City of Charles Sturt

TREE AND VEGETATION MANAGEMENT PLAN

Contents

Introduction

The City of Charles Sturt *Trees and Vegetation Management Plan* is the reference document for the City of Charles Sturt *Trees and Vegetation Policy*.

This document is a guide to be used in conjunction with other legislation, standards and guidelines where appropriate.

The aim of this Management Plan is to:

- State Council's commitment to the greening of the City and to clearly document how we manage and maintain our trees and streetscapes;
- Provide a guide to residents, council staff and external stakeholders for planting and managing trees and vegetation;
- Encourage our community to nurture and care for the environment for the benefit of future generations;
- Document the criteria by which trees in streets and reserves will be managed with a consistent and equitable approach;
- To ensure that trees in streetscapes and reserve are cared for, nurtured and protected within the City of Charles Sturt; and
- To ensure that Street trees, Reserve trees and Streetscapes are fit for purpose and provide amenity while being managed within an appropriate risk management framework.

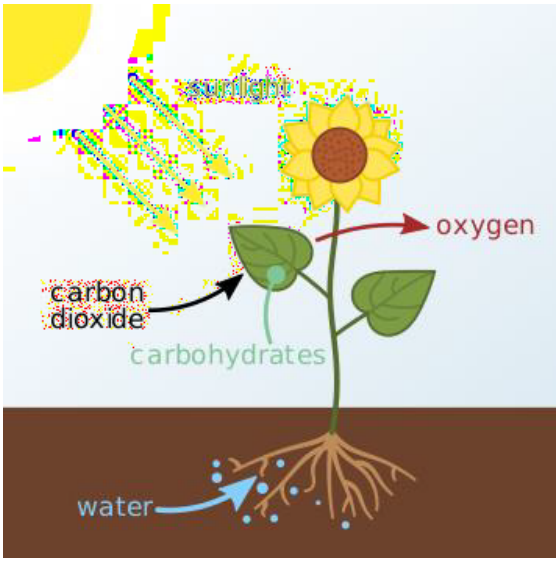
1. The Role, Value and Importance of Trees and Vegetation

The City of Charles Sturt values the role and function of trees and vegetation within the City, and recognises the environmental, aesthetic, economic and cultural benefits they contribute. Trees and other forms of vegetation are important in:

- The creation of a sense of place, unifying architectural forms and creating a sense of unity while linking and softening streetscapes and determining the character of our City.
- Improving the local climate by reducing the air temperature, increasing humidity and collectively reducing the urban heat island effect, that is, where urban centres have higher temperatures due to the high number of heat absorbing surfaces with little shade.
- Releasing oxygen and removing carbon dioxide from the atmosphere through the natural process of photosynthesis and storing the carbon in their leaves, branches, stems, bark and roots. Approximately half the dry weight of a tree's biomass is carbon.
- Providing habitat and biodiversity opportunities.
- Improving soil characteristics, including soil volume, chemistry and texture, which then improves vegetation characteristics, including productivity and structure.
- Creating streetscapes that are conducive to and encourage active transport.
- Contributing to the wellbeing of the community.

2. What is a tree and how does it grow?

In botany, a tree is a perennial plant with an elongated stem, or trunk, supporting branches and leaves in most species.

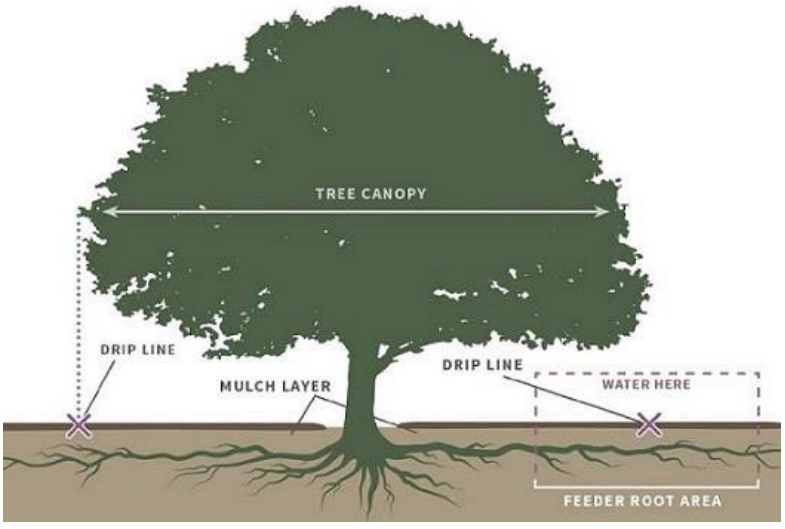


The leaves of a tree manufacture food for the whole plant. The green colour of the leaves is a pigment known as *chlorophyll* and it is here that *photosynthesis* occurs. The leaves absorb carbon dioxide through this process, which produces carbohydrates, providing the energy needed for growth and oxygen this process is known as *respiration*.

Oxygen in the soil is found in the spaces between soil particles (Pores) the non-woody or fine fleshy roots absorb water and the dissolved minerals that are also needed for healthy growth.

The trunk, branches and roots are made of wood, which is a complex structure of cells that are living, dying or dead, comprising walls of predominantly *cellulose* and *lignin* (*Lignin* provides strength and comprises 25-30% of the wood). Most of the trunk of a tree is dead wood and its main function is to provide strength and structural stability, although, it is not unusual to see a large, stable tree that is hollow in parts. This wood is surrounded by a very narrow band of living wood (*Cambium*) which is protected by the bark of the tree.

Tree roots are responsible for providing anchorage and support for the tree and the provision of water and minerals. The roots of a tree spread laterally to (at least) the extent of the branches of the tree or further, however, the bulk of the roots are within the 'drip line' and within the top 300 – 400mm of soil. The extent of the spread of the root system will also depend on the tree species and the environment in which it is growing.



Source: City of Santa Barbara, 2019

There is so much important, unseen activity that occurs within the root zone of the tree and, unfortunately, construction, development and maintenance works can result in changes at and below the ground level that result in both long and short term, adverse effects on the tree.

3. The Urban Forest

An urban forest is a forest or a collection of trees that grow within a city, town or a suburb. It is important to manage and understand this collection of trees as one entity to ensure that appropriate succession planning is in place, consistent long-term canopy is achieved, and the appropriate level of amenity is maintained.

There are a variety of tree species planted throughout the City of Charles Sturt, which consist of old existing plantings and new reserve and streetscape plantings undertaken as part of Councils Tree Planting Programs. Council reserves are largely planted with native tree species interspersed with exotic trees; they may also incorporate older mature trees.

Semi mature trees in Glenwood Reserve, Kidman Park

While there have been changes in the population, the mortality/removal rate compared to the replacement rate has been consistent. Additionally, while we are managing a large population of juvenile trees, we will in turn be managing a large population of trees moving into maturity and ultimately decline. This data will be progressively updated over the next three years as the scoping for other tree works is carried out.

The City of Charles Sturt also has a number of established 'avenues' of street trees, as referenced in section 3.4.6 and Appendix B of the *Tree and Vegetation Policy*.

Lewanick Street, Allenby Gardens

Lexington Road, Henley Beach South

As these trees move from maturity to senescence ('old age'), their amenity value decreases, and the

maintenance costs increase. An effective succession plan for planting of new trees will manage those trees within our urban forest, which are moving into senescence and ensure they are replaced before they reach the point where they present an unacceptable risk and become a maintenance and cost liability.

Trees planted at Pine Lodge Reserve, Grange

At the stage where a trees amenity value is lowest, the maintenance costs are at their highest point. During the first three to four years in the ground, the tree must be purchased, planted, watered and fertilised, staking and re-staking will be required, spraying around the base of the tree to remove competition with grass, maintenance of the bowl or water table around the base of the tree.

These maintenance tasks are labour intensive and vital to the development of a healthy, structurally sound mature tree.

4. Managing Risk

To manage risks associated with trees, assessments are carried out on the following basis:

- General visual tree inspections are carried out by Council's arboriculture staff when programmed maintenance is carried out on **street trees**;
- General observations are carried out by Council's field staff during routine **reserve maintenance activities**, and any concerns are reported to Council's Technical Officer Arboriculture for formal inspection;
- Tree health assessments are undertaken when tree screens are programmed for replacement, or when concerns or complaints are received from the community;
- Annual and or biennial Inspections are carried out on individual trees which have been assessed as presenting a greater risk due to a variety of circumstances such as mature trees adjacent private property or the management of trees which have historically been lopped; and
- In response to written tree removal requests.

Council staff responsible for tree assessments must hold recognised and relevant qualifications and have appropriate experience in Arboriculture. All tree assessments and tree removals carried out by council staff (under delegation) are reported to Council's Asset Management Committee on a quarterly basis.

Ensuring the right tree is planted in the right location is equally important as the use of state-of-the-art engineering methods and practices to achieve harmony and minimise damage in the streetscape.

Additionally, formal risk assessments are undertaken prior to commencing capital works projects under Council's *Risk Management Policy and Framework*.

5. Tree Canopy Cover across the City of Charles Sturt

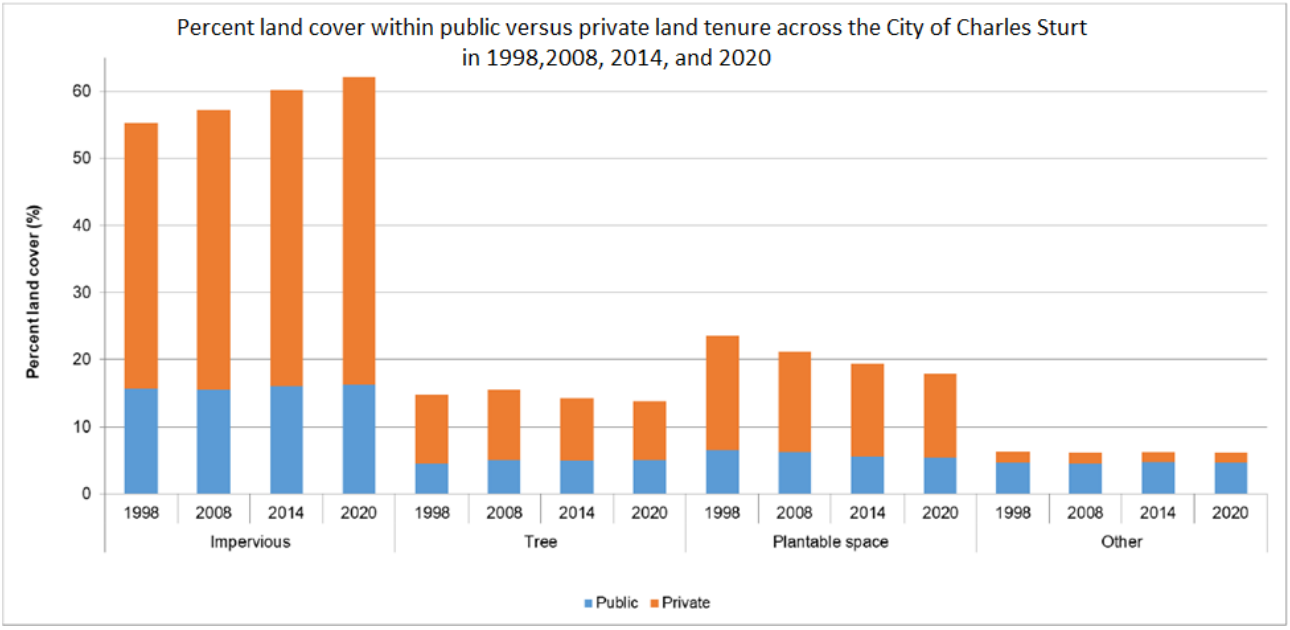
Tree canopy across public and private lands was measured using the *i-Tree Canopy* survey method in a 2016 study across three-time periods, being 1998, 2008 and 2014. This was further updated in 2020. These studies identify that overall tree cover is declining despite Council's best efforts to increase cover through dedicated planting programs on public land. The primary driver of this decline is the removal of trees on private land, generally for in-fill development.

Such declines in tree/canopy cover present a major challenge for Council meeting future goals around recreation and open space and climate change adaptation, especially given projected rates and extents of on-going urban in-fill. Mitigating future tree loss and moving towards overall canopy cover gain across the City will require complimentary greening actions on public and private land.

Given that green infrastructure is the most viable form of climate change adaptation, these tree planting programs will need to be increased, prioritised and managed to ensure that tree losses due to the recent drought and other gaps in canopy cover/tree planting are addressed strategically. A separate body of work, Tree Canopy Improvement Strategy will focus on such actions.

The *i-Tree Canopy* survey method uses random sampling and is useful to measure cover at a macro-scale to identify suburb levels of cover. Emerging technology, such as the use of LiDAR and machine learning are being used to provide data about individual trees and cover at a street and property scale. The combination of this data is used to inform ongoing management approaches.

The 30-year plan for Greater Adelaide identifies a target that urban green cover is increased by 20% in metropolitan Adelaide by 2045.



6. Tree and Streetscape Maintenance

All trees and vegetation owned or under the care and control of Council will be managed, maintained and developed in accordance with this *Management Plan,* the *Tree and Vegetation Policy* and Council's *Risk Management framework* to ensure that the risk and liability to Council associated with trees is minimised.

Maintenance pruning of council's large regulated significant trees

Maintenance works are undertaken to:

- reduce any risk associated with the tree or vegetation;
- extend the life and amenity by removing any dead, dying or diseased parts of the tree or vegetation;
- maintain or enhance biodiversity and habitat;
- increase the structure and form of the tree;
- reduce shade or wind resistance where there is an identified need or risk; and
- improve sight lines for vehicles and pedestrians.

6.1 Pest and Disease Management

The incidence of pests and diseases relating to trees and vegetation within the City of Charles Sturt are low; however, where there are large infestations of pests and diseases, Council will take relevant treatment and remediation actions as directed by the Technical Officer – Arboriculture.

The management of some pests and diseases related to trees and vegetation (such as fruit fly) is the responsibility of the State Government. Where an outbreak has been detected that impacts Council-owned land, Council will take relevant education, notification, treatment and remediation actions as directed by the State Government. For fruit trees on Council-owned verges, Council will write to residents prior to removing the fruit, providing an opportunity for residents to pick the fruit.

6.2 Formative Pruning and Small Tree Maintenance

Formative pruning is the process of pruning a tree to help a tree grow into a balanced shape with a strong single trunk and a canopy of healthy branches. While the cost of a full formative pruning program is substantial, this expense is an important risk control and a necessary investment in the long-term development of a healthy and well-structured tree canopy. Trees that have been planted on a reactive basis and most trees planted on reserves do not receive this intensive formative treatment.

The following maintenance regime should be applied for all trees:

- Formative pruning should be restricted to directing plant growth and/or developing a sound structure. Generally, trees received from suppliers are in good structural condition and new street trees should not require significant formative pruning until the third year.
- Herbicide treatment should be completed a minimum of twice yearly and reactively as required. Reserve trees are sprayed between 4-6 times a year.
- Maintenance (reshaping, mulching & herbicide spraying) of the water table (upper zone of saturation) on street trees should be undertaken during both the second and third year, ideally prior to the commencement of the watering season. Herbicide spraying is more crucial during warmer months to remove competition for water sources from the tree.

Reserve trees under drip irrigation tend to grow more rapidly in the initial few years; however,

watering programs are to be adjusted to match the street tree watering regime, weekly (year one), fortnightly (year two) and monthly (year three). This regime will reduce the overall initial growth of reserve trees in the first few years, however, the longer-term benefit of growing trees to be more resilient and drought tolerant is imperative given our changing climate.

6.3 Maintenance of Mature Trees

There are several pruning methods that apply to mature trees, depending on the species, location and immediate environment. Any form of pruning results in the tree being wounded and there is potential for decay, which may ultimately result in a reduction in the long-term structural integrity of the tree. All tree pruning is to be carried out in accordance with AS 4373-2007 - *Pruning of Amenity Trees*.

6.4 Reactive and Programmed Tree Maintenance

To maintain Council's commitment to our programmed works, it is important that Council's reactive tree maintenance works are focussed on works that involve a risk to either public safety or property or are associated with other works such as emergency road works. All other requests are managed through programmed maintenance programs. There is currently no program for small tree maintenance on trees planted in reserves and works are carried out on a reactive basis.

Council's programmed tree maintenance activities are summarised as follows:

- Cyclic pruning program 3 year (all trees to be inspected during this program);
- Prune in accordance with Australian Standard 4373-2007 *Pruning of Amenity Trees*;
- Prune for clearances, dead wood and management of structural flaws whilst maintaining the aesthetic shape of the tree, in consideration of the tree species and age;
- Prune growth around the base of the tree, including any suckering growth;
- Prune damaged branches and remove fallen branches; and
- Undertake formative pruning.

6.5 Managing Trees around Powerlines

The requirements for the clearance of trees and vegetation around powerlines in South Australia are set out in the *Electricity (Principles of Vegetation Clearance) Regulations 1996*.

There are several options available in resolving any conflict or potential conflict between the power supply and nearby vegetation as follows:

- Where funding permits, consider underground power infrastructure during road reconstruction or new developments;
- Aerial bundling of cables is a cost-effective option where there are existing large or mature trees with high amenity value that conflict with the power supply. In this instance, there is still a required clearance distance from trees, however this clearance is minimal and if maintained regularly, does not impact the tree to the extent of standard vegetation clearance practice;
- Directional pruning or tunnel pruning to allow the power supply cables to run through the tree; and
- Planting tree species that will not reach the height of the powerlines at maturity.

The City of Charles Sturt will continue to work with SA Power Networks (SAPN) and their contractors, to ensure best practice in the standard and quality of tree pruning around power infrastructure, including reference to relevant Council and SAPN guidelines.

7. Management of Tree Roots

Healthy roots are critical to the development of healthy trees as they provide stability and require adequate space to seek water, oxygen and nutrients. Roots are generally found in the top 300mm - 400mm of soil (depending on the species) and will follow the path of least resistance to access water and nutrients.

This presents challenges when establishing and maintaining healthy roots in the urban environment, including damage to buildings and infrastructure (such as footpaths and underground services) caused by trees, and conversely, damage to trees caused by buildings and infrastructure, such as overshadowing from a new building, where previously the tree has been in full sun.

It is important to note that these impacts can be serious and should be investigated by a suitably qualified professional, such as a structural engineer and/or arborist.

A failed tree due to poorly established root zone

Tips for establishing and maintaining healthy roots include:

- Plant tree species which are best suited to a specific location, considering its size when fully grown;
- Consider installation of tree root barriers in appropriate circumstances;
- Establish, monitor and enforce Tree Protection Zone(s) as part of construction works;
- Consider root sensitive construction methods, such as continuous soil trenches, directional drilling/boring and use of structural soils; and
- Design building footings that are suitable to the immediate environment, soil type and vegetation.

7.1 Tree Root Pruning and Root Barrier Installation on Council property

Tree root pruning and tree root barrier installation can be useful management options where circumstances permit. These options need to be site-specific and professional advice is recommended before commencing works.

The following steps should be considered prior to commencing works:

1. All tree root assessments are to be carried out by an Arboriculture Officer holding a minimum AQF Level 4 qualification in line with AS 4373-2007).

2. A thorough assessment of the site should be made, assessing any damage to property and any public or property risks.

3. The Arboriculture Officer shall identify that tree root activity is the main contributing factor to the cause of damage. If so, the Arboriculture Officer is to assess the tree and its overall health and condition, and the suitability of the tree for either/or, tree root pruning and tree root barrier installation. The critical root zone should also be determined.
4. The area associated with the root damage should be excavated using non-destructive techniques, such as hand digging or air excavation, to ensure that the risk of any damage to the tree is minimised.

5. Where required, a suitably qualified and experienced structural engineer should be engaged to report on structural damage to property.

6. Tree root mapping may be used as a non-destructive technique to identify extent of tree root activity.

7. Root pruning should only be undertaken where there will not be a negative effect on the health or integrity of the tree.

8. Only minor root activity or non-structural roots should be pruned.

9. All cuts shall be clean cuts made with sharp tools such as secateurs, pruners, handsaws, chainsaws or specialised root pruning equipment ensuring that all cuts are made at the appropriate point.

10. If tree root pruning is not a viable option, alternative remedial measures and treatments should be considered.

11. Council staff and contractors must adhere to the *Field Services Maintenance Guidelines* for all Tree Root Pruning activity.

12. Root barriers should be monitored and evaluated over time to assess their effectiveness.

The images below provide an example of a root barrier installed adjacent to a concrete footpath, to minimise the potential future impact caused by tree roots to the path.

8. Street Tree Planting

The planting of trees in streets requires a coordinated approach, including engagement with various council departments, residents and businesses and should consider the following principles:

Street Tree Planting in Manton Street, Hindmarsh

- Improving the well-being of people and activities in the street through improved amenity, shade and biodiversity;
- Streetscape designs and tree selections should consider and commit to the health of trees for the long-term;
- Plant the most appropriate tree species for its intended location;
- Consider existing street trees, including the aesthetic value of the streetscape and the impact the new tree/s will have on existing trees (eg. competing for water, nutrients and light);
- Minimised conflict between infrastructure and trees;
- Consider actions to increase the above ground 'growing space' for trees, such as bundling of cables, suspended pavements, undergrounding services, etc;
- Increase the underground growing space for trees, such as incorporating. structural soils, creating wider verges, planting in the road reserve, using traffic calming devices, using continuous soil trenches, etc; and
- Appropriate streetscape and infrastructure design and selection of tree species.

Principles relating to Crime Prevention Through Environmental Design (CPTED) should be considered in all tree, streetscape and reserve planting designs, including:

- Design public spaces to facilitate and encourage legitimate community and individual activities;
- Design with unimpeded sightlines to key places in mind and then manage to maintain those sightlines (for example, maintaining view corridors over low bushes or walls and under the canopy of trees or shade structures);
- Design to avoid 'blind spots' where there is a reduced opportunity to see and be seen; and
- Consider the lifecycle of trees and vegetation during its, including the height and width, circumference of trunks at maturity and the density of foliage.

8.1 Selecting Appropriate Tree Species for Streetscapes

Each year, the species used in Council's tree planting projects are selected to maintain a diversity of species across the City. Whilst this is a challenging task due to the changing climate and the importance of planting tree species in appropriate locations, Council continues to work with the industry to remain updated on new species and information in order to provide the best outcomes for the community.

The selection of tree species for the street environment requires the careful consideration of several factors, including:

- Available and suitability of the species for the location;
- Suitability of the species within the context of the existing character of the street and neighbourhood, local landscape, and infrastructure;
- Structural integrity of the tree species;
- Appropriateness of the dominant existing species for continued planting;
- Water needs of the tree species, combined with water availability;
- Overhead and underground services;
- Ability to maintain clear sight lines and lines of travel for vehicles and pedestrians;
- Potential for roots to cause damage to existing infrastructure;
- Proximity of the tree to and type of building/dwellings (considering the size of the tree when mature);
- Structure and habit of the mature tree;
- Maintenance requirements;
- Excessive fruit or seed drop, which can be a tripping hazard;
- Expected life of the tree;
- Disease and pollution resistance; and
- Availability of the species.

8.2 List of Preferred Trees for Street Tree Planting in the City of Charles Sturt

Native Species

Narrow Verge **0 – 0.9 m wide**	**Medium Verge** **0.9 – 1.5 wide**	**Large Verge** **1.5 - 3m wide**
• *Hakea laurina**	• *Banksia integrifolia** • *Callistemon* 'Harkness'* • *Cupaniopsis anacardioides** • *Eucalyptus* 'Euky Dwarf'* • *Eucalyptus* 'Goolwa Gem' • *Eucalyptus leucoxylon Rosea** • *Geijera parviflora* • *Eucalyptus torquata*	• *Corymbia ficifolia* • *Eucalyptus leucoxylon* ssp *megalocarpa** • *Lophostemon confertus* • (infill planting only) • *Angophora costata* • *Corymbia maculat* • *Flindersia australis*

**Suitable for coastal conditions*

Exotic species

Narrow Verge **0 – 0.9 m wide**	**Medium Verge** **0.9 – 1.5 wide**	**Large Verge** **1.5 - 3m wide**
• *Pyrus calleryana* 'Chanticleer' • *Pyrus calleryana* 'Capital' • *Lagerstroemia indica* • *Prunus blireana* • *Prunus cerasifera* • 'Oakville Crimson Spire'		

Exotic species

Narrow Verge 0 – 0.9 m wide	Medium Verge 0.9 – 1.5 wide	Large Verge 1.5 - 3m wide
	• *Pyrus ussuriensis* • *Sapium sebiferum* • *Zelkova serrata* • 'Green Vase'	• *Quercus ilex** • *Quercus suber* • *Ulmus parvifolia*

*Suitable for coastal conditions

8.3 Problem Species for Street Tree Planting

Problem species for street tree planting have been identified because of their performance in the street environment in the City of Charles Sturt. They should not be confused with trees that, in the appropriate locations, are excellent streetscape specimens but may have been planted in an inappropriate location, such as a narrow nature strip or under high voltage powerlines, etc.

The criteria for identifying problem species include:

- Shallow or surface root systems (eg. *Melaleuca armillaris, Melaleuca styphelioides*);
- Invasive and/or suckering root systems (eg. *Ficus* species *or Casuarina glauca*);
- Prickly and sharp leaves (eg. *Melaleuca styphelioides*); and
- Trees with a short lifespan due to the replacement requirement and cost (eg. most *Acacia* species).

Tree and other vegetation species which are currently not planted by the City of Charles Sturt are as follows:

Species	Reason
Robinia 'MopTop'	Extensive suckering with thorns.
Casuarina glauca	Extensive suckering.
Horticultural fruit trees	Extensive fruit drop & high maintenance requirement.
Syzigium	
Lagunaria	Irritation from fine hairs.
Melaleuca species (armilllaris & styphelioides) *Eucalyptus spathulata*	Significant structural flaws as a mature specimen.
Washingtonia species	Safety risks associated with thorns.
Various species, including: • *Cupressus* • *Ficus* • *Oleanders* • *Olives* • Some *Melaleuca* species	Aggressive root activity resulting in infrastructure damage.
Pinus species	Limited under storey vegetation opportunities.

Phoenix canariensis	Only used as infill planting in select locations where existing stands (along main arterial roads), not suitable for verges.

8.4 Inappropriate Tree Planting locations

Concrete path damage from a Ficus root system

- Trees or other forms of streetscaping that obscure safe line of site for vehicles or pedestrians (consider CPTED principles);
- Trees or other forms of streetscaping that impacts the function of a path or a proposed future path;
- Trees or other forms of streetscaping that impede safe access and/or egress from properties or vehicles;
- Where a tree will be overshadowed by an existing tree or trees to such an extent that the healthy growth of the new tree will be impeded;
- In close proximity to buildings; and
- Where a new tree will impact and be impacted by existing underground services and infrastructure, such as water mains, sewers, stormwater and signage.

New plantings on reserves undertaken by Council staff or contractors must be in accordance with the City of Charles Sturt *Field Services Maintenance Guidelines.*

8.5 Street Trees - Exotic and Native or Indigenous Species

The City of Charles Sturt recognises the benefits of exotic deciduous trees, evergreen and native evergreen trees, and also recognises the need to select the most appropriate species according to the site and environmental conditions.

Limiting the use of some deciduous trees near waterways and natural areas may be necessary to ensure that leaf and seed litter do not cause harm to people or the environment.

Whilst all trees drop leaves, deciduous trees drop generally leaves at a specific time of year, whilst native trees generally drop leaves throughout the year. However, there are benefits associated with deciduous trees, such as:

- aesthetic benefits, particularly in the cooler months;
- an alternative to evergreen species;
- sunlight and heat penetration during the winter months allows for warmth reaching buildings, vehicles and pedestrians; and
- in areas of historic character, exotic deciduous trees provide context in the streetscape.

Native and Indigenous trees can provide great benefit in the public realm, particularly when biodiversity and habitat are considered in the planning and designing our streetscapes. However, they are not always suited to urban areas, and are often not suited to the different micro-climates of the urban environment, particularly due to the leaf and seed litter they generate.

Deciduous exotic species can allow for the planting of trees in difficult locations, such as narrow verges, narrow streets and under power lines.

8.6 Reactive Planting

The annual reactive planting program is based on requests from individual members of the community and accounts for around 500 trees per year.

Trees planted on a reactive basis are planted on the proviso that the requester will provide adequate water to enable establishment of the tree for the first three years. The requester is advised of this when requesting the tree, and if they cannot accommodate the watering of the tree, a tree will not be planted.

To encourage residents who have trees planted on a reactive basis, a bucket is provided along with a small bottle of fertiliser, garden gloves, a letter encouraging them to use the bucket to water the tree and an information sheet relating to the species of tree planted.

8.7 Whole Street Planting

The Whole Street Planting program provides an opportunity for larger scale projects and are often integrated with other programs, such as road and footpath reconstruction projects.

Each year, streets are selected, and semi-advanced trees are planted. Community consultation is undertaken to ensure the availability of high-quality tree stocks, and ensure the program is implemented as efficiently as possible. Planting is undertaken in a climatically appropriate time of year (nominally March to September).

The selection of streets for the Whole Street Planting Program has been based on factors such as:

- Alignment with strategic documents (ie. Tree Canopy Improvement Strategy, Open Space Strategy, iTree Canopy Assessment, Urban Heat Island and Climate Change Plans);
- The number of tree planting requests received from residents in the street;
- The absence of trees in the street;
- The capacity for trees to be planted in the street (ie. the verge is wide enough);
- The overall condition of the existing trees in the street;

- Whether the existing species are appropriate for the locality; and
- An integrated approach with Engineering Projects (ie. road reconstruction and footpath programs).

A whole of street approach provides several benefits to residents, Council and the broader community, including:

- an opportunity to rejuvenate the streetscape and manage existing trees appropriately;
- existing specimen trees which are in good health and condition are retained as part of this program, and replaced over time as required with the chosen tree species;
- consistent planting which in time creates an "avenue effect" of trees of a similar size, shape and appearance;
- reducing the need to revisit streets for future reactive planting; and
- improved maintenance regimes, as formative pruning and watering of newly planted trees can be undertaken for plantings of the same age, within the same location.

Trees assessed and approved for removal under the Whole Street Planting program, have met at least one of the following criteria:

- The tree is dead or dying or has a limited life expectancy;
- The tree constitutes a risk which cannot be alleviated by canopy or root pruning;
- The tree is threatening to cause damage to a building or infrastructure;
- The tree presents a traffic visibility problem which cannot be alleviated by pruning; and
- The tree is planted in an unsuitable position or is an inappropriate species for its locality.

Public consultation is undertaken in accordance with Council's Public Consultation Policy and involves notifying all affected residents in writing, including a link to an online map showing vacant spaces where trees are to be planted, trees identified for removal and replacement, trees to be retained and trees that will not be replaced.

Where recent street tree plantings have been undertaken and a suitable species was previously selected, or an appropriate species is predominant in the street, a replacement option will not be provided, but rather, planting of the predominant species will be continued.

Final selection will be based on the species selected being appropriate for the location. Trees planted under the Whole Street Planting program will be watered for a minimum of three years.

The outcomes of the consultation process are then collated and presented to Council for approval.

8.8 Main Arterial Roads

Tree planting along main arterial roads must be well planned to avoid future maintenance issues, damage or interference with infrastructure or services, or interruptions to traffic flow.

As well as council's standard criteria for street tree planting, tree planting along main arterial roads must also consider:

- Compliance with relevant legislation, standards and guidelines relating to public infrastructure, including:
  - City of Charles Sturt - *Public Infrastructure guidelines, 2019*
  - DPTI Operational Instruction 19.8 - *Trees in Medians and Roadsides in the Urban Environment*

- *Infrastructure Guidelines SA, 2016*
- Trees and vegetation that have a high tolerance of vehicle emissions and have low ongoing maintenance requirements;
- Larger scale trees and other vegetation than those planted in residential streets (which may present difficulties due to the infrastructure and/or services along main arterial roads);
- Impacts on vehicles moving along the road corridor, such as the canopy of mature trees impeding the flow of larger vehicles (buses and trucks);
- The species of trees and other vegetation may need to vary along the length of the road, depending on site conditions;
- Height clearances for high sided vehicles;
- Potential for centre median planting; and
- Impacts of trees and other vegetation in commercial and shopping precincts, considering signage, shop front veranda's, car parking, delivery vehicle access, pedestrians and cyclists, etc.

8.9 Historic Character Areas

Formalised avenue plantings of large, exotic, deciduous trees are typical within the historic character suburbs of Croydon, West Croydon and West Hindmarsh, however, suburbs such as Bowden, Brompton and Ovingham cannot always accommodate these planting opportunities due to narrow streets and in some case, non-existent verges. This creates opportunities for creative design and alternative forms of streetscaping, including planting in the roadway such as in Ninth Street and Gibson Street, Bowden.

Tree and vegetation planting in historic character areas should retain the existing predominate species where it satisfies the selection criteria. However, where a street requires most of the trees to be replaced due to the poor health or condition of the original plantings, tree selection will be from traditional deciduous species to retain the historic character of the area, considering the requirements of the local area and the selected tree and vegetation species to be planted.

8.10 Planting in Foreshore Areas

Where practical, semi-advanced size trees should be planted along foreshore roads and streets and the species selected shall be consistent with the landscape character of the area. Trees and other vegetation such as Norfolk Island Pine trees and Date Palms are to be restricted to infill planting on those roads and streets with existing plantings of this species.

Selection of trees and other vegetation species must be consistent with the selection criteria and be appropriate to the environment they are to be planted in. Wherever possible and appropriate, indigenous coastal species are to be planted in streetscapes in foreshore areas.

Annually, revegetation works are undertaken within the coastal reserve, which provides both improved opportunities for biodiversity enhancement, amenity and dune stabilisation. The health of this reserve is paramount to the sustainability of our coastal areas and all vegetation should be maintained.

8.11 Biodiversity and Habitat

The term 'biodiversity' refers to the variety of all living things, including the diversity of plants, animals, communities and ecosystems. The City of Charles Sturt aims to conserve and restore what remains of the native/indigenous species and habitats that once covered the land we now occupy, as our contribution to conserving the variety of life around the world.

With so little of our biodiversity remaining, the preservation of the habitats that remain intact is of

paramount importance as we can never fully re-create the systems that we have lost.

Example of a new habitat corridor along the River Torrens Linear Park at West Beach

Streetscape and reserve trees, where thoughtful planning and design processes are in place can provide **habitat corridors** for birds and other wildlife with links to larger reserves, the River Torrens Linear Park and the Coast.

Old, large and significant trees provide nesting sites and hollows, and reserve trees are vital in maintaining and increasing the Cities contribution to biodiversity, there are many existing large and significant trees on reserves and the opportunity for continued planting of indigenous trees and understory vegetation will assist in maintaining and increasing the biodiversity and habitat opportunities within the City.

Human activities within urban environment, such as road or building construction, can disturb local wildlife and even cause them to move or migrate from the area. Habitat corridors are generally located along linear trails or water courses (such as the Coastal Reserve, River Torrens or Grange Lakes), and enable the movement of flora, and wildlife to new habitats and can also include corridors and buffer zones for bees and other pollinators.

Remnant native vegetation comprises native plants that are indigenous to the City of Charles Sturt, including trees, shrubs, herbs and grasses. Remnant native vegetation includes areas of highest biodiversity value, and usually dates to pre-European settlement.

The loss native trees and other vegetation that is 100+ years old is a significant loss, no matter how many young saplings are planted to replace it. A single large native tree may provide shelter and nesting sites for several bird species and host a range of small reptiles, insects and other organisms that contribute to biodiversity in ways we do not yet fully understand.

Dead trees and limbs with the potential to cause hollows should not be removed as a matter of course and consideration should be given to its size, location, historical significance, habitat value and impact on public safety. Any dead tree over 6 metres should be assessed by a suitably qualified Council Officer prior to removal being undertaken.

For further information on the City of Charles Sturt's commitment to biodiversity, refer to Council's *Biodiversity Action Plan 2017 – 2030.*

8.12 Planting in New Subdivisions and Developments

Advanced size trees (minimum height of 2.0 metres and trunk circumference of 50 mm) should be planted in streets and streetscapes in new subdivisions and developments. The design of such developments should take into consideration the longevity of the tree species selected and allow enough space for root development and tree growth. New subdivisions incorporating the construction of roads and other significant infrastructure should include street tree planting and streetscaping which will be maintained and irrigated in accordance with the Development

Agreement for the subdivision. Selection of tree species must:

- Satisfy the selection criteria for new street tree plantings; and
- Be approved by Council's Technical Officer Arboriculture, in consultation with relevant design and maintenance staff.

8.13 Tree Screens

An established tree screen on Sportsman Drive, West Lakes

Tree screens are areas of trees and other vegetation that act as a buffer between different parcels of land, such as roads and residential properties, providing privacy, noise reduction, wildlife habitat and aesthetic benefits.

The City of Charles Sturt has 30 kilometres of tree screens and, subject to annual Council approval, has committed to an ongoing program to establish new and maintain existing tree screens.

The following points should be considered when establishing and maintaining tree screens:

Planting and Maintenance

- Undertake planting in a single operation to reduce future reactive plantings improve the efficiency of ongoing maintenance.
- Vegetation that grows no more than 1 metre in height at maturity are used in the first 1.5m of the tree screen (footpath side of screen) and planted the appropriate distance (species dependant) from the path to eliminate the need for any future maintenance pruning off footpaths.
- Connect new tree screens to drip irrigation systems.
- Undertake ongoing inspections and maintenance activities at regular intervals.

Appearance

- Choose trees and vegetation of a similar size, shape and appearance to achieve a consistent, uniform tree screen.

Safety

- Consider Crime Prevention Through Environmental Design (CPTED) principles when selecting and planting trees and vegetation, including height, width, density, and appearance during the day and night.
- Vegetation that grows no more than 1 metre in height at maturity are used in the first 1.5m of the tree screen, to provide safe sight lines for pedestrians and cyclists.

Function

- Trees are used in the centre area of the screen to provide upper canopy, shade and to avoid possible damage to private and public infrastructure.
- The width of the screen will determine suitable trees in order avoid infrastructure damage

when the tree reaches maturity.

- Medium sized shrubs use at the rear of the screen to provide an effective buffer.

8.14 Roundabouts

Roundabouts are common traffic devices used throughout the City of Charles Sturt, presenting planting opportunities to improve the streetscape. Wherever practical and subject to funding, trees and other vegetation will be planted in roundabouts and should be consistent with the surrounding streetscape. The selected tree and vegetation species may vary from adjacent species due to their unique position in the streetscape, and must comply with sight line, clearance and other relevant legislative requirements.

In some cases, roundabouts have been previously installed without having proper regard to the needs of pedestrians and cyclists and a roundabout may no longer be the preferred traffic control of choice at a given location. At the time of road reconstruction, consideration will be given to removing these roundabouts and replacing them with an alternate traffic control that accommodates all road users. Prior to any plantings being undertaken within an existing roundabout it should be checked that the roundabout it likely to remain into the future.

Where a roundabout may be removed at some point in the future small low growing planting should be used which can be easily removed if required.

Greville Avenue, Flinders Park

West Beach and Military Road, West Beach

8.15 Tree Planting on Council Reserves

Given the size, reduced presence of infrastructure and the benefits that trees and other vegetation provide to users and wildlife, parks and reserves in the City of Charles Sturt provide an opportunity to plant larger species (preferably native) such as *Eucalypts* and *Angophoras*, which provide opportunity to increase canopy cover, enhance biodiversity, provide habitat and enhance visual amenity across the City.

Council's *Open Space Strategy 2025* guides the strategic provision, development and management of our open space, including the development of Master Plans and Landscape Designs for parks and reserves, which prescribe the species and location of tree and other vegetation planting, the location of playgrounds, BBQ's, paths and other infrastructure.

Upgrade of Windsor Reserve, Pennington, resulting from a coordinated Master Plan approach

The following points should be considered for planting trees and other vegetation on Council reserves:

- All new tree planting on reserves must be in accordance with an existing approved Master Plan or design;
- If tree planting (other than replacement planting) is to be carried out on sites which do not have an existing Master Plan, the species and location must be agreed in consultation with Council's arboriculture, design and maintenance staff;
- Planting and ongoing maintenance should be undertaken in accordance with Council's Field Services Maintenance Guidelines; and
- Installation and ongoing management of drip irrigation is to be undertaken in accordance with Council's Open Space Water and Irrigation Strategy.

8.16 Nursery Stock

An unhealthy planting stock will result in a population of mature trees having poor form and shape, presenting an increased risk due to poor structural integrity, and increased maintenance requirements.

The City of Charles Sturt aims to procure quality tree stock, in accordance with industry standard guidelines, including the *Natspec Construction Information – Specifying Trees* document.
In general terms, this includes:

Standards for Tree Stock

- Trees to have a single central leader with a dominant apical bud;
- Trees not to have co-dominant stems, but can have several evenly spaced, lateral branches along the length of the central leader;
- Branches not to rub against each other or the central leader and not cross each other in a manner that may lead to rubbing in the future;
- The central leader to be straight, with no kinks or bends of greater than 20 degrees. The central leader not to have a lean greater than 20 degrees from the vertical;
- The shape of the tree to be consistent with and typical of its species;
- The ratio of leaf cover to tree volume to be consistent with and typical of each tree species;
- The ratio of stem diameter to tree height will not vary and be consistent with and typical of each species;

- Plant stock to be free of weeds, pest and disease; and
- The root system to be free of pests and disease. New roots to be white in colour and show no evidence of disease or damage.

Standards for Tree Root Structure

- The tree is to have a radially arrayed, fibrous root system evenly distributed throughout the container;
- The tree root system is to be sufficiently developed to ensure that the root ball will not collapse when removed from the container;
- The tree root system is not to be overdeveloped so that girdling occurs at the base or the sides of the root ball.

8.17 Unauthorised Tree Planting and/or Inappropriate Street Trees

Trees which have been planted by residents and are inappropriate for the location will be assessed for removal and, where appropriate, will be replaced with an appropriate specimen during the next planting season. If the tree requires removal, the resident/s of the affected property will be consulted and if possible, the resident may be given the opportunity to transplant the tree onto their property.

8.18 Tree and Streetscape Irrigation

Installation and ongoing management of irrigation systems and water allocations is directed by Council's *Open Space Water and Irrigation Strategy*. Newly planted street trees and trees in streetscapes are manually watered on a weekly basis via a water truck and young or newly planted trees on reserves are drip irrigated.

Mature trees on reserves would have been planted without any drip irrigation and were reliant in the warmer periods, on turf irrigation systems. While this may keep the turf green, it is not an effective method for delivering water to trees and results in very shallow rooted trees that are reliant on regular shallow, surface watering.

This watering regime results in mature trees that are sensitive to dry periods and many mature trees in the City of Charles Sturt have become accustomed to this kind of treatment. The rapidly changing climate and a reduction in irrigation volumes has resulted in many of our trees showing visible signs of stress, and many have died in recent years.

Mature trees in streetscapes receive no water outside natural precipitation and on those reserves where irrigation has been turned off, mature trees are receiving little or no supplementary watering.

Mature trees in an area of irrigated public open space at Tatura Reserve, Fulham Gardens

Several changes to Council's standard practices have been initiated over the past few years to address the effects of the changing climate, including:

- A more intensive formative pruning and maintenance program for street trees;
- Increased water table around trees;
- Herbicide spraying these water tables to ensure grass and weed growth is minimised;
- Regular mulching of tree wells;
- Trials of various water retention treatments in soil;
- Use of more drought sensitive species;
- Further mulching and drip irrigation in the root zone of mature trees on reserves;
- Small tree maintenance for all juvenile trees on both reserves and streetscapes;
- Truck watering; and
- Trees presenting a risk or increased sensitivity have been identified and management practices have been adjusted accordingly.

9. Regulated and Significant Trees

A **regulated tree** is any tree (including Palms) with a trunk circumference of 2 metres or more (measured at 1 metre above ground level). In the case of trees with multiple trunks, regulated trees are those with trunks having a total circumference of 2 metre or more and an average circumference of 625mm or more (measured 1 metre above ground level).

A **significant tree** is a regulated tree with a trunk circumference of 3 metres or more (measured 1 metre above ground level). In the case of trees with multiple trunks, significant trees are those with trunks having a total circumference of 3 metres or more and an average circumference of 625mm or more (measured 1 metre above ground level).

Some trees may be included and/or exempt from this legislation because of their location or their species.

The *Development Regulations 2008* includes a list of species that *cannot* be captured as a 'Regulated Tree' and as such, they *can* be removed or pruned without Council Approval. These include:

- *Acer negundo* (Box Elder)
- *Acer saccharinum* (Silver Maple)
- *Ailanthus altissima* (Tree of Heaven)
- *Celtis sinensis* (Chinese Nettle Tree)
- *Cinnamomum camphora* (Camphor Laurel)
- *Cupressus macrocarpa* (Monterey Cypress)
- *Melaleuca styphelioides* (Prickly-leaved Paperback)
- *Pinus* Radiata Pine/Monterey Pine)
- *Fraxinus angustifolia* (Narrow-leaved Ash)
- *Fraxinus angustifolia* subsp. *oxycarpa* (Desert Ash)
- *Lagunaria* (Norfolk Island Hibiscus)
- *Platanus x acerifolia* (London Plane)
- *Populus alba* (Alba poplar)
- *Populus nigra* var. (Lombardy Poplar)
- *Alnus acuminate* subsp. *Glabrata* (Evergreen Alder)
- *Celtis australis* (European Nettle Tree)
- *Ficus spp.* (Fig trees), except *Ficus macrophylla* (Moreton Bay Fig) located more than 15 metres from a dwelling
- *Robinia pseudoacacia* (Black Locust)
- *Salix Babylonica* (Weeping Willow)
- *Salix chilensis* 'Fastigiata' (Chilean Willow, Evergreen Willow, Pencil Willow)
- *Salix fragilis* (Crack Willow)
- *Salix X Rubens* (White Crack Willow, Basket Willow)
- *Salix X sepulcralis* var. *chrysocoma* (Golden Weeping Willow)
- *Schinus areira* (Peppercorn Tree)

All trees located within 10 metres of an existing dwelling or in-ground swimming pool do not require development approval for removal.

However, the following species do require development approval for removal regardless of their distance to an existing dwelling or in-ground swimming pool:

- *Agonis Flexuosa* (Willow Myrtle)
- Eucalyptus (any tree of the species)

10. Removal of Non-Regulated and Non-Significant Trees

The removal or pruning of trees or vegetation on Council property is to be carried out only by Council staff or contractors engaged by Council. Permission will not be given for residents, ratepayers, developers or their contractors to carry out the removal of trees or vegetation on Council property.

All applications for the removal of any tree under the care and control of Council must be made in writing, clearly stating the reason for removal and should include any supporting documentation. The application will be formally assessed by appropriately qualified and experienced Council Officers who will take into consideration the health, condition, significance, structural integrity, level of risk and management options against specific criteria.

Where a tree or other form of vegetation is of good health and condition, all alternative measures should be fully investigated, and any legislative requirements fulfilled. Council will not remove a tree or other form of vegetation unless the person making the request can demonstrate to Council a valid reason.

Where a request for a tree or other form of vegetation removal is health based, evidence must be provided by an allergy specialist. Documentation must confirm health complications are directly attributable to a particular species, which is common in the vicinity of the applicant's residence and all alternative measures have been considered and are deemed inappropriate.

A valid reason will **NOT** include:

- Householder preference for no street tree or for a different species;
- Complaints about appearance (unless these are related to very poor health or structure);
- Interruption of scenic views;
- Interruption of view to advertising/signage (general maintenance pruning shall be undertaken or clear visibility of any legislative and/or traffic management signage. Pruning trees or vegetation for business signage will be considered on a case by case request basis);
- Complaints about leaf litter, twigs or other debris;
- Complaints relating to tree roots protruding above the ground or competing with lawns;
- Bird or Animal noise and associated mess; and
- Shading of solar panels.

However, in reference to the above, Council may determine otherwise.

Where the removal of a tree is approved outside of the criteria for tree removal as documented in this policy, suitable replacement plantings will be programmed, wherever possible, adjacent or as close as possible to the site of the removed tree/s. The cost of the tree removal will be included in a report to Council, and Council may choose to apportion some or all of the costs to the applicant.

11. Culturally Significant and Memorial Trees and Vegetation

Culturally Significant trees can provide a wide range of historical, cultural, aesthetic and scientific benefits to different groups and individuals. The City of Charles Sturt acknowledges the significance of these trees and their role in shaping our community and will ensure they are protected and managed appropriately. There are also a number of State heritage listed trees in the City of Charles Sturt.

In accordance with Council's *Memorials Policy*, memorial tree(s) can be planted in any appropriate street, park or reserve within the City of Charles Sturt provided they comply with any existing master plan or planting design in that place or street, and compliance with the *Tree and Vegetation Policy and Management Plan*. No memorial plaque will be available for this type of memorial.

12. Tree Protection Zone guidelines

The tree protection zone (TPZ) is the primary means of protecting trees on or adjacent to development sites. The TPZ is a combination of the root area and crown area requiring protection. The TPZ is an area isolated from construction disturbance for the tree to remain viable.

If the proposed encroachment is less than 10% of TPZ area it is *minor encroachment*. If the proposed encroachment is greater than 10% it is then identified as being major encroachment and detailed root investigation through non-destructive techniques (such as pneumatic, hydro-vac, hand-digging or ground penetrating radar) may be required to demonstrate that the tree would remain viable.

The structural root zone (SRZ) is the area required for tree stability and only needs to be calculated hen major encroachment into the TPZ is proposed.

All TPZs should be established in accordance with AS 4970-2009 – *Protection of trees on development sites* and should be calculated by a suitably qualified arborist, in accordance with the criteria set out in AS 4970-2009.

Guidelines for establishing and managing a TPZ are:

- The TPZ shall be maintained until the proposed development or works are completed, to ensure that the tree survives long after the development is completed.
- The TPZ should be fenced before any works commence on site. This fence should be constructed from 1.8-metre-high, 2.5 metres wide, steel mesh panels, inserted in temporary concrete base blocks and clamped at the top. This is to ensure that no tree damaging activity occurs within the critical root zone.
- Signs are to be clearly visible on all sides of the Tree Protection Zone fence, to prevent unauthorised access and ensure that all contractors attending the site are made aware that this area is protected.
- To ensure soils do not become compacted and contaminated within the critical root zone. No storage of materials or equipment and no work activity is to occur within the TPZ.
- All excavation works within the designated TPZ must be performed by non-destructive techniques under the supervision of an arborist.
- No activity involving or using fuel, oil or chemicals, including preparation of chemicals and cement products should be conducted within the TPZ.
- No storage of material, building waste, construction materials, construction equipment or temporary buildings/structures should be permitted within the TPZ.
- No changes to natural ground level or grade changes within the designated TPZ should be made.
- No trenching for the installation of underground services is to occur within the TPZ at any time. Gas, electricity, water and telephone services shall be installed outside of the TPZ. Any works of this nature required within the TPZ must utilise no destructive techniques such as air-spading and hand trenching without severing roots. This is to ensure that no damage is caused to the critical root zone.
- Any tree root pruning is to be carried out by a suitably qualified arborist and in accordance to the Australian Standard 4373-2007 *Pruning of Amenity Trees.*
- A 75mm layer or organic mulch (processed green waste) shall be hand spread within the TPZ. The mulch should not come into contact with the trunk of the tree.

12.1 Delegated Authority to Approve Requests for Tree Removal

The exercise of Council's delegated authority to approve the removal of trees on Council property is to be in accordance with the following:

- Trees are to be assessed in accordance with the assessment processes documented in the *Tree and Vegetation Management Plan*. All assessment processes should be based on sound and current arboriculture principles and employ risk control measures as a first option to tree removal.
- Trees that are declining in health, deformed and/or assessed as being structurally unsound or not contributing to the habitat value of an area, forming a notable visual element to the landscape of the local area or providing links to other vegetation which forms a wildlife corridor of trees where all reasonable, remedial treatments and measures have been

determined as being ineffective in increasing the trees life expectancy.

- Trees presenting a risk to public safety or Council property and all reasonable, remedial treatments and measures have been determined as being ineffective.
- Council approved projects where:
  1. All remedial treatments and measures have been determined to be ineffective; and
  2. Where it is demonstrated that all reasonable, alternative development options and design solutions have been considered to prevent substantial tree-damaging activity occurring.
- Trees showing clear evidence of damage to private property. Where it can be demonstrated by the applicant, with supporting documentation from a suitably qualified professional that the tree is the cause of the damage and there are no appropriate remedial options.
- Where documentation has been provided from an allergy specialist, confirming health complications are directly attributable to a particular species, which is common in the vicinity of the applicant's residence and all alternative measures have been considered and are deemed inappropriate.
- Declared pest plants under the Natural Resources Management Act 2004. The declared plants (trees) in SA and known species in Charles Sturt includes the following: *Casuarina glauca, Tamarix aphylla*, *Pinus halepensis* (if not planted and maintained), *Leptospernum laevigatum, Pittosporum undulatum, Olea europaea* (excluding cultivated trees), *Salix species, Fraxinus angustifolia.*

Elected Members are to be informed of the use of delegated authority through regular information reports which shall be prepared and submitted to Council, detailing the reason for removal.

Requests for tree removal that have been refused under delegated authority, for which the resident requests further consideration should be the subject of a report to Council.

All reports to Council relating to risk-based tree removals will include the risk assessment and risk matrix for Council's information.

12.2 Tree and Vegetation Removal for The Purpose of Driveways, Electricity Supply, Services or Access to Property during Development.

Should a tree be identified for removal to accommodate the development or redevelopment of a property, including the installation of a driveway, services or other property access, consideration must first be given to design and construction methods with the intent of retaining the tree.

If, following the consideration of all options, the development cannot be accommodated while retaining the tree, removal may be considered subject to the owner/property developer compensating Council for the following:

- The value of the trees removed based on *Australian Institute of Horticulture (AIH) - A system of assigning a monetary value to amenity trees – Technical memorandum No. 3 Third Edition 2003 (E J McAlister),* with the unit value to be reviewed and updated in accordance with CPI increases or decreases on an annual basis);
- The replacement costs of an appropriate specimen to be planted preferably adjacent to the affected property or as close to the property as possible; and
- Any costs incurred in relation to removal process.

12.3 Unauthorised Tree Removal, Tree Damaging Activity and Tree Vandalism

All unauthorised tree removals, acts of vandalism, deliberate poisoning or any other intentional or unintentional tree damaging activity will be thoroughly investigated and where appropriate, prosecution will ensue in accordance with the relevant legislation. Should clear evidence be obtained, an assessment will be undertaken using the *Australian Institute of Horticulture (AIH) - A system of assigning a monetary value to amenity trees – Technical memorandum No. 3 Third Edition 2003 (E J McAlister),* and costs will be forwarded to the person responsible for the activity.

The *Development Act 1993* stipulates that any activity that damages a 'regulated tree' is considered 'development' and as such requires development approval. This captures activities such as removing, killing or destruction, branch or limb lopping, ringbarking or topping or any other substantial damage to a regulated tree – including to its root system – other than maintenance pruning.

13. Verge Planting

The City of Charles Sturt encourages residents to establish and maintain the verge adjacent to their property. You can manage your verge by mowing it regularly or starting your own verge garden.

The *Community Verge Development Guidelines and Checklist* provides information and useful links to help you landscape your verge. Information regarding the planting and management of verges can be viewed here: https://www.charlessturt.sa.gov.au/services/home-and-property/your-verge

14. Community Participation

Tree Planting at Sunset Reserve Grange

Council encourages and will provide support for community-based greening groups involved in the planting of trees and other vegetation on public land within the City of Charles Sturt.

Subject to approval, assistance may occur through the supply of plants, mulch, propagating materials, transportation of plants and equipment, supply of hand tools, provision of staff technical advice and similar in-kind actions.

Glossary

Aerial bundling – overhead power lines using several insulated phase conductors bundled tightly together, usually with a bare neutral conductor.

Apical – the tip of a pyramidal or rounded structure, such as the top of the tree.

Canopy - The upper layer or habitat zone, formed by mature tree crowns and including other biological organisms

Directional pruning – also called natural pruning, only branches that head toward obstructions (such as utility lines) are pruned.

Evergreen vegetation – vegetation that retains green leaves throughout the year.

Exotic vegetation – vegetation that has been introduced to an area from outside its native range, either purposefully or accidentally.

Girdling roots – a root that grows around the trunk of the tree that restricts and eventually prevents the flow of water and nutrients.

Indigenous vegetation – vegetation that comes from a certain area, such as the Adelaide plains, or even more specific such as a coastal area within a region.

Native vegetation – all naturally-occurring local native plants, ranging from small ground covers and native grasses to large trees, including aquatic species.

Non-woody – not of or containing wood or wood fibres.

Perennial – lasting or existing for a long or apparently infinite time; enduring or continually recurring.

Root barrier – a physical underground wall, placed so that structures and plants may cohabit happily together.

Senescence – the condition or process of deterioration with age.

Sterile varieties (trees) – failing to bear or incapable of producing fruit or spores.

Streetscape – the appearance or view of a street.

Suckering growth – various types of shoots which grow from a bud at the base of a tree or shrub or from adventitious buds in its roots.

Traffic calming device – physical design and other measures to improve safety for motorists, pedestrians and cyclists to encourage safer, more responsible driving and potentially reduce traffic flow.

Water table – the layer below the earth's surface where water is found.

References

This management plan is consistent with, and is to be used in accordance with the following

documents: City of Charles Sturt:

- Community Plan 2016 - 2027
- Environmental Sustainability Policy
- Footpath Policy
- Field Services Maintenance Guidelines
- Guidelines for Verge Developments
- Living Green to 2020
- Memorials Policy
- Open Space Strategy 2015 - 2025
- Open Space Water and Irrigation Strategy, 2016
- Public Consultation Policy
- Public Infrastructure guidelines, 2019

State Legislation and Guidelines:

- *Development Act 1993*
- *Electricity Act 1996*
- *Heritage Act 1997*
- Infrastructure Guidelines SA, Revision 1.0, December 2016
- *Local Government Act 1999*
- *Native Vegetation Act 1991*
- *Road Traffic Act 1961*
- *Water Resources Act 1997*

Federal Legislation:

- *Disability Discrimination Act 1992*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Environment Protection Act 1993*
- *Natural Resources Management Act 2004*

Other Reference Documents:

- Australian Institute of Horticulture (AIH) - *A system of assigning a monetary value to amenity trees – Technical memorandum No. 3 Third Edition 2003 (E J McAlister)*
- Australian Standard 4360-2004 – *Risk Management*
- Australian Standard 4373-2007 – *Pruning Amenity Trees*
- Australian Standard 4970-2009 – *Protection of Trees on Development sites*
- *Creating Places for People – an urban design protocol for Australian cities*, Infrastructure Australia, 2011
- *Crime Prevention Through Environmental Design guidelines*, various authors
- *Pre-European Vegetation in Adelaide*, Darrell Kraehenbuehl, 1996
- Seed Consulting Services (2018), *Powerline Friendly Trees: Reference Guide for Cities and Towns in Non- Bushfire Risk Areas.* Prepared on behalf of SA Power Networks. South Australia.
- *Specifying Trees*, NATSPEC Construction Information, 2003
- *Streets for People*, Government of South Australia, 2012
- *Trees: Legislation and Risk Management Guidelines for Local Government*, Local Government Association Mutual Liability Scheme, 2004

Further information

For further information relating to trees and other vegetation in the City of Charles Sturt, please contact:

- Phone: (08) 8408 1111
- Email: council@charlessturt.sa.gov.au
- Post: PO Box 1, Woodville SA 5001
- In person: 72 Woodville Road, Woodville
- Website – charlessturt.sa.gov.au

Document Control	
Record no. 21/123043	**Reviewed by:** JW
Revision no. 3	**Revision date:** October 2023