



# Street Tree Asset Management Plan



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## Purpose

The purpose of the Street Tree Asset Management Plan is to:

- acknowledge the important role trees play in the towns of Southern Grampians Shire
- provide a framework for the care, maintenance, replacement and protection of urban trees for which the Southern Grampians Shire Council is responsible
- provide a clear and consistent approach to the way the Southern Grampians Shire Council manages urban trees and
- assist the Southern Grampians Shire Council to determine priorities for urban tree programs and works.

The Street Tree Asset Management Plan provides principles and actions for how Council addresses:

- general tree management
- risk identification and mitigation
- tree inspections and assessments
- tree selection and planting
- tree removal
- tree protection
- infrastructure protection
- electric line clearance
- tree maintenance
- biodiversity considerations
- pest and disease control
- community engagement and
- significant trees.

# Introduction

## Context

The Southern Grampians Shire Council Plan 2017-2021 provides direction and actions for Council to achieve its objectives in the four-year period of the plan. It was developed in consultation with the community and during the consultation process, the management of street trees was identified as an important issue of concern to residents.

Under Key Priority 3: Plan for our Built Environment and Infrastructure, the Council Plan includes Strategy 3.3.3: “Develop and implement an urban street tree plan to guide town maintenance plans”. This Street Tree Asset Management Plan has been developed to provide a framework for Council to manage existing street trees and provide guidance for future plantings.

## Scope

This plan is confined to street trees in the Shire’s towns and trees in Council-managed parks and sites for which Council is directly responsible including kindergartens, swimming pools, the land surrounding Lake Hamilton and the Hamilton Livestock Exchange. It also includes the Avenues of Honour identified in the Schedule to the Heritage Overlay within the Southern Grampians Planning Scheme. It does not relate to trees on private land, sites under control of Committees of Management or on roadsides outside town boundaries, with the exception of the Avenues of Honour. Some Council-managed sites such as the Hamilton Airport have special requirements in relation to vegetation management and others such as the Hamilton Botanic Gardens have a masterplan that provides specific guidance for tree management. Where applicable, this plan is to be used in conjunction with other documents to support but not override the other documents.

## Southern Grampians Shire Council’s Trees

Trees are an essential part of the Shire’s townships, providing significant economic, social and ecological benefits such as:

- assisting in creating a unique identity and structure to urban precincts, thereby establishing or contributing to a distinct neighbourhood character
- providing a pleasant cooling, shading and softening effect on built urban infrastructure
- having a calming and therapeutic influence on the human psyche
- creating more desirable spaces for movement and recreation
- sequestering carbon and produce oxygen
- ameliorating the extremes of noise, wind, sunlight, temperature and air pollution
- providing habitat and food for native wildlife
- forming corridors for movement and refuges for native wildlife and
- reducing the impacts of rainfall and run-off, and reducing erosion.

Southern Grampians Shire street tree records exist for Hamilton and Coleraine only. The Hamilton CBD trees were assessed in 2017 and records of all other Hamilton street trees were last updated in 2009. Coleraine street tree records were updated in 2012. The inspection records include:

- Type – Genus and/or species or common name
- Height and width
- Age range

- Issues (disease/dead wood/damage/pests)
- Inspector and date of inspection

This information can be accessed in Council's asset management and GIS systems.

In summary, Council has the following records of its urban trees:

Town	Records
Balmoral	No records
Branxholme	No records
Cavendish	No records
Coleraine	Tree assessment records taken in 2012
Dunkeld	No records
Glenthompson	No records
Hamilton	Tree assessment records taken in 2017 for CBD, 2009 for all other streets and parks
Penshurst	No records
Tarrington	No records

Urban trees are a distinctive feature of all the Shire's towns. The Community Planning process that Council undertook in the early part of the decade highlighted the importance of trees to residents and several of the resulting Community Plans include actions that relate to urban trees and greening. Prior to that Council had commissioned an Urban Design Framework for Balmoral, Branxholme, Byaduk, Cavendish, Coleraine, Dunkeld, Glenthompson, Penshurst, Tarrington and Wannan. There have also been discussions on urban trees at Council Engagement meetings at some locations. The references to urban trees within these documents are summarized below and the documents are available on the Council website.

Town	Document	Reference/comment/action
Balmoral	Community Plan and Urban Design Framework	<ul style="list-style-type: none"> <li>• Establish avenue of Honour</li> <li>• Main St landscaping improvements</li> </ul>
Branxholme	Community Plan  Urban Design Framework  Council Engagement Meeting December 2016	<ul style="list-style-type: none"> <li>• Streetscape plan with suitable plantings</li> <li>• Plant indigenous trees near reservoir for shade</li> <li>• Create an entrance to the town using indigenous canopy trees and shrubs</li> <li>• Remove large Cypress trees near swimming hole and revegetate with indigenous species</li> </ul> <p>The Branxholme community requested assistance from Council to develop a streetscape tree management plan.</p>
Byaduk	Urban Design Framework	<ul style="list-style-type: none"> <li>• Establish an avenue of mature trees along Port Fairy Road either side of the Byaduk-Penshurst Road intersection, to flower in</li> </ul>

		November
Cavendish	Urban Design Framework	<ul style="list-style-type: none"> <li>Develop a landscape strategy that incorporates deciduous trees near the centre of the town and red gums at the edges</li> </ul>
Coleraine	Coleraine Urban Design Framework  Council Engagement meeting November 2016	<ul style="list-style-type: none"> <li>Community opinions were gathered</li> <li>Native, and where possible, indigenous species recommended for all open spaces and street plantings</li> <li>Refer to Coleraine Urban Design Framework</li> </ul> <p>Community has a vision of an urban forest, wanted this to progress. Cooling benefits for climate change. Noted that the street tree plan should provide condition data and updated locations of all trees in towns and so that tree planting plans can be formulated. Planting on the eastern side of town to take priority. Community engagement needed to determine plant species.</p>
Dunkeld	Dunkeld Urban Design Framework	<ul style="list-style-type: none"> <li>Many references to more tree planting</li> <li>Recognition of existing <i>C. ficifolia</i></li> </ul>
Glenthompson	Urban Design Framework	<ul style="list-style-type: none"> <li>Revegetate creek to the west of the post office as a wildlife walk</li> </ul>
Hamilton	Hamilton Structure Plan	<ul style="list-style-type: none"> <li>CBD and Master Plans Volume 4 of 4 includes direction for street trees in a number of precincts eg. Hensley Park Road</li> <li>Part 6: Landscape &amp; Environment includes strategies for extensive tree planting in Cox St, Create an avenue in Cox &amp; Lonsdale Streets, Provide shade trees in CBD including car parks, create "pocket parks", re-green all local streets near CBD grid, protect established trees, support evergreen trees on east-west streets and deciduous trees on north-south streets, undertake thematic street tree planting.</li> </ul>
Penshurst	Urban Design Framework	<ul style="list-style-type: none"> <li>Plant an avenue of trees in the main street</li> </ul>
Tarrington	Tarrington Structure Plan	<ul style="list-style-type: none"> <li>Investigate bundling of power lines to avoid the need for radical pruning</li> <li>Plant additional exotic trees in main street to create a continuous canopy</li> <li>Potential tree species to be used for replacement of street trees – includes introduced, native and indigenous species.</li> </ul>
Wannon	Urban Design Framework	No reference to trees

It will be important for Council and the community to consider the landscape character for each town so that future plantings are consistent and so that suitable planting material can be sourced.

## Tree Management Issues

As well as the many benefits that accrue from the presence of street trees, the financial and social costs of not managing trees correctly can be high. Trees, just like other any infrastructure, need to be managed to maximise their benefits, minimise any adverse effects and control costs. Biological assets such as trees do not behave evenly over their life and are prone to drought, weather impacts and disease. Tree life spans can vary enormously, are not easy to predict and require ongoing re-evaluation. The overall tree asset is made up of many individual components that can behave very differently.

Trees take many years to develop to maturity where they provide maximum benefits to the community and the local ecology. They cannot be quickly replaced. The retention and protection of mature trees is vital so that their useful life can be maximized.

A significant threat to urban trees is climate change. Climate forecasts for the Southern Grampians Shire are for hotter days, more frequent heat waves, increased fire conditions, lower winter and spring rainfall and higher evaporation but with more frequent high intensity downpours. These changing conditions will pose an ongoing threat to the Shire's urban trees and planning future plantings will need to factor in the changing conditions. Climate change is likely to result in existing trees declining earlier than expected.

Like any other asset, trees come with a level of inherent risk. Identifying and minimising that risk is essential.

An up-to-date inventory of all urban trees which includes their location, species, condition, size and surrounding environment is therefore essential to provide the basis for making decisions.

Managing the diversity of tree age and species is very important. Analysis of the makeup of the tree population is readily achieved but does rely on regular updating of the information. The effectiveness of decision making can be determined relatively quickly by tracking any changes in the asset as a whole.

Trees create emotive feelings in residents and can polarise the community. The two main divides are those who wish to "retain" versus "remove" trees and preferences for "native" versus "exotic" trees. Trees are not transitory and should not be selected solely to the preferences of the residents of the time. Decisions made today are going to determine the treescape and quality of the urban, parkland and roadside environment for several generations to come. Procedures for considering residents' views, explaining management rationale, and minimizing any conflicts are therefore essential.

A programmed approach to managing an asset is also essential. Residents expect a level of response to tree concerns or requests. Weather events and vehicle accidents for example can also create a need for unplanned tree works. The conflict between programmed and reactionary will always be present and needs to be managed carefully when the level of resources is limited. Risk mitigation should be the determining factor in balancing programmed versus reactionary works.

Trees and built infrastructure combined with human activity can conflict with each other. Choosing the right species for the right location or creating the right location and environment for the desired species is essential. There is now also a much wider variety of ornamental tree species to select from that are tolerant of, or predictable in, urban conditions. Providing sufficient space for, and raising public awareness of the benefits of large trees is becoming important.

**Related documents**

Balmoral	Community Plan Urban Design Framework
Branxholme	Community Plan Urban Design Framework
Byaduk	Urban Design Framework
Cavendish	Urban Design Framework
Coleraine	Coleraine Urban Design Framework
Dunkeld	Dunkeld Urban Design Framework
Glenthompson	Urban Design Framework
Hamilton	Hamilton Structure Plan
Penshurst	Urban Design Framework
Tarrington	Tarrington Structure Plan
Wannon	Urban Design Framework

# 1. General Tree Management

## Context

Southern Grampians Shire Council has a significant urban tree legacy and Council has a responsibility to preserve and enhance that legacy. Trees provide a net benefit to the community and should form an essential part of all existing and new developed areas. They are a public asset and as such, should be considered as having equal importance to other public assets.

The promotion of the benefits of trees and correct maintenance and protection practices can create a greater appreciation of and pride in Southern Grampians Shire Council's trees. Council can play an active role in providing information and educating the community on these matters.

Whilst public trees provide significant benefits to the community of Southern Grampians Shire Council and visitors alike, they can conflict with other essential infrastructure. General infrastructure management must minimise these conflicts without serious detriment to the tree asset.

Trees are vulnerable to impacts from human activities and need a high degree of monitoring and protection to ensure their survival and development. They are just one component within a network of assets for which Council has management responsibility. Integrating their management aspects is essential to maximize benefits and minimize conflicts. Many activities or works can significantly affect the condition of the public tree asset. All works within or adjacent to public land needs to be properly planned and implemented to avoid or minimize any likely detrimental impacts on public trees.

Trees potentially live for many generations, their environment and community attitudes can change significantly over their life span and management practices can change. Plans and procedures should be reviewed regularly to ensure they remain effective and current, particularly in relation to climate change issues.

## Principles

- 1A. Urban trees are assets and must be managed, recorded and reported on as assets.
- 1B. Interactions between infrastructure and urban trees must be planned for and managed.
- 1C. A long term view must be taken when managing urban trees.
- 1D. Where township community plans, structure plans and development plans exist, urban tree management should be guided by these documents.
- 1E. All development projects to include planting of new trees where appropriate.
- 1F. Where possible, existing trees in the vicinity of developments or other works are to be retained and protected.
- 1G. Council's tree maintenance works to be prioritised towards tree protection and risk mitigation.

## Actions

1.1 Record and update urban tree data in the corporate Asset Management System, including inspection records and maintenance actions performed, in order for trees to be managed as assets.

1.2 Council to prioritise appropriate funding within its existing budget to ensure its tree population remains healthy and in a safe condition.

1.3 Council's tree management practices to be made public through the publishing of this plan on Council's website.

**Commented [NH1]:** Tree locations and species are already published into public domain (with all its out of dateness)

1.4 Council to develop agreements with other authorities in order to protect Council trees, infrastructure and to provide for compliance with the Road Management Act (2004).

1.5 This Street Tree Asset Management Plan including Appendices to be reviewed 12 months after its endorsement by Council, then every four years coinciding with each Council term.

1.6 Council to ensure professional tree care practices are used in the management of Council trees, with reference to best practice guidance including the Australian Standard for the 'Pruning of Amenity Trees' (AS 4373 1996/07).

1.7 Council to define and describe the landscape character of each town, involving each community, so that future plantings are appropriate and so that suitable planting material can be sourced.

## Related Documents

Australian Standard for the Pruning of Amenity Trees (AS 4373 1996/07)  
Road Management Act (2004)

## 2. Risk Identification and Mitigation

### Context

Risks associated with trees arise from a combination of the condition and characteristics of the tree and the nature of the activity around the tree. Management of the risk needs to take all these factors into account. Risks arising from street trees include:

- Falling branches and dead wood that may cause injury or property damage
- Falling leaves, fruit, flowers or other plant parts that may create a slipping hazard
- Health impacts from allergenic or irritating plant parts
- Sight distance issues
- Impact on public and private infrastructure
- Power line clearance

Works by Council, external contractors and land owners can have a significant impact on the risk potential of Council trees. Control over or awareness of works in the vicinity of Council trees is vital to ensure risk minimization.

### Principles

2A. Council has a duty of care to reduce the level of risk to the public and potential financial burden on ratepayers caused by urban trees.

2B. The Australian Standard for Risk Management (AS/NZS ISO 31000:2009) to be used as the basis for managing risks associated with urban trees.

2C. Any works or events likely to impact on, or be affected by Council trees, should be referred to the Manager of Works at the planning stage.

2D. When planning for new tree plantings, future risks to humans and infrastructure must be considered.

### Actions

2.1 Council to identify, record and manage tree-related risks using its Asset Management System.

2.2 Inspection of Council trees to be undertaken regularly at appropriate intervals for the level of risk.

2.3 A five-year tree maintenance work plan to be developed, based on inspection data and the priorities identified in Council's tree risk assessment.

2.4 A Tree Incident Report to be developed and adopted, and all tree-related incidents to be documented in the Asset Management system and referred to Council's Risk Manager as soon as practical.

2.5 A service level statement to be developed to ensure that where fallen tree material such as leaves or seeds creates a safety hazard, Council provides scheduled, appropriate intervention to prevent accidents.

**Commented [KM2]:** Can this be recorded in CRM? Is there an annual report that Risk provides to ELT and Council? Included as a component of regular reporting.

**Commented [KW3]:** This sounds great! Happy to help create this incident report!

**Commented [DT4]:** What is defined as a safety hazard? Is this really necessary in this document? More relevant to a SLA

## **Related Documents**

Australian Standard for Risk Management (AS/NZS ISO 31000:2009)  
SGSC Risk Management Policy 2013

## 3. Tree Inspections and Assessments

### Context

Council has responsibility for street trees within the town boundaries and for trees in its parks and public areas such as swimming pools and kindergartens. It is important that Council has an accurate, consistent and current understanding of the condition of its trees; therefore a regular program of tree inspections is necessary.

Trees in high use areas such as in car parks, at kindergartens, near playgrounds and around shopping precincts will warrant more frequent and detailed inspections. Inspections and risk assessments require standardised and documented procedures and should to be undertaken by appropriately qualified and experienced people. This may involve external expertise and may require education of Council personnel in appropriate Hazard Tree Assessment procedures.

Where ownership of trees is intended to be transferred to Council (for instance where a housing development has been completed by a developer), the trees must be assessed by a qualified and experienced arborist and any remedial works required to bring them up to an acceptably good and safe condition must be carried out. The Arborist's report must be supplied and works completed by the developer prior to handover to Council.

Commented [NH5]: Is that feasible, may be very expensive?

An up-to-date inventory system is essential for recording of tree-related data and for effective tree management decision making and programming of works. Council's Asset Management system is used to manage other Council assets and should be also used to manage the tree asset. Tree inspection records from the 2009 inspections in Hamilton and the 2012 inspections in Coleraine are already recorded within the Asset Management system.

### Principles

3A. An understanding of tree condition is a necessary precursor to good tree management, so regular inspections are necessary.

3B. Trees in high risk/high use areas may require more frequent inspections than those in low risk/low use areas.

3C. Tree should be treated as assets, so tree inspection data should be recorded in Council's Asset Management system. The first round of inspections should allocate a risk rating (high or low) to each tree.

### Actions

3.1 Council's Asset Management system to be utilized to record and manage tree data. The tree inspection inventory to include the following data, in a format compatible with Council's Asset Management system, as a minimum for each tree:

Asset Management System Category	Data to be recorded
Asset info	Location
	Species
	Age
	Size/Height/Width

	Health/Condition
	\$ value if new tree
	Risk (high/low)
Inspection info	Inspector
	Inspection date
Defect info	Disease
	Damage/structural issues
	Impacting on footpath/power lines/other
Action info	Type of works needed
	Date works completed
	Date new tree planted
	Works priority

3.2 A program of urban tree inspections for low-risk trees to be undertaken every five years and for high-risk trees every 12 months to facilitate risk management, tree maintenance and tree replacement.

3.3 A report to be presented to Council after each inspection detailing the current status of Council's tree population and tree inspection programs.

### **Related Documents**

Road Management Act (2004)

## 4. Tree Selection and Planting

### Context

Urban tree planting is best done in a planned and programmed manner to allow Council to manage its tree population within its budget and to ensure that the right species of good quality stock is obtained at the right time.

The right mix of species and age diversity are vital components of a sustainable tree population. A generally accepted rule for achieving this is for a particular genus to not make up any more than ten percent of the whole tree population. A diversity of species has multiple benefits including disease tolerance, visual/seasonal variation, lower maintenance and habitat creation/biodiversity. The age of trees should also be spread evenly across the townships between young and old trees to lessen the impact of, or need, to remove whole areas of trees. This plan aims to achieve a balanced diversity of tree ages and sizes, to achieve long term stability of the tree population and landscape character.

Tree species selection should reinforce the agreed character of areas such as exotic/introduced, native, or indigenous. Refer to Appendix B.

Only high quality tree stock should be used and trees must be planted correctly, as substandard trees or planting can increase maintenance costs significantly. Good quality stock and planting techniques dramatically increase establishment rates and the community's appreciation of trees. Stock selection should generally be in accordance with AS 2303 tree stock for landscape use; however many native species are better established from small plants.

Correct species selection and planting technique, use of good quality stock and follow-up maintenance (e.g. weed control, formative pruning etc) in the establishment phase will dramatically reduce maintenance costs and problems in the long term.

Large growing trees provide maximum environmental benefits and create the greatest visual impact. The protection of existing large trees and utilising or creating appropriate spaces to plant new large growing trees should be a priority. Tree species should have as large a mature size as possible within the constraints of the site to create a definite visual impact on the site and provide for the necessary physical clearances.

Priority for tree planting should be given to areas as follows:

1	High profile and high use areas
2	Areas where residents or community groups have requested trees and are prepared to be involved in tree establishment and after-planting care
3	Areas with a lack of trees

When selecting species for urban tree planting the following factors must be considered:

- preferred Landscape Character;
- adopted masterplans, strategies and development plans;
- the significance of previous history of tree planting;
- drought tolerance/low water usage/tolerance to heat, frost, waterlogging, strong winds
- longevity (prefer long lived trees);
- growth habit, height, size and structural integrity;
- tolerance to urban conditions;

**Commented [KW6]:** Should it mention consultation with local aboriginal community members/co-op's such as Winda Mara in regards to trees of local significance/native/indigenous?

- soil type and structure;
- root growth characteristics and tolerances;
- pruning and other maintenance requirements;
- amount and type of foliage or fruit shed;
- proximity and form of surrounding existing and future infrastructure;
- solar radiation/orientation;
- pest and disease susceptibility;
- existing and future use of the surrounding area;
- habitat value;
- possible poisonous, allergy or health effects;
- weed potential; and
- Consider edible fruit/nut trees in appropriate areas

Draft lists of suitable trees– See Appendix F.

### Street trees

Ideally where space is available, all streets should be planted on both sides with suitable trees. Traditionally the same species has been planted in a street or within a block to create an avenue effect but this is not always practical especially where there are powerlines.

Trees or shrubs with a dense form, close to the ground, are not appropriate where visibility for traffic is important. Where frontages are wide, dense shrubs may be acceptable.

**Commented [MM7]:** Low flowering natives create a warm ambience in some certain locations. Will work in many locations within the SGSC especially the outer towns and under power lines.

Fruit and nut trees are not to be planted near footpaths because of the slipping hazard that may arise from fallen items.

The location of and selection of street trees should take into account the possible effect on infrastructure, particularly powerlines. Trees should not touch uninsulated powerlines for safety reasons, so tall growing species must not be planted under powerlines. Refer to Part 8 - *Electric Line Clearance*.

Placement of street trees must take into account their proximity to other street infrastructure such as fire hydrants, stormwater pits, and gas or water valves. Guidance on placement of street trees where there is other street infrastructure is provided in the IDM Infrastructure Design Manual and the Code of Practice - Management of Infrastructure in Road Reserves – Victoria Government Gazette No. S117.

### Water Sensitive Urban Design

Where appropriate, current best practice should be followed when establishing new plantings to achieve objectives of water sensitive urban design, particularly in relation to retaining rain water in the soil. The use of street tree pits that capture and filter rain water around street trees could be considered particularly where the surrounding area is dominated by hard seal.

### New Developments

Street trees should be an integral component of any new development or subdivision site. Council must ensure that tree plantings in new developments and redevelopments are consistent with Council’s overall vision for urban trees and that trees are selected, planted and established in

accordance with this plan. Council may require that the developer establishes the street trees, or alternatively may elect to establish the trees at the developer's cost.

Design and approval processes for the development or re-development of streetscapes, open space and car parks must include consideration of existing vegetation and its value, as well as the scope for increased planting whilst minimizing conflicts with other infrastructure. In particular, designs should consider the capacity to contribute to provision of shade, visual amenity and neighbourhood character.

Urban tree planting by developers must be done in consultation with and to the satisfaction of Council to ensure compliance with the principles listed above, including where necessary the use of root barrier systems to avoid interference with underground infrastructure. Developers must submit a register of planted trees in a format suitable for entry into Council's Asset Management system. Generally tree planting should be done in the early stages of any project/development to get the maximum benefit, but should be after the layout of the site is known to avoid inappropriate placement of trees. The opportunity to ensure all of these things happen should be taken by Council at the Planning Permit stage.

**Commented [KW8]:** Again can we amend to... 'trees within the town boundaries and within the road reserves of Council maintained roads...'

**Commented [KW9]:** Have we mentioned the requirement for tree root barriers? This may be covered in the Risk Assessment for any Council planted trees/shrubs but how can we ensure that developers are considering underground infrastructure and using tree root barriers to mitigate risk?

### Community factors

Street tree planting can affect residents' enjoyment and use of the street so engagement with adjacent residents and property owners should be undertaken for any major street tree planting or when a significant change in format is proposed. However residents have very different opinions on their preferred species of tree and it is not practical to attempt to satisfy every resident's personal tree preferences.

Street trees establish more quickly and grow faster when residents assist with their care in the early stages. Residents should be encouraged to be involved in planting and maintaining new trees by watering and weed control.

Where residents or groups wish to plant trees, shrubs, herbaceous plants, or undertake any landscaping within a road reserve, park or other land under the control of Council they must apply to Council for a Works in Road Reserves permit. Vegetation planted without a permit from Council or not in conformance with the Tree Selection and Planting principles and policies will be removed in accordance with Council's Tree Removal Procedure (see Appendix C).

**Commented [DT10]:** Such works could reasonably be considered as Works within a Road Reserve and require a permit under the Road Management Act

**Commented [DT11]:** Does this cover sowing a lawn?? Spraying out or spreading scoria, etc?

### Parkland and other specific site trees

Tree planting in parkland and at other specific sites such as kindergartens and swimming must involve engagement with the relevant user groups; for major parks and reserves this ideally should be in the form of a masterplan. Existing masterplans and management plans are to be used to guide tree planting, species selection, locations and priorities.

Parklands should contain large growing trees as large trees provide the most environmental and cultural benefits. Parks are one of the few spaces within urban environments where there is sufficient space to grow large trees whilst minimising conflicts with other infrastructure.

Tree planting in parklands is important to ameliorate effects of climate change, particularly increased temperatures and solar radiation. Provision of shade in high use areas should be a priority.

### Principles

4A. All streets should be planted with trees except where the nature strip is very narrow (as a guide, less than 1.5 metres in width) and trees are likely to impact on clearance for footpaths or roads.

4B. The species of street and parkland trees to be planted must be consistent with the character of the area and must be from the list of tree species for urban plantings (Appendix F).

4 C. Street trees should be evenly spaced where possible.

4D. Where there are overhead powerlines a short species must be planted under the powerlines but a tall species may be planted on the other side of the street.

4E. A planned program of tree planting is necessary.

4F. Good quality planting material must be used. Nursery stock should be closely monitored and any poor quality trees should not be planted.

4G. Tree species must be suited to the site and growing conditions.

4H. Areas are to be planted in the agreed priority order.

4I. Planting techniques should be carefully monitored and extra training should be allocated to this role. It is absolutely imperative that this is done correctly, and more emphasis and training will reduce long term management costs dramatically.

## Actions

4.1 The recommended Street Tree Species list in Appendix F to be maintained as a live document and reviewed with the Street Tree Asset Management Plan. Only trees on the list are to be planted.

4.2 The correct tree planting procedure is to be followed. Appendix G provides a guide. All trees that are to become the management responsibility of Council must be planted using this procedure which should include liaison with all residents, adjoining property owners and relevant service authorities.

4.3 Council to develop a rolling 5-year program of tree plantings based on agreed priorities within the existing budget.

4.4 Council to include specific details of the required tree species, planting method, timing and placement and the duration of maintenance required of the developer in the planning permit for new developments and redevelopments.

## Related Documents

IDM Infrastructure Design Manual  
Code of Practice - Management of Infrastructure in Road Reserves – Victoria Government Gazette S.117  
EPA Victoria – Maintaining water sensitive design elements  
AS 2303 Tree stock for landscape use  
Dunkeld Urban Design Framework  
Dunkeld Structure plan  
Hamilton Structure plan

**Commented [DT12]:** Not sure that consulting is the best process here, maybe liaising would be better.

Coleraine Urban Design Framework  
Coleraine Community Plan  
Balmoral Community Plan  
Branxholme Community Plan  
Tarrington Structure Plan

## 5. Tree Removal

### Context

This section deals with tree removal under the following scenarios:

1. The tree is presenting an immediate safety or health hazard
2. The tree is an obstacle to development or infrastructure (eg. moving a driveway, building a house, access, causing damage to private or public infrastructure)
3. The tree is subject to personal opinion or dislike

Trees can take many years to develop fully and once removed cannot be quickly replaced, if indeed at all. Urban trees grow in what can be a difficult environment, that can be subject to numerous forms of damage and that can become a hazard. Removal of trees will therefore be a regular and necessary activity for Council.

Removal of any tree has the potential to create a great deal of conflict as trees often evoke very emotive feelings, both for and against removal. Tree removal decisions must therefore be made systematically and with due consideration of all factors and with an appropriate level of community engagement. Where possible, tree removal should involve liaison with any affected parties to minimize concerns and maintain the image of Council as a responsible and respectful tree manager. However if Council trees are an immediate risk to life and property and if they have been properly assessed, it is not appropriate to delay removal until community engagement has been undertaken. In these situations a detailed record of the status of the tree (including photographs) should be made and provided to adjacent residents upon request and also forwarded to Council's Risk Manager.

Council's parklands contain large numbers and many sizeable and significant trees. The relevant user groups, committees of management and where appropriate, the wider community, should be informed when tree removal is necessary. Detailed documentation is important to support decisions. Where tree removal is required in parks, actions must be in accordance with a master plan or strategy where they exist.

Any decision to remove a tree should be based on the best long term outcome for the community as a whole. Removal of trees for minor and personal concerns such as leaf or litter drop or personal dislikes should not occur.

Any trees removed should be replaced in order to maintain the sustainability of the overall tree asset.

Trees contained within the Southern Grampians Shire Council's Significant Tree Register are worthy of wider consideration and community engagement before making the decision to remove them and all possible options must be considered and evaluated.

In the case of trees impeding a development or installation of infrastructure, any person or organisation wanting to remove a street or parkland tree must obtain written permission through the Works in Road Reserves permit process, with the exception of organisations that have legal power to remove trees that may be interfering with their assets, such as water authorities.

Where Council trees have to be removed because of vandalism, poisoning or other damage, Council may at its discretion pursue the offending party for compensation.

## Principles

5A. Removal of street and parkland trees must be done according to Council's Tree Removal Procedure (see Appendix C) and all state and local planning requirements controlling the removal of trees must be adhered to (see section *Existing Tree Controls and Regulations*).

5B. Trees on the Significant Tree Register must be assessed by a qualified arborist and every effort to preserve and protect the tree must be made.

5C. Council's Manager of Works may order removal of any street or parkland tree if:

- The tree poses an immediate safety or health risk
- The tree is dead or in extremely poor health
- Removal is essential for the construction of a development and the tree removal was requested in advance by the developer using Council's "Works in Road Reserves" form or in a planning permit application and has been approved by Council
- The tree is recommended for removal in a Council- adopted master plan

5D. All trees removed are to be replaced as soon as is practical unless otherwise determined by the Director Shire Infrastructure.

**Commented [DT13]:** Surely this should be named as the Director of Infrastructure if we are going to name the Manager of Works above.

5E. Council will not remove or consider removing a tree for reasons of:

- falling leaves, bark, twigs, fruit or flowers;
- difficulty establishing grass under the tree;
- obscuring vistas unless there are traffic safety concerns
- aesthetic concerns or personal dislikes.

5F. The removal and replacement of urban trees to facilitate private development such as driveways and service connections is to be at the cost of the requestor. Permission in writing for tree removal must be sought using the Works in Road Reserves or where appropriate, Council's Planning Permit process.

5G. Council at its discretion may require compensation for urban trees that have been removed without permission or willfully damaged or destroyed.

The compensation can be:

- As calculated using the Amended VCAH Burnley Method (Melbourne) method for the Evaluation of Amenity Trees or
- By the application of Local Law 60, Sections 2(a) and 2(i)

Council may also refer the matter to Victoria Police.

## Actions

5.1 Council to follow the Tree Removal Procedures in Appendix C for all tree removals.

5.2 Council to train all staff and inform the community of the correct process for requesting tree removals.

5.3 Where urban trees have been removed without permission or have been wilfully damaged or

destroyed, Council at its discretion will pursue compensation by:

- using the Amended Burnley valuation method for determining the monetary value of amenity trees, or
- by the application of Local Law 60, Sections 2(a) and 2(i)

Council may also refer the matter to Victoria Police instead of or in addition to these options.

### **Related Documents**

Southern Grampians Shire Council Community Local Law No. 1 of 2015  
Amended (VCAH) Burnley valuation method

## 6. Tree Protection

### Context

Trees take many years and significant funds to establish but they can be killed or damaged in a short time by inappropriate activities nearby, in the course of urban development and maintenance.

It is important for Council to put into place adequate protection processes to safeguard its tree assets. Significant, old or large trees need the greatest protection owing to the potential for a major public risk event and/or property damage, the irreplaceable environmental and cultural benefits they provide and, in some cases, their inability to recover from even minor damage or disturbance.

Any development or works within a street or parkland should take all practical steps to preserve existing trees in a healthy and safe condition. In reality however there will be trees that are not worth protecting due to their structure or condition and do not warrant expensive protection or remedial actions. Trees should be assessed at the early planning stages of a development to determine if they are to be retained.

It is vital that protection issues are identified at the design stage. Protection plans need to be finalized and agreed upon prior to any works commencing. Failure to do this will usually result in a much higher cost of the construction/project, the unacceptable loss of trees and a poor public perception of Council or contractors.

Trees growing beyond the boundary of the development may also be damaged if their roots extend to within the development zone. Works should be designed and managed to avoid private trees being impacted by Council works and Council trees being impacted by private works.

The Australian Standard for protection of trees on development sites AS 4970-2009 provides guidance on how trees should be protected from damage during developments or other works. The growth of the above-ground and particularly the below-ground parts of trees plus the long term consequences of damage are not always obvious, so the input of an experienced and qualified arborist is a critical feature of successful tree protection.

In summary the steps are:

1. Survey the site, including location of trees
2. Conduct an assessment of trees on the site
3. Determine which trees should be retained
4. Determine tree protection measures
5. Establish Tree Protection Zones
6. Install protective measures
7. Carry out works
8. Remove protective measures
9. Conduct tree assessment to certify tree health and condition

### Principles

6A. Established trees must be protected from damage when works are taking place in the tree's vicinity.

6B. The Australian Standard for Protection of Trees on Development Sites AS 4970-2009 is the best

**Commented [MM14]:** The Plain trees in the CBD are the perfect example of this.  
Pity no thought went into the planting of these trees at the time.

practice guide to be used for all tree protection actions.

6C. Where Council is aware of works to be undertaken near Council trees, the effort must be made to ensure protection of the trees. Council to ensure that tree protection is considered in the Planning Permit approval process.

6D. Trees on privately owned or other adjoining land must be protected from damage from Council works

6D. When works have damaged or killed Council trees, financial reparation may be sought.

### **Actions**

6.1 Council to train appropriate Park and Gardens staff in Arboriculture, or employ a qualified arborist.

6.2 Details of tree protection actions to be recorded in Council's Asset Management System.

6.3 Council to adopt the Amended Burnley valuation method or enforce the Southern Grampians Shire Council Community Local Law No. 1 of 2015 to facilitate financial reparation for trees damaged or killed during developments.

6.4 Council to develop a tree and infrastructure protection agreement with other authorities and contractors who undertake works on or near Council land.

### **Related Documents**

AS 4970—2009 Protection of trees on development sites  
Amended Burnley valuation method

## 7. Infrastructure Protection

### Principles

Just as trees are subject to damage from infrastructure and human activity, infrastructure is regularly subject to damage from adjacent trees.

Liaison between Council and other infrastructure managers, utilities and property owners is essential to ensure that infrastructure damage is prevented or kept to a minimum. When any tree plantings are proposed in the vicinity of above and below ground infrastructure, careful consideration of species selection, soil type, planting technique, available root space and the appropriateness of root control measures are needed to ensure damage is avoided or minimized.

Infrastructure within land outside Council's control can also be affected by trees. Tree planting and growth from Council trees should not place any undue burden in the form of risk or maintenance on adjacent land or property.

It can be more beneficial to design and construct infrastructure to withstand impacts from tree roots than attempting to control root growth or provide sufficient space for root growth. There are materials available or alternative construction methods that are capable of withstanding the impacts from trees such as reinforced concrete, porous asphalt, rubberized footpaths, PVC stormwater pipes, use of structural soils and root inhibiting chemicals/barriers. There are ongoing opportunities to do this as infrastructure may be replaced or changed several times throughout the life of any adjacent trees.

Overhead assets such as telecommunication cables and street lights can be detrimentally impacted by trees so Council should not plant trees that will significantly impact upon these fixtures.

### Principles

7A. Effects of trees on infrastructure must be considered when selecting tree species and planting trees. When selecting tree species, Council must consider root invasiveness. Consultation with other authorities to be undertaken where necessary.

7B. Design of infrastructure must consider measures that will help withstand tree impacts. Where it is cost effective, infrastructure to be designed and constructed to withstand damage from existing and likely future trees.

### Actions

7.1 Council to install root barriers or other appropriate solutions when planting trees near vulnerable infrastructure.

7.2 Where Council trees have the potential to damage surrounding infrastructure, Council to manage tree growth to avoid damage.

## 8. Electric Line Clearance

### Context

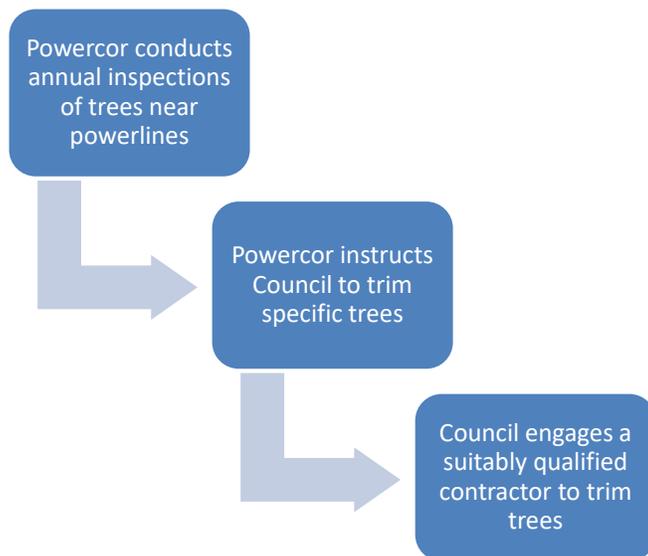
A reliable and safe supply of electricity is essential to the Southern Grampians Shire Council business and residential community and a major part of ensuring safety, reliability and prevention of fires is managing vegetation around powerlines.

Fundamentally this means that powerlines and trees should not touch. There are some variables that come into play when determining tree management practices such as the branch size and movement, the type of electrical lines (high voltage, low voltage, insulated, uninsulated) and the surrounding environment (high or low fire hazard).

Overhead electric lines impact significantly on the aesthetics, longevity, health and structure of street trees and where possible the electric lines should be placed underground or clear of trees e.g. by the use of offset crossarms, increased height, or by using aerial bundled/insulated cables.

Opportunities for funding subsidies through the Powerline Replacement Fund (PRF) should also be pursued. The PRF will allow powerlines in the highest risk bushfire areas to be replaced with insulated overhead, underground powerlines or new conductor technologies. The Fund is directed at replacing both High Voltage (HV) and Private Overhead Electric Lines (POELs) in highest priority Local Government Areas which includes Southern Grampians Shire.

Council's role in maintaining a safe distance between its trees and powerlines is to respond to requests from the electricity distributor (Powercor) and engage contractors as follows:



### Principles

8A. Trees and powerlines are a dangerous combination and should be avoided. Street tree planting, species selection and pruning practices must aim to minimise conflicts with overhead electric lines.

8B. Council has a role in managing vegetation around powerlines within the urban area of Hamilton only. Elsewhere the responsibility falls on the electricity distributor (Powercor).

### Actions

8.1 For new developments, subdivisions, redevelopments, road construction and when the opportunity otherwise arises, Council to require developers to put power underground.

8.2 Council to investigate funding opportunities to put power underground or in a safer configuration.

### Related Documents

Electricity Safety Act 1998

Electricity Safety (Electric Line Clearance) Regulations 2015

Guidelines to the Electricity Safety (Electric Line Clearance) Regulations 2015

Powercor 2016 to 2017 Electric Line Clearance (Vegetation) Management Plan

**Commented [NH15]:** Would you record powercor prunings etc inside our asset management system? If so a process to do so should be setup.

## 9. Tree Maintenance

### Context

Council has the responsibility of providing adequate maintenance of trees within public streets and Council-managed parklands. Maintenance of clearances for pedestrians, vehicles, buildings and signage and traffic sight distances is critical.

The correct maintenance regime on young and developing trees has the potential to significantly reduce future risks and costs associated with mature trees and correct care when trees are young will promote strong healthy growth. This means that the important tasks of watering and weed control when trees are young must not be overlooked, and that they are budgeted for as part of the tree planting process.

Trees can shed litter in the form of leaves, twigs, bark, flowers that may present a slipping or tripping hazard and where necessary, Council should minimize any potential hazards that could result. Trees which are known to produce a large quantity of slippery or dangerous litter should not be planted in pedestrian areas.

All tree maintenance should be performed to the highest standard and where there is not the required level of expertise within Council, expert assistance should be sought. The Australian Standard AS 4373-2007 Pruning of Amenity Trees should be used as the reference for urban tree pruning. Formative pruning of young trees can provide significant later benefits. If a tree is pruned to have an established leader and has any weaker limbs pruned at a young age it may eliminate the significantly larger financial outlay of removing a large decayed limb. Tree pruning is a specialised skill so should not be undertaken by residents. Instead, residents should contact Council if pruning is required. However residents are to be encouraged to water and weed around street trees, particularly in the establishment phase.

The tree's root zone can often be constrained in highly developed urban areas where growing conditions are severely restricted and less than optimal, such as where there is soil compaction or a sealed surface. Soil treatments including mulch can assist in improving the growing conditions for trees and in conserving soil moisture.

### Principles

9A. Maintenance of trees includes watering and weed control as well as pruning.

9B. Council is responsible for undertaking adequate maintenance on its urban trees to allow safe use of the areas by pedestrians and motorists and without detriment to nearby infrastructure.

9C. Pruning and trimming should be undertaken only by experienced and skilled staff or contractors with AS 4373-2007 Pruning of Amenity Trees to be used as a reference.

### Actions

9.1 Council to include tree establishment costs (watering, weed control) in any tree planting planning and ensure adequate staff time is allocated.

9.2 Council to develop an annual work program of pruning and tree maintenance to improve the condition of Council trees, using AS 4373-2007 Pruning of Amenity Trees as a reference.

Commented [NH16]: All maintenance recorded in Conquest

Commented [NH17]: Duplication from previous action?

9.3 Where appropriate, residents to be encouraged to assist with establishment of young Council trees.

**Related Documents**

AS 4373 Pruning of amenity trees

## 10. Biodiversity Considerations

### Context

Many trees throughout Southern Grampians Shire Council provide a wide range of habitat values for local fauna such as food, hollows, nesting sites and roosting sites. Preserving these values can conflict with normal tree management practices which aim to maximize the safety and health of trees. Alternative tree management practices may be warranted for trees with high habitat or ecological values. In cases where dead or disfigured trees have been retained for ecological reasons interpretive signage can be used to educate the community of their importance.

Artificial hollows can and should be installed when safety or aesthetic issues require complete removal of trees with hollows. Importantly trees ameliorate air pollution and sequester carbon, so planting of young trees is important to capture carbon emissions.

### Principles

10A. The habitat and biodiversity values of urban trees should be recognized and recorded in the Asset Management System.

### Actions

10.1 Where important habitat and ecological values of trees are indicated, further assessment to be undertaken in order to retain these values.

10.2 Council to consider tree species' characteristics in relation to their use in wildlife corridors where appropriate.

Commented [NH18]: Something on corridor function would fit here

## 11. Pest and Disease Control

Trees are subject to a range of pests and diseases and Council has a responsibility to protect its urban tree assets from harm or loss, particularly significant trees. Disease and pest eradication is not practical in most cases because pests are usually part of a natural system, so harm minimization should be seen as the best approach.

Pests and diseases do not recognise boundaries so a co-operative approach is required between land managers. Where pests and diseases have the potential to affect Council's tree asset or significant trees Council should assist residents and other land managers in being aware of potential problems, control options and determining the best control method.

Biodiversity is a key tool in avoiding widespread tree loss, so a variety of species and genotypes should be used to reduce the likelihood of whole tree populations succumbing to a pathogen.

Climate change predictions for the region are for more heat waves and lower rainfall but with more frequent intense downpours which will provide a different environment for trees and pests alike. There may be changes in the ecology that alter the type of pests and diseases affecting the Shire's trees so monitoring of tree health and keeping abreast of potential issues will be more important in the future.

### Principles

11A. Tree species that are known to be particularly susceptible to specific diseases should be avoided, recognizing that a low level of pest or disease infestation is generally unavoidable and will be tolerated. Tree species known to be particularly susceptible to particular diseases or pests should be excluded from Council's Suitable Trees list.

11B. A diverse variety of genus and species of trees to be included in the Suitable Tree species list to prevent widespread damage or loss.

11C. Climate change impacts are likely to influence tree pests and diseases but the exact impacts are unpredictable.

### Actions

11.1 Where there are well known and predictable risks to existing urban trees such as Elm Leaf Beetle, Council to develop and implement specific monitoring and control programs for outbreaks and where possible, implement preventative measures.

11.2 Council to keep generally informed about tree pests and diseases that may affect its urban trees, particularly in relation to climate change.

11.3 Where relevant, Council to share information and resources to respond to the management challenges associated with pest and disease impacts on public and private trees.

## 12. Community Engagement

### Context

Many residents have an interest in and often strong views on tree issues that are close to their properties. Engagement with residents can create a much better understanding of tree issues and a wider acceptance of the role and works undertaken by Council. Community engagement and involvement should therefore be an integral part of urban tree management. Residents are also well placed to quickly observe issues or threats to trees, so residents should be encouraged to communicate with Council on tree related matters.

Tree management and in particular the choice of tree species are topics that are likely to attract strong opinions from residents. Council should therefore provide the opportunity for residents to be involved in the selection of tree species for their street, within the constraints of landscape character, height and width restrictions or other factors. If a consensus view cannot be reached within a reasonable timeframe, Council will decide on the species to be planted.

### Principles

12A. Council's urban trees can provide an opportunity for community involvement.

12B. Residents should have the opportunity to be involved in selection of tree species for their street.

### Actions

12.1 Add a customer request category for residents to report damaged, dangerous or vandalized trees.

12.2 Add a page to the Council website for street trees that includes:

- Information on Council's objectives for its urban trees
- A link to the Street Tree Asset Management Plan including the Suitable Tree species listing
- Information on reporting tree issues, hazards and damage.

Commented [NH19]: Something on corridor function would fit here

## 13. Significant Trees

### Context

There are trees within Southern Grampians Shire Council that are of historical and cultural significance, many of which are already recognized in the Schedule to the Heritage Overlay within the Southern Grampians Planning Scheme. These can be viewed at [http://planningschemes.dpcd.vic.gov.au/schemes/southerngrampians/ordinance/43\\_01s\\_sgra.pdf](http://planningschemes.dpcd.vic.gov.au/schemes/southerngrampians/ordinance/43_01s_sgra.pdf). A planning permit is required for removal or other works that may affect these trees.

A large proportion of trees identified in the Schedule are on privately owned land, so they fall outside the scope of this plan. However there are some important inclusions that are street trees, form Avenues of Honour, or are on Council land and these are listed in Appendix E - Significant Tree Register.

There may also be other urban trees not listed that have significance to the community and it would be of benefit for these to be recorded and managed accordingly. This can be done by application to the National Trust of Australia who assess trees using the following criteria:

Scientific	Horticultural or genetic value
	Important source of seed or propagating stock
	Particularly resistant to disease or exposure
	Species or variety that is rare or of a very localised distribution
	Remnant native vegetation
	Outstanding for its size
Social	An outstanding example of the species
	Unique location or context
	Contribution to landscape
	Associated with Aboriginal activities
	Important landmark
	Spiritual and religious associations
Historic	Contemporary association with the community
	Forms part of an historic park, garden or town
	Commemorative plantings
	Associated with an important event
Aesthetic	Associated with an important person, group or institution
	A really great looking tree
	Exhibits curious growth form or unusual physical features
	Is a better than an average example of its species, or a tree in its location

### Principles

13A. It must be recognised that some trees have particular historical, scientific, cultural or aesthetic significance and that they must receive the appropriate level of protection and management. Where appropriate Council may permit the installation of plaques to indicate the tree's importance.

13B. The National Trust of Australia process for assessing significant trees allows the community to have trees assessed so that they are afforded protection and appropriate management.

## **Actions**

13.1 Council to maintain a Significant Trees Register for trees on public land (Appendix E).

13.2 Council to ensure that the appropriate measures for tree protection are implemented for significant trees, using AS 4970—2009 Protection of trees on development sites as the guide.

## **Related Documents**

Schedule to Heritage Overlay in Southern Grampians Planning Scheme

[http://planningschemes.dpcd.vic.gov.au/schemes/southerngrampians/ordinance/43\\_01s\\_sgra.pdf](http://planningschemes.dpcd.vic.gov.au/schemes/southerngrampians/ordinance/43_01s_sgra.pdf)

National trust of Australia – Significant Tree Register

<https://www.nationaltrust.org.au/services/significant-tree-register/>

## 14. Existing Tree Controls and Regulations.

There are existing laws and regulations that control the removal and pruning of both native and exotic vegetation on private and public land. The policies and procedures in this Plan are in support of those laws and regulations and need to be viewed as being in addition to those laws and regulations.

It is the responsibility of all persons to ensure they do not do anything that is in contravention of any existing laws and regulations. The following information is provided to assist you in determining what laws and regulations may apply to your situation. They may change over time so please ensure you check what the latest information is.

### State Government

There are State Government Acts that control what may be done with vegetation including the Planning and Environment Act 1987. More information on this and also the Department of Environment, Land, Water and Planning (DELWP) Native Vegetation Management Framework (NVMF) can be found at [www.delwp.vic.gov.au/planning](http://www.delwp.vic.gov.au/planning).

### Local Government

The Southern Grampians Shire Council has a variety of planning scheme overlays and local laws that specify what may or may not be undertaken with certain types of vegetation, including:

- Vegetation Protection Overlay1 (VPO1) - native vegetation only
- Vegetation Protection Overlay 2 (VPO2) - native and exotic vegetation
- Heritage Overlay (HO)
- Significant Landscape Overlay (SLO)
- Environmental Significance Overlay (ESO)
- Neighbourhood Character Overlay (NCO)

More details can be found at [www.sthgrampians.vic.gov.au](http://www.sthgrampians.vic.gov.au).

The Southern Grampians Shire Council Community Local Law No. 1 of 2015 Community Safety and Amenity details some conditions relating to private and public trees and vegetation. More details can be found at [www.sthgrampians.vic.gov.au/Your\\_Council/PrivacyLocalLawsConsultation/Local\\_Laws](http://www.sthgrampians.vic.gov.au/Your_Council/PrivacyLocalLawsConsultation/Local_Laws).

Refer also SGSC Roadside Management Plan Revised 2013.

## Definitions

**Arborist (qualified)** – a person with a Certificate IV in Arboriculture as a minimum (or equivalent qualification), or higher, and a minimum of three years of relevant industry experience.

**Tree Incident** – the failure of any part of a tree that caused or realistically could have caused damage or injury or where damage or injury was caused to a tree by others.

**Immediate risk** – An immediate risk relates to risk where *the danger is to be present, immediate or imminent and not remote either as to likelihood or as to time of occurrence (in other words something not to be expected for years to come).*

**Poor Health** – foliage colour and density plus annual shoot/extension growth plus woundwood development all severely retarded and/or outer canopy dying back and/or disease/s present and causing significant affects.

**Poor Structure** – extensive decay and/or structural defects affecting the main branch/trunk framework, extensive remedial work required or not practical/possible.

**Diameter at Breast Height (DBH)** – a measurement taken at 1.4 metres above the ground, that being a convenient height at which to measure a tree's diameter. For trees on slopes, multi-trunked trees, leaning trees or where branches are growths interfere with measuring at 1.4 metres refer to the International Society of Arboriculture's Simplified Guide to Measuring DBH".

**Sustained Amenity** – is the creation and management of a tree population that contains a range of species and age classes within a local population; from new planting right through to mature trees. Amenity is sustained i.e. visual amenity of the landscape managed in this way does not fluctuate wildly. The need to remove many trees at the same time and rapid changes in the local landscape is avoided. Removal and replanting of trees takes place continually or irregularly throughout the whole of the tree population.

## **Associated programs, lists and procedures.**

### **Existing**

Risk Assessment Program – details  
Procedure for removal of dangerous and non-dangerous trees

### **To be developed**

Southern Grampians Shire Council – Works on Road Reserves Permit – relevant to trees  
Tree Inspection Program (5 year program)  
Tree Incident Report Form  
Tree Inspection Procedure and format for Conquest  
Tree Planting Program (annual work plan based on priorities)  
Street plan for each town  
Tree Planting Procedure  
Standard for Arborists Reports  
Tree Root Management Procedure

## **Reports to be submitted to Council**

- Review of Street Tree Asset Management Plan – 12 months after endorsement by Council then every 4 years, to coincide with the appointment of the new Council.
- Annual report on tree-related incidents
- Annual report on the current status of Council's tree population and tree inspection programs

## **Appendix A – Existing information on urban trees**

In 2009 all street trees in Hamilton were surveyed, most were identified and their condition was recorded. In 2012 the same process was carried out in Coleraine. Data from both surveys are held in Conquest and can be viewed using Intramaps (in Assets layer, select: Information).

Trees in the Hamilton CBD were comprehensively assessed in 2017 by an arborist for health and structural condition.

Street trees in the other Shire towns have not been surveyed.

No parkland trees in the Shire have been surveyed unless they posed a safety hazard.

## **Appendix B - Landscape Character**

'Landscape Character' can be identified by observing local landscape elements that collectively contribute to the dominant physical appearance of an area. It typically includes street tree and parkland plantings, remnant and historical features, major topographical features, the dominant architectural styles, and building and paving materials. Developments which respond to this character will add visual unity and value to the area.

Council currently has very limited documentation to guide landscape development styles affecting landscape character.

## Appendix C - Tree Removal Procedure

### 1. Dangerous trees presenting an immediate risk

Only trees that present an immediate risk can be removed without prior engagement with adjacent residents or owners. Only qualified and experienced arborists should be used to make this assessment.

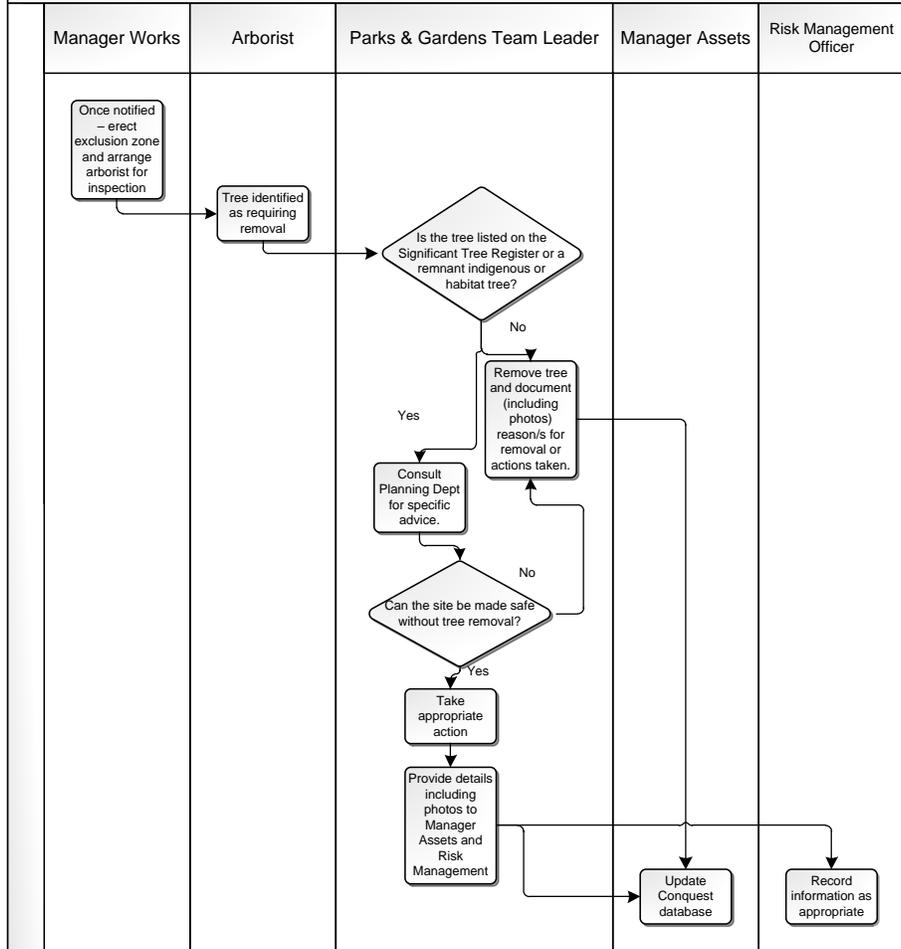
An immediate risk relates to risk where *the danger is to be present, immediate or imminent and not remote either as to likelihood or as to time of occurrence (in other words something not to be expected for years to come).*

A written and photographic record must be made by a qualified arborist detailing the reasons for the trees removal. The record is to be provided to the Manager of Works as soon as is practicable, kept in Council's information system and made available upon request.

The following process must be followed when dealing with dangerous trees – see flowchart:  
**Dangerous tree inspection and removal.**

D/18/52404

**Dangerous Tree Inspection and Removal**  
**Purpose: To manage trees that pose a safety hazard.**  
 Version: 1 Date: June 2018



## **2.0 Non-Dangerous Trees**

The process for removal of trees that do not present an immediate safety hazard must be followed when Council receives a request for tree removal – see flowchart: **Non-dangerous tree inspection and removal.**

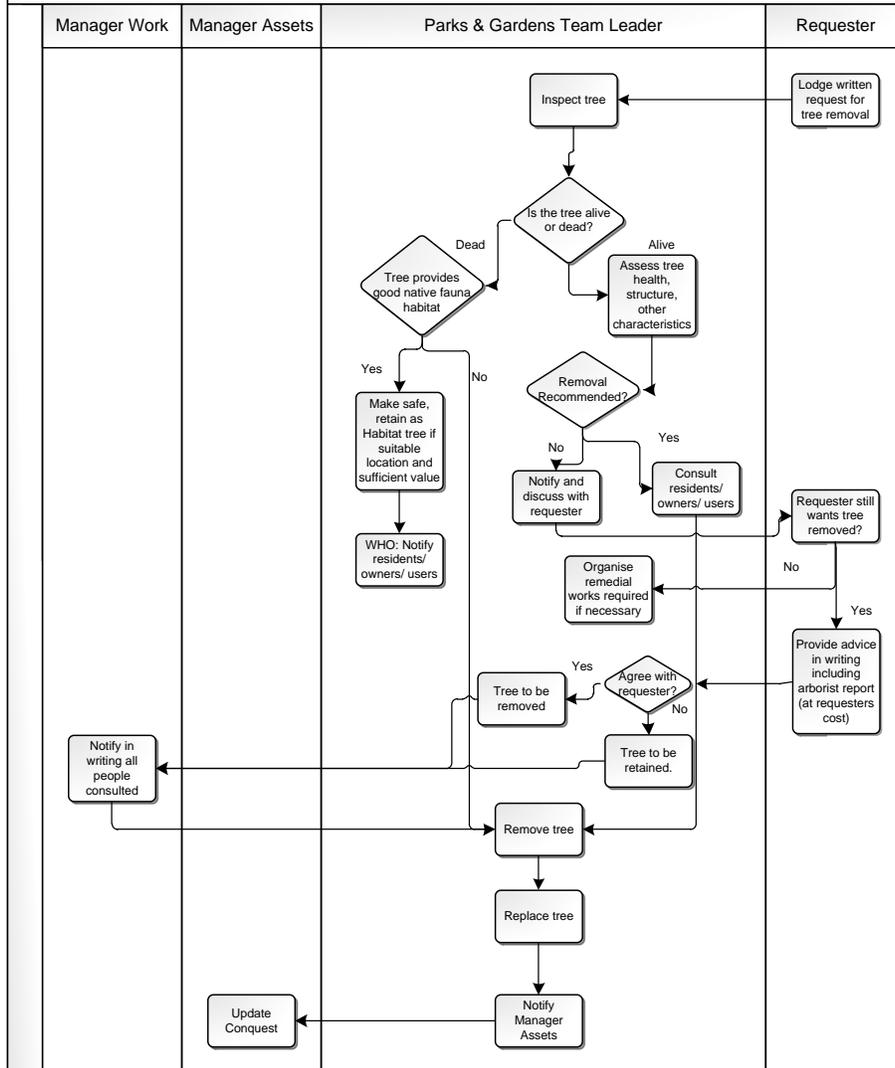
**D/18/52406**

# Non-Dangerous Tree Inspection and Removal

Purpose: To deal with request for tree removal

Version: 1

Date: June 2018



### 3.0 Consultation/Engagement Procedure

If reasons for the removal request are purely as per Principle 5B: Tree Removal, no community engagement will be undertaken.

Principle 5B: Council's Manager of Works may order removal of any street or parkland tree if:

- The tree poses an immediate safety or health risk
- The tree is dead or in extremely poor health
- Removal is essential for the construction of a development and the tree removal was requested in advance by the developer using Council's "Works in Road Reserves" form or in a planning permit application and has been approved by Council
- The tree is recommended for removal in a Council- adopted master plan

#### General Community Engagement procedure

The responsibility for carrying out this procedure lies with the Council's Manager of Works.

When considering removing a street, roadside or parkland tree adjacent residents, property owners and, in the case of parkland trees, user groups must be consulted and their opinions taken into consideration when determining an appropriate course of action. Adjacent residents and property owners are those that could reasonably be expected to be directly affected by the trees removal. Examples would include:

- any residence that has a direct and clear line of sight to the tree;
- any properties to which the tree provides shade, shelter or screening properties within 50 metres of the tree.

The residents and owners are to be provided with a clear and concise assessment of the tree's condition, the Council's preferred option and the full range of options that were considered. The information may be provided in writing or orally. The resident's or owner's name, contact details and opinions are to be recorded.

Only one opinion is to be considered from each residence and owner/s. The opinion should be sought through the person in charge of or leader of the residence or property. For a resident's opinion to be formally considered they must be over 18 years of age and regularly residing at the address.

If the immediate adjacent resident and owner plus a majority of the residents consulted agree with Council's preferred option then the work can proceed after seven working days. Any resident who did not agree with the majority should also be informed seven working days prior to commencing the works.

If the immediate adjacent resident and owner plus a majority of residents disagree with Council's preferred option the Manager of Works must try to resolve the matter through discussion with the affected parties. If consensus cannot be reached the Manager of Works is to provide a written report to the relevant Director, detailing the trees condition, options for remedial action, list of people consulted and their opinions and a recommendation.

The relevant Director, has delegated authority from Council to make a final decision. The people

consulted are to be informed of the final decision at least seven working days prior to performing the works.

Where no adjacent residences exist no community engagement is required unless the adjacent property owners have specifically requested to be consulted about trees abutting their properties. The Manager of Works should keep the Parks & Gardens informed about all these locations and the resident contact details.

In the case of trees listed on the Southern Grampians Shire Council Significant Tree Register the Manager of Works will consult, where possible, with those people (including absentee owners), organisations or groups having a direct relationship with the tree.

#### **Formal Consultation Procedure**

The responsibility for carrying out this procedure lies with the Council's Manager of Works.

A written request must be received by Council before instigating this procedure. The request must clearly identify the tree or trees concerned, the reason/s for wanting the tree/s removed and who is making the request.

Consultation must be in writing and provide residents, property owners and user groups with at least two full weeks to provide a response to Council. The Councillor/s and Council's Insurance and Risk Managers must also be consulted and their opinion considered in making a final decision.

The people consulted will be given two full weeks' notice of the decision prior to undertaking any works.

If the people consulted and the Manager of Works are in agreement then that decision stands. If there is not full consensus, the Manager of Works is to compile a report and recommendation and the final decision should be made by the relevant Director or Council.

The report by the Manager of Works to the Director is to include full details of the request, the tree/s, people consulted, the full range of opinions and a recommendation.

#### **Appeal Process**

The decision by the Director will be final except where a petition objecting to that decision is received by Council within the two week notification period. In these cases a report and recommendation will be presented to Council for their consideration.

## **Appendix D - Works in the Vicinity of Trees**

The Australian Standard AS 4970-2009 Protection of trees on development sites should be used as the best practice guide for planning and protection of trees on and near development sites.

## Appendix E - Significant Tree Register

Planning Scheme reference	Town	Details
HO 67	Byaduk	Memorial planting of <i>Fraxinus excelsior</i> , Hamilton – Port Fairy Road, SGHS Datasheet 190
HO 75	Byaduk	Avenue of Honour. <i>Grevillea robusta</i> and <i>Fraxinus angustifolia</i> , Penshurst-Byaduk Road, SGHS Datasheet 189
HO 120	Coleraine	Avenue of Honour, west of intersection of Glenelg Highway and Coleraine-Edenhope Road. <i>Cupressus macrocarpa</i> and <i>Eucalyptus cephalocarpa</i> , Glenelg Highway, SGHS Datasheet 56. Destroyed by fire in 2009, replaced with <i>Brachychiton populneus</i> (Kurrajong) in April 2010.
HO136	Coleraine	Railway Station (former) Pilleau Street Peppercorn tree ( <i>Schinus molle</i> ) SGHS Datasheet 15. <i>Note – Council leases land from Rail Trail Committee of Management.</i>
HO144	Coleraine	Street trees – English Elms ( <i>Ulmus procera</i> ) Whyte Street, Pilleau Street and Railway Reserve (Heritage place is defined as the remaining examples of <i>Ulmus procera</i> present in Whyte Street and the Pilleau St side of the Railway Reserve) SGHS Datasheet 57
HO216	Woodhouse	Major Mitchell Monument and Memorial Tree Bundoran Lane (north east and north west corners Bundoran and Monument Lanes) - 1) Monterey Pines and 2) Red Gum planted for 150 <sup>th</sup> anniversary of Major Mitchell's expedition. SGHS Datasheet 298.
HO345	Hamilton	Market Place Heritage Precinct
HO 346	Hamilton	Hamilton CBD Precinct
HO 347	Hamilton	Church Hill Precinct
HO425	Penshurst	Penshurst Botanic Gardens, Hamilton Highway SGHS Datasheet 82
HO429	Penshurst	Avenue of Trees Martin Street, between Ritchie and Cox Streets (Heritage Place is defined as all the Avenue including the pattern of those trees which appear to be missing) SGHS Datasheet 261
HO 452	Penshurst	Avenue of Honour Scales Street (Hamilton Highway) (Heritage Place is defined as all the surviving trees and the road reserve) SGHS Datasheet 271

## Appendix F – Tree species for use in urban plantings

Botanical name	Common name	Origin	Deciduous or evergreen	Height	Width	Drought tolerant?	Info sheet
<i>Acacia boormanni</i>	Snowy River Wattle	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Acacia dealbata</i>	Silver Wattle	Locally indigenous	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Acacia implexa</i>	Lightwood	Australian native	Evergreen	Medium height (10-20 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Acacia melanoxylon</i>	Blackwood	Locally indigenous	Evergreen	Tall (>20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Acacia obliquinervia</i>	Mountain Hickory Wattle, Monbulk provenance	Australian native	Evergreen	Medium height (10-20 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Acacia pendula</i>	Weeping Myrtle	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Acacia podalyriifolia</i>	Mt Morgan Wattle	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Acacia provincialis</i>	Swamp Wattle	Australian native	Evergreen	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	No
<i>Acacia pycnantha</i>	Golden Wattle	Locally indigenous	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Acer buergerianum</i>	Trident Maple	Exotic	Deciduous	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Acer campestre</i> 'Evelyn'	Queen Elizabeth Maple	Exotic	Deciduous	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Acer platanoides</i>	Plane Leafed Maple	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Low drought tolerance	Yes
<i>Acer platanoides</i> 'Globosum'	Globe Norway Maple	Exotic	Deciduous	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Acer rubrum</i>	Red Maple	Exotic	Deciduous	Tall (>20 m)	Wide (> 8 m)	Low drought tolerance	Yes
<i>Acer rubrum</i> 'October Glory'	October Glory Red Maple	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Low drought tolerance	Yes
<i>Acer truncatum x Acer platanoides</i>	Hybrid Shantung	Exotic	Deciduous	Medium height (10-	Narrow (< 5 m)	Moderate drought	Yes

'Keithsform'	Norwegian Sunset			20 m)		tolerance	
<i>Acer x freemanii</i> 'Autumn Blaze'	Autumn Blaze Freeman Maple	Exotic	Deciduous	Medium height (10-20 m)	Medium width (5-8 m)	Low drought tolerance	Yes
<i>Agonis flexuosa</i>	Willow Myrtle Willow Peppermint	Australian native	Evergreen	Medium height (10-20 m)	Wide (> 8 m)	High drought tolerance	Yes
<i>Allocasuarina littoralis</i>	Black She-oak	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Allocasuarina torulosa</i>	Forest She-oak Rose She-oak	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Allocasuarina verticillata</i> syn. <i>Casuarina stricta</i>	Coast or Drooping She Oak	Locally indigenous	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Angophora costata</i>	Smooth-Barked Apple	Australian native	Evergreen	Medium height (10-20 m)	Wide (> 8 m)	High drought tolerance	Yes
<i>Angophora floribunda</i>	Rough-Barked Apple	Australian native	Evergreen	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Banksia integrifolia</i>	Coast Banksia	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	High drought tolerance	No
<i>Banksia marginata</i>	Silver Banksia	Locally indigenous	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	No
<i>Brachychiton populneus</i>	Kurrajong	Australian native	Evergreen	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Bursaria spinosa</i>	Sweet Bursaria	Locally indigenous	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	No
<i>Callistemon</i> 'Harkness'	Harkness Bottlebrush	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Callistemon</i> 'Kings Park Special'	Kings Park Special Bottlebrush	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Callistemon salignus</i>	Willow Bottle Brush	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Callistemon viminalis</i>	Weeping Bottle Brush	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Callitris rhomboidea</i>	Oyster Bay Pine	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	No
<i>Casuarina cunninghamiana</i>	River She-oak	Australian native	Evergreen	Medium height (10-20 m)	Wide (> 8 m)	Low drought tolerance	Yes
<i>Cinnamomum camphora</i>	Camphor Laurel	Exotic	Evergreen	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	No

<i>Corimbia ficifolia</i>	Red flowering Gum	Australian native	Evergreen	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	No
<i>Corymbia citriodora</i>	Lemon Scented Gum	Australian native	Evergreen	Tall (>20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Corymbia exima</i>	Yellow Bloodwood	Australian native	Evergreen	Medium height (10-20 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Corymbia maculata</i>	Spotted Gum	Australian native	Evergreen	Tall (>20 m)	Wide (> 8 m)	High drought tolerance	Yes
<i>Crataegus laevigata</i>	Mayflower	Exotic	Deciduous	Short (<10 m)	Medium width (5-8 m)	Moderate drought tolerance	No
<i>Eucalyptus cephalocarpa</i>	Silver Leaf or Mealy Stringybark	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Eucalyptus cinerea</i>	Argyle Apple	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Eucalyptus falciformis</i>	Western Peppermint	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	High drought tolerance	No
<i>Eucalyptus gregsoniana</i> Syn. <i>pauciflora</i> 'Nana'	Wolgan Snow Gum	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Eucalyptus kitsoniana</i>	Gippsland Mallee	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	No
<i>Eucalyptus leucoxylon</i> ssp. <i>Megalocarpa</i>	Large-fruited Yellow Gum	Locally indigenous	Evergreen	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Eucalyptus melliodora</i>	Yellow Box	Locally indigenous	Evergreen	Medium height (10-20 m)	Wide (> 8 m)	High drought tolerance	Yes
<i>Eucalyptus nicholii</i>	Willow Peppermint, Narrow-Leave Black Peppermint	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Eucalyptus obliqua</i>	Messmate	Locally indigenous	Evergreen	Tall (>20 m)	Wide (> 8 m)	High drought tolerance	Yes
<i>Eucalyptus ovata</i>	Swamp Gum	Locally indigenous	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	No
<i>Eucalyptus pauciflora</i> ssp. <i>Pauciflora</i>	Snow Gum	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Eucalyptus polyanthemos</i> ssp. <i>vestita</i>	Red Box	Australian native	Evergreen	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Eucalyptus radiata</i>	Narrow Leave Peppermint	Locally indigenous	Evergreen	Tall (>20 m)	Wide (> 8 m)	High drought tolerance	Yes

<i>Eucalyptus rubida</i>	Candle Bark Gum	Australian native	Evergreen	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Eucalyptus scoparia</i>	Wallangarra Gum	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Eucalyptus sideroxylon</i>	Red Ironbark	Australian native	Evergreen	Medium height (10-20 m)	Wide (> 8 m)	High drought tolerance	Yes
<i>Eucalyptus torquata</i>	Coral Gum	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Eucalyptus tricarpa</i>	Red Ironbark	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	High drought tolerance	No
<i>Eucalyptus viminalis</i> ssp. <i>cygnetensis</i>	Manna Gum	Locally indigenous	Evergreen	Tall (>20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Feijoa sellowiana</i>	Feijoa	Exotic	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	No
<i>Fraxinus excelsior</i> 'Aurea'	Golden Ash	Exotic	Deciduous	Short (<10 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Fraxinus oxycarpa</i> 'Raywoodii'	Claret Ash	Exotic	Deciduous	Medium height (10-20 m)	Medium width (5-8 m)	High drought tolerance	No
<i>Fraxinus pennsylvanica</i> 'Urbdehl'	Urbanite Green Ash	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Geijera parviflora</i>	Wilga	Australian native	Evergreen	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Ginkgo biloba</i> 'Princeton Sentry'	Upright Maidenhair Tree	Exotic	Deciduous	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Gleditsia triacanthos</i> var. <i>inermis</i> 'Elegantissima'	Compact Honey Locust	Exotic	Deciduous	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Gleditsia triacanthos</i> var. <i>inermis</i> 'Sunburst'	Thornless Golden Honey Locust	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Hymenosporum flavum</i>	Native frangipani	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	No
<i>Jacaranda mimosifolia</i>	Jacaranda	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Koelreuteria paniculata</i>	Golden Rain Tree	Exotic	Deciduous	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Lagerstroemia indica</i> x <i>L. fauriei</i> 'Biloxi'	Biloxi Crepe Myrtle	Exotic	Deciduous	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes

<i>Lagerstroemia indica</i> x <i>L. fauriei</i> 'Tuscara'	Tuscara Crepe Myrtle	Exotic	Deciduous	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Lagerstroemia indica</i> x <i>L. faurieri</i> 'Natchez'	Natchez Crepe Myrtle	Exotic	Deciduous	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Leptospermum petersonii</i>	Lemon-scented Tea Tree	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Liquidambar styraciflua</i>	Liquidambar	Exotic	Deciduous	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	No
<i>Lophostemon confertus</i> 'ST2'	Brush Box (dwarf form)	Australian native	Evergreen	Short (<10 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Malus ioensis</i> 'Plena'	Bechtel Crabapple	Exotic	Deciduous	Short (<10 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Melaleuca linariifolia</i>	Flax Leaf Paperbark, Snow in Summer	Australian native	Evergreen	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark	Australian native	Evergreen	Medium height (10-20 m)	Narrow (< 5 m)	High drought tolerance	Yes
<i>Melaleuca stypheloides</i>	Prickly leaved Paperbark	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	No
<i>Melia azedarach</i>	White Cedar, Chinaberry	Australian native	Deciduous	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Notelaea ligustrina</i>	Privet Mock-olive	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	No
<i>Ozothamnus ferrugineus</i>	Tree Everlastin	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	High drought tolerance	No
<i>Photinia robusta</i>	Red leaf Photinia	Exotic	Evergreen	Short (<10 m)	Medium width (5-8 m)	Moderate drought tolerance	No
<i>Pistacia chinensis</i>	Chinese Pistachio	Exotic	Deciduous	Short (<10 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Pittosporum eugenioides</i>	Variiegated pittosporum	Exotic	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	No
<i>Platanus orientalis</i>	Oriental Plane	Exotic	Deciduous	Tall (>20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Platanus orientalis</i> 'Digitata'	Cyprian Plane	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Platanus x acerifolia</i>	London Plane Tree	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Prunus</i> 'Shimidsu	Japanese	Exotic	Deciduous	Short (<10 m)	Narrow (< 5 m)	Low	Yes

<i>Sakura'</i>	Flowering Cherry			m)		drought tolerance	
<i>Pyrus calleryana</i>	Callery's Pear	Exotic	Deciduous	Medium height (10-20 m)	Medium width (5-8 m)	Low drought tolerance	Yes
<i>Pyrus calleryana</i> 'Capital'	Capital Callery Pear	Exotic	Deciduous	Medium height (10-20 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Pyrus calleryana</i> 'Aristocrat'	Aristocrat Callery Pear	Exotic	Deciduous	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Pyrus calleryana</i> 'Chanticleer'	Chanticleer Callery Pear	Exotic	Deciduous	Medium height (10-20 m)	Medium width (5-8 m)	High drought tolerance	Yes
<i>Pyrus ussuriensis</i>	Manchurian Pear	Exotic	Deciduous	Short (<10 m)	Medium width (5-8 m)	Moderate drought tolerance	No
<i>Quercus bicolor</i>	Swamp White Oak	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Low drought tolerance	Yes
<i>Quercus macrocarpa</i>	Bur Oak	Exotic	Deciduous	Tall (>20 m)	Wide (> 8 m)	High drought tolerance	Yes
<i>Quercus palustris</i>	Pin Oak	Exotic	Deciduous	Tall (>20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Quercus robur</i>	English Oak	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Quercus robur</i> 'Fastigiata'	Upright English Oak	Exotic	Deciduous	Medium height (10-20 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Quercus rubra</i>	Red Oak	Exotic	Deciduous	Tall (>20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Sorbus aucuparia</i>	Rowan	Exotic	Deciduous	Short (<10 m)	Medium width (5-8 m)	Moderate drought tolerance	No
<i>Syzygium australe</i>	Lilly Pilly	Australian native	Evergreen	Short (<10 m)	Medium width (5-8 m)	Low drought tolerance	No
<i>Tilia cordata</i> 'Greenspire'	Upright Small-leaf Linden	Exotic	Deciduous	Medium height (10-20 m)	Medium width (5-8 m)	Low drought tolerance	Yes
<i>Tilia tomentosa</i> 'Sterling'	Sterling Silver Linden	Exotic	Deciduous	Tall (>20 m)	Wide (> 8 m)	Moderate drought tolerance	Yes
<i>Tristaniopsis laurina</i>	Water Gum or Kanooka	Australian native	Evergreen	Short (<10 m)	Narrow (< 5 m)	Moderate drought tolerance	Yes
<i>Ulmus parvifolia</i> 'Todd'	Chinese Elm	Exotic	Evergreen	Medium height (10-20 m)	Wide (> 8 m)	High drought tolerance	Yes
<i>Ulmus procera</i>	English Elm	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Moderate drought tolerance	No

<i>Viminaria juncea</i>	Native Broom	Locally indigenous	Evergreen	Short (<10 m)	Narrow (< 5 m)	Low drought tolerance	No
<i>Waterhousea floribunda</i>	Weeping Lillypilly	Australian native	Evergreen	Medium height (10-20 m)	Medium width (5-8 m)	Moderate drought tolerance	Yes
<i>Zelkova serrata</i> 'Green vase'	Japanese Zelkova	Exotic	Deciduous	Medium height (10-20 m)	Wide (> 8 m)	Low drought tolerance	Yes

## Appendix G – Guidelines for tree planting and establishment



### A Guide to Successful Tree Planting and Establishment

Tree planting is a vital role everyone can be involved in to improve the quality and aesthetics of the landscape in which we live, work and recreate. Whilst on the face of it, it seems a simple task of “just dig a hole and put a tree in it”, there are some fundamental guidelines that need to be adhered to, which if undertaken correctly, will directly and positively impact on the successful establishment of your newly planted tree. Many of these guidelines are overlooked by novices and professionals alike, the results of which often lead to low establishment rates and tree deaths, as well as wasted time and money.

This tree planting guide gives a ten (10) step checklist of tasks to do before, during and after planting the tree. These steps will help ensure that your newly planted tree doesn't just survive, but thrives. In doing so such trees have the potential to provide many decades of benefits such as increased amenity, shade for people and buildings, creating screening/privacy, cooling of the surrounding atmosphere, storing carbon in its biomass and providing habitat for animals.

#### 1. Tree location and species

Before the physical act of tree planting occurs, you must decide on the exact location the tree is to be positioned, including identifying overhead and underground services. This location should also preferably be away from other established trees so as root competition in the soil is minimised. After this, decide what function you wish the tree to perform. Is it for screening/privacy, animal habitat, shading, hedging or a landscape feature?

Next comes the selection of the tree species itself. It is recommended that in this regard you seek advice from ArborSafe's arborists as they will have an intimate knowledge of many tree species and their individual attributes, tolerances to environmental factors and aesthetic attributes. Selecting an appropriate species for the desired location is paramount in the tree's successful establishment.

Perhaps most importantly is the knowledge of a species' tolerances to the surrounding environmental conditions. Lots of trees look pretty in the photograph in a book or brochure, but does the particular species you are interested in have the physical attributes and tolerances to thrive in the desired location? This is why guidance from professionals is so important.

#### 2. Purchase quality stock

The old saying “you get what you pay for” is true in practically anything you buy, trees included. It is important to purchase trees that have been grown to NATSPEC standards from a reputable nursery as these trees will most likely provide you with the best chances of long term survival without unnecessary problems. Also, if the tree is cheap, it is usually because it's been in the nursery for too long, so don't buy it. Old tree stock such as this has generally been kept in its container for too long and will likely contain root defects (kinked and/or girdled), will have poor trunk taper and lack vigour.

Cheap, poorly grown stock will most likely lead to low establishment success and/or the tree's death. To avoid this it is best to spend good money, on well grown, healthy, vigorous tree stock grown by a reputable nursery. The money spent on good quality stock will be of benefit to you in the future. This doesn't mean you have to purchase large and advanced sized trees. It means you should buy good quality, professionally grown trees of a size that suits your budget and capabilities. Advanced trees are more difficult to move (for obvious reasons) and often require extra machinery to help plant them.

The maintenance costs involved in their establishment are also significantly greater than that of smaller stock. Advanced stock will however give you a more instant impact once your tree planting program is complete, but in the long term the size of the tree at planting doesn't matter, whereas its species and quality does.

### **3. The planting hole**

The hole dug for your tree should be as deep as the container you bought it in and at least 2-3 times as wide. Square or sloping, dish-like holes are recommended when planting a tree. Circular auger holes should be avoided, especially in clay soils as 'glazing' of the side of the planting hole with your shovel can occur which will inhibit lateral root development and expansion. Slightly loosen the sides and the bottom of the planting hole to make it easier to penetrate for developing tree roots. If your planting hole is dry, water it thoroughly until the surrounding soil can physically hold no more water. The use of a soluble wetting agent will help the rehydration process.

### **4. Remove the tree from its container**

Before removing a tree from its container, make sure you water it thoroughly beforehand. To minimise the level of growing media that may fall away from the root mass of the tree, lay the tree on its side, gently press down on the sides of the container and then cut down one (1) side of the container and remove it from the root mass. Field grown trees often have their root mass wrapped in hessian that should also be completely removed prior to planting. This is obviously not necessary with bare-rooted trees, as they are sold free of growing media and containers.

With container grown trees, gently loosen the top, sides and the bottom of the root mass with your fingers. If there are broken/damaged roots and/or kinked or girdled roots (particularly on the bottom of the root mass) cut them 'square' just behind the defect with sharp, sterile secateurs. This is a very important inspection to make because seemingly small root defects can have a significant impact upon tree establishment and stability in the future.

### **5. Identify and expose the root crown**

The root crown is the location on the tree's lower trunk where the root system first develops. It is at this juncture where the soil line must sit after the tree has been planted, backfilled and watered. Don't trust that the nurseryman potted the tree at the correct depth as sometimes they get it wrong. Find the root crown yourself by gently removing the growing media away from around the trunk until you find it.

### **6. Place the tree in the centre of the hole**

Pick the tree up by its root mass (not the trunk) and place it in the centre of your planting hole. At this time make sure that the root crown is exposed and sitting just above (~5cm) the top of the planting hole. If it's not, adjust the depth of the planting hole accordingly. Placing a long, straight piece of timber or steel (sometimes called a straight edge) across the planting hole in a north/south and east/west direction is a useful tool in determining if the tree has been placed at

the correct depth.

In making sure the root crown is exposed, planting your tree a few centimetres too high will not do it any harm, it is planting it too deep that may. Also, planting the tree a little too high will allow for some settling of the soil after planting. Trees planted too deep often establish poorly due to a lack of gaseous exchange (particularly oxygen) between the soil and the atmosphere, and will often not stabilise in the soil and lack vigour.

#### **7. Backfill the planting hole**

Just prior to backfilling the planting hole, make sure the tree is straight from a north/south and east west aspect. It is also a good idea to have someone hold the lower trunk whilst the hole is being back filled. When backfilling, always use the soil which you removed from the hole in the first place. People often think that adding 'better' soil to the planting hole will improve the tree's establishment. Adding nutrient rich soil mixes, manures or fertilisers into the planting hole is not recommended as it creates an area close to the tree's base that is rich in mineral nutrients, and as a result discourages lateral root development and expansion. If your soil profile needs improving, or the tree needs fertilising, do this from the surface after planting.

Backfill the hole to the top of the planting hole. Do not compact down the soil with your heel, as this compacts the soil (retarding root development) and may damage the tree's roots. If required, gently pat the soil with your hand. After the backfilling, water the tree thoroughly until the soil reaches capacity.

To avoid soil disturbance when watering mist or lightly spray the water. The soil will settle naturally as you water the tree in so there is often no need to press it down. If there is a need to fertilise the tree this is best done now with water soluble fertilisers and/or root initiators. Applying them over a wide area, within and outside the current root mass will help encourage lateral root development and expansion.

#### **8. Stake the tree**

Most well grown container or field grown stock will not need staking in many landscape scenarios. Trees establish faster and develop stronger trunks and root systems when they are not staked.

Staking however may be necessary in some circumstances where there may be a lot of wind or where vandalism or lawn mower damage may occur.

If your tree requires staking, use two (2) strong wooden stakes and place them at polar opposites either side of the tree e.g. north/south or east west, depending on the most common direction of prevailing winds. Drive the stakes in firmly away from the tree's base and outside of the root mass. Using a flexible, degradable tree tie, create two (2) loops between the stake and the tree's lower trunk. This type of staking will hold the tree upright in the wind, provide flexibility and minimise injury. Never use abrasive or inflexible materials as tree tie such as bailer twine, wire or plastics. Most staking can be removed after the first year's growth, as by this time your tree should be stable in the ground.

#### **9. Mulch the tree**

It cannot be stressed enough how vital the application of mulch is to your tree. Mulch has so many beneficial impacts on the growing environment around your tree such as the suppression of weeds and grass, the regulation of soil moisture and temperature levels and the addition the organic matter and soil microbes to the soil profile. Like tree planting itself, the mulching of young trees is often incorrectly done due to the area of mulch covering the ground being too small to provide the tree any real benefit, and/or the thickness of the mulch being too small or too great, both of which

have their problems.

Mulch should be applied at a uniform thickness of 75-100mm and around young trees should cover an area 2m in diameter. This area of mulch should be topped up to the required depth at the beginning of each growing season and be expanded in size as the tree grows. Do not place mulch hard up against the tree's trunk as this can cause the bark at the tree's base to decay by being constantly wet.

Organic mulches such as that produced by wood chippers, straw, hay or leaf litter are best around young trees as their natural degradation adds mineral nutrients to the soil profile and encourages microbial activity, both of which are beneficial to long term tree health.

#### **10. Follow up care and maintenance**

Just as important as the first nine (9) steps is periodic checks with follow up care and maintenance where required. These are vital in the successful establishment of young trees. Additional watering during the first five (5) growing seasons (if rainfall is inadequate) is imperative in many parts of Australia. Regular inspections of the soil moisture under the mulch are needed to determine how much water is required and how often, as the amount of water the tree will use is dependent upon many factors such as soil type, tree species, ambient air temperature, wind and the quality of the mulching. Repeat applications of mulch and/or fertiliser as described previously are also beneficial. Regularly check the staking and the tree itself. Check for signs of plant pests and/or diseases and report these to ArborSafe for treatment guidance.

Formative pruning works may be needed in some instances to improve tree form and structure and the need to do this (or not) is recommended to be guided by ArborSafe's arborists.

**A Guide to Successful  
Tree Planting and Establishment**

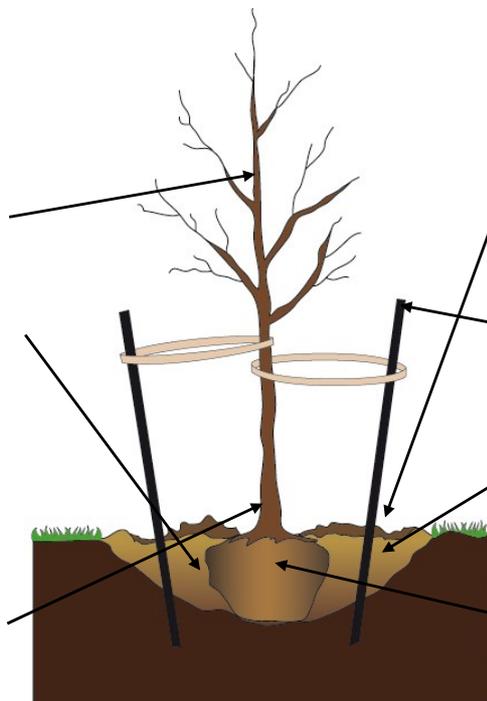
1. Select species that suits the location with physical attributes & tolerances.

2. Healthy tree of good form & structure.

3. Hole width 2-3 times that of the container & only as deep as the container. Water thoroughly.

4. Gently remove tree from the container.

5. Identify & expose the root crown.



10. Check and water for first five seasons. Reapply mulch and fertilise as applicable.

9. Top with 75-100mm of composted organic mulch 2m in diameter.

8. Stakes placed outside of the root mass. Use flexible, degradable tree tie.

7. Backfill using site soil only and water.

6. Locate in middle of the planting hole with trunk straight upward.