Adelaide Garden Guide for New Homes

How to implement the Planning and Design Code to maximise the benefits of trees and soft landscaping for infill development

Trees and soft landscaping have the power to enhance our homes and lifestyles while combating local and global challenges.

Our gardens can make a difference.

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Introduction

What is the challenge?

Residential infill development is a significant provider of new housing in Greater Adelaide, with about 2,500 extra dwellings[1] being created each year. This type of housing helps to create walkable neighbourhoods, protect valuable farming and environmental land, and meet consumer demand for living close to jobs, shops, and services.

However, there is evidence that infill housing has contributed to a significant reduction in tree canopy and green cover in many neighbourhoods. This is because this type of development generally increases site coverage and driveway crossovers and reduces space for gardens and tree planting.

Loss of tree canopy and urban green cover reduces habitat for native fauna and creates urban heat islands. An increase in roofs and other hard surfaces also puts neighbourhoods at greater risk of flooding as rain and stormwater are less easily absorbed. This in turn decreases the soil moisture recharge, reducing water for trees and shrubs at a time when, with rising temperatures, they need the moisture even more.

This is why the Government of South Australia has set a target to **increase urban green cover by 20% across metropolitan Adelaide by 2045**[2].

This target recognises the many benefits of green cover to urban cooling, the local character, biodiversity and liveability of our suburbs, and our physical and mental health.

How does the Planning and Design Code help?

To assist in achieving the urban green cover target, the Planning and Design Code includes policies to encourage the retention of existing trees and outlines the minimum tree planting and soft landscaping requirements in most residential developments.

These requirements apply to individuals who are rebuilding their home or subdividing their land for more housing, through to developers of multi-storey apartments.

Why use this guide?

The guide aims to support developers, applicants, planning professionals and new homeowners to achieve better greening outcomes at the different planning and design stages.

It has been developed to help you adopt the tree planting and soft landscaping policies within the Code.

By 2050 the number of days per year above 35°C is projected to increase by more than 40%[3].
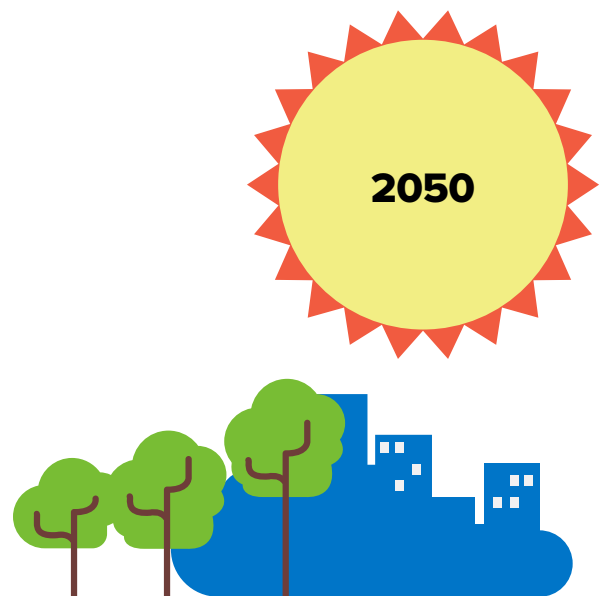
Despite our hot, dry climate, we can mitigate the urban heat island effect by growing our urban tree canopy and retaining water in urban landscapes.

How trees and gardens can benefit you, your property and the environment

Reduced air pollution

More carbon dioxide stored

More oxygen produced

Increased biodiversity

Cleaner stormwater

Increased water filtration

Flood prevention

Lower energy costs

Increased property value

Enhanced kerb appeal

Improved privacy

Neighbourhood character

More community connection

Cooler houses, streets and private outdoor spaces

Better thermal comfort

Retaining and planting trees and soft landscaping can provide financial savings and gains.

A number of studies have revealed significant boosts to house value in leafy neighbourhoods.

> **A Brisbane-based study revealed a 5% increase in the median house price in streets with 50% canopy cover[4].**

> **Perth-based research showed that a broad-leaved tree in front of a home can add more than $23,000[5].**

Financial benefits can also be seen through the reduction of energy costs. Shading from trees can greatly improve the thermal comfort of our homes. It helps reduce energy used and greenhouse gases produced by air conditioning on hot days[6]. Shading the western facade of a dwelling with trees can also drop total energy costs between 5% and 10%[7].

Trees and soft landscaping can improve our health and wellbeing.

Residents of tree-lined neighbourhoods feel healthier and have fewer cardio-metabolic conditions[8]. Trees can also support physiological health through providing sensory relief and generating a sense of calm.

> **People who live in neighbourhoods with a tree canopy coverage of 30% or more have been shown to experience a third less stress[4].**

Retaining and planting trees and soft landscaping can improve the liveability of our homes and neighbourhoods.

Trees not only provide shade through shielding and absorbing light, they also actively cool the air through evapotranspiration.

> **A study based in Adelaide's western suburbs has shown that trees and soft landscaping in gardens can have significant cooling benefits and reduce surface temperature in the garden by 5 to 6 degrees[6].**

Did you know?

Planting new trees and landscaping is essential. However, replacing an existing mature tree with new, younger trees does not account for the many years of growth required for them to reach a size that will provide significant environmental, economic, health and wellbeing benefits.

A single mature tree can absorb as much as **21 kilos** of CO_2 in a year[9]

It takes 80-100 years for trees to form hollows for wildlife to use.[10]

In extreme heat events, shading provided by large trees **can reduce energy use and associated costs** by **10%**.[11]

One large tree can release enough oxygen back into the atmosphere to support **two people for a year**[9]

Removing trees **reduces shade**, **increases temperatures** and **reduces amenity**

How to use this guide

This guide is separated into four sections, covering everything you need to know to meet the tree planting and soft landscaping policy requirements of the Planning and Design Code.

It steps you all the way through from planning your garden to maintenance of the vegetation you choose - and everything in between.

Find out below what each section covers.

1. Plan

Start planning your garden while you plan your house to maximise the short-term and long-term benefits.

Key considerations:

- Site orientation
- Retention of mature trees
- Placement of new trees
- Adequate soil provision
- Soft landscaping

This section includes:

- A planning checklist

- 3D visualisations of how to achieve greening success

- Case studies of common infill housing types including how to meet the minimum Planning and Design Code tree planting and soft landscaping policies, plus how to achieve even better outcomes

2. Design

Carefully consider the home's context and occupants' lifestyle to maximise liveability, aesthetic and wellbeing benefits of the garden.

Key considerations:

- Indoor/outdoor relationship
- Maximising shade and cooling
- Appearance and 'kerb appeal'
- Biodiversity

This section includes:

- A design checklist

- Lists of popular small, medium and large trees

- 8 different character garden designs and corresponding examples

3. Plant

Prepare for, construct and plant your garden to create the conditions for long-term health.

Key considerations:

- Soil preparation
- Irrigation
- Plant selection
- Optimal planting

This section includes:

- A planting checklist

4. Maintain

Care for your trees and plants to maintain the garden's health and enjoy its many benefits.

Key considerations:

- Watering
- Pruning
- Weeding
- Mulching

This section includes:

- A maintenance checklist

Development approval stages

When going through the development approval process for your house you will need to:

- identify trees to retain, where possible, and prepare a landscape plan (planning consent)
- check soil type (building consent)

For more information please visit PlanSA.

Every house is different

We recognise that every house and every applicant's needs are different and may have different preferences for landscaping styles. This guide is flexible enough to help different housing types to meet the minimum requirements in the Code. It also outlines considerations that will help you make your development more environmentally responsive to our changing climate.

The Planning and Design Code policies

The tree planting and soft landscaping policies in the Code seek to alleviate the issue of a declining canopy by encouraging residential development which retains existing trees (where practical) and requires the planting of new trees and landscaping.

These policies are located throughout the Code, such as the General Development Policies and Urban Tree Canopy Overlay. The Urban Tree Canopy Overlay applies to several residential zones across metropolitan Adelaide:

- City Living
- Established Neighbourhood
- General Neighbourhood
- Hills Neighbourhood
- Housing Diversity Neighbourhood
- Suburban Neighbourhood
- Urban Renewal Neighbourhood
- Waterfront Neighbourhood

The key features of these policies are:

- Mandatory tree planting policy in urban infill areas to ensure at least one tree is planted per new dwelling
- Option for payment into an offset fund, where tree planting is not feasible on-site
- Minimum soft landscaping of 10-25% over the whole site
- Percentage of soft landscaping in front yards of low-rise housing established at a minimum of 30%
- Garden beds to be at least 0.7m in width to ensure the area is viable for plant growth.

For further information including extracts and illustrations to support better understanding and application of these policies, see pages 12-15 or visit the PlanSA website for all relevant policies.

Urban tree canopy overlay map

Urban Tree Canopy Overlay

D01: Residential development preserves and enhances urban tree canopy through the planting of new trees and retention of existing mature trees where practicable

PO 1.1	DTS/DPF 1.1	
Trees are planted or retained to contribute to an urban tree canopy	Tree planting is provided in accordance with the following:	
	Site size per dwelling (m^2)	**Tree size* and number required per dwelling**
	<450m^2	1 small tree
	450-800m^2	1 medium tree or 2 small trees
	>800m^2	1 large tree or 2 medium trees or 4 small trees

Table 1: Tree size

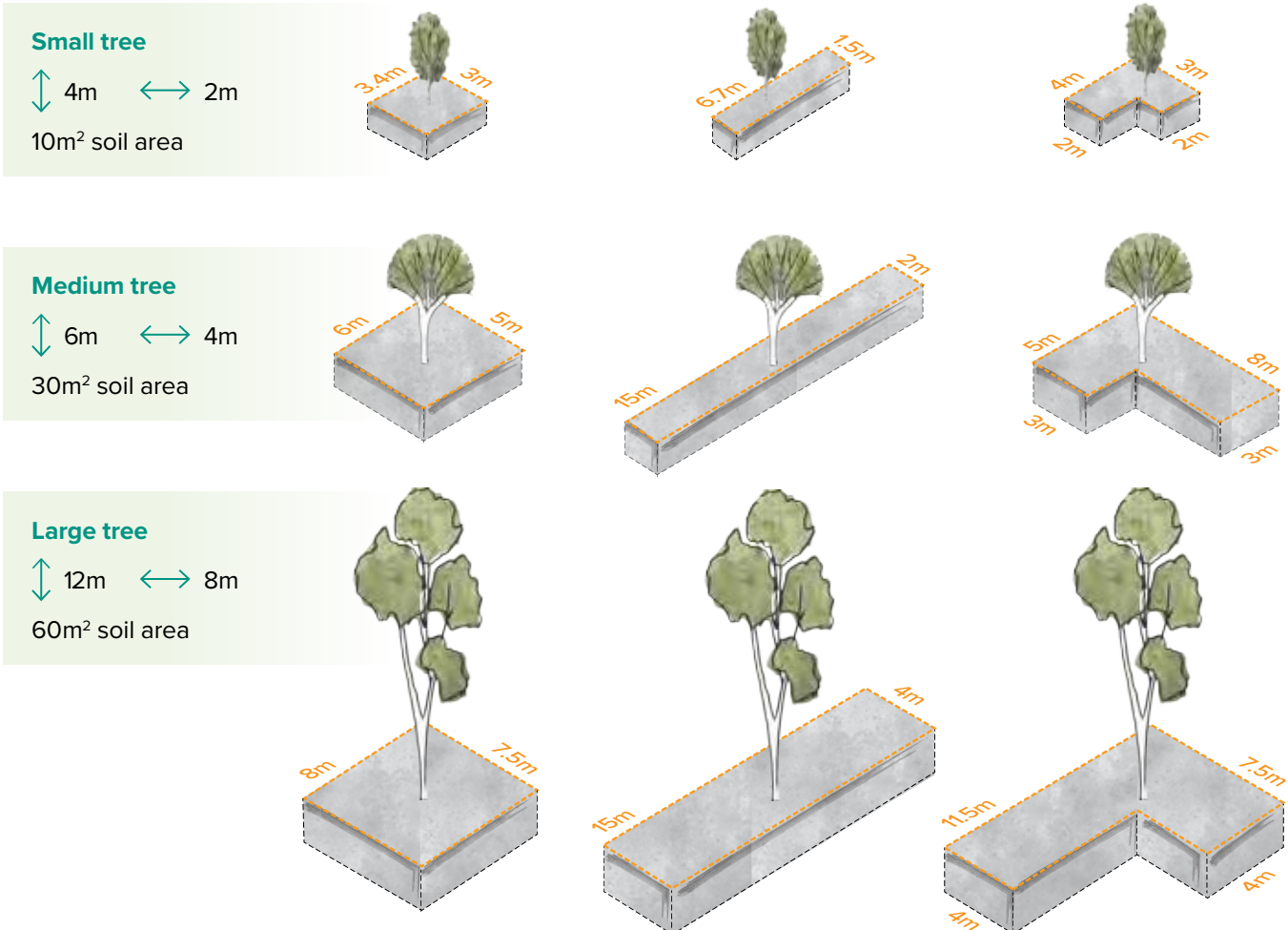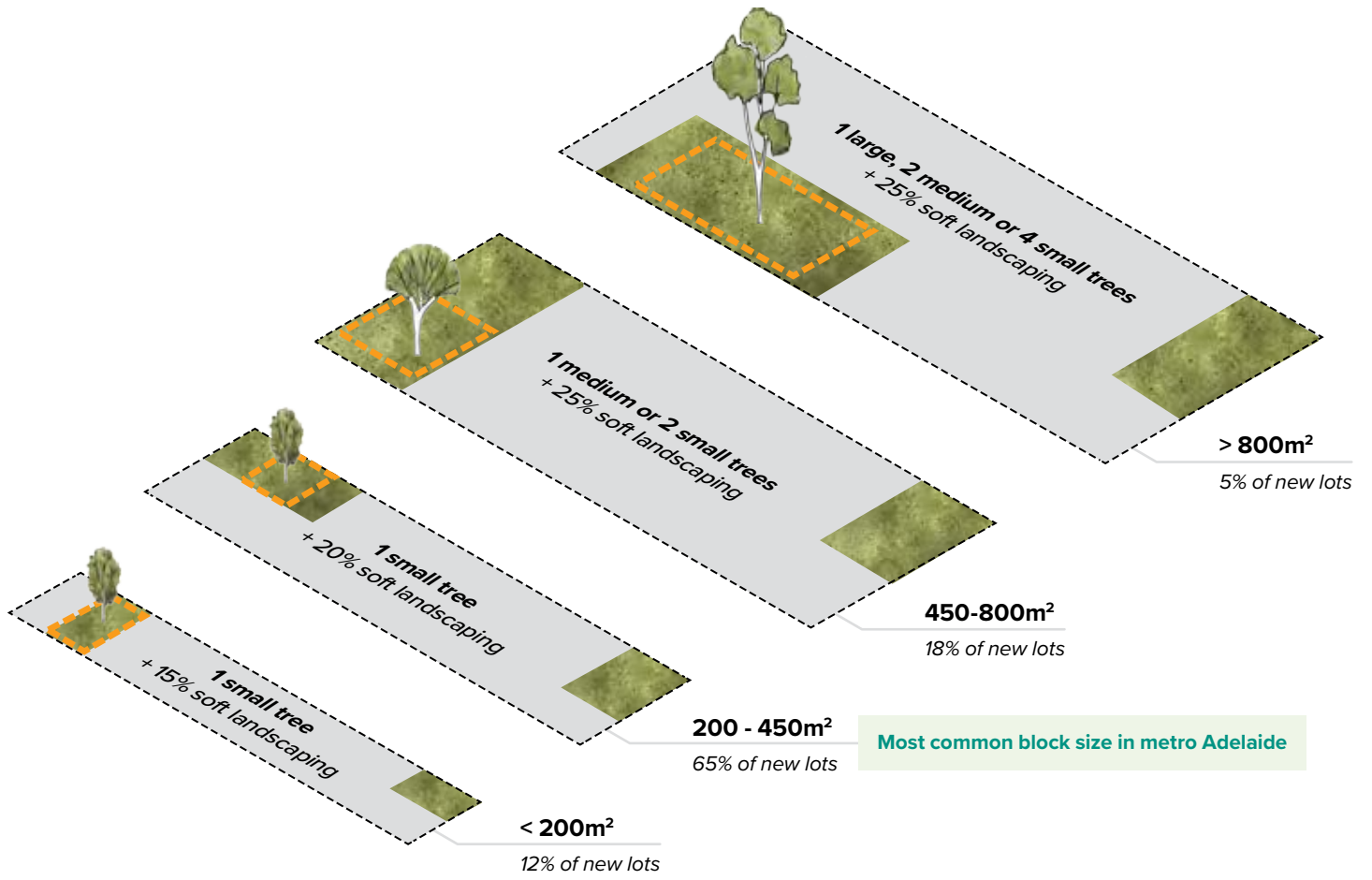| Tree Size	Mature height (min)	Mature spread (min)	Soil area around tree within development site (min)
Small	4m	2m	10m^2 and min. dimension of 1.5m
Medium	6m	4m	30m^2 and min. dimension of 2m
Large	12m	8m	60m^2 and min dimension of 4m

The discount in Column D of Table 2 discounts the number of trees required to be planted in DTS/DPF 1.1 where existing tree(s) are retained on the subject land that meet the criteria in columns A, B and C of Table 2, and are not a species identified in Regulation 3F(4)(b) of the Planning Development and Infrastructure (General) Regulations 2017.

Table 2: Tree discounts

Retained tree height (Column A)	Retained tree spread (Column B)	Retained soil area around tree within development site (Column C)	Discount applied (Column D)
4-6m	2-4m	10m^2 and min. dimension of 1.5m	2 small trees (or 1 medium tree)
6-12m	4-8m	30m^2 and min. dimension of 3m	2 medium trees (or 4 small trees)
>12m	>8m	60m^2 and min dimension of 6m	2 large trees (or 4 medium trees, or 8 small trees)

See glossary on page 112 for a definition of soft landscaping

1 large, 2 medium or 4 small trees
+ 25% soft landscaping

> 800m²
5% of new lots

1 medium or 2 small trees
+ 25% soft landscaping

450-800m²
18% of new lots

1 small tree
+ 20% soft landscaping

200 - 450m²
65% of new lots   Most common block size in metro Adelaide

1 small tree
+ 15% soft landscaping

< 200m²
12% of new lots

Small tree

↕ 4m   ↔ 2m

10m² soil area

3.4m   3m

6.7m   1.5m

4m   3m
2m   2m

Medium tree

↕ 6m   ↔ 4m

30m² soil area

6m   5m

2m
15m

5m   8m
3m   3m

Large tree

↕ 12m   ↔ 8m

60m² soil area

8m   7.5m

4m
15m

4m   7.5m
11.5m   4m

General Development Policies

Design in Urban Areas

Landscaping

PO 22.1	DTS/DPF 22.1
Soft landscaping is incorporated into development to: a) minimise heat absorption and reflection b) contribute shade and shelter c) provide for stormwater infiltration and biodiversity d) enhance the appearance of land and streetscapes.	Residential development incorporates soft landscaping with a minimum dimension of 700mm provided in accordance with a and b. a. a total area as determined by the following table:

Dwelling site area (or average site area) (m^2)	Minimum percentage of site
<150	10%
150-200	15%
>200-450	20%
>450	25%

b. at least 30% of any land between the primary street boundary and the primary building line

Soft landscaping

PO 34.1	DTS/DPF 34.1
Soft landscaping is provided between dwellings and common driveways to improve the outlook for occupants and appearance of common areas	Other than where located directly in front of a garage or building entry, soft landscaping with a minimum dimension of 1m is provided between a dwelling and common driveway
PO 34.2 Battle-axe or common driveways incorporate landscaping and permeability to improve appearance and assist in stormwater management	**DTS/DPF 34.2** Battle-axe or common driveways satisfy a. and b.: a. are constructed of a minimum of 50% permeable or porous material b. where the driveway is located directly adjacent the side or rear boundary of the site, soft landscaping with a minimum dimension of 1m is provided between the driveway and site boundary (excluding along the perimeter of a passing point).

Table 1: Private Open Space

Dwelling Type	Minimum Rate
Dwelling (at ground level)	Total private open space area: a. Site area <301m^2: 24m^2 located behind the building line b. Site area >301m^2: 60m^2 located behind the building line Minimum directly accessible from a living room: 16m^2 with a minimum dimension of 3m

This diagram illustrates an example of meeting soft landscaping and permeable paving/porous material requirements for a common driveway.

When planting trees alongside common driveways, co-locate areas of permeable paving/ porous surface material to help water infilltrate into root zones

Dwelling 1

Dwelling 2

Common driveway

Dwelling 3

Dwelling 4

min. 1m

Street

Soft landscaping

Driveway - hardstand

Driveway - permeable paving

Tree soil area

48m²

living room

min. 3m

24m²

living room

12m²

building line

building line

> 301m²
60m² behind building line

< 301m²
24m² behind building line

Private Open Space