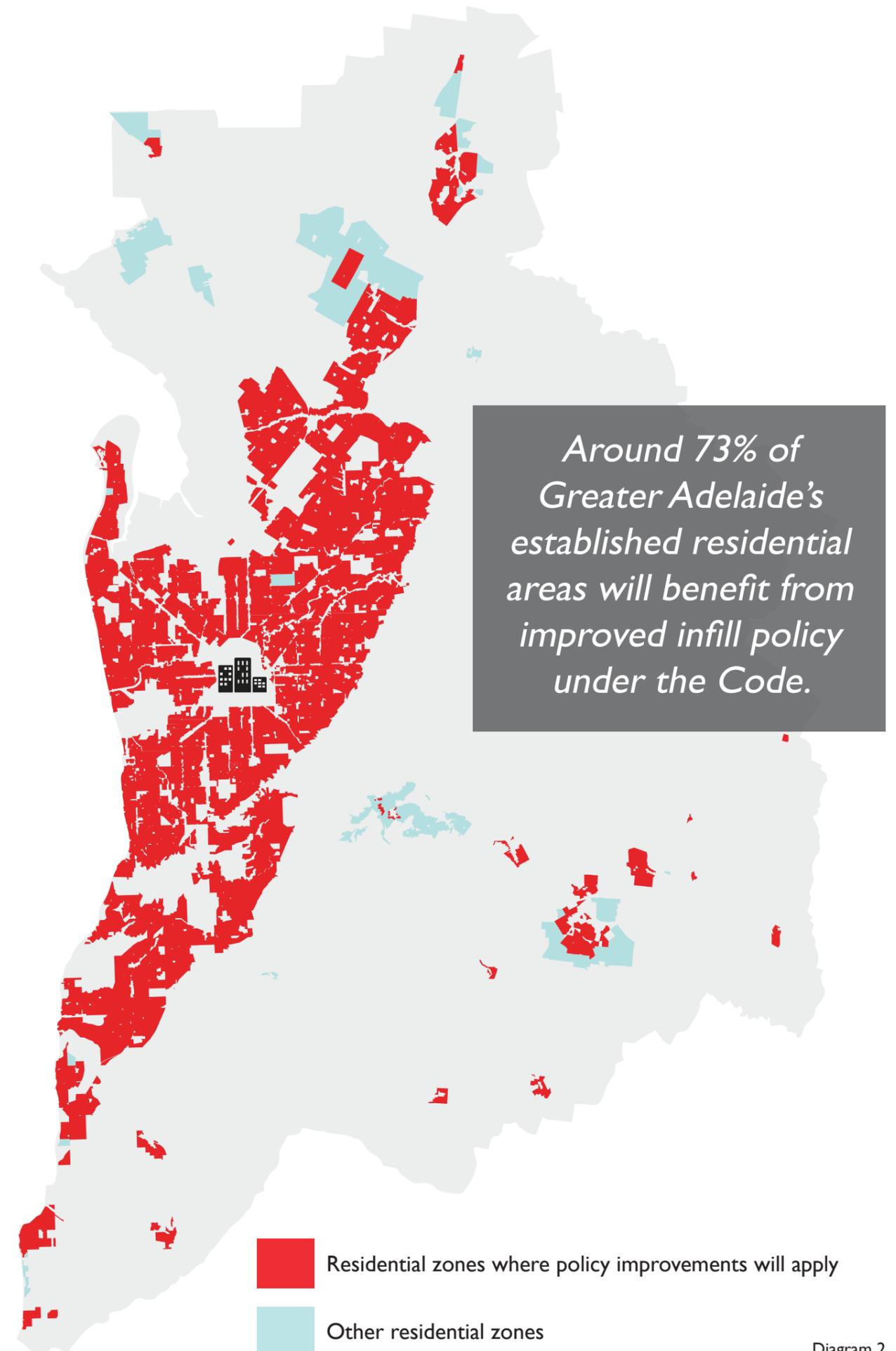


Diagram 2

# TREES AND LANDSCAPING

## CURRENT SITUATION

Infill development generally increases site coverage and driveway crossovers, **creating up to 90% impervious surfaces** and reducing space for gardens and tree planting.

Tree planting is currently not a mandatory requirement when building a new house in South Australia. While some Development Plans encourage landscaping and reserving areas for tree planting, no consistent policy exists.

To help support and create cooler and more liveable neighbourhoods, The *30-Year Plan for Greater Adelaide (2017 Update)* set a target to **increase urban green cover by 20%**.

This target also seeks to facilitate infill development to support community demand to protect our valuable primary industry production lands and create more walkable neighbourhoods with better access to and the use of public transport.

## ANALYSIS FINDINGS

Tree planting costs, ongoing maintenance and house footing costs were analysed in detail.

The findings showed that, in the most common infill development scenario (which reflects about 75 per cent of new houses) house footings would not be affected by the tree planting policy in the Planning and Design Code.

This is because, in most instances, a new tree could be planted outside the tree effect zone and/or there is already an existing tree effect from nearby trees.

Regardless of the new tree policy, the majority of house footings in established urban areas are already required to be designed to accommodate the impact of nearby off-site trees.

The analysis also found that the benefits of the tree planting policy would be even greater if there were an option for payment into an offset fund to enable tree planting on public land.

The Code proposes mandatory tree planting and minimum soft landscaping requirements.

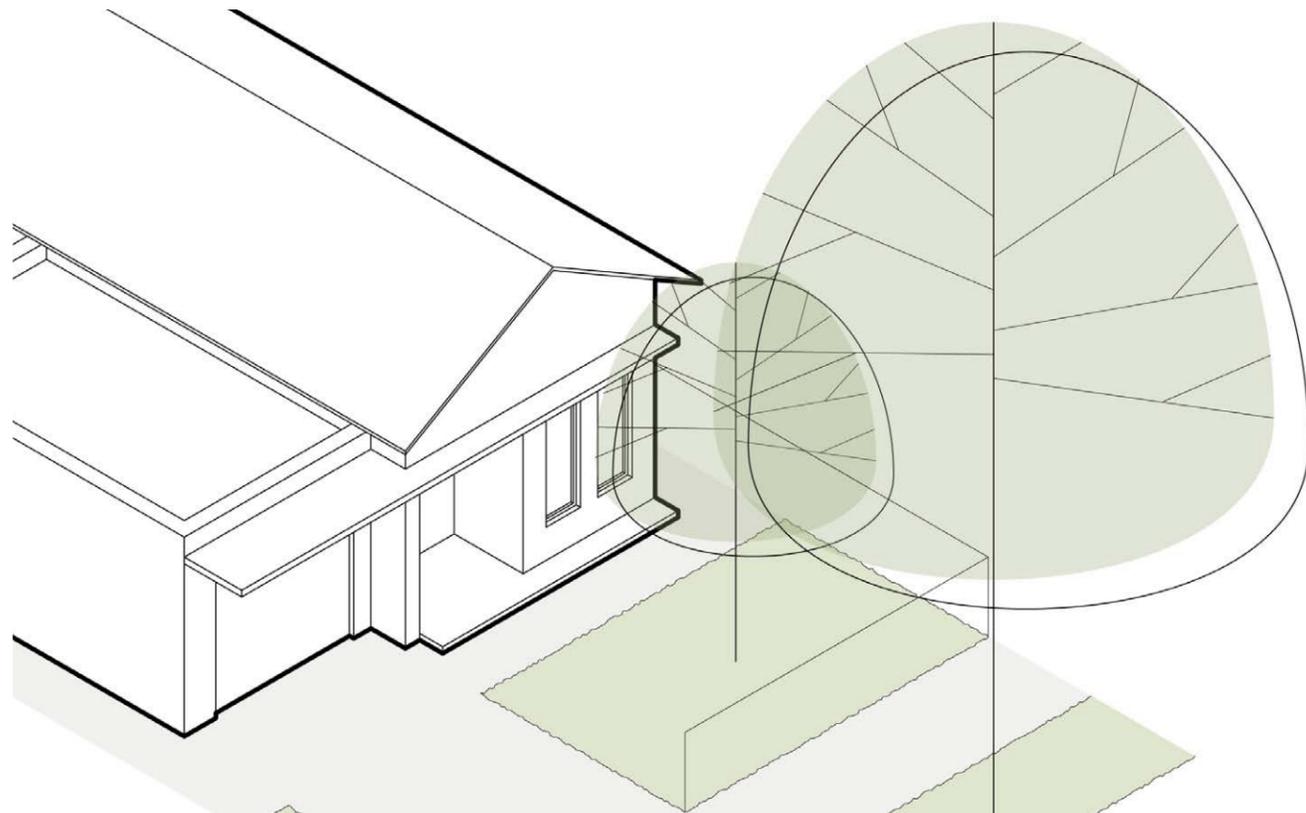


Diagram 3

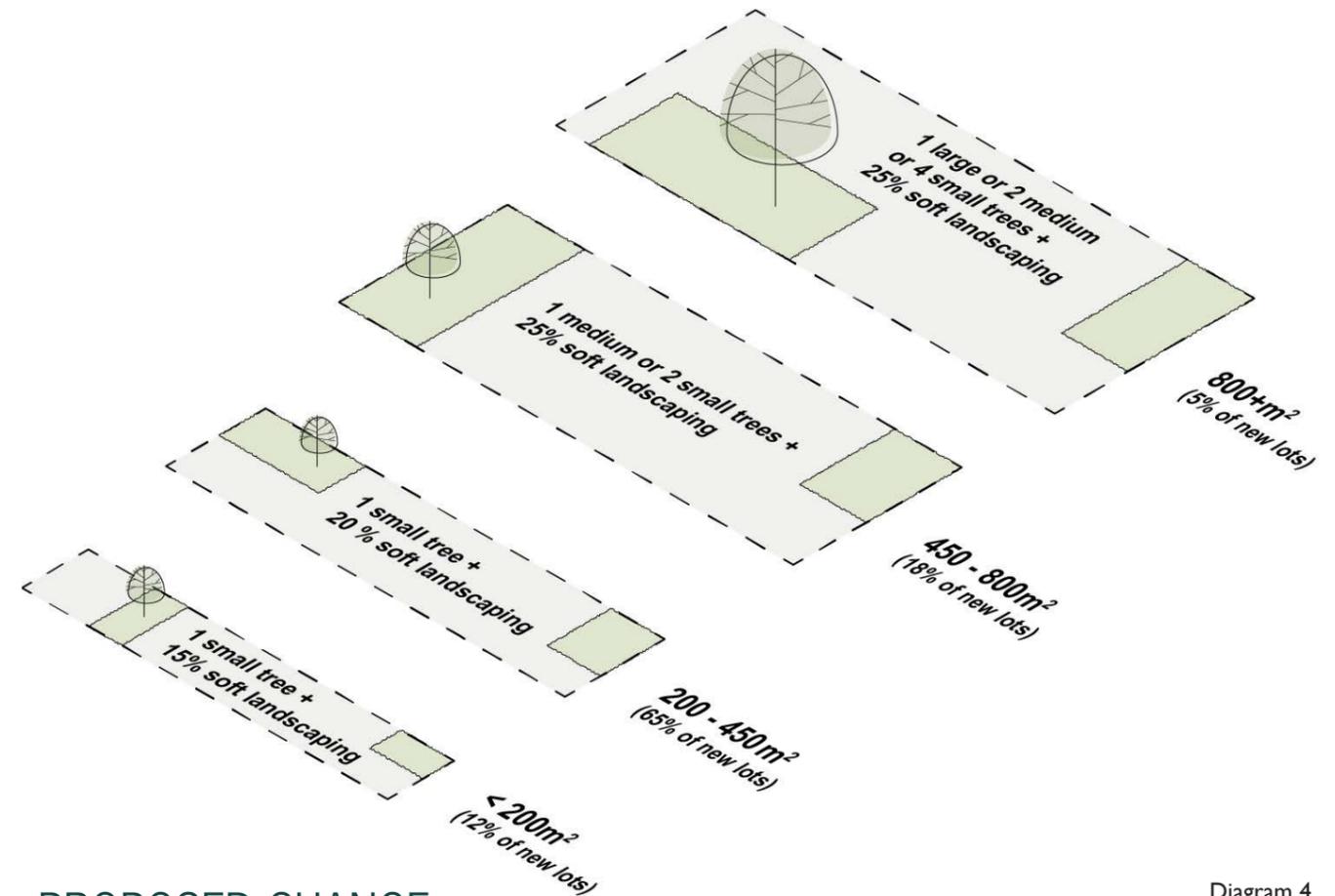


Diagram 4

## PROPOSED CHANGE

Policy in the new Planning and Design Code proposes to:

- Ensure at least one tree is planted per new house in urban infill areas, except where mature trees are retained or payment is made into an offset fund.

### CONSULTATION FEEDBACK

#### Tree Planting

- Industry observed tree planting may impact on structural integrity of buildings and is not compatible with higher density urban zones.
- Community and some councils requested additional policy to mitigate urban heat and tree loss.

#### Soft Landscaping

- Community/council support for soft landscaping provisions.
- Industry queried feasibility.
- Concern that 0.5m minimum dimension is too narrow to support soft landscaping and plant growth.

### PROPOSED CHANGE

#### Tree Planting

- Maintain Mandatory tree planting policy in urban infill areas of one tree per new dwelling.
- Enable option for payment into an offset fund instead of planting trees on-site.
- In greenfield/broadhectare areas, open space and tree planting will be provided through land division and street trees instead of tree planting policy.

#### Soft Landscaping

- Retain Minimum soft landscaping of 15-25% over whole site.
- Increase percentage of soft landscaping in front yard from 25% to 30%.
- Increase minimum dimension from 0.5m to 0.7m to ensure area is viable for plant growth.

# STORMWATER MANAGEMENT

## CURRENT SITUATION

High levels of stormwater run-off associated with infill development can result in an increased flood risk, public infrastructure costs, loss of water to green our suburbs and pollution in waterways.

Infill development typically increases impervious surfaces (roof area, concrete, driveways, etc.), increasing run-off to the street at approximately 2.5 times the level most existing street drainage systems were designed for.

All new houses currently require a minimum 1000L rainwater retention tank under the Building Code. In addition, most Council Development Plans require larger tanks for stormwater detention purposes. The requirements vary between an additional 2000L - 5000L for detention; however, a majority of councils require at least a 3000L tank for an average new allotment size.

## ANALYSIS FINDINGS

Water tank costs, including supply, installation and plumbing, operation and maintenance, and drainage system upgrades, were analysed in detail.

Analysis of different rainwater tank options found that additional costs associated with larger tanks will generally be offset by water bill savings for individual households. The findings highlighted the benefits of both retention and detention tanks and recommended a combination tank to maximise water quality, conservation and stormwater management benefits.

Installation of a rainwater tank is an important part of stormwater management and can help avoid or delay stormwater infrastructure upgrades. The benefits of a water tank include:

- Reduced potable water demand
- Less pollutants in stormwater
- Reduced public infrastructure costs.

The Code proposes 80% of roof areas be connected to rainwater tanks.

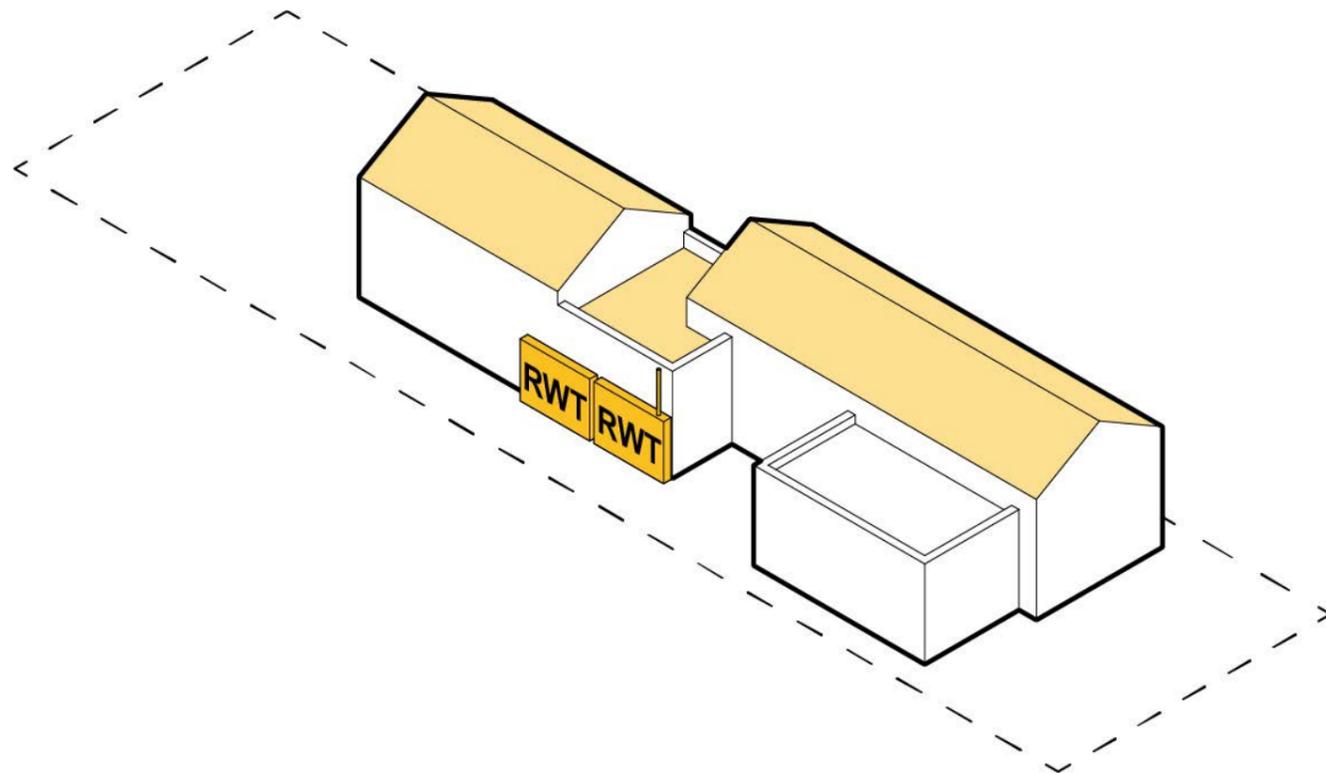
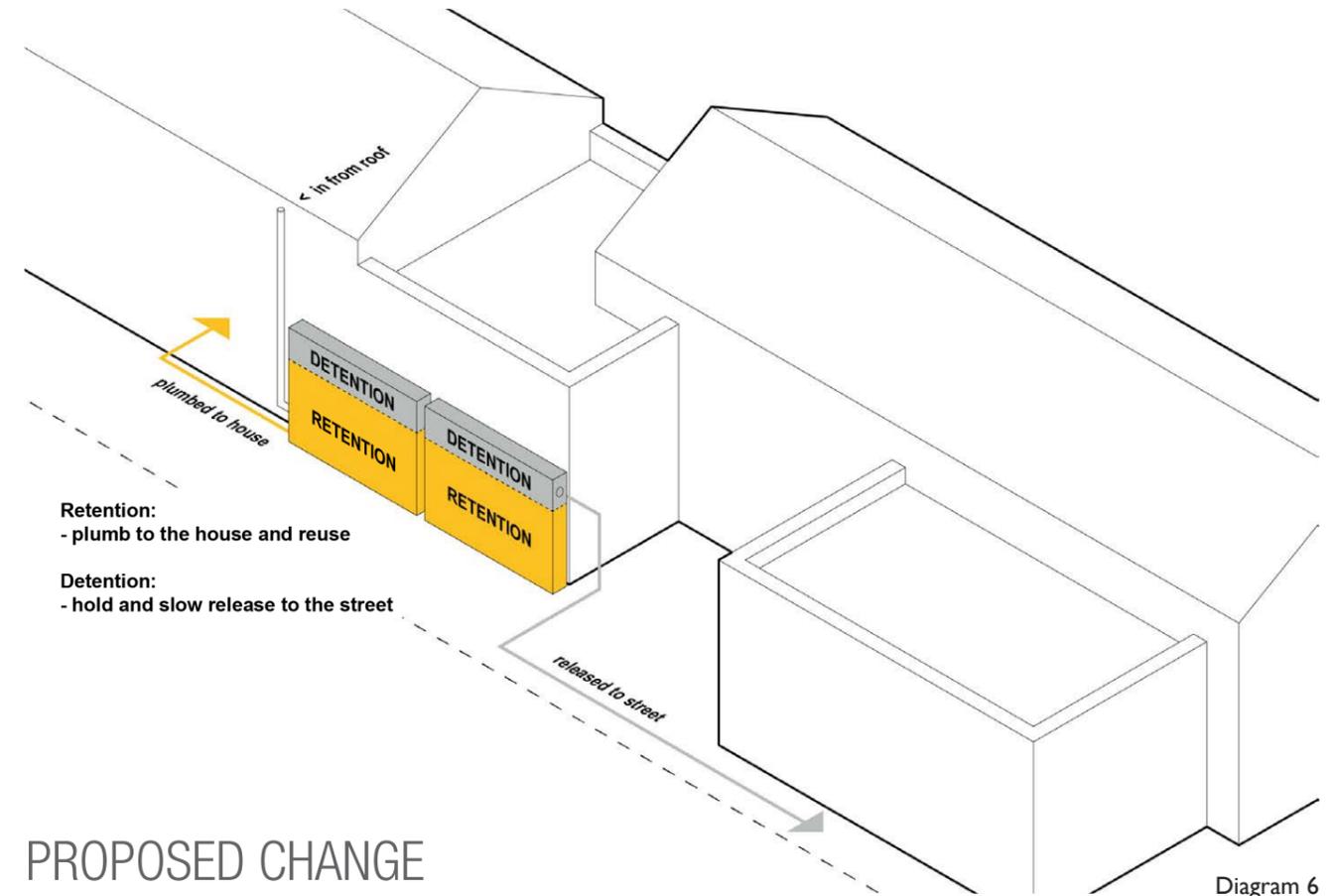


Diagram 5

The Code proposes retention and detention water tanks.



**Retention:**  
- plumb to the house and reuse

**Detention:**  
- hold and slow release to the street

Diagram 6

## PROPOSED CHANGE

Policy in the new Planning and Design Code proposes to:

- Standardise tank sizes across all council areas to provide a consistent and fair approach
- Require connection to one toilet to avoid costly plumbing connections to upstairs toilets
- Focus on using combined retention (reuse) and detention (hold and release) tanks to maximise the full range of benefits to homeowners and the community
- Increase the percentage of roof area connection to tanks to maximise water capture, reuse and tank performance
- Remove the requirement for tanks in new housing estates ('Master-Planned' areas) where stormwater solutions are already developed at the land division stage, using water sensitive urban design (WSUD) solutions.

### CONSULTATION FEEDBACK

#### Stormwater Management

- Industry observed larger water tank costs to homeowners; request to maintain 1000L minimum.
- Should not apply in Master-Planned or Greenfield context.
- Councils sought larger on-site stormwater detention.
- Community sought additional WSUD measures such as permeable paving/ water catchment.

### PROPOSED CHANGE

#### Stormwater Management

- Remove current 1000L rainwater tank requirement from the Building Code.
- Do not apply on-site water tank policy to new dwellings in Master-Planned Neighbourhood zones.
- Introduce 1000L detention component for tanks  $\geq$  3000L (except where high site permeability).
- 80% of roof area connected to tanks.
- Require connection to one toilet instead of all toilets.

# CARPARKING & GARAGING

## CURRENT SITUATION

Current car parking and garaging provisions significantly reduce the amount of on-street parking due to an increased number and width of driveways.

Wide driveways on narrow allotments can reduce street appeal and space for bin collection, parking, gardens and tree planting.

In addition, the internal dimensions of garages are too narrow, leading to inconvenient use. This leads to cars being parked in driveways and the streets.

## ANALYSIS FINDINGS

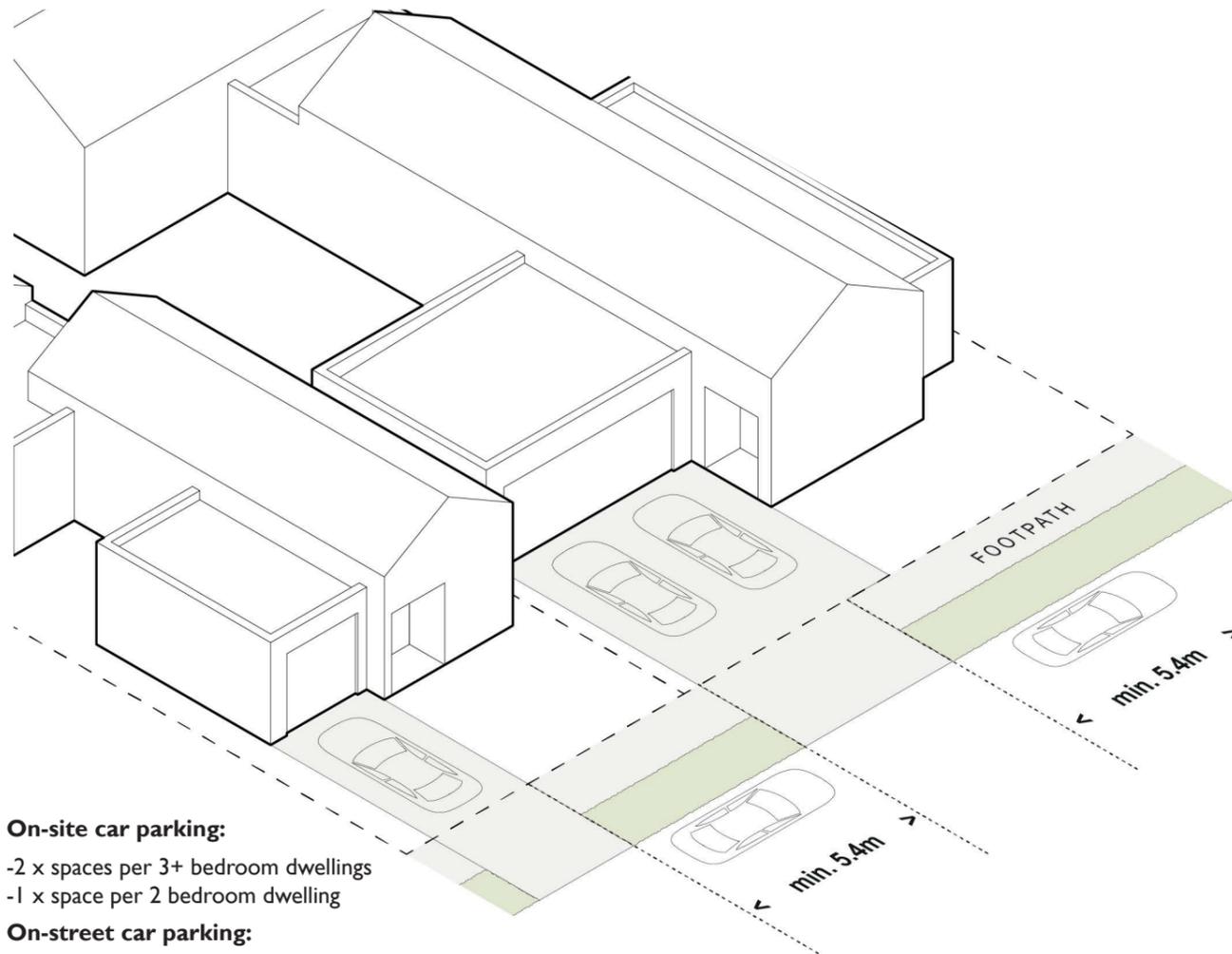
Data on car ownership suggests the perceived problem of insufficient on-site parking may be due to difficulty or inconvenience of using garages for parking vehicles. This should be assisted by the Code's new requirements for minimum garage dimensions, standardised car parking rates.

## PROPOSED CHANGE

Policy in the new Planning and Design Code proposes to:

- Introduce minimum garage widths that are consistent with Australian Standards
- Provide sufficient parking for occupants without creating an oversupply by standardising car parking rates for small-scale infill development to align with typical parking demand
- Preserve on-street parking for visitors (where appropriate) by maintaining a minimum on-street car parking rate
- Introduce maximum driveway widths for narrow allotments as well as to provide more room for street tree planting and on-street parking.

The Code proposes to standardise on-site and on-street car parking.



### On-site car parking:

- 2 x spaces per 3+ bedroom dwellings
- 1 x space per 2 bedroom dwelling

### On-street car parking:

- 1 x space per 3 new houses @ 5.4m length

## CONSULTATION FEEDBACK

### On-site and on-street parking

- General support for Code's on-site car parking policies
- 6m length of on-street parking should be reduced
- Increase street car parking spaces per dwelling.

### Garage door widths

- Some councils sought reduction to maximum 30% of lot width.
- Industry observed 50% maximum width will prevent double-garages on standard 10m wide allotments.
- 50% limitations should not apply for 2 storey dwellings.

### Driveway width

- 3.2 maximum driveway width at front boundary for sites  $\leq 12m$  wide is too restrictive.
- Limiting driveway width makes vehicle maneuvering more difficult.

### Internal garage dimensions

- Concerns raised with proposed 3.2m x 6m single garage dimensions which exceed Australian Standards

## PROPOSED CHANGE

### On-site and on-street parking

- On-site car parking of 2 spaces per 3+ bedroom dwelling and 1 space per 2 bedroom dwelling
- 1 on-street car park for every new house, duplex or 3 row dwelling
- Reduce on-street park length to 5.4m.

### Garage door widths

- Retain 50% width criteria in most cases, with 30% in character/historic areas.
- Clarify 50% relates to door openings, which would allow double garaging on 10m wide lots.
- Do not apply 50% maximum to 2 storey dwellings.

### Driveway width

- 5m wide driveways apply on sites  $> 10m$  wide.
- 3.2m wide driveways apply on sites  $< 10m$  wide.

### Internal garage dimensions

- Align internal dimensions with Australian Standards - (3m x 5.4m single garage, 5.5m x 5.4m double garage).

# STREET APPEAL & FAÇADE

## CURRENT SITUATION

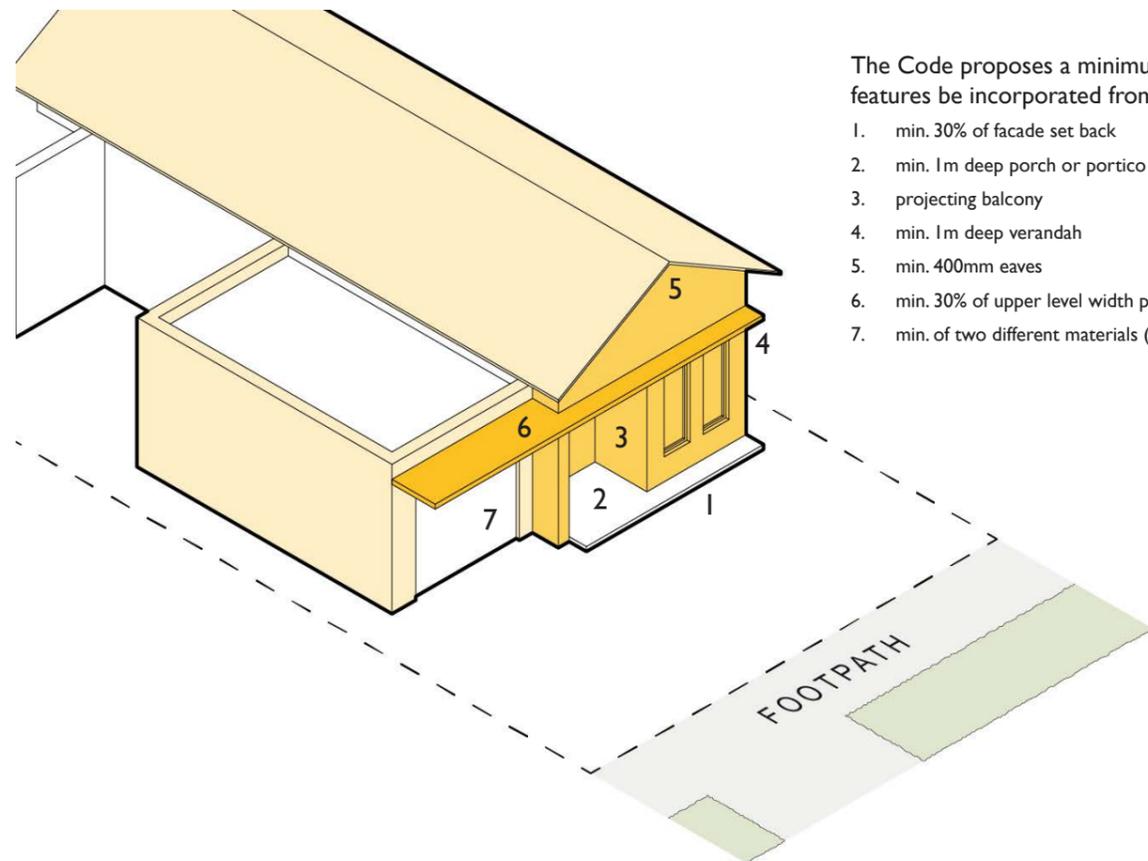
High quality design is critical to infill development in existing neighbourhoods. Currently infill development is not required to address street appeal and appearance, which can negatively impact neighbourhood character.

Concerns have been raised in relation to the use of the current Residential Code in the assessment of infill development; specifically, on its lack of influence on landscaping, waste storage and retention of local character, which can negatively impact street appeal.

For instance, wide driveways on narrow allotments can reduce street appeal, space for bin collection, parking, gardens and tree planting. Street-facing façades should make a positive contribution to existing streetscapes while maintaining the flexibility to respond to a broad range of styles, tastes and trends.

## ANALYSIS FINDINGS

Analysis found that street appeal could be enhanced through greater use of design elements and materials as well as improvements to dwelling front windows, entry doors and bin storage.



The Code proposes a minimum of 3 design features be incorporated from 7 options:

1. min. 30% of facade set back
2. min. 1m deep porch or portico
3. projecting balcony
4. min. 1m deep verandah
5. min. 400mm eaves
6. min. 30% of upper level width projecting
7. min. of two different materials (max. 80%)

Diagram 8

The Code proposes a range of design improvements to enhance street appeal of residential infill.

## PROPOSED CHANGE

Policy in the new Planning and Design Code proposes to:

- Improve visual interest and building articulation by:
  - incorporating a minimum of 3 design features on front facades, including eaves, porches, balconies, different materials, stepping etc.
- Create a sense of address by ensuring entry doors are visible from the street
- Increase passive surveillance by ensuring a habitable room dimension of 2.4m with a minimum 2m<sup>2</sup> window size facing the street, to improve street appeal and enhance passive surveillance
- Reduce garage dominance – limit the garage door width to a maximum of 50 per cent of the allotment width (with the clarification that the 50 per cent criteria relates to door openings, allowing for double garaging on 10m wide lots)
- Provide a dedicated area for bin storage that is screened from the street with a minimum area of 2m<sup>2</sup> with the clarification that the unobstructed path does not include moveable objects such as roller doors, vehicles or gates.

### CONSULTATION FEEDBACK

#### Façade design features

- Industry observed minimum 3 design features is difficult to achieve for single storey dwellings.
- Provide more design options/choice for front façade materials.

#### Entry door

- Entry door facing the street is too prescriptive; not feasible on narrow blocks.
- May inhibit progressive designs.

#### Street-facing windows

- Industry observed 2m<sup>2</sup> window area is difficult to achieve, particularly if it applies to individual windows.
- Minimum habitable room dimension of 2.7m difficult to achieve on narrow blocks.

#### Bin storage

- 3m<sup>2</sup> bin storage with unobstructed path to street difficult to achieve on narrow sites.
- May not be used by residents.

### PROPOSED CHANGE

#### Façade design features

- Expand current design features to include additional options for different materials/finishes on front façade (max. 80% wall area in a single material/finish).

#### Entry door

- Dwellings with a frontage to a public street have an entry door visible from the primary street boundary.

#### Street-facing windows

- Clarify that 2m<sup>2</sup> is aggregate window area rather than per window.
- Reduce minimum habitable room dimension to 2.4m.

#### Bin storage

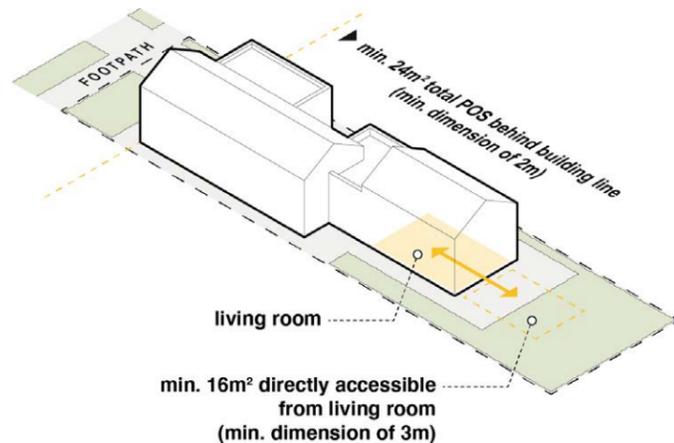
- Decrease minimum area to 2m<sup>2</sup>.
- Clarify path of travel doesn't include moveable objects such as roller doors, vehicles or gates.
- Only required where dwellings are built on both side boundaries

# PRIVATE OPEN SPACE & SITE COVERAGE

## PRIVATE OPEN SPACE (POS)

The consultation version of the draft Code prescribed different minimum areas of private open space, or 'backyard' area, for new dwellings depending on the size of the land.

Given new requirements for soft landscaped areas, combined with maximum site coverage, the Commission agrees there is less relevance in prescribing different sizes of POS, as the main purpose of POS policy is to ensure a functional area for recreational space.



### CONSULTATION FEEDBACK

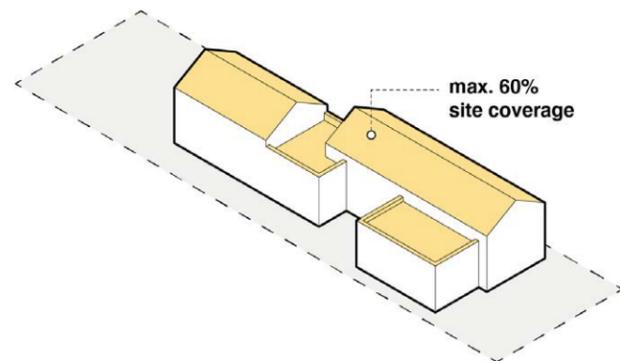
- POS areas relative to site size are unnecessary
- POS shouldn't be encouraged in the front yard of dwellings
- Minimum dimension of 1.8m for an area to be counted as POS is too narrow

### PROPOSED CHANGE

- Prescribe a single private open space criteria of 24m<sup>2</sup> with minimum dimension of 3m for all dwelling types (except apartments)
- This single area to be located to the side or rear of the dwelling, and directly accessible from a living area
- Increase the minimum dimension for an area to be counted as POS from 1.8m to 2.0m

## SITE COVERAGE

A number of zones in the draft Code prescribe a maximum site coverage, which is the total roof area. Site coverage works in unison with other criteria such as private open space, setbacks and soft landscaping criteria to ensure sufficient space is provided around buildings to preserve amenity for residents and neighbours.



### CONSULTATION FEEDBACK

- Feedback observed support for excluding eaves from 'site coverage' to encourage energy efficiency and enhance design.

### PROPOSED CHANGE

- The draft Code now proposes a definition of 'site coverage', clarifying it is calculated by adding the total roof area of all roofed buildings/structures on a site (excluding any eaves surrounding a habitable building) dividing this by the site area.

# PRIVACY

It is important for buildings with upper level windows and balconies to incorporate treatments to minimise direct views into habitable areas of neighbouring properties. While there is a common view that high screening on balconies/windows to prevent any potential view is the best way to achieve privacy, it is also important to consider the amenity of future occupants in that space. The Commission believes privacy screening should focus on avoiding incidental overlooking in day to day activities.

### CONSULTATION FEEDBACK

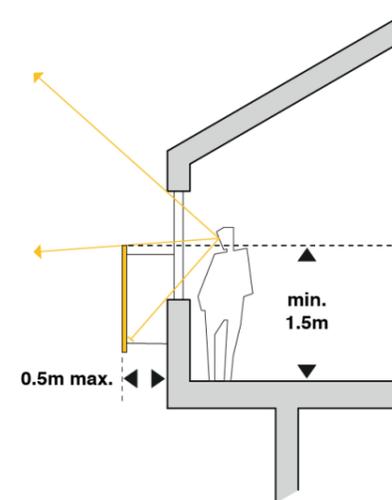
- Community and council sought increase in upper level window sill/glazing heights from 1.5 to 1.7m
- Industry requested alternative techniques be considered to provide privacy

### PROPOSED CHANGE

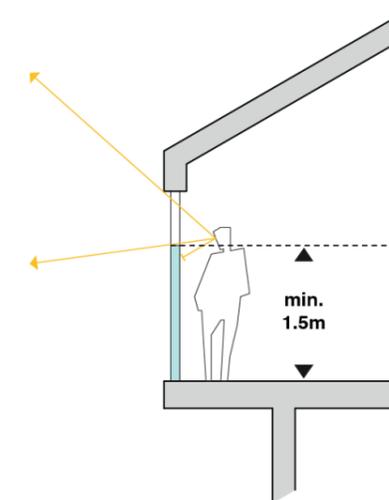
- Retain 1.5m for upper storey windows
- Require 1.7m high screening on any balcony facing a side/rear boundary where within 15m of a neighbour's habitable window, and 1.5m in all other cases (maximum 25% transparency/openings).
- As well as sill height and obscure glazing, provide the option to provide external screening adjacent these windows with maximum 25% openings

## UPPER LEVEL WINDOWS: PRIVACY TREATMENT OPTIONS

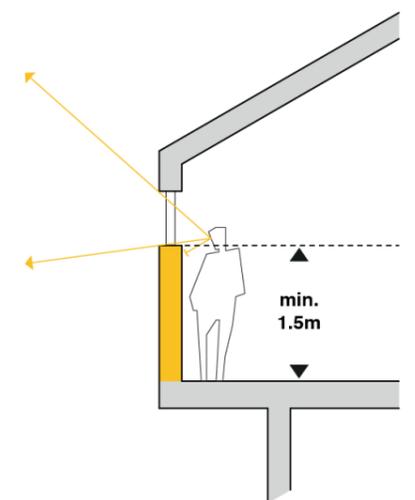
### EXTERNAL SCREENING



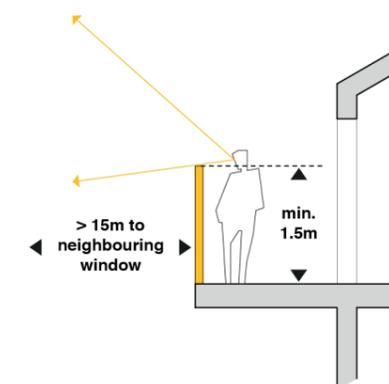
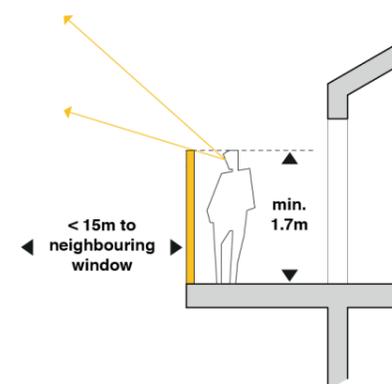
### OBSCURE GLAZING



### WINDOW SILL HEIGHT



## SCREENING FOR BALCONIES FACING SIDE/REAR BOUNDARIES



# Focus for policy improvement

Policy Improvements in the Planning and Design Code for Urban Areas



1. Garage width commensurate to lot width

2. Entry door visible from street

3. Eaves, porticos, balconies and a variety of materials to improve design quality

4. Minimum 2m<sup>2</sup> window area facing street

5. Dedicated bin storage area screened from the street

6. Mandatory tree planting, 1/3 front yard is landscaped

7. Less hard surface, more pervious areas to reduce stormwater runoff

8+9. Reduced driveway widths; more space for trees and street parking



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