



URBAN TREE STRATEGY

Greening Playford
February 2022



Endorsed by Council on 22 February 2022

CONTENTS

ABOUT THE CITY.....3

URBAN FOOTPRINT.....4

OUR PLAN.....5

OUR GOALS.....6

BENEFITS.....7

ISSUES AND CHALLENGES.....8

COUNCIL LANDS.....9

WORKING TOGETHER.....10

GOAL: TREE DIVERSITY.....12

GOAL: TREE HEALTH.....13

GOAL: INCREASE TREE PLANTING.....14

STREET TREES.....15

PRIVATE PROPERTY.....19

LOCAL AMENITY TREES.....20

LINEAR CORRIDOR TREES.....21

APPENDIX: DATA APPROACH.....22

ABOUT THE CITY



The City of Playford is home to 100,000 residents and has an urban footprint extending approximately 6650 hectares (June, 2021).

The City was established as a garden city for the northern suburbs with wide linear reserves and creeklines, which remain as open spaces for residents to enjoy and recreate.

Our City's urban area extends from the hills face zone west to the Northern Expressway, and includes the townships of Virginia, Angle Vale and One Tree Hill.

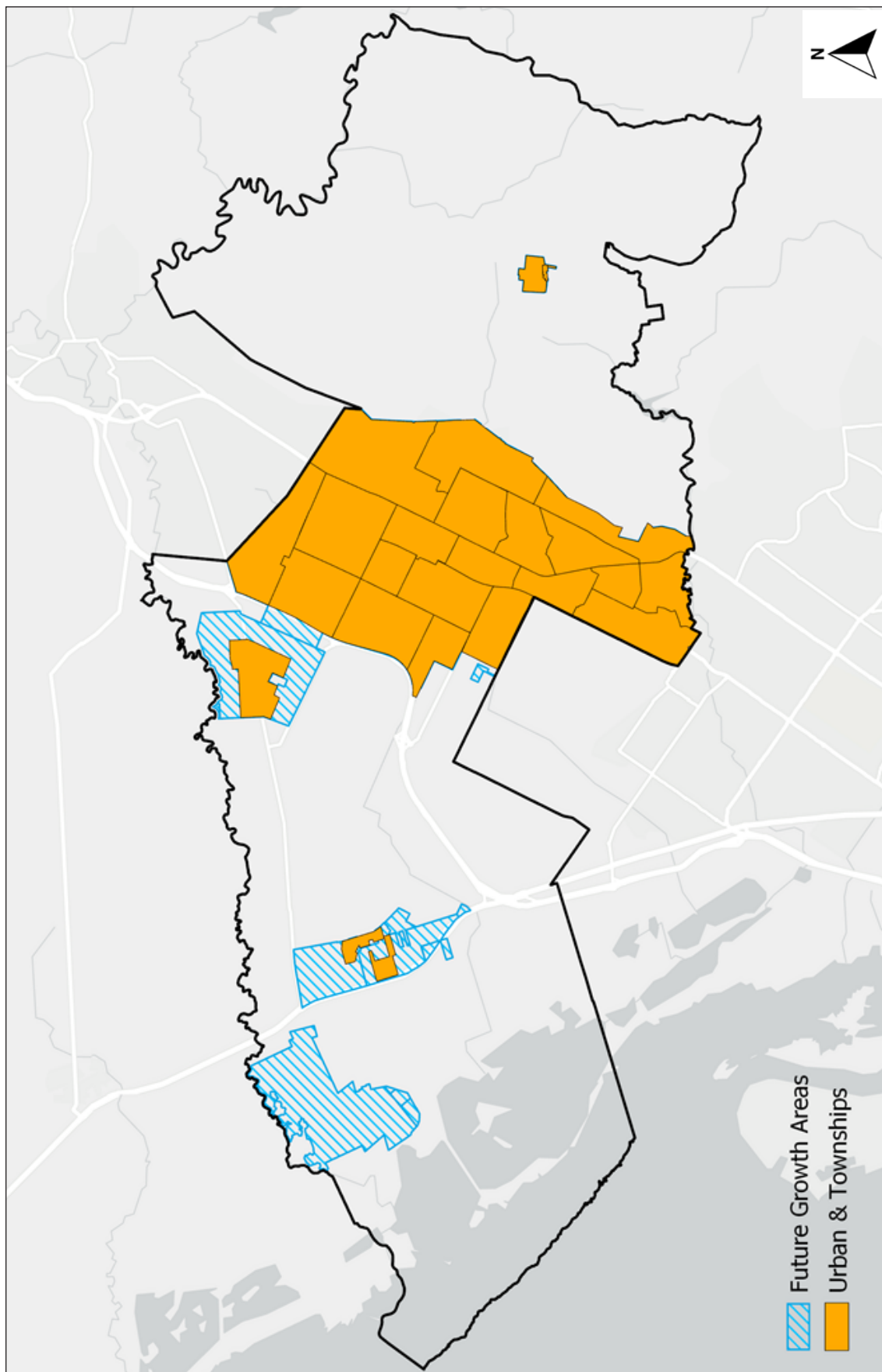
In the older established areas, large suburban blocks remain but recently developed areas have a smaller block size and higher density. The City is forecast to grow 30% over the next 15 years.

In planning the future state of our City, we build on the original foundations and aspire to a greener, cooler environment that supports healthy outdoor activity and liveability for residents.

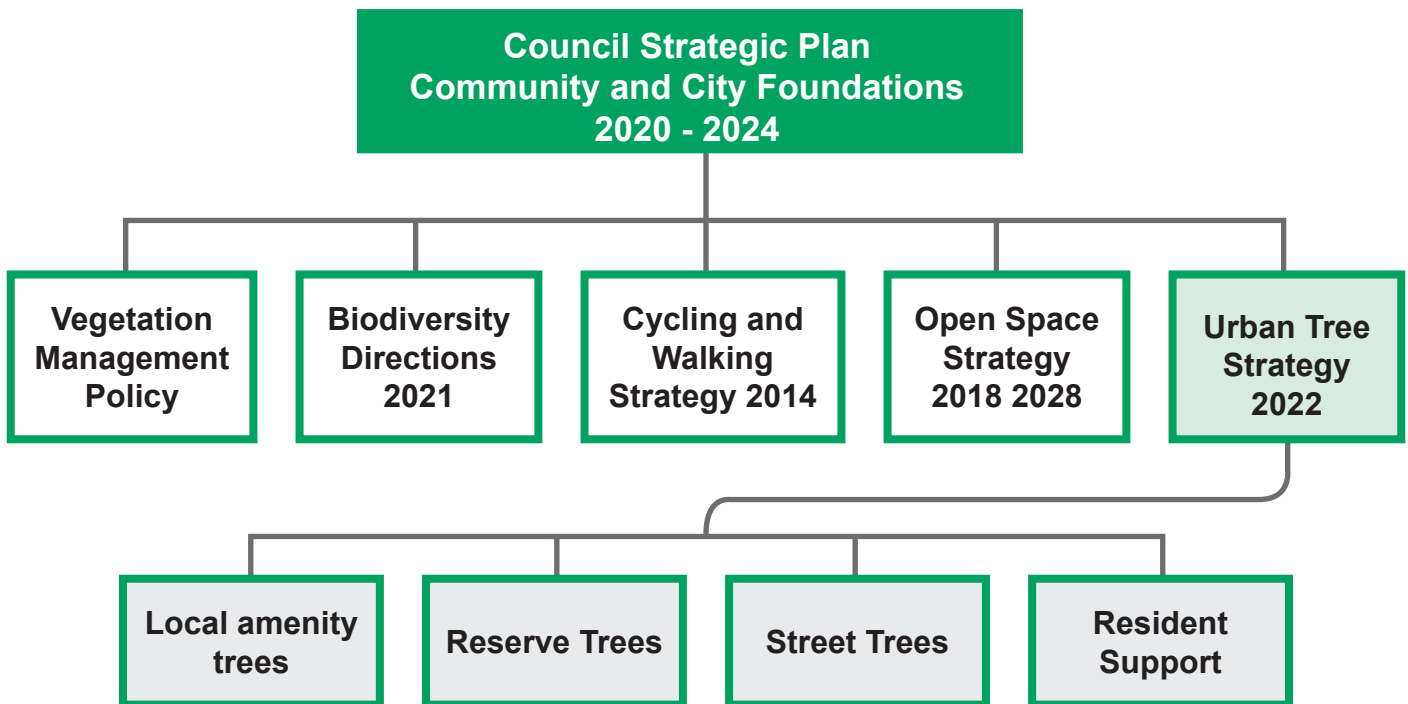


URBAN FOOTPRINT

This strategy is primarily focused on increasing tree canopy within the City's current urban footprint. Tree planting in growth areas is undertaken through development planning processes.



OUR PLAN



This Strategy is underpinned by the *Council Strategic Plan 2020 - 2024*, and supports Theme 2: Lifting City Appearance. The Strategy works alongside related strategic planning documents addressing asset renewal, cycling and walking, biodiversity and open space.

This is the City of Playford's first Urban Tree Strategy, and is driven by the need to increase our tree canopy and lift the appearance of streetscapes.

In 2020/2021, Council increased funding for street tree replacements, to ensure no net loss of trees moving forward. This Strategy builds on this vision, to identify targets and specific, local strategies for managing tree assets across the urban environment.

Work in recent years across the Adelaide metropolitan area has enabled Council to better understand the data, challenges and benefits of urban greening for our local environment. Our urban tree canopy cover is 15%, which includes both public and private lands. The average for Adelaide metropolitan councils is 25% canopy cover¹.



¹.Aerometrex (2019) *Tree canopy coverage across Metropolitan Adelaide derived from discrete, multi-return LIDAR data.*

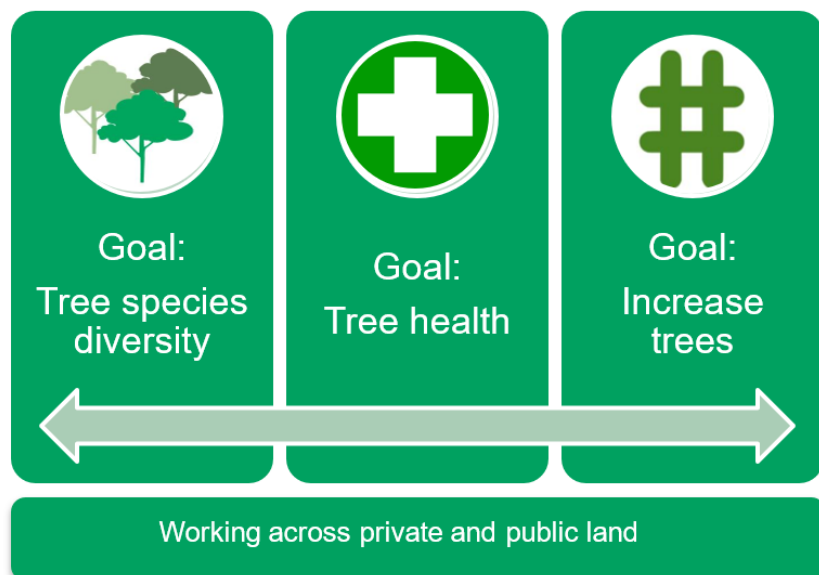
OUR GOALS

Council recognises that our trees are important natural assets that have intrinsic and financial value to our community.

It is critical to both current and future generations that these assets are well managed across their lifetime. Therefore, this strategy considers not only new tree planting, but also our urban tree species diversity and tree health.

Our goals are to:

1. Plan for tree species diversity
2. Support tree health
3. Increase tree planting



BENEFITS

Cooling and Shading

Trees provide cooling through both transpiration and shade. As trees exhale water vapour, they have a cooling effect on the surrounding air temperature. In addition, shade provides direct relief from the sunlight on sunny days.

A 2014 Melbourne study comparing the air temperature of two residential streets on very hot days, found the tree lined street was 0.2 - 0.9C cooler compared with the non-tree lined street.

Streetscape Appearance

Leafy green streets and suburbs are preferred by residents when choosing where to live and work. Council's community engagement report, *'Foundations for our Future. What We Heard'* was the result of consultation undertaken to develop our strategic plan. This report identified that maintenance and beautification of the City is a high priority for residents². This feedback included comments on tree maintenance and greening of suburbs.

A study on the effect of street trees on property value in Perth found that a broad-leafed tree on the street verge increased the median property price by about \$16,889, or 4.2% of the median value of the property (\$395,000) in the study area. Other studies show property values can be increased between 5% and 20% by the presence of trees³.



Wildlife Habitat

For urban wildlife to survive and thrive in our cities, they need habitat in which to nest and feed. All trees provide a potential home for fauna, including microbats, bird species, reptiles and insects, whether those trees are in our streets, our backyards or in our parks and reserves.

Health and Wellbeing

Trees have a positive impact on our physical and mental health, with time in nature proven to reduce a person's chances of developing a range of diseases, including diabetes, cardiovascular disease, stroke and depression⁴.

For children, nature contact is particularly relevant, with studies showing benefits include better cognitive function, greater happiness as adults and a lower risk of developing a mental disorder.

2.City of Playford (2020). *Foundations for our Future. What We Heard Report*. pg 23

3.Pandit, et al., (2013) *Valuing public and private urban tree canopy cover. The Australian Journal of Resource Economics*

4.Planet Ark (2019). *Living Cities: Trees in the Urban Environment*

ISSUES & CHALLENGES

Climate Change

Our climate is changing, resulting in a number of impacts relevant to tree canopy planning and management:

- Higher temperatures
- Warmer spring temperatures
- Increased frequency of very hot days
- Decline in average annual rainfall
- Greater decline in spring rainfall than any other season
- Increase in the length of droughts
- Increase in the number and intensity of heavy rainfall events
- Increase in projected evapotranspiration⁵ across all seasons.

The current CSIRO climate scenarios for Adelaide project that by 2050 there will be:

- an increase in annual daily maximum temperature of 1.8C
- an increase in the number of days per year above 35C from 17 to 27 days
- an overall decline in annual rainfall by 8.4%

Water and Soil Moisture

Urban trees are faced with a challenging environment to thrive in, needing to deal with compacted soils, competing infrastructure, and narrow soil profiles.

These can be managed by ensuring an adequate water supply to support tree growth and longevity.

Water supply in the early years of establishing street trees is, however, the most expensive component of urban trees, contributing to 40% of the overall establishment cost.

Urban heat island

A comfortable local temperature is an important factor in the liveability and enjoyment of our streets, parks, walking, cycling paths and neighbourhoods.

Urban heat islands result when hard surfaces such as pavement absorb the sun's rays, trapping heat and resulting in areas which are significantly warmer than others.

We can improve liveability and reduce the heat island impacts by increasing tree canopy and shade. City of Playford has undertaken heat mapping and uses this information for planning projects that support urban greening.

Urban growth

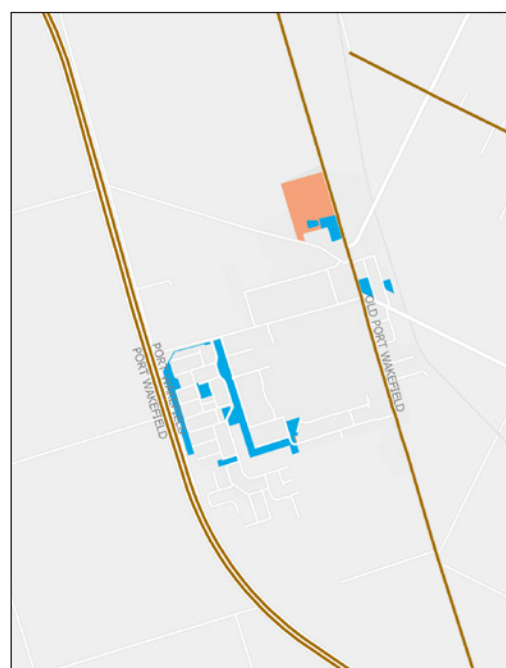
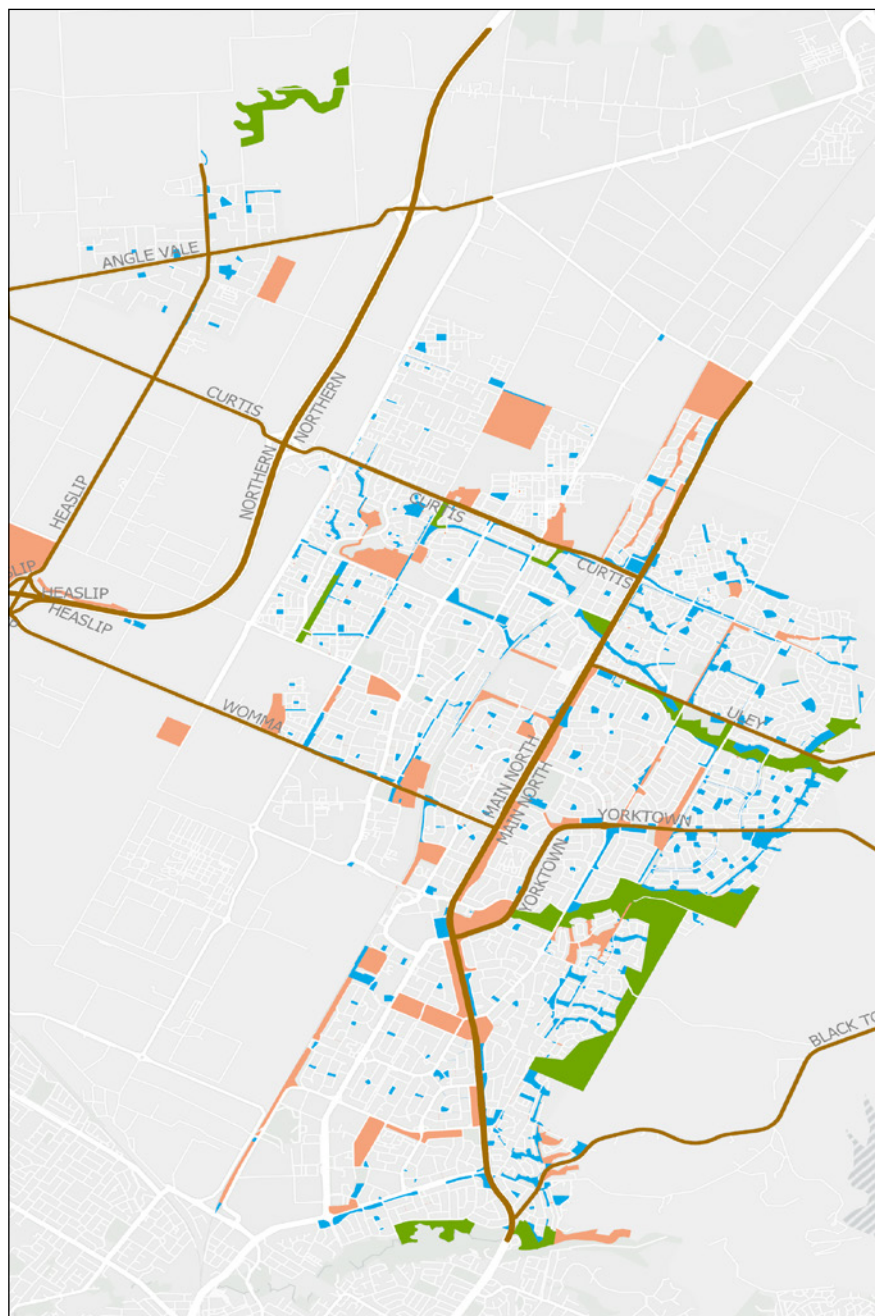
The City of Playford is a peri-urban local council experiencing significant residential development growth. The shift towards smaller residential blocks presents challenges for establishing trees and canopy cover.

Along with challenges, urban development creates opportunity for trees. Many new development areas occur on previously cleared agricultural lands, resulting in an increase of canopy when street trees are planted and new parks are created.




5. The process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants.

COUNCIL LANDS

Council manages significant areas of open space which can provide suitable land for tree planting depending on its current use, future plans and existing vegetation. The maps below categorise Council lands according to suitability for tree planting.



Top: One Tree Hill
Bottom: Virginia

-  Potential lands for local amenity trees (see page 20)
-  Potential lands for linear corridor trees (see page 21)
-  Lands less likely to be suitable

WORKING TOGETHER

This strategy considers the land tenure, locations and actions that are available to increase tree canopy.

Improving urban tree canopy requires works on Council land, along with initiatives that support trees on private lands and in new developments.

Council Land

Council already aims to achieve no net loss of trees or native vegetation on Council land. Council recognises the importance of trees and native vegetation as community assets that enhance the city and contribute to resident well-being.

As per the *Vegetation Management Policy 2021*, where the removal of trees and native vegetation is required on Council lands, Council is committed to applying the mitigation hierarchy principles in the following order:

- avoid impact
- minimise impact where avoidance is not practicable
- rehabilitate onsite where degradation occurs
- off-set where a significant impact remains: within the Council area if possible, or through financial contributions if required

Other Government Land

In Playford, the State Government has responsibility for a number of main roads and the associated streetscapes, including Angle Vale Road, Main North Road, John Rice Avenue, Womma Road and others.

Other government lands also include defence land, public housing, railways, national parks and conservation areas.

Private Land

For the purposes of this strategy, private land is focused on residential uses within the City's central urban area and the townships of Angle Vale, One Tree Hill and Virginia.

Council's role in tree removal on private property is guided by the the *Planning, Development and Infrastructure Act 2016* and State Planning Code. Council administers the Code in the development application process, which includes requests to remove significant or regulated trees on private property.

New Development

Playford is one of the fastest growing areas in South Australia, undergoing significant urban growth.

For land divisions within Playford, developers work with Council to determine open space requirements, and appropriate street tree plantings.



GOAL: TREE DIVERSITY

Species diversity is an important consideration for Council in planning and managing the City's trees. A diverse age and mix of species reduces the risk of significant tree loss from pests or diseases that may target a particular species, genus or family type.

Tree diversity should be set as high as realistically possible with the understanding that there are limitations on the species that perform well in the urban environment and meet a site's requirements.

For example, the City of Sydney has a commitment to work towards:

- No more than 30-40% of any one family
- No more than 20-30% of any one genus
- No more than 5-10% of any one species

Council is currently surveying and collecting data on our City's trees. This information will enable annual planning to consider the age profile and species mix across Council's trees, to ensure the risk of large scale tree loss is reduced.

Tree Diversity Strategies:

- 1.1 Street tree planning to consider the tree species profile within a suburb and achieve:
 - Both evergreen and deciduous species
 - Biological diversity across Family, Genus and Species classifications
- 1.2 Planning to consider species suitability under predicted climate change scenarios, using research tools such as the *Interactive Plant Features* tool⁶.
- 1.3 Undertake analysis of tree survey data to understand the City's tree diversity and age profile
- 1.4 Trial and evaluate the performance of newly developed species from nurseries

6. Tool developed as part of *Which Plant Where*, a five-year research program investigating how well current landscaping species will cope under the more extreme climates that Australia's cities will face and investigate opportunities for new species and varieties for the urban context.

GOAL: TREE HEALTH

Council is collecting information on tree age, size, health, risks and maintenance requirements, in order to better plan and manage these assets.

Trees are assessed on a variety of different health attributes, including condition, limb structure and useful life expectancy (ULE). A tree may be in good overall condition and have variable structure or life expectancy, as each attribute is measuring a different aspect of health.

A key purpose of tree inspections is to identify trees with poor physiological or structural condition. Where this is identified, Council undertakes tree management works to reduce the risk to an acceptable level, in accordance with Australian standards. This is critical to supporting long-term health outcomes and amenity of our trees.

When a tree needs to be removed due to poor health, this represents both a financial cost and an aesthetic and environmental loss for our community. All management options to improve the health and prolong life will be explored before tree removals.

Older trees have veteran tree management practices applied. This is to manage and extend the trees' life for as long as possible, while maintaining community safety.

Senescent trees (undergoing the process of aging and dying) may be retained where they have particular importance as wildlife habitat, for example where tree hollows are present.

Tree Health Strategies:

- 2.1 Monitor and maintain a dataset recording the health and maintenance requirements of each street tree in accordance with the Australian standard (*AS4373-2007 Pruning of Amenity Trees*).
- 2.2 Implement formative establishment tree program for younger trees
- 2.3 Trial and test new water sensitive urban design (WSUD) infrastructure, including tree pits and rain gardens, to improve water availability, canopy size and tree health
- 2.4 Undertake biodiversity pod planting⁷ of groundcovers and shrubs to support the health of older established trees in large reserve systems
- 2.5 Undertake veteran tree management practices to assist with tree longevity and contribution to wildlife habitat

7. *Planting diverse species as a buffer around older established trees in reserves*

GOAL: INCREASE TREE PLANTING

Urban trees are important to our sense of place and how we feel about the community we live in. Well maintained and planned urban streetscapes lift the appearance of our neighborhoods, and in doing so, our wellbeing and local pride.

Each year, Council replaces street trees that exhibit poor health and structure, have died or been vandalised. While replacement trees may not be planted in the exact location, overall, there is no long-term net loss of street trees.

In addition to ensuring no net loss of trees, Council can increase our urban tree canopy to align with the *30 Year Plan for Greater Adelaide*. The Plan aims to make Adelaide a more liveable, competitive and sustainable City, and includes a target for a 20% increase on tree canopy cover by 2045 (based on 2016 figures) for all metro councils.

The City of Playford aims to exceed this target by achieving an increase from 15% to 20% canopy cover.

Target: The City of Playford to achieve 20% urban canopy cover by 2045

How many trees?

Location	Over 25yrs
Street trees	10,000
Local amenity trees	37,000
Linear corridor trees	8,000
Private property	5,000
Total	60,000

Where to plant trees?

Council has 1,033 hectares of open space and the public recreation purpose and use varies depending on the classification (*Open Space Strategy, 2018*).

	Classification
More Useable	Local Park
	Neighbourhood Park
	District Park
	Regional Park
	Sportsground
	Linear Open Space Corridor
	Wetlands
Less Useable	Civic Plaza
	Minor Park
	Restricted Sportsground
	Windbreak
	Other / Not Classified

In addition, open space within close proximity (up to 50m) from residential housing provides a direct tree canopy benefit and streetscape appearance lift. These open space areas may be classified as local parks, minor parks, or windbreaks.

For the purposes of this strategy, trees planted in proximity to housing are described as local amenity trees.

Linear corridor trees are planted in biodiversity and creekline reserves. They form part of the recreation and pedestrian experience of the City. 38% of land across the City is privately owned⁸, so it is important that trees on private property are also part of increasing tree canopy. This strategy will provide support and incentives for residents to make a contribution.

8. Aerometrex (2019) Tree canopy coverage across Metropolitan Adelaide derived from discrete, multi-return LIDAR data.

STREET TREES

Street trees provide economic, social and environment benefits. Trees have an important role in improving liveability, providing shade and lifting the appearance of our streetscapes.

Determining appropriate locations for street trees to thrive requires considerations such as the location of underground services, ongoing maintenance needs and potential future conflicts with infrastructure. With good planning, these conflicts can be minimised.

The street tree program includes planting new trees, maintaining and pruning all trees and removing those that are dead, damaged or unsafe.

Life Cycle of Street Trees

Street trees require different attention and maintenance throughout their life cycle.

Planting

There is the initial investment in planting, mulching, fertilising, staking and protecting a new tree.

Establishment

Street trees need three years of watering, according to seasonal conditions. New trees also require formative pruning to be able to establish the trees' structural integrity and aesthetics.

Maturity maintenance

Street tree maintenance and pruning is undertaken according to a precinct schedule and the requirements of specific species.

Decline

Where a street tree is in decline, an assessment is made on whether to remove the tree or undertake veteran tree management practices. This decision considers the age of the tree, habitat value and the streetscape aesthetic value.

Tree Species

Factors taken into consideration when selecting street tree species include:

- Historic understanding of the local advantages and disadvantages of a particular species
- Current species diversity in the suburb or wider area
- Nursery availability
- Orientation to the sun (north/south) where relevant to property setbacks
- Tree species canopy spread, seeking to maximise canopy while providing an appropriate tree for the location
- Underground services and overhead powerlines
- Proximity to infrastructure and property
- Tree form, aesthetics and context (uniformity or planned pattern for streetscape)
- Future infill and possible location of additional driveway
- Biodiversity value and habitat

There is no 'perfect' tree species that will address all of the constraints and requirements of a location. Rather there are advantages and disadvantages, and Council takes the approach of balancing these to determine the right tree for the right location.

Tree size and spacing

Tree planting can be challenging due to proximity to driveways, houses, underground services or encroachment into driver sight lines.

Council therefore seeks to maximise the number of street trees that are planted, and will undertake planting in all suitable locations.

Tree removal

Street trees are removed where they are dead/dying, or identified as a risk to public safety or infrastructure. Council trees will not be removed for other reasons, including leaf/fruit litter, solar panel shading or species preferences.

Residents may request tree removal for development purposes, such as a driveway. If a development application is approved, the resident is required to reimburse Council for the value of the removed tree. The fee is determined within Council's Fees and Charges and aims to cover the loss of amenity along with replacement and maintenance costs.



Tree planting

Council has an annual street tree planting program, which this strategy recommends to increase from 1000 trees (which maintains no net loss) to 1400 (to increase canopy) per year.

Street trees are planted in a manner to maximise water truck route efficiency and the planting numbers for a suburb.

In addition to this, the street tree program is aligned with the road renewal program. This means that if a road seal, kerbing or new footpaths are being installed, missing street trees are planted where it is practical to do so.

Council aims to support residents who request a street tree, which are planted in the next season (May – August annually).

STREET TREE LAYOUTS

Council has a number of typical street types with associated constraints and opportunities.

A) Defined verges

Increased funding for street tree planting provides the opportunity to accelerate the annual street tree program and allow tree gaps in established suburbs to be planted.

Where there are underground services or overhead power lines on one side of the road, smaller species may be required.



Concept Image (above): Example of where street tree layouts may have alternate species on either side of the road to allow tree canopy to be maximised.

B) Undefined verges

In some suburbs, the streetscape is designed with the footpath at the back of kerb or have no footpath, which means the verge area is undefined. Where this occurs, residents may be maintaining the full property frontage or may not realise the verge section is Council land.

Street verge planting opportunities may therefore be challenging. Council will aim for verge planting in consultation with adjoining residents, along with encouraging and supporting tree planting on private property in these areas.



Concept Images (above) : Example of street where verges are not defined, and there may be less opportunity for street tree planting.

C) Parks opposite housing

A common residential street design is to have housing opposite a minor park or reserve.

In these locations on the park side of the streetscape:

- larger tree species can be planted, providing more canopy
- local native tree species are preferred
- tree layout is natural rather than in straight lines



Concept Image (above): Example of larger tree species and denser planting on the park side of the streetscape.



PRIVATE PROPERTY

Residential property comprises 38% of lands within the City of Playford, and therefore is an important aspect of increasing tree canopy.

Residents with access to private open space will usually have sufficient space to plant a tree.

Council can play a role in communicating the importance of our urban trees and deliver programs that support resident actions.

The rules about trees on private property are primarily governed by the State Government under the *Planning and Design Code*. For existing residential properties, the Design Code provides guidance on the pruning of neighbouring trees or removal of significant and regulated trees. In developing new residential areas, the Code determines block sizes, tree planting and deep soil root zones.

Private Property Support Strategies:

3.1 Develop an annual program to provide subsidised trees to residents for private property

3.2 Establish an 'Adopt a Tree' program, encouraging residents to look after, and water their street tree

3.3 Increase resident communications, to notify about upcoming street tree planting and provide information about the benefits



LOCAL AMENITY TREES

The term local amenity tree refers to trees planted in windbreaks, local or minor parks that are directly opposite housing.

In these locations the trees are considered part of the collective streetscape experienced by a resident.

Planting new trees on non- irrigated parks provides a number of benefits:

- increasing canopy
- lifting amenity
- providing wildlife habitat
- larger tree species possible compared to street trees
- cost effective rate (when compared to traditional street tree planting)

Large locally native species are preferred, for example:

- Eucalyptus camaldulensis (River Red Gum)
- Eucalyptus porosa (Mallee Box)
- Eucalyptus leucoxylon (Blue Gum)



Growing Tree Canopy Strategies:

4.1 Tree layout that is natural rather than in straight lines, allowing for open sunny areas and heavier canopied areas.

4.2 Use a mix of tube-stock and rocket pots⁹ for planting in local parks. Mature size trees may be included where appropriate.



Left: Tree planting layout and estimated future canopy

Top: Local park in Elizabeth Grove

Bottom: Anticipated future canopy coverage, after planting trial undertaken in 2021

9. These are 1.5L trees that are grown for 8-12 months in a nursery before planting.

LINEAR CORRIDOR TREES

The City has large biodiversity corridors that support a cooler climate, habitat for wildlife and outdoor recreation experiences for residents.

These areas are identified in the Biodiversity Directions 2021 report, and include Adams Creek, Smith Creek, Little Para River, Jo Gapper Reserve and Whitford Reserve.

Many large older trees exist in these areas. Their health can be supported by planting a mix of shrubs and groundcovers near them to encourage beneficial insects and other positive symbiotic relationships.

Growing Tree Canopy Strategies:

5.1 Plant locally native tree species that have the capacity to develop hollows for wildlife habitat.

5.2 Include trees and landscaping in capital works, such as new footpaths in reserves and open space projects

5.3 Support health of existing trees by landscaping and supporting biodiverse plant communities.



APPENDIX: DATA APPROACH

This plan is informed by analysis of the following spatial datasets:

- Council tree survey
- LIDAR derived tree canopy cover
- Open Space Strategy
- Cycling and Walking Strategy

The Council tree survey is currently underway and is a field assessment of all trees on Council land. This is a live dataset, which is updated as onground work occurs (maintenance pruning, planting or removal). The survey includes information on the tree size, health, location and maintenance needs of each tree.

This data is used to understand:

- average tree canopy size across different species
- number of empty street tree locations in each suburb
- species diversity mix

In 2020, the City of Playford was part of a collaborative project with other metropolitan Adelaide councils to map the extent of tree canopy using LIDAR (Light Detection and Ranging). This data is publicly available via an online Heat and Tree Mapping Viewer. See <https://data.environment.sa.gov.au/Climate/Data-Systems/Urban-Heat-Mapping>

This data is being used to:

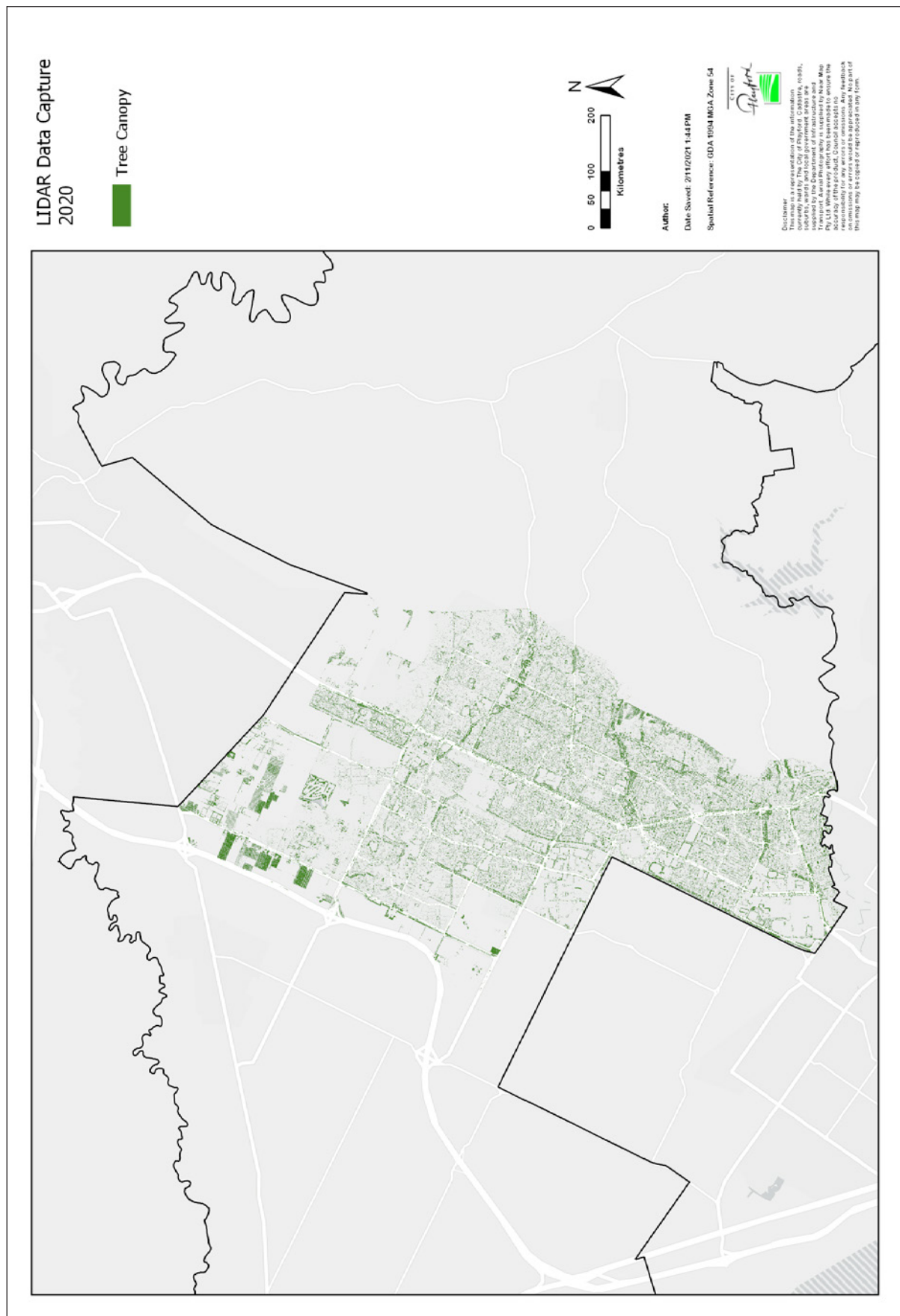
- Understand the current tree canopy cover
- Determine the available Council land (hectares and locations) that have a canopy deficit
- Provide visual display of canopy extent in each suburb

Urban area	6652 hectares
Current tree canopy %	15%
Current tree canopy HA	998 hectares
Increase to 20% canopy	330 hectares

This information is used in conjunction with Council's two key planning documents relating to the use of open space and pedestrian movement across the City. The Open Space Strategy 2018-2028 and the Cycling and Walking Strategy 2014. LIDAR data capture across metropolitan Adelaide is likely to be undertaken at regular intervals (3-5 years), and this will provide a consistent measure for tree canopy trends.

LIDAR DATA

LIDAR (Light Detection and Ranging) data capture of the extent of tree canopy. A tree is defined as being over 3m in height



APPLYING DATA

Annual planning for street tree and local park amenity trees will be informed by LIDAR data, tree survey data and open space planning.

