

# CREATING A GREEN AVENUE

Planting an effective Green Avenue needs some careful planning regards the effect, the species and the distances they need to be planted apart to achieve your vision. This article is designed to give you the information that you need to help you make informed decisions about your Green Avenue.

## THE EFFECT

As with all landscape projects, it is important to decide what effect you are trying to create. Green Avenues are primarily visual features rather than functional plantings like windbreaks or screens. It is of course possible to combine the two effects however that will be covered in a specific article on Creating Windbreaks and Green Screens.

The first option to decide is **evergreen or deciduous**. Deciduous trees stop supplying their leaves with nutrients as the temperatures begin to drop in autumn. This is a self-preservation action developed by the trees in an effort to survive living without water over winter as a result of frozen ground in their natural habitats. When the nutrient supply is removed, the leaves lose their ability photosynthesise and maintain the green in their leaves. The result of this natural cycle is the beautiful autumn colours that we have come to value as features in our gardens. In their natural habitat, the fallen leaves become trapped under the snow to provide a valuable nutrient boost to the tree when the ground thaws in spring.

The ability of a deciduous tree to produce the most vibrant leaf colours is directly linked to the degree of cold around the trees in autumn. The further north (or coastal) you move and the lesser the cold stress on the trees, the more subdued the autumn colours will become. Your best guide to assessing how the trees will perform locally is your own observation. Whilst some trees are more sensitive to the cold and more likely to react well and colour up, they ALL need some degree of cold to colour up.

Once you have chosen between evergreen and deciduous, the next choice is canopy shape.



**Triangular canopies** are often produced by conifers. Cupressus leylandii was a very popular choice of tree for a green avenue and screen in suburban areas 20 years ago and provided a choice of golden, blue or green foliage. Conifers grow well in cooler areas like Melbourne and also coastal areas but the Cupressus variety of conifer does not cope well with the high humidity as you move north and inland. Drought and climate fluctuations, including humidity stress, have been known to cause the Cupressus conifer trunks to crack and allow fungal infections to invade the tree. Along with the common sight of Cupressus screens

many years ago, was the common sight of a dead specimen in the middle of that green screen.

Avenues of Auracaria trees are a common sight along beach fronts because of their tolerance for salt spray. The Auracaria species will also tolerate the inland humidity and whilst there are quite a few isolated feature trees dotted around the inland landscape, they are rarely utilised as a Green Avenue away from the traditional beachfront plantings. This seems to be a result governed by tradition rather than by suitability of the species to inland plantings. Liquidamber styraciflua is a good choice of deciduous tree with a triangular shape. There are named varieties of Liquidamber styraciflua that suggest that the trees WILL turn a specific colour in autumn. These varieties are grafted to ensure they are perfect clones of each other and any genetics that influence the leaf colour are maintained, HOWEVER, as mentioned above, all deciduous trees NEED cold rather than genetics to colour and

the further north you move or the more coastal you are, the more subdued the colours will be. Grafted specimens will incur a much greater cost per tree and before making that investment, consideration should be given to whether your area is cold enough for these trees to show their true colours or not. Seed grown specimens of Liquidamber styraciflua are widely available and each individual tree will produce a variety of colours ranging from yellows, oranges, reds and burgundy. The tree will reach 20m high & 12m wide and needs well drained soils. Another popular triangular canopied deciduous alternative is the Bradford pear *Pyrus bradford* (12m x 9m) – the Bradford pear colours very easily to bright red. This species also rewards with a spectacular display of white flowers before the leaves return and is very hardy and tolerant of extreme dry and heat conditions.

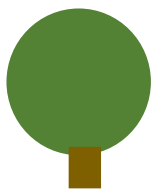


**Narrow canopies** planted as Green Avenues are very popular in Mediterranean regions where the tree of choice is often the Lombardy Poplar, *Populus nigra*. It is a very hardy deciduous tree that will tolerate and succeed in a wide range of soils and conditions. Its main drawback is a susceptibility to rust however this does not kill the tree or render it unsightly either. Lombardy poplar will reach 18m high x 3m wide. Its leaves turn yellow as they drop over winter. Very drought tolerant and also tolerant of waterlogging.

For a native alternative, you might consider one of the Callitris species. The Callitris is a native pine tree. You will see examples of these trees as you travel north from Singleton NSW through the Hunter region. These pines look strangely out of place in their native habitat and many think they are a garden escape. The various varieties range from 15m to 40m tall with foliage ranging from dark green to blue. They are all quite drought tolerant but need well drained soils.

Other narrow canopy options include a range of conifers that are tolerant of humidity such as Thuja species or Juniperus species. Foliage choices range from deep green to blue. All need well drained soils.

One of the most popular narrow choices is another variety of the deciduous ornamental pear – *Pyrus species*. The *Pyrus* turns colour very easily with a very low chill requirement and offers a range of canopy shapes. Narrow canopy options include *Pyrus calleryana* Capitol (11m x 3m) and *Pyrus calleryana* Chanticleer (11m x 6m). The leaves on both these species turn red before they drop. The *Pyrus* is particularly hardy to dry conditions and produces a prolific display of white flowers before the leaves return in Spring. Another choice in the deciduous range of narrow canopied trees is *Fraxinus pennsylvanica* Chimzan (13m x 8m)



**Rounded canopies** planted as Green Avenues are reminiscent of stately English Mansions and the driveways that lead to them. The rounded canopy provides the greatest choice in species & includes deciduous and evergreen options. The Claret Ash *Fraxinus raywoodii* (12m x 9m) has been a very popular and hardy Green Avenue tree for many years surviving all but the most severe of droughts. This deciduous tree turns a deep claret colour in early autumn but its normal foliage is a deep green. *Fraxinus griffithii* (8m x 4m) is a very hardy evergreen option. Bright green leaves and the bonus of white flowers make this hardy tree a viable option for smaller areas that want the effect of a Green Avenue.

Selected *Pyrus* species also rate a mention as round canopied Green Avenue choices. *Pyrus betulifolia* 'Southworth' Dancer (7m x 5m) has a light lacy foliage that “dances” in the breeze. The leaves turn yellow before they drop and as with other ornamental pears, it produces a prolific display of white flowers before the leaves return.

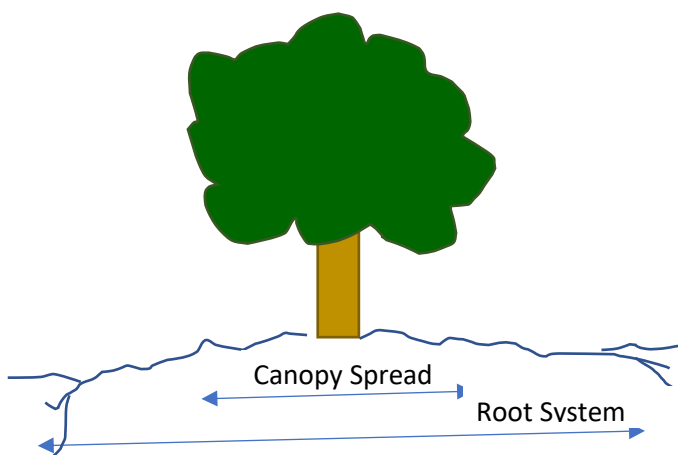
Evergreen native options for a round canopied Green Avenue include the Lilly Pilly range such as *Syzygium smithii* (20m x 15m) and *Syzygium floribunda* (30m x 15m). The new growth of *Syzygium smithii* progresses through a rich pallet of colours from pink, bronze, burgundy, red and chocolate

before settling on a deep green permanent foliage. It also produces a small round fruit that can be eaten raw or cooked for jams or sauces or left on the tree as a treat for the birds. *Syzygium floribunda* does not produce the same colourful new growth as *Syzygium smithii*, however the larger soft leaves on *Syzygium floribunda* hang loosely from its branches producing a soft weeping effect. Both trees produce a very dense green canopy.

For something a little different than everyone else, you could try the native Bush Walnut range. The *Cryptocarya* range is lumped together under the heading of “rainforest trees” which usually invokes images of enormous giant trees that have no place in the home garden. In reality however, it is NOT the trees that are the issue but rather the rainforest itself as that environment invokes such a fierce competition for access to sunlight between these beautiful trees, that their literal survival means that they are engaged in a constant battle with every other tree in that rainforest to keep their leaves higher than everyone else – remove the competition for light and these lions of the rainforest become domesticated kittens. In an open growth situation, the Murrogon or *Cryptocarya microneura* will only reach 10m x 10m & will grow into a very hardy dense canopied tree that supports native pigeons and butterfly populations with little or no help needed after it is established. As a bonus, *Cryptocarya* species will reward with a display of white flowers over spring. The Rose Maple *Cryptocarya rigida* (10m x 10m) is so named because of its attractive rose coloured new growth that becomes quite a feature when the tree is grown in a domestic situation. The Rose Myrtle also supports native pigeons and butterfly populations and requires little or no assistance beyond establishment. The Jackwood or *Cryptocarya glauscecens* (15m x 15m) has an aromatic foliage with a grey underside to the leaf that creates visual interest as it flutters in the wind. Like the other *Cryptocarya*, the Jackwood also supports native pigeons and butterfly populations and requires no maintenance beyond initial establishment.

## HOW FAR APART SHOULD I PLANT MY TREES

This aspect is governed by the effect that you want. The roots on a tree or shrub will cover an area **twice the size of its canopy**. In other words, a tree that has a canopy diameter of 10m, will have a root diameter of AT LEAST 20m.



Planting a Green Avenue and working out how far apart to plant each tree is all about finding the right balance between providing your tree with the space it needs to grow whilst achieving the effect you want. Your trees can “share” a reasonable amount of root area before the competition between their root systems begins to impact the growth of the tree – too close and your trees may be stunted in height and possibly lopsided as well. The competition between the roots in a row of trees will often result in their root systems extending further in front of and behind the trees than they normally

would and you will often notice that the first and last trees in an avenue are larger than their counterparts in between and that is a simple result of the lack of competition for root space.

So let's do the math based on a tree with a 10m canopy (5m spread either side of the trunk) .....

**THE ULTIMATE** – Little or no root competition (Spacing = 3 times the canopy width)

TREE #1 Root Zone	<b>TREE #1 10m wide</b>		TREE #1 Root Zone	TREE #2 Root Zone	<b>TREE #2 10m wide</b>		TREE #2 Root Zone	TREE #3 Root Zone	<b>TREE #3 10m wide</b>		TREE #3 Root Zone
10m	5m	5m	10m	10m	5m	5m	10m	10m	5m	5m	10m

This spacing allows for 3 trees in 100m including 20m of free space between the canopy of each tree and is probably unrealistic for anywhere but a large public park.

**THE GENEROUS** – Sharing 30% of the root zone for each tree. (Spacings = 2.5 x the canopy width)

Shared Root Zone	TREE #1 Root Zone	<b>TREE #1 10m wide</b>		TREE #1 Root Zone	Shared Root Zone	TREE #2 Root Zone	<b>TREE #2 10m wide</b>		TREE #2 Root Zone	Shared Root Zone	TREE #3 Root Zone	<b>TREE #3 10m wide</b>		TREE #3 Root Zone	Shared Root Zone
5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m

This spacing allows for 4 trees in 100m and 15m of free space between the canopy of each tree.

**THE ADEQUATE** – Sharing 50% of the root zone for each tree (Spacings – 2 x canopy width)

TREE #1 Root Zone	<b>TREE #1 10m wide</b>		TREE #1 Root Zone	TREE #2 Root Zone	<b>TREE #2 10m wide</b>		TREE #2 Root Zone	TREE #3 Root Zone	<b>TREE #3 10m wide</b>		TREE #3 Root Zone	TREE #4 Root Zone	<b>TREE #4 10m wide</b>		TREE #4 Root Zone
5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m	5m

This spacing allows for around 6 trees per 100m including 10m of free space between the canopy of each tree. This spacing will have a negligible effect on the height & width of your trees.

**THE MINIMAL** – REDUCING the root zone between the trees (Spacing = 1.5 times the canopy width)

TREE #1 Root Zone	<b>TREE #1 10m wide</b>	TREE #1 & #2 Root Zone	<b>TREE #2 10m wide</b>	TREE #2 & #3 Root Zone	<b>TREE #3 10m wide</b>	TREE #3 & #4 Root Zone	<b>TREE #4 10m wide</b>	TREE #4 & #5 Root Zone	<b>TREE #5 10m wide</b>	TREE #5 & #6 Root Zone	<b>TREE #6 10m wide</b>	TREE #6 Root Zone
5m	10m	5m	10m	5m	10m	5m	10m	5m	10m	5m	10m	5m

This spacing allows for around 7 trees per 100m including 5m of free space between the canopy of each tree. Planting this close is likely to reduce the height and the width of the trees by up to 1m.














**THE HEDGE** - No free root zone at all (Spacings are equal to the canopy width)

TREE #1 Root Zone	<b>TREE #1 10m wide</b>	<b>TREE #2 10m wide</b>	<b>TREE #3 10m wide</b>	<b>TREE #4 10m wide</b>	<b>TREE #5 10m wide</b>	<b>TREE #6 10m wide</b>	<b>TREE #7 10m wide</b>	<b>TREE #8 10m wide</b>	<b>TREE #8 10m wide</b>	<b>TREE #10 10m wide</b>	TREE #10 Root Zone
5m	10m	10m	10m	10m	10m	10m	10m	10m	10m	10m	

This spacing allows for 10 trees every 100m and allows for the canopies of each tree to meet. The root zone available to each tree is limited to the space under its own canopy or the equivalent of one third of its ultimate feeding area. Restricting the feeding zone of a large tree will inflict stresses on the tree that will be compounded by any additional factors such as drought or extreme heat and reduce the capacity of the tree to withstand those pressures. If a close hedge is the aim of your project then tall shrubs may work better than large trees.

## GREEN AVENUE TREES

The list of possible avenue trees is endless and the following suggestions are made to provide direction for your imagination – specific varieties available at your local nursery may differ from those listed but will perform equally as well and provide the effect you are looking for.

SPECIES	COMMON NAME	SHAPE	SIZE (HxW)	COMMENT
<i>Plantanus hybrida</i>	London Plane		30m x 24m	Deciduous, does not colour. Very tolerant of pollution so a popular choice in urban areas.
<i>Prunus blieriana</i>	Ornamental Plum		6m x 6m	Deciduous, red Foliage, double pink flowers.
<i>Malus floribunda</i>	Crab Apple		5m x 5m	Deciduous, profuse double white flowers & pink buds.
<i>Corymbia torelliana</i>	Cadagi		25m x 10m	Evergreen, dense canopy grows better in NSW than its native area.
<i>Eucalyptus placita</i>	Corky ironbark		15m x 15m	Evergreen hardy tree, dense canopy, low foliage.
<i>Acer palmatum</i>	Japanese maple		8m x 8m	Deciduous, turns colour well, has good leaf colour options.
<i>Thuja smaragd</i>	Conifer		8m x 2m	Evergreen, very neat, attractive deep green lacy foliage. Great for narrow sites.
<i>Thuja orientalis</i>	Bookleaf Pine		1m x 0.5m	Evergreen, very neat, lime green or golden foliage. Excellent choice for the smaller domestic garden.
<i>Juniperus scopulorum</i> Blue Heaven	Blue Conifer		4m x 1m	Evergreen, very neat and narrow foliated tree. Silver Blue foliage. Very hardy.
<i>Hymenosporum flavum</i>	Native Frangipanni		8m x 5m	Evergreen tree, renowned for its display of cream and yellow flowers. Needs frost protection when small.
<i>Ficus coronata</i>	Sandpaper Fig		6m x 3m	Evergreen tree, smallest of the Australian figs and well suited to domestic sites. Sweet fruit is a bonus.
<i>Ficus rubiginosa</i>	Rusty Fig, Port Jackson Fig		20m x 20m	A smaller version of the well known Moreton Bay Fig, this variety will suit larger gardens. Semi deciduous.
<i>Cupaniopsis anarcardoides</i>	Tuckeroo		8m x 7m	Evergreen tree. Favoured as a street tree by many Councils due to its compact nature & hardiness.