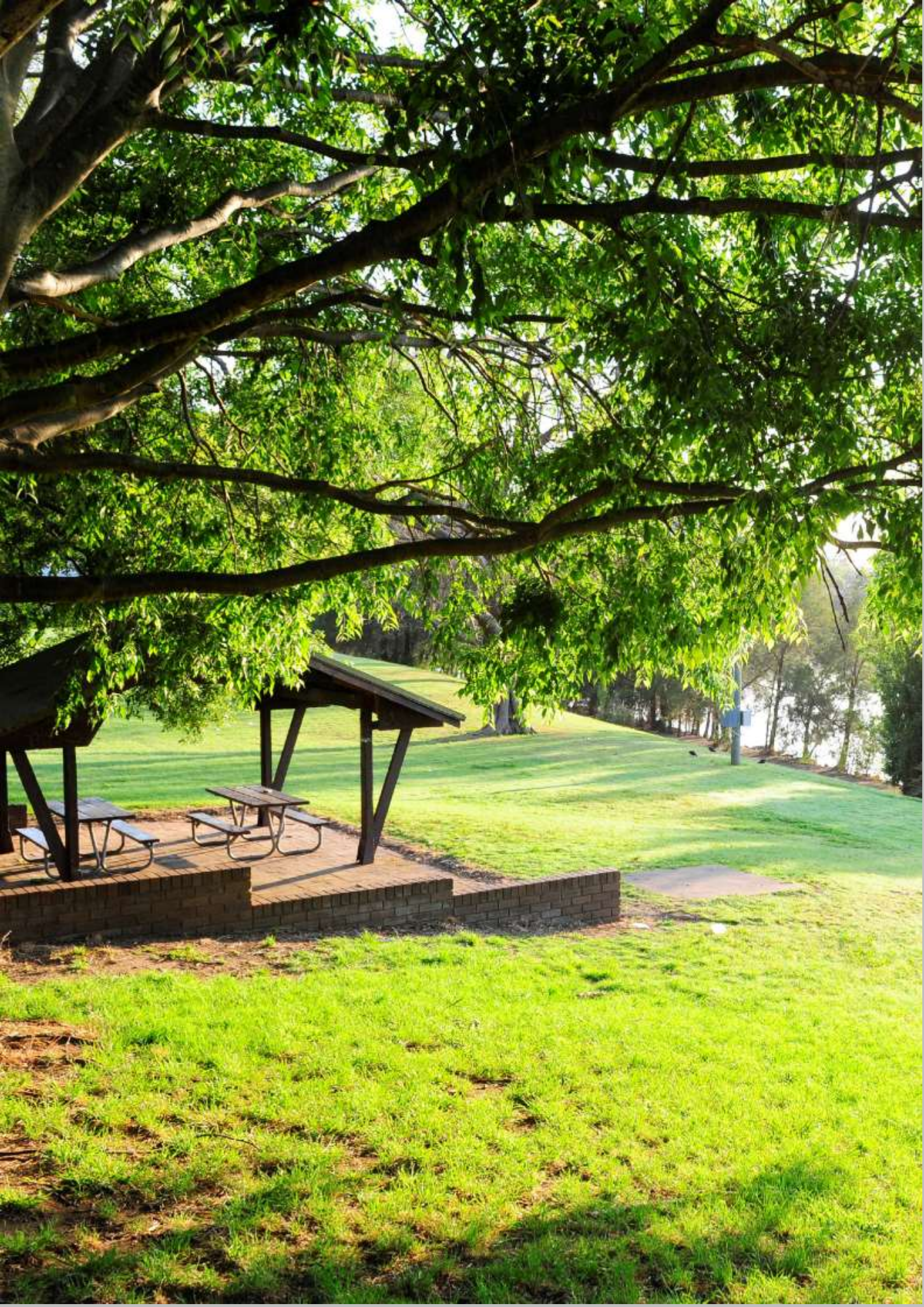
STREET AND PARK TREE MANAGEMENT PLAN

PENRITH
CITY COUNCIL

penrith.city



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1. INTRODUCTION

1.1 SCOPE

Collectively, trees under Council's care and control significantly contribute to the character of the City, and the lifestyle and quality of life of the local community.

The City has a rich natural heritage which supports a diversity of natural environments and biodiversity. Trees are essential to this landscape.

Council recognises the importance of vegetation as part of the City's urban infrastructure together with other parts of the built environment such as footpaths and roads. The importance of the environment is recognised in Outcome 5 of the Penrith Community 'Plan (2017): "We care about our environment", which recognises that "one of Penrith's defining attributes is our natural environment including beautiful waterways and a diverse range of native species and ecological communities." We know that we "need to balance population growth with the need to respect our environment".

Council's approach to tree management, set out in this Plan, reflects these values. Council's vision is to protect, maintain and expand its urban forest.

This plan applies to all trees under Council's care and control within Penrith local government area including street trees and trees in parks, sportsgrounds, reserves, bushland and natural areas.

This plan does not apply to trees:

- on private property, unless those trees affect Council land in some way
- on land administered by other public authorities such as National Parks or Sydney Water
- to the extent they are managed by other public authorities such as the activities of energy providers under the Electricity Supply Act 1995 (NSW), or
- to the extent they are managed under the NSW Biosecurity Act 2015.

1.2 PURPOSE

The aims and objectives of this plan are to:

- inform the community of Council's position on responsibility for the management of, trees on Council land
- instruct Council staff and Council's contractors in the management and maintenance of trees on Council land
- provide a standardised approach to ensure consistency in the management and maintenance of trees on Council land
- facilitate an integrated and interdepartmental approach to the management of trees and the entire urban environment, and
- assist in identifying resource requirements to allow for the proactive management of trees on Council land.

1.3 RELATED COUNCIL DOCUMENTS

This plan is one of a suite of documents prepared by Council to manage vegetation within our local government area. This plan must be considered in conjunction with these policy and strategy documents:

- Penrith Community Plan (2017)
- Penrith City Strategy (2013)
- Cooling the City Strategy (2015)
- Penrith Biodiversity Strategy
- Community Strategic Plan 2031
- Penrith Local Environment Plan 2010
- Plans of Management (various)
- Vegetation Management Plans (various)
- Street Tree Masterplan (future)
- Penrith Urban Forest Policy (future)
- Penrith Development Control Plan 2014

Related other Documents.

The State and Federal governments provide strategic direction and legislation in relation to trees and vegetation. These documents must also be considered.

2. THE BENEFITS OF TREES

Trees have natural beauty and can provide seasonal interest through their foliage, bark and flowers. Treelined streets, green spaces and parklands contribute to the creation of a welcoming neighbourhood that is inviting, safe and enjoyable. Trees also:

- produce oxygen
- improve air quality by trapping airborne pollutants
- absorb carbon dioxide
- stabilise the soil
- reduce noise
- reduce wind speed
- decrease stormwater runoff
- provide shade to reduce urban heat island effects
- provide summer shade and winter sun
- reduce summer cooling costs in buildings
- increase property values
- increase patronage to, and economic stability in, commercial areas
- provide a buffer between pedestrians and cars, and calm traffic
- provide a connection to nature and a place to retreat from urban life.
- provide habitat and food for urban wildlife

  increase biodiversity
- define precincts and links with history
- provide landmarks and orientation
- reduce the bulk and scale of built form and other urban infrastructure
- provide a sense of scale within the built environment
- improve personal mental and physical health
- increase the ‘walkability and cyclability’ of streets and pathways by providing protection from rain and sun, and
- provide a connection to nature and a place to retreat from urban life.

3. SETTING THE SCENE

3.1 CONTEXT

Penrith City covers an area of 404km2 including approximately 8,000ha of nature reserves and national parks, and more than 540 parks and playgrounds. Our population is approximately 200,000 people. This large geographic area and population base presents challenges for tree management.

Penrith has a rich natural heritage that supports a diversity of natural environments and biodiversity. Tree species characteristic of the City and which contribute to its identity are those of the Cumberland Plain Woodland, a critically endangered vegetation community under both State and Federal legislation. It is important to protect existing biodiversity, remnant woodland and areas of natural significance as the City grows.

European settlement introduced a variety of exotic trees, as well as some Australian species that had not previously been found in the area. Some, such as *Araucaria bidwillii* (Bunya pine) and *Phoenix canariensis* (Canary Island Date Palm) are of cultural significance but others, like the *Olea africana* (African Olive), are now regarded as weeds because of their invasive effect on endemic tree species.

Western Sydney has a distinct microclimate which differs from the rest of the Sydney Metropolitan Region, resulting in the region being hotter and drier in summer, and colder with frosts in winter. Temperatures range from below 0˚C to over 45˚C and frosts can be severe. The mean annual rainfall is approximately 720mm.

Heat is an issue in Western Sydney and the number of hot days is projected to increase as our climate changes. Urban centres are hotter than their rural surrounds because dark roofs, concrete car parks, paved areas and bitumen roads absorb and keep heat in the area. Densely built up urban areas trap heat and increase the effect. Without the cooling sea breeze from the coast, Western Sydney residents feel the full impact of heatwave conditions. It has been shown worldwide that tree planting is one of the most successful ways of cooling urban environments. Large healthy trees provide more benefits than small or unhealthy trees. Large trees with broad leaves and a dense crown are better at cooling than trees with thin or small leaves and a sparse crown.

Many trees within the City are located on Council owned land, the majority of these within approximately 12km2 of open space comprising parks, reserves and natural areas. A significant contribution to urban forest canopy cover is also made by street trees which includes trees on road verges and median strips.

3.2 OPPORTUNITIES AND CONSTRAINTS

Historically, street trees were only planted at the time streets and suburbs were developed. Pruning works by power company contractors have reduced the visual amenity of many existing street trees. The overall quality and amenity of streetscapes has declined, the canopy has been reduced and become disjointed. Many streets now have few or no trees. Currently, individual subdivision applications are the primary means for delivering new street and park trees.

Large scale tree planting projects have been small in number and often linked to major events such as the Sydney Olympics in 2000. Some larger recent plantings have been completed through Council's Bushcare program and under our Cooling the City Strategy, specific park upgrades, volunteer programs, one off special planting events and in some cases planting days organised by charity organisations.

Tree growth in the City is often limited by the amount of physical area in which they grow (both above and below ground) and by poor soil conditions. Trees are a long-term investment, and it is critical to plant the right trees in the right places. It is important that the planting environment will support active tree growth to maturity and that the tree is maintained in a healthy and vigorous condition during an establishment period. An integrated planning approach must be taken to ensure tree planting is successful and provides maximum benefits.

Council has responsibility for a large number of trees, many planted and some self-sown, on Council land. While trees play an important role in the urban environment, it is also recognised that trees of the wrong species or trees growing in the

wrong place can create problems and risks not acceptable in an urban setting.

Trees may come to the attention of Council for many reasons including failure or imminent failure, dropping branches, reducing visibility for road users, interference with vehicular traffic, damage to public or private assets through root growth, possible fire hazard, presence of pests, and obstruction of solar access or views. Often Council's process of tree management is dominated by requests for tree removal. Programmed minor tree maintenance can reduce major future structural issues, and planned replacement planting is required to ensure the urban forest canopy is not reduced.

There are differing community expectations and a lack of understanding generally about trees within the City. Some residents see trees on Council land as a hazard, nuisance and inconvenience. But many residents appreciate that trees are an asset that provide many benefits and have a positive effect on property values and neighbourhood character.

Tree management in an urban environment is about balancing the risks against the benefits to ensure the best community outcome. Council wants to help the community understand the multiple benefits of trees throughout the City.

4.PLANNING FOR THE FUTURE

Trees are an important part of the City's landscape and an integral part of the urban environment together with built assets such as buildings, roads and footpaths. Trees have an important role in reducing the urban heat island effect and providing cool conditions during hot weather.

In order to maximise the benefits provided by trees, they must be proactively managed in the same way as Council manages its other physical assets. This management must be integrated with the management of the entire urban environment.

Effective management of any asset requires a detailed knowledge and understanding of that asset. This document and its appendices are part of a suite of documents that collectively and strategically manage trees. To support this plan the following documents will be prepared:

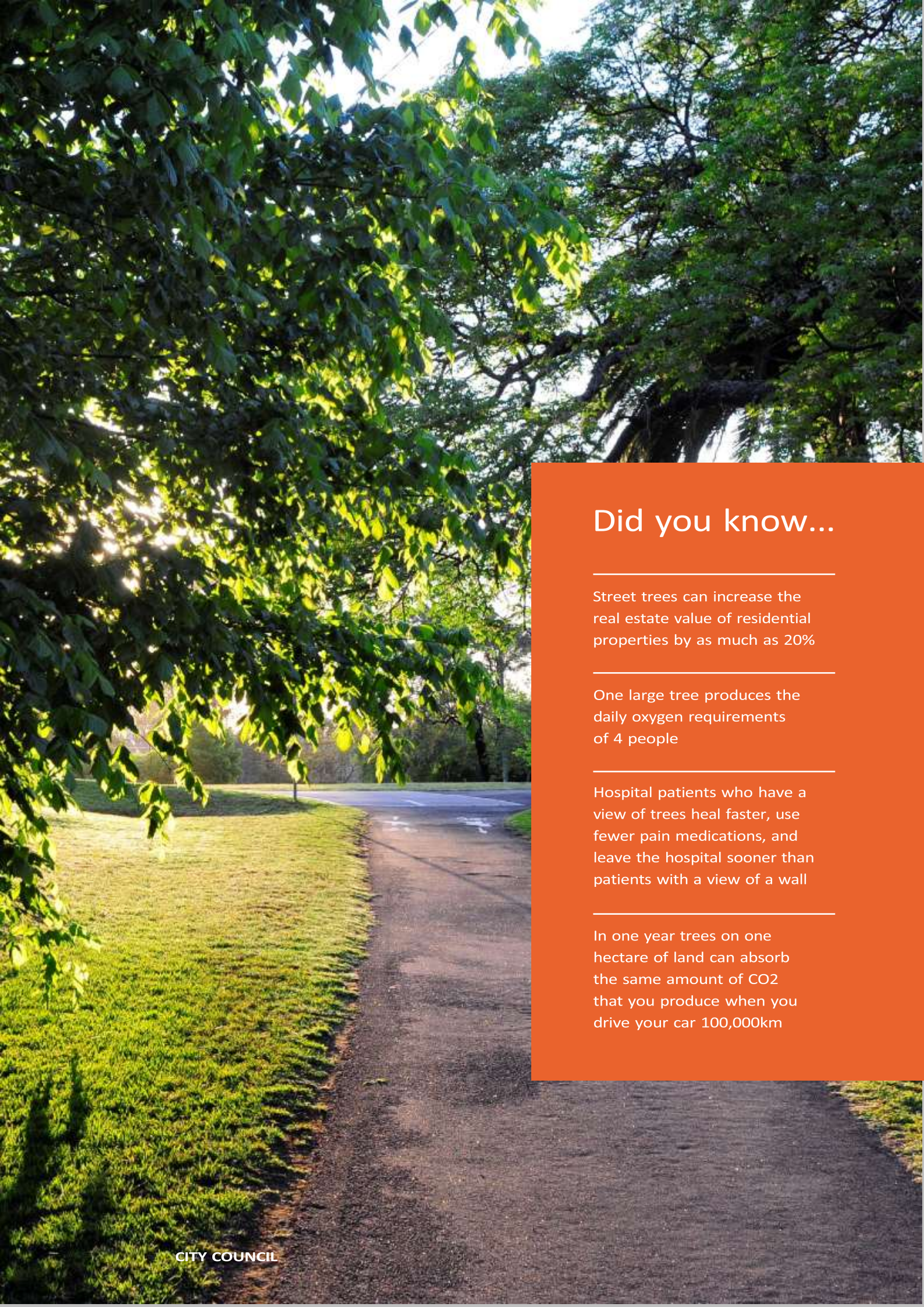
- Urban Forest Policy
- Tree Asset Inventory and Risk Assessment Program (as part of an asset management program)
- Street Tree Masterplan, and
- an updated Register of Significant Trees.
- Arboricultural Specifications

The preparation and maintenance of these documents will allow Council to:

- prioritise tree maintenance
- effectively plan Green Infrastructure across the City
- take planned action to mitigate the urban heat island effect
- protect its existing tree population to maximise benefits
- prioritise tree maintenance and set and monitor service levels

Trees play an important role in reducing the urban heat island effect and providing cool conditions during hot weather

- monitor tree numbers (via new plantings and removals)
- implement programs for increasing canopy cover on Council land and set canopy cover targets
- plan succession planting
- increase species diversity and identify potential habitat trees
- proactively manage risk
- identify needs, set priorities and implement programs for street tree planting, and
- provide guidance to developers wishing to build within the City.



Did you know...

Street trees can increase the real estate value of residential properties by as much as 20%

One large tree produces the daily oxygen requirements of 4 people

Hospital patients who have a view of trees heal faster, use fewer pain medications, and leave the hospital sooner than patients with a view of a wall

In one year trees on one hectare of land can absorb the same amount of CO2 that you produce when you drive your car 100,000km

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5. TREE MANAGEMENT

5.1 GENERAL

This section sets out Council's position on responsibility and procedures for the management of trees on Council land.

This section also details the procedures to be used in managing and maintaining trees on Council land. If a specific situation is not covered in this plan the matter must be referred to the City Assets Manager for determination before any action is taken.

5.2 STREET TREES

5.2.1 Inspection and maintenance program

Council will ensure that all street trees are regularly inspected and maintained in accordance with our Tree Risk Assessment Program by suitably qualified arborist/s (minimum AQF 5).

Council will carry out the maintenance detailed in Section 9 (Tree maintenance).

5.2.2 Requests to prune or remove street trees

For information refer to Sections 9.4 (Pruning) and 11 (Tree removal).

5.2.3 Street tree planting requests

Council will consider requests from residents for street trees to be planted in the nature strip close to their properties. All planting is at the discretion of Council. Tree species will be selected in accordance with the tree selection criteria set out in Section 6 (Tree selection). Trees may be planted, free of charge, by Council.

5.2.4 Tree canopy clearances

Managing appropriate tree canopy clearance is important to improve safety and comfort in the use of roads and footpaths, and to prevent tree damage by vehicles.

All vehicles of legal dimensions should be able to travel along roads without obstruction from overhanging vegetation. Motorist sight lines should be maintained, road signs should be visible and street lighting should be unobstructed. Roads within the Council area are classified according to nationally adopted criteria. Specific road verge attributes guide decision-making and assist conflict resolution in relation to community expectations and the use of road verge areas.

Trees that are obstructing a formed footpath may be pruned or removed by Council. However, trees that are obstructing the verge where no formed footpath is present, and which do not present any other risk, may not be pruned or removed by Council. Trees will not be pruned to improve sightlines to business signage.

Council will endeavour to maintain the following tree canopy clearance heights over roads and footpaths:

- road clearance: 2.5m kerbside increasing to 4.5m at the centre of the road, and
- pedestrian/footpath clearance: 2.5m from the base of the tree.
- Shared paths (cycle way areas): 2.5m from the base of the tree.

Work priority will be determined by Council in accordance with the risk category, available resources and by the hierarchy, nature and characteristics of each road.

Service providers and other authorities may carry out pruning or removal work in accordance with their regulations.

The requirements of Section 9.4 (Pruning) apply to all pruning work carried out by Council and Council's contractors.

5.2.5 Works around street trees

Council constructs new footpaths and cycleways on street verges and from time to time makes modifications to road alignments, such as building a new roundabout at an intersection.

Conflicts between civil works and street trees often emerge in the design phase. Existing street trees are to be retained and protected by modifying civil designs to ensure minimal impact to canopies and root zones /TPZ, for example localised narrowing of path, realignment of path and services. Any trees that cannot be retained must be replaced and established as part of the new works construction package.

Works must be assessed at the design stage by an AQF 5 Arborist.

5.3 PARK TREES

5.3.1 Inspection and maintenance program

Trees in parks make a significant contribution to urban forest canopy cover within the City. Parks provide attractive public places, opportunities for recreation and leisure, habitat and biodiversity, a refuge from the built environment and a connection to nature.

Council will implement a program to ensure that all trees within Council parks and reserves are regularly inspected and proactively maintained. Trees will be inspected in accordance with Council's Tree Inventory/ Risk Assessment Program by an AQF Level 5 Arborist and any necessary maintenance, pruning and removal works will be carried out.

Regular inspections and monitoring will not be carried out in bushland, natural and environmentally sensitive land. These trees will be assessed and maintained on a reactive basis.

Council will assess trees in close proximity to recreational facilities proposed for construction or upgrading and carry out any necessary pruning or removal works.

Maintenance work is detailed in Section 9 (Tree maintenance).

The requirements of Section 9.4 (Pruning) apply to all pruning work carried out by Council and Council's contractors.

5.3.2 Requests to prune or remove park trees

For information on tree removal and pruning refer to Sections 11 (Tree removal) and 9.4 (Pruning).

5.4 TREE RISK ASSESSMENT PROGRAM

Tree Risk and Inventory Assessment Program

The Tree Risk Assessment program has been developed to assess of the risk associated with trees in public spaces, and the implementation of strategies to reduce unacceptable risk

Two separate Tree Assessment Programs have been created in order to achieve this task. The Critical Tree Assessment Program and The Precinct Tree Assessment Program.

The Critical Tree Risk Assessment Program will focus on areas with very high occupancy rates, combined with vulnerable targets such as people and vehicles. These areas include:

- Major collector roads;
- Playgrounds;
- Council owned Childcare Centres;
- Schools; and
- Shopping centres.

The program utilises a Tree Risk Assessment Qualification (TRAQ) level 1 assessment process. As Council has no official record of tree risk assessments in these areas. This Assessment Program will be implemented prior to any other assessment programs taking place. Once the initial Critical Tree Assessment is complete, the subsequent Critical Tree Assessment Program will align with the 'Tree Assessment Program' and will then be inspected once every 12 months.

The Critical Tree Risk Assessment Program can be instigated in part or full at any time if required, E.g. after a storm or incident.

The Precinct Tree Assessment Program aims to:

- Identify public trees that are of high risk to the general public - this will be achieved by conducting tree assessments in areas of the LGA according to their occupancy rates. The occupancy rate refers to the how much that area is used (how busy it is) and who uses it. The usage zones are Very High, High, Moderate and Low.
- Create a Tree Inventory – To track numbers, heights, species, condition, health, defects, conflicts, canopy sizes, and disease. The trees will be captured either as individuals, stands, or edge trees depending on their location. The tree inventory will enable Council to better understand the health and condition of the Urban Forest and will influence future decision making. Detailed information can guide management to direct resources for in a healthier and more robust Urban Forest with more efficient maintenance costs.

- Secondary Objectives of the program are to:
- Create and identify Habitat for fauna – by identifying trees that have habitat or that are suitable for habitat creation may help to protect and increase the biodiversity of the area.
- Increase canopy cover – a tree inventory can identify potential planting sites.
- Promote the benefits of trees – Comprehensive data can be used to inform the community about the Urban Forest and what Benefits trees provide.
- Create a high standard of tree maintenance and pruning Techniques – Audits of work requests and of the work carried out in order

to ensure the work complies with the Specifications for Pruning Public Trees.

- Compliance – An inventory can assist with providing evidence that Council is compliant with its policy when it comes to legal claims such as, tree or branch failures, or trip hazards.
- Identify and implement pest and disease management programs – the Tree Inventory will help to identify and place maintenance tasks on trees that require treatment for pests or disease.
- Managing a budget – details of the cost required to maintain different areas will allow better forecasting of future expenditure.
- Reporting – Capability to report on all aspects of the program to other stakeholders on a regular basis.

Tree assessments are undertaken using the TRAQ process or a similar recognised qualitative or quantitative risk assessment process.

A level 1 Limited visual assessment will be undertaken and works required identified and designated for mitigation as required.

Level 2 Basic assessments may be undertaken if the requirement is identified and resources are available.

5.5 TREES ON UNFORMED ROADS AND IN BUSHLAND AREAS

Council generally does not actively manage unformed roads and natural bushland areas. An exception to this is natural areas within which Council undertakes bushcare management and maintenance. Trees in managed areas that are reported as presenting a risk will be inspected but any action will depend on the location of the tree, the extent of the risk and the availability of resources.

Trees that collapse in such areas generally will not be removed from the site. Dead trees and hollow trees are important for habitat and biodiversity. For more information refer to Section 11.7 (Fauna).

5.6 TREES IN DRAINAGE EASEMENTS

Council drainage easements give Council a right to drain water across private land. Council may act to remove vegetation that is interfering with the drainage of water through an easement in accordance with its legal rights and obligations. The management of vegetation on an easement that is not interfering with the drainage of water remains the responsibility of the property owner.

Council supports the planting of trees in drainage easements.

5.7 JOINTLY OWNED TREES

A tree is jointly owned if the stem of the tree at ground level is bisected by a property boundary. A tree on the boundary of Council land and private property is the responsibility of both Council and the property owner.

The process to prune or remove a tree jointly owned with Council is as follows:

- A request to remove or prune a tree may be received from the property owner or raised as an issue during a Council inspection.
- The criteria set out in Sections 9.4 (Pruning) and 11 (Tree removal) will be used to assess whether the tree should be pruned or removed.
- Council will inform the property owner of its determination in writing.
- If Council determines that tree pruning or removal is permitted, Council will acquire three quotes from Council's preferred contractors. Council will accept one quote in consultation with the property owner. The joint owner is required to contribute half of the cost under the accepted quote.
- Once Council has received the joint owner's contribution to the pruning or removal costs in full, Council will arrange for the work to be carried out.

If Council determines that a tree is solely on private property, the property owner must submit an application for assessment in accordance with Council's Tree and Vegetation Pruning/Removal policy.

5.8 DAMAGE TO TREES ON COUNCIL LAND

Council or Council contractors will carry out all pruning and removal work to trees on Council land.

If a person, contractor or corporation injures or damages a tree on public land Council will take enforcement action against that person.

Injury or damage to a tree includes:

- cutting down or removing the tree

- carrying out any pruning works to the crown or roots
- lopping and topping
- poisoning, including applying herbicides and other plant toxic chemicals to a tree or spilling (including washing off or directing water contaminated by) materials such as oil, petroleum, paint, cement or mortar onto the root zone
- cutting or tearing branches or roots
- damaging the stem or branches with vehicles or machinery (including lawn mowers and brushcutters)
- ringbarking, scarring the bark when operating machinery, fixing objects (eg signs) by nails, staples or wire, using tree climbing spikes on healthy trees marked for retention (except for access to an injured tree worker) or fastening materials that circle and significantly restrict the normal vascular function of the stem or branches
- damaging a tree's root zone by compaction, excavation, trenching, placing fill or stockpiling materials, and
- "under scrubbing" (removing shrubs, grass and other low growing vegetation that is growing under larger shrubs and trees), particularly using mechanical tools such as brushcutters.

Council will seek civil damages to reimburse it for the injury, the lost amenity value of the tree and any replanting costs, and/or criminal damage through the court system. Council also has the right to impose an on-the-spot fine or take legal action.

5.9 DAMAGE CAUSED BY TREES ON COUNCIL LAND

5.9.1 Damage to structures caused by tree roots

Claims are often made that tree roots cause damage to buildings, garden walls, driveways, footpaths, service pipes (such as water, sewerage and gas) and other infrastructure. There are many causes of this type of damage and the damage may not be caused by a tree even if the tree is close to the damaged structure.

Refer to Section 5.8.2 (Damage to plumbing) for information on claims relating to damage to private water, stormwater or sewerage pipes.

If damage to a structure is alleged, evidence (such as a structural engineer's report) must be provided to Council that shows whether there is a direct link between the tree and the damage. Council may require that non-destructive exploratory excavation is carried out and shown for inspection by an authorised Council officer.

The extent of Council's assistance will depend on the evidence provided and any inspections carried out by Council.

Council will generally not consent to the removal of a tree unless the damage to the structure cannot be remediated by reasonable and practical means which allow for the retention of the tree.

Council will not consent to the removal of a tree unless it is directly causing damage to a significant structure such as a house. Driveways, garden walls, garden fencing, decorative retaining walls and garden paving are generally not considered to be significant structures. These structures can usually be replaced or repaired, and the replacement or repair work will allow for the retention of the tree. For example, if a tree has damaged a fence or a fence is in the path of a tree's stem or roots, the fence can be replaced or repaired to accommodate the tree and include space for future growth.

Council will investigate claims of damage on private property caused by trees on Council land as and when claims are formally made.

5.9.2 Damage to plumbing

Tree root growth is opportunistic. Tree roots do not seek out water, tree roots are not aggressive and tree roots do not 'invade'.

Sewer lines, stormwater lines, water pipes and other services are located in areas where Council managed trees grow.

Sydney Water is responsible for the management of the sewer and water mains systems in the Sydney, Blue Mountains and Illawarra areas. It is the responsibility of the property owner to maintain their underground pipes. More information can be found at sydneywater.com.au.

Damage to water and sewer pipes that appear to be caused by a tree are often caused by other factors, and while trees can contribute to damage, they may not be the sole cause of it. All plants including grass

can enter leaky, old or damaged pipes. In most circumstances, tree roots are unable to enter sound water or sewerage lines.

If there is evidence of tree roots in a water or sewer pipe there must be an entry point/ hole. The owner of the sewer must replace faulty pipes or repair the damage at their own cost. Clearing pipes with electric eels and high-pressure water will only prune roots and will not eliminate the problem. It is highly likely that soon after clearing a root blocked pipe, the roots will regrow and block the pipe again because the pipes are damaged or faulty.

Cutting roots to repair water and sewer pipes must only be done as a last resort because cutting tree roots is likely to have an adverse effect on the health and stability of the tree. Council's prior written consent must be obtained before any tree roots are cut.

Council will generally not consent to the removal of a tree unless the damage cannot be remediated by reasonable and practical means which allow for the retention of the tree.

Where damage is alleged, a report from a licensed plumber must be submitted that shows whether the significant damage has occurred as a direct result of the tree and that repairs are unable to be undertaken due to the position of the tree or there are no permanent repair options.

The report must include the following information:

- details of the type and age of the existing pipes
- a diagram showing the location of the pipes, any blockage and the tree (including trunk and canopy diameter)
- details of a below ground inspection to investigate the root conflict with the pipe (including photos of the damage)
- a discussion of options (including pipe modification, line redirection and relining/ resleeving, as appropriate) that will allow for the retention of the tree
- site specific recommendations based on observations made (including an explanation of why options are recommended or not recommended), and
- an estimate of the cost of repair.
- Evidence of the species of root inside the pipe

The extent of Council's assistance will depend on the evidence provided.

5.9.3 Moisture extraction by tree roots

In extreme conditions, trees may contribute to moisture extraction from the ground. In long dry and hot periods, the effect of this and other issues may cause soil movement and subsequent cracking of nearby structures. Conversely, in times of high rainfall and storms, trees can reduce the severity and duration of flooding events through the uptake of water.

There are many causes of structural damage and damage may not be caused by a tree even if the tree is close to the damaged structure.

If damage to a structure is alleged, evidence must be provided to Council which shows whether there is a direct link between the tree and the damage such as a structural engineer's report and a consulting arborist's report. Council may require that nondestructive exploratory excavation is carried out and shown for inspection.

The extent of Council's assistance will depend on the evidence provided and any inspections carried out by Council.

Council will generally not consent to the removal of a tree unless the damage cannot be remediated by reasonable and practical means (such as root pruning, soil moisture amelioration and/or the use of root barriers) which allow for the retention of the tree.

5.9.4 Debris from Council trees

Trees make the City an attractive place to live and work, and trees provide many benefits to the community. Trees are living things and may create some inconvenience or nuisance to some people. Issues include:

- autumn leaf fall of deciduous trees
- regular leaf fall of evergreen trees including Australian native trees
- flowers, berries, nuts, twigs, sticks and bark falling onto pedestrian paths or private gardens during specific times of the year, and
- pollen dispersal.

Council aims to provide a "best fit" solution to the community, weighing up the level of inconvenience, the collective contributing positive value of the trees and the cost of implementing solutions.

Resources will be allocated to provide services on a fair and consistent basis throughout the City. Street sweeping programs have been developed which give a higher priority to prominent streets with heavy leaf fall than less well used streets with light leaf fall.

Residents not satisfied with Council's level of service may put leaves and similar debris in their green waste bin, compost it at home, use it as garden mulch or otherwise dispose of it through various disposal options including Council's free clean up service.

Leaves should not be swept onto the road or into gutters as this increases the potential for blockage or pollution of stormwater systems.

Natural leaf, flower and fruit drop is not considered sufficient reason to remove or prune a tree. Perceived nuisance associated with the dropping of leaves, bark or fruit (such as blocked drains or leaves in swimming pools) and any potential hazards (such as slips or trips) can generally be avoided with vigilance or minor maintenance.

5.9.5 Storm damage

If Council considers it appropriate to assist in cleanup operations after a declared natural disaster or a storm event generates widespread tree damage:

- for up to 5 days after the disaster or storm, Council may accept requests to clear tree debris caused by the storm on private properties provided the resident appropriately stacks all vegetation on the Council verge area in front of the property. This period may be extended based on the severity of the disaster or storm event.
- Council will respond to any tree (public or private) that, due to a natural disaster or storm event, requires removal from a public area because it may be a hazard to pedestrians or traffic. The extent of work will be to make the area safe and clear away debris for this purpose only. Any tree on private property remains the responsibility of the property owner.
- Council will consider claims for the removal costs for any tree that has fallen from any Council controlled land onto private property or onto privately-owned assets, subject to the property owner providing specific information required by Council.

5.10 OTHER ISSUES

5.10.1 Parking under trees

One of the most common causes of poor tree health is compaction of the soil within the tree root zone. This is frequently caused by pedestrian or vehicular traffic. When something heavy bears down on the soil the air is pushed out and the strength of the soil increases. This reduces the ability of tree roots to access oxygen, decreases moisture penetration, can stop or slow root growth and limit the rooting area. Compaction is extremely difficult to reverse.

Vehicles and machinery can also cause mechanical damage (wounding) to the stem or branches of a tree. To prevent damage, residents, visitors and property owners must not park on nature strips or parks and reserve areas under any tree.

All Council vehicles are prohibited from driving or parking within the unpaved area under the crown of any tree on all Council land (including parks, reserves, road median strips and street verges). Lawn mowing machines and equipment may be

driven under the crown of a tree within the dripline, if that area contains grass, during mowing but this activity must not be carried out when the soil is wet, and machinery and equipment must not be left within this area. Driplines should be mulched to eliminate the need to mow under the canopy.

A diagram showing the crown and dripline of a tree is included in Section 10 (Tree protection).

Mulching under trees to the extent of the crown can reduce compaction and improve tree health. The area under trees to the dripline should be mulched with clean mulch(no soil, weeds or rubbish) to a depth of 50-75mm. Mulch must be kept 100mm clear of tree stems.

5.10.2 Council trees encroaching onto private land

Council cannot ensure that Council trees do not encroach onto private land because of the large size of the City, the substantial number of trees under Council's care and control and the limited resources available. Council will endeavour to maintain the following vegetation clearances:

- 500mm branch clearance above any boundary fence with adjoining Council land, and
- 2m clearance above any roof on private property.

Council staff will consider applications for additional pruning works. If an application is made:

- the need for pruning will be assessed in accordance with the criteria set out in Section 9.4 (Pruning), and
- Council may require the property owner to submit a pruning specification for assessment and approval by Council.

A pruning specification must be prepared by a consulting arborist.

5.10.3 Powerlines

Many trees on Council land are growing near overhead powerlines. Energy service providers maintain clearances around their powerlines by pruning these trees. Many tree species react poorly to repeated and severe pruning for line clearance, and irrespective of any tolerance to pruning, the form of a tree is often ruined by the pruning. Council has very limited influence over these

activities but will endeavour to work with energy supply companies and their contractors to ensure the damage to trees is minimised.

Council's preference is for power cables (and other services) to be placed underground. However, trenching to install services is likely to cause damage to existing trees nearby resulting in tree death, canopy dieback or a structurally unsound tree vulnerable to failure. Council supports the use of trenchless techniques such as underground directional boring. This is a proven method for laying cables and other services with minimal damage to the soil profile and tree roots.

Tree management will be integrated with the management of the entire urban environment including road infrastructure and buildings. Proposed new powerlines, light poles and realigned powerlines should be located clear of existing trees. Section 7.5 (Additional requirements for street tree planting sites) sets out the minimum distances between trees and infrastructure applicable to new street tree planting.

5.10.4 Telecommunications facilities

Telecommunication wires, poles, equipment and facilities are often located in close proximity to Council managed trees.

Telecommunication companies are statutory authorities and have the authority to take action to maintain their assets. There is sometimes conflict between trees and these assets.

The line of sight for cell phone towers can impact on trees. Towers can be located hundreds of metres apart and a clear line of sight is required for proper operation. Trees growing between towers may interrupt these lines of sight.

An integrated and planned approach is required to ensure a satisfactory outcome for all stakeholders. Telecommunications towers or other facilities should be located in areas where there is minimal conflict with existing and proposed trees. The mature heights of trees must be considered when calculating line of sight and new installations.

The installation of services (including wires, cables and pipes) must be located away from existing trees and during installation the requirements of AS 4970-2009 *Protection of trees on development sites* and AS 4373-2007 Pruning of Amenity Trees must be complied with to ensure that impacts on existing trees are minimised.

5.10.5 Solar access

Council will not consent to the removal or pruning of trees on public or private land to install solar panels or because sunlight is obstructed by those trees.

Deciduous trees provide summer shade and winter sun, and strategically planted trees can reduce the need for air conditioning. The many benefits of trees include providing energy savings from reduced cooling and heating costs.

The installation of solar panels for hot water and electricity generation is increasing. Despite technology advances, the efficiency of solar panels can be significantly reduced by a small amount of shade on the system. Before proceeding with the installation, the mature height of trees nearby on private property and on adjoining Council land should be checked to establish if the trees will cast shade on the proposed solar panels.

The installation of solar devices is a complying development unless the installation requires the removal of trees. Protected trees on private property and all trees on Council land cannot be pruned or removed without prior Council consent. A development application must be submitted to and determined by Council before any works are carried out.

Council supports the installation of solar panels on taller buildings where the roof will not be shaded out by trees (for example on factories or shopping centres).

5.10.6 Views

Council will generally not consent to the removal or pruning of trees to create a view.

If pruning works are requested to restore a view which formerly existed, Council will consider:

- the landscape, environmental and physical significance of the tree
- tree species including whether the tree is part of remnant planting or a threatened species
- the health and structural condition of the tree, and
- whether the works can be carried out without:
- significant adverse impact on the tree
- destruction of the tree's natural form or branching habit
- compromising the structural integrity of the tree, and
- destroying habitat.

Council will not consent to the removal of a healthy and structurally sound tree. Council will not consent to any pruning which has a significant detrimental effect on the tree or a negative impact on native fauna, biodiversity or the surrounding landscape.

5.10.7 Excavation and trenching works

Excavation and trenching works can sever or damage a significant part of the root system of a tree.

In most circumstances, the majority of tree roots grow in the top 300mm of soil and in favourable conditions the majority of non-woody feeder roots usually grow in the upper 100-150mm of the soil. Because of this, even shallow excavation works may have a significant adverse effect on a tree by removing both feeder roots that take up water and nutrients and larger woody roots that keep the tree stable in the ground.

The effects of root damage may not be immediately obvious and may take time to develop, but root damage often results in foliage dieback, a structurally unsound tree vulnerable to collapse and tree death.

Where underground services need to be installed close to trees, trenchless techniques such as directional boring must be used to minimise damage to the soil profile and tree roots. Services must be located at least 600mm beneath natural ground level to minimise damage to a tree's root system.

Proposed excavation Works must be assessed prior to commencement by an AQF Level 5 Arborist. See section 9.4 (Pruning) and arboricultural specifications in appendix regarding root pruning.

5.10.8 New Driveways

Street trees are an integral part of a streetscape and add to the attractiveness of a neighbourhood. Ownership of residential property changes approximately every seven years and street trees provide multiple benefits to the whole community over a much longer timeframe. The benefits provided to the community by the tree may outweigh an individual's need for an additional driveway.

Council may consent to extend an existing driveway over the driveway crossover or install a first driveway at a property but will generally not consent to the construction of a second driveway if this requires the pruning or removal of a tree.

An application must be submitted and determined by Council before the commencement of any works to install a driveway crossover. The type of application depends on the development or building works proposed, as follows:

- A Development Application must be submitted if the construction of a driveway or driveway crossover is part of development works proposed on a private property (for example, the construction of a new house or alterations and additions to an existing house).
- A Driveway Crossover Application must be submitted if the proposed works fall within the Complying Development provisions or if no other development works are proposed for the site.
- Council may not consent to the construction of a driveway crossover if this will result in the pruning or removal of a street tree even if an application is made after the construction of a driveway on a private property. Because of this,

private property owners are encouraged to seek Council's advice during the design process and before construction works on the property start.

If the proposed driveway crossover will require the pruning or removal of any street tree, Council will require an Arboricultural Impact Assessment Report

and/or a Pruning Specification to be submitted as part of the application. These reports must be prepared by a consulting arborist.

When assessing the application, Council will consider the criteria set out in Sections 9.4 (Pruning) and 11 (Tree removal). All applications will be referred to and assessed by an AQF Level 5 Arborist or an independent consulting arborist.

If Council consents to the pruning of a tree's roots or crown, the pruning will be carried out by Council or Council approved contractors at the sole expense of the property owner. Council will impose conditions relating to tree protection measures (such as fencing and ground protection). Refer to Section 10 (Tree protection).

If Council consents to any tree removal, the tree will be removed by Council or Council approved contractors at the sole expense of the property owner. Council will impose conditions relating to:

- replacement tree species, tree pot size, tree planting and tree establishment
- landscaping, and
- compensation for the loss of a Council asset. The amount of compensation payable will be set out in Council's Fees and Charges current at the date of the determination of the application.

All replacement street trees must be maintained by the property owner in a healthy and vigorous condition for an establishment period of three years.

If any tree is found by Council to be faulty, damaged, dying or dead within three years of planting, the tree shall be replaced at no cost to Council within 60 days with a tree of the same species and size as specified in the consent. The three year establishment period will start again from the date the replacement tree is planted.

Written approval must be obtained from Council before the hand-over of any street tree to Council.

The provisions of Section 11.6 (Stump removal) apply to all trees removed on Council land.

5.10.9 Trees planted by residents on Council land

Residents are not permitted to plant trees within the nature strip, other sites within the road reserve or in a Council managed park, unless written Council approval is obtained.

Street trees are sometimes planted on Council's nature strip by private property owners. Council does not support resident-initiated street tree plantings. Trees planted by residents may be an inappropriate species, located in a poor position, may conflict with underground services or be poorly planted, and may therefore increase Council's maintenance costs as the trees grow.

Irrespective of who planted them, trees planted on Council land are owned by Council and subsequent action concerning such trees is totally at Council's discretion.

If Council considers that the removal of a tree is necessary, and the tree appears not to have been planted by Council, as a courtesy Council will notify the resident of the closest property before commencing any works.

No compensation will be paid to residents for the removal of trees on Council land. Council staff or contractors will remove the plant material and replacement trees may be planted in accordance with the provisions of this Plan.

Other government agencies such as Sydney Water and Endeavour Energy have legislated rights in relation to the pruning or removal of trees on Council land that override any determination by Council.

5.10.10 Private trees encroaching onto Council land

The owner of a property is responsible for trees on that property. If the branches of a tree on private property encroach into the required clearance zones for footpaths, cycleways and roads or if public safety issues are identified, Council will inform the tree owner that remedial action must be undertaken. The owner of the tree is responsible for the cost of carrying out the remedial work.

If the tree owner fails to comply with a reasonable request, Council may issue an order under the Roads Act for the required work to be undertaken.

5.10.11 Trees presenting a fire hazard

Requests to remove trees or vegetation on the basis that they present a fire hazard must be assessed by appropriate officers from the NSW Rural Fire Service before any removal work is carried out. Trees and vegetation must be removed in accordance with the recommendations in the NSW Rural Fire Service assessment.

5.10.12 The NSW RFS 10/50 Vegetation Clearing Entitlement Area

The NSW Rural Fire Service 10/50 Vegetation Clearing Entitlement Scheme helps people living near the bush

in specifically designated areas be better prepared for bush fires.

The scheme allows people in those designated areas to:

- clear trees on their property within 10m of a home, without seeking approval, and
- clear underlying vegetation such as shrubs (but not trees) on their property within 50m of a home, without seeking approval.

The scheme is managed and administered by the NSW Rural Fire Service. Detailed information about the RFS 10/50 Clearing Entitlement Scheme can be obtained from the RFS. There is no requirement for Council owned /managed trees within an RFS 10/50 area to be removed or pruned. Bush fire hazard concerns should be addressed to the RFS.

5.9 10.13 Pests

The presence of pest species (for example, termites) in a tree on Council land will not trigger the removal of a tree unless there is another compelling reason for removal such as structural instability and a consequent risk of injury or damage. Termites are a natural agent beyond the control of Council and the removal of a termite affected tree is not held to influence in any way the potential for termite attack on adjacent private property.

Council will intervene in pest and disease outbreaks where the immediate or long-term survival of a tree is compromised, or a property is substantially affected. In these circumstances the efficacy and cost effectiveness of available treatments will be assessed and, if justified, Council will act in accordance with an integrated pest management approach. Council does not accept responsibility for damage by pests.

Animals, birds, bats, spiders, bees and other insects use trees for shelter, food and for protection against predators. Council understands that some people may consider such fauna to be a nuisance but does not consider this to be sufficient reason to prune or remove a tree.

5.10.14 Stand-alone trees

Stand-alone trees are described as individual trees that may have previously been part of a forest or copse of trees and may be exposed to higher wind loads due to the removal of the surrounding trees, or other changes to their environment.

The removal of the surrounding trees, otherwise known as edge trees is often coupled with nearby development. The removal of surrounding edge trees may increase the possibility of stand-alone trees failing in adverse weather conditions.

Stand-alone trees will be assessed through Council's Tree Risk Assessment Program and consideration will be given to the slenderness ratio, the live crown ratio, crown modification, overall health, and soil disturbance of the subject tree as per the guidelines set out by (*Claus Mattheck, The Body Language of Trees 2015)*.

Remediation methods may include:

Planting additional trees around stand-alone trees to improve the amenity of the site and create partial protection of existing stand-alone trees,

Crown modification to reduce wind loads on the tree,

Soil remediation to maintain or improve soil conditions,

Cable and bracing of heritage or cultural significant specimen trees, and

Removal and replacement of the tree if no other remediation options are feasible.


CITY COUNCIL

6. TREE SELECTION

6.1 GENERAL

6.2.1 Aesthetic value and form

For trees to provide maximum benefit to the community, the right tree must be planted in the right place, the planting environment (both above and below ground) must be sufficient to enable the tree to grow to its full mature size, and the tree must be maintained during an establishment period after planting to ensure vigorous growth.

The design of any streetscape, park or public area must include an analysis of the site and define the function of a tree in that setting.

All trees planted by developers on Council land must have a useful life expectancy of more than 10 years from the time of handover to Council.

This section sets out Council's approach to selecting the right tree species.

6.2 CRITERIA FOR TREE SPECIES SELECTION

The guiding principle used in tree species selection is finding the right tree for the right place. Council considers the following factors in the species selection process:

- aesthetic value and form
- size
- adaptability to urban conditions/ biological tolerances
- site based opportunities and constraints
- maintenance requirements
- ecological/habitat values
- species diversity
- canopy cover and reduction of the urban heat island effect
- tree availability, and
- health issues.

Council is continually updating species lists to assist in the selection process. The lists include tree species that are known to grow well within the Penrith local government area and some trial species. The current species lists are set out in the Appendix and are also on Council's website. Any plant lists are guides and not prescriptive.

Trees can enhance the attractiveness of each street and public area, and tree species selection can develop and enhance the existing dominant character of a neighbourhood. Council's preference is for a limited planting palette for consistency and visual uniformity to a streetscape.

Species selection can be used to define major features and key cultural and commercial areas. Trees that have uniform, formal or distinctive attributes can be selected for prominent locations, for example Norfolk Island Pines planted in a row leading to a building in a park. Trees with an informal habit can be planted to enhance an existing vegetation type, for example gum trees planted to promote a bush-like vista.

In general Council will plant trees with a predictable growth habit and single upright stem to allow for clearance for pedestrian and vehicular traffic.

6.2.2 Size

Research has shown that medium to large trees provide more benefits than small trees simply because they have a larger crown area. For example, large trees:

- have more visual impact than small trees
- intercept more particulate pollutants and absorb more gaseous pollutants than smaller trees
- can be pruned in such a way as to provide higher canopy clearance over roads and footpaths without ruining the form of the tree, and
- provide more habitat.

Large evergreen broadleaf trees have the most impact in reducing the urban heat island effect because they provide more shade and transpire to cool the air.

Council will select the largest tree species suitable for the space available. Because large trees need a large rooting space, in key locations this may require designing the soil space under adjacent roads and pavements to provide a suitable growing environment.

6.2.3 Adaptability to urban conditions/ biological tolerances

In determining tree species suitability for planting, tolerance to stress is considered with regard to the following factors:

- general climatic suitability (rainfall, heat and cold)
- high wind tolerance
- atmospheric pollution tolerance
- adaptability to soil types in the City (generally nutrient poor shallow clay) and soil compaction tolerance
- drought and waterlogging tolerance
- pest and disease susceptibility and management
- climate change tolerance
- longevity, and
- pruning tolerance.
- Tree species with high tolerance to these factors are more likely to succeed and should provide optimal benefits in the future. Council will plant tree species that it considers will adapt well or have already been proven to perform well in the City.

6.2.4 Site based opportunities and constraints

Because large healthy trees will provide the most benefits to the community, it is vital to ensure that a tree is planted where the site conditions suit the tree. Factors considered include:

- matching the tree's anticipated size at maturity to the site soil type and available soil volume
- assessing the above ground space and planting trees known to have narrow crown widths in restricted spaces (for example narrow streets)
- the location of underground and overhead services
- the location of existing crossovers/ driveways, power poles, light poles, fire hydrants or inspection pit boxes/manholes
- traffic and pedestrian lines of sight
- structures on private properties and access to these properties
- the existing landscape and topography
- the cultural, heritage and neighbourhood character of the area, and
- the potential effects (beneficial or detrimental) to neighbouring landowners.
- On streets with overhead service lines, where appropriate to the streetscape (for example on narrow residential streets or streets with narrow verges), Council may plant smaller trees under the wires and plant larger trees on the side of the road without wires.

Where an area has historic tree planting, consideration will be given to using the same tree species if practicable.

6.2.5 Maintenance requirements

Tree planting, maintenance and removal all require resources. Council's investment can best be protected by both careful planning and by maintaining trees using industry best practice techniques.

Council will select tree species that do not require excessive resource input to maintain them in a safe and aesthetically pleasing manner. Species will be selected that:

- are known for their structural integrity and where stock is known to have received appropriate formative treatment while in the nursery and are grown to Australian Standards
- are deciduous where solar access is required during the winter months and shade is beneficial during the hotter months
- are long-lived to gain the greatest return on expenditure
- are suitable for the spatial constraints within a street (for example, pedestrian and vehicle clearances, overhead powerline clearances, root volume restraints and underground services, and
- are the right size for the available planting space.

Council will adopt an interdepartmental approach to formulate ways of avoiding conflict and damage caused to and by trees. As part of this approach, Council will avoid selecting tree species whose root systems are known to cause excessive damage to infrastructure.

The requirement for regular maintenance work will also be considered.

6.2.6 Ecological/habitat values

Penrith has a rich natural heritage that supports a diversity of natural environments. Many of the City's parks, reserves and natural areas contain tree species which are part of a wider group of plants that characterise the Cumberland Plain Woodland (CPW) plant community. This is a critically endangered vegetation community recognised under both State and Federal legislation. Council will plant these CPW endemic tree species as appropriate to maintain and enhance: • existing reserves, bushland and natural areas

- local character and sense of place
- habitat, and
- vegetation and habitat connections and corridors linking parks, reserves, bushland and natural areas.

The Biosecurity Act 2015 requires that landowners control environmental weeds on their property. Environmental weeds are invasive plants that compete successfully with indigenous plant communities. Planting tree species that are known to be, or have the potential to become, environmental weeds in Penrith is to be avoided.

6.2.7 Species diversity

High tree species diversity will provide greater long-term stability and sustainability of the tree population. This is because diversity in a tree population:

- reduces the incidence and severity of disease and insect outbreaks and in doing so protects canopy cover, and
- helps support a great diversity of fauna.

A Tree Asset Inventory will inform Council as to existing species diversity across the City. Council will be able to determine the dominant families, genera and species of trees planted to date and plant a mixture of species to maintain diversity.

Council will always plant tree species that it considers will adapt well or have already been proven to perform well in the City. However, Council will also trial new release varieties (including those for climatic change resilience) and species not previously planted. These trial tree species will be planted on one or a few small streets and away from sites with high public use.

6.2.8 Canopy cover and reduction of the urban heat island effect

The impact of protracted drought coupled with a declining or ageing tree population has resulted in a significant loss of tree canopy cover across the City over the past decade.

Canopy cover is a measure of the physical coverage of the tree canopy over an area. Council will measure the existing canopy cover and develop canopy cover targets for the City. This will:

- ensure the community can experience the many benefits that trees provide
- enable Council to take a planned and integrated approach to increasing canopy cover, and
- enable Council to set planting priorities, for example in identified hotspot areas across the City.

Planting trees is one of the key approaches used in reducing the urban heat island effect in built up areas. Shade trees provide a respite from the sun on a hot day and trees cool the air by releasing water vapour through transpiration. Trees must grow to mature sizes before the benefits can be fully realised.

6.2.9 Tree availability

Council purchases most tree stock from commercial trade nurseries. Council also propagates and grows some trees itself in our nursery. Pre-planning is essential particularly when specific species or large numbers of trees are required. Council will, whenever possible, procure trees from nurseries in advance of planting them. Procuring trees in advance ensures supply and quality, eliminates the need to substitute species and size, and guarantees uniformity.

6.2.10 Health considerations

Council will consider the effect of trees (or species) on human health and generally will not select trees for key public areas and streets which:

- cause significant allergenic symptoms or exacerbate respiratory complaints
- have highly toxic parts
- present major problems for people carrying out maintenance works, for example Lagunaria patersonia (Norfolk Island Hibiscus) which has irritating seedpod hairs
- have thorns or spines, or
- are known for their excessive fruit drop.

6.3 NATIVE OR EXOTIC?

Trees currently selected by Council for planting as street trees and in parks and reserves are a mix of natives, and exotic evergreen and deciduous trees.

Evergreen trees are trees that retain their foliage throughout the year. Deciduous trees shed their leaves in autumn. There are very few deciduous native trees. Deciduous trees have the benefit of providing summer shade and solar access in winter, and because of this it may be appropriate to plant exotic deciduous trees in some locations. Deciduous trees also provide seasonal variety, with many featuring flowers or colour.

A native tree species is generally interpreted as one that would have been growing in Penrith at the time of European settlement. However, they could be more specifically defined as: • endemic (found only in this specific location)

- locally indigenous (found in Penrith before European settlement but can be extended to include much of western Sydney), and
- native (broadly found in Australia).

Council considers the second definition to be the most useful since it includes a range of species that are likely to grow and thrive within our City. The first definition technically excludes any species found outside the Penrith local government area, which is plainly not practicable; while the third could include species from such places as tropical and arid climates that may not thrive or will out-compete locally indigenous species.

The definition of an exotic tree species is one that is not native to Australia and has been introduced from another place or region. Some exotic trees come from countries or regions that have very similar climates and environments to areas within the City.

Council supports planting native tree species mainly for their contribution to developing a local landscape character or identity that is authentically Australian. Many native trees are also planted for environmental reasons (for example, habitat, adaptation to the conditions, drought tolerance and better soil stabilisation). They also often need less maintenance.

The dominant endemic trees in Penrith are medium to large growing Eucalyptus trees which are too large for many streets and urban gardens.

Therefore, although the planting of endemic species is appropriate because of the suitability of the species to the local soils and climate, Council supports the planting of these trees only where adequate space is available. This is often in parks, reserves, bushland and natural areas.

Council is considering initiating the following programs to promote the planting of native trees:

- providing tube stock of less common, rare or endangered Western Sydney tree species to residents
- growing locally indigenous trees, formatively pruning them and trialling the trees as street and park trees, and
- educating residents and Council staff by creating information sheets and holding workshops.

Much of the City has been urbanised or the soils modified and does not resemble pre-European conditions. Local soil is often highly degraded and disturbed due to being moved, graded, compacted, inverted and contaminated. Site conditions are often unsuitable for native tree species. Native and exotic tree species (for example, rainforest species) are often more suited to the highly altered and overshadowed conditions in built up areas and are more successful. In some cases, soil and ground conditions may require amelioration to sustain good tree growth.

Council will consider which tree species has the desired characteristics, will provide maximum benefit, and will grow successfully to maturity in a location irrespective of whether the tree is native or exotic and whether it is evergreen or deciduous.

7. TREE PLANTING

7.1 SELECTING TREE STOCK

Planting a good quality tree is essential to the long-term success of the tree. At the time of planting, the tree should:

- be healthy
- not show any signs of pests or disease
- have a uniform habit
- have good balance between the size of the crown and the size of the root system
- be self-supporting and not require a stake to keep the tree upright
- have a well-developed and well-formed root system and
- be free from defects likely to cause the tree to fail in the future.

Good quality tree stock should establish rapidly and grow to maturity with less maintenance requirements than poor quality stock. Poor plant selection can lead to poor vitality and form, susceptibility to pests and diseases, and premature death.

All tree stock planted in the Penrith LGA will be of high quality and comply with AS2303-2018 Tree stock for landscape use, as amended from time to time.

Tree management is challenging because of different perceptions of and attitudes towards trees within the community

7.2 SELECTING TREE PLANTING SITES

The following criteria will be used in the selection of tree planting sites throughout the City. Council will identify planting opportunities:

- in high profile sites, for example entrances to the City, major arterial routes within the City, commercial precincts, and major roads
- in relatively treeless areas, for example under-developed parks, nature strips, streets, median strips, car parks and traffic treatments where space allows
- in new subdivisions
- in areas identified as 'hot spots' due to the urban heat effect
- where shade is needed
- where people congregate, and
- along existing pedestrian and cycle paths /routes.

Council will:

- identify opportunities for succession planting
- consider the age diversity of trees in parks, and target parks where most trees are of a similar age to ensure parks contain trees with a diverse age range consider density and spacing of trees in a n street area, and target parks where most trees are of a similar age to ensure parks contain trees with a diverse age range
- integrate park upgrades and developments (Capital Works, Asset Renewal) with tree planting in adjacent streets
- combine road and footpath reconstruction or renewal with tree replacement, new tree plantings and planting programs
- explore opportunities to change existing road alignment design to provide opportunities for tree planting and streetscape improvement
- plan to increase species diversity
- consider design options to enable the planting of large trees, for example inroad planting in the parking lane, planting large trees in median strips or designing the soil space under pavements and road carriageways to allow for root growth
- replace trees that are to be removed in close location.

- Consider density and spacing of trees in a given street area, and
- consider surrounding use and function of spaces eg play, sport, appreciation of views/outlooks.

Tree management is challenging because of different perceptions of and attitudes towards trees within the community. Ownership of residential property changes on average approximately every seven years and street trees provide multiple benefits to the whole community over a much longer timeframe. Because of this, although Council will consider a resident's reasons for not wanting a street tree at the front of their property, unless there is significant justification for not planting a tree, a tree or trees will be planted. Any tree that is damaged or removed will be replaced.

7.3 PLANTING SITE SIZE

Trees need room to grow. Competition for space both above and below ground can significantly limit the size and vitality of a tree, decreasing the tree's useful life expectancy and the benefits it can provide.

There is a direct connection between the volume of growing space below ground and tree size: the larger the space the larger the tree can grow. There is also a direct link between the size of the planting pit opening in the pavement or road and tree size.

Council will select the largest tree species suitable for the space available. Because large trees need a large rooting space, in key locations this may require designing the soil space under adjacent roads and pavements to provide this.

Table 1 below contains guidelines used by Council for the planting space needed for small, medium and large trees. The planting site includes size of tree, permeable soil area and verge width from kerb to footpath.

PLANTING SITE			SOIL VOLUME PER TREE	MAXIMUM TREE SIZE AT MATURITY
Small	Less than 9.5m²	1.0m to 1.3m	30m³	Small (less than 6m tall)
Medium	9.5m² to 18.5m²	1.3m to 2.5m	33m³	Medium (less than 15m tall)
Large	More than 18.5m²	> 2.5m	35m³	Large (taller than 15m)

Table 1: Guidelines for planting site sizes (adapted from Gilman, 1997 & City of Melbourne 2011)

7.4 PLANTING PRIORITIES

Council sets priorities from time to time for tree planting on Council land. Generally, Council will give priority to planting trees:

- to replace trees that have been removed from existing streets, parks and open space where planting is required to maintain or enhance the original character of the area
- in parks and streets that do not have many existing trees
- to provide shade for spectators in playgrounds and sporting fields
- to provide shade and amenity to shared paths and footpaths
- in industrial and commercial areas where tree planting will significantly contribute to increasing the visual amenity of the area
- in areas with low canopy cover
- in identified hot spot areas
- to replace ageing tree populations that are in a state of decline, and
- in response to planting requests from residents or where community consultation strongly supports the introduction of new tree planting.

7.5 ADDITIONAL REQUIREMENTS FOR STREET TREE PLANTING SITES

Although distances may be varied depending on the tree species and the site, in general the location for a tree on the road reserve will be:

- a minimum of 3m from existing crossovers/driveways
- a minimum of 10m from street intersections and traffic signals
- a minimum of 10m from the approach side and 7m from the departure side of a pedestrian crossing
- 8m from the approach side and 3m from the departure side of a bus stop
- centrally in the front of a house block, but not directly in front of the front door
- 5m from a light pole
- 2m from stormwater inlet pits
- evenly spaced 7m (small tree) to 15m (large tree) apart in the street, and
- a minimum of 0.5m from the kerb and path.

Existing trees within these distances will not be removed unless the impacts of retaining the tree are found to be unacceptable or cannot be mediated by other means. Council will plant trees where the roadside environment does not prevent the tree from reaching its maximum potential. Some locations will not be suitable for tree planting due to existing or planned infrastructure or utilities.

7.6 STREET TREE INFILL PLANTING

Council currently has an 'infill' planting program which replaces trees on an ad-hoc basis as required. However, many streets throughout the City contain a mix of tree species and in these streets it is difficult to achieve the vision of consistent avenues through infill planting.

To achieve sustainable canopy cover across the City, Council needs to:

- proactively manage and plan tree planting and replacement, and
- set and commit to a tree planting target or a percentage canopy cover target.

It is important that Council completes an audit of its total street tree population and puts in place adequate measures and resources to ensure a systematic approach to increasing the number of trees.

Until an audit is completed and a tree asset management system is in place, the infill tree planting program should be restricted to streets where the existing planting is successful, and the new trees will reinforce the character of the existing landscape. Otherwise an inconsistent planting theme will be reinforced over time.

7.7 TREE PLANTING METHOD

Experience has shown that planting trees with good intentions is not sufficient to achieve a high quality and lasting outcome.

The optimal tree planting season is autumn (March – May) and more generally between the months of March – September.

Before designing a planting pit, both the soil and water conditions should be analysed. The physical and chemical properties of the soil and the need for drainage should be considered.

Trees will be planted in accordance with the Tree Planting Specification and Tree Planting Details set out in the Appendix.

All planting works will be carried out by a horticulturalist with a minimum qualification of AQF level 3 in Horticulture.

All tree planting will be carried out in accordance with:

- Safe Work Australia Code of Practice *Guide to Managing Risks of Tree Trimming and Removal Work*
- AS 4373-2007 - *Pruning of amenity trees*
- AS 4419-2003 - *Soils for landscaping and garden use*
- AS 4454-2003 - *Compost, soil conditioners and mulches*


CITY COUNCIL

8. TREE ESTABLISHMENT

Trees need to be maintained immediately following planting to ensure they have the best chance of growing quickly to their mature height.

The time a tree takes to establish depends on the tree species, climate and watering during the establishment period. A tree can take anything from several months to a few years to establish.

Watering is critical to success. It promotes rapid root growth and consequently reduces the time it takes for the tree to become established. Trees that aren't given sufficient water after planting often die back at the branch tips and fail to develop a sound structure.

The tree establishment period for all trees planted on Council land is three years. During this time developers, Council and Council contractors will visit trees and monitor moisture levels and if required:

- as a minimum water trees:
- once a week in the first 4 weeks after planting
- once every 2 weeks for the next 8 weeks, and
- after the first 12 weeks, once every month until the trees are 3 years old.
- water to thoroughly wet the root system
- water in both the cooler and hotter months
- not water trees during the hottest part of the day, and preferably water early in the morning
- actively encourage residents to assist in watering
- fertilise trees yearly for the first three years after planting (depending on existing measured soil fertility and the tree species)
- provide additional protection (such as tree stakes or tree guards) to establish trees where they may be subject to vandalism and remove these as appropriate as the tree grows. Two years after planting, trees will be inspected and, if appropriate, stakes removed.
- provide additional maintenance (for example, extra water, topping up mulch, weed and litter control) to trees in high profile areas such as main streets and shopping centres
- keep the area around the tree stem weed and turf free
- regularly inspect the trees for pests and diseases
- carry out formative pruning if required. All pruning will comply with AS 43732007 - *Pruning of amenity trees.*
- A 12-month establishment period as a minimum. Trees to be assessed for continuing maintenance by Council Arborists

All trees to be handed over to Council from developers must have a useful life expectancy of more than 10 years.


CITY COUNCIL

9. TREE MAINTENANCE

9.1 GENERAL

Following plant establishment, Council will carry out ongoing tree maintenance works to ensure the maximum useful life expectancy of trees on Council land. This section sets out tree maintenance procedures to be followed by Council staff and contractors.

9.2 WATERING

All newly planted trees will be watered during a three-year establishment period as set out in Section 8 (Tree establishment).

In prolonged hot, dry periods or drought, semimature trees may also need to be watered.

9.3 FERTILISING AND APPLYING SOIL CONDITIONERS

Fertilising mature trees is not necessary if appropriate soil conditions are provided.

Soils within the City are variable but are generally nutrient poor shallow clay. Soil testing may be necessary to determine nutrient deficiencies and fertiliser composition.

If specified, trees should be fertilised when planted and in early autumn or spring. Council prefers the use of slow release complete fertiliser. All fertiliser should be:

- suitable for the plants being fertilised
- applied in accordance with the manufacturer's recommendations
- applied to moist soil, and
- watered in.

In dry conditions, a tree may need to be watered before the application of fertiliser and again afterwards.

Soil conditioners usually combine water holding crystals, fertiliser and growth stimulants. Council generally specifies that soil conditioners are used for planting in natural areas.

Council will consider using soil conditioners for general street and park tree planting.

9.4 PRUNING

9.4.1 General

Pruning refers to the cutting of either the roots or crown (branches) of a tree.

Council will, subject to the availability of resources, periodically carry out pruning work on street trees and trees within parks and reserves. Regular pruning works will not be carried out in bushland, natural and environmentally sensitive land. These trees will be assessed and pruned on a reactive basis.

Council or our contractors will carry out all pruning of trees on Council land. Council will take enforcement action against any unauthorised person who prunes the crown or roots of any tree on Council land. Refer to Section 5.8 (Damage to trees on Council land).

9.4.2 Crown pruning

Crown pruning falls into two main types: crown maintenance and crown modification.

The aim of crown maintenance pruning is to remove identified problems within a tree's crown while retaining the overall structure and size of the tree. This type of work includes formative pruning, deadwooding, crown thinning, and selective pruning.

Formative pruning is the most beneficial and cost-effective type of pruning. Formative pruning is carried out on young trees from the time of planting and throughout the first few years. The aim of formative pruning is to develop a sound structure and direct plant growth. Defects (like codominant stems and crossed branches) are identified and removed. Dealing with defects when a tree is small is physically easier because the work can usually be done using hand tools from ground level. It is also significantly cheaper and quicker than carrying out pruning work on a large tree.

Council trees will be assessed and formatively pruned as required during the three year establishment period. This work will be carried out a minimum of once a year during that time.

Council will also carry out some crown modification pruning. This type of pruning changes the form and habit of a tree. Crown modification includes crown lifting. This is carried out to ensure that:

- vehicular and pedestrian canopy clearances are maintained in accordance with Section 5.2.4 (Tree canopy clearances), and
- trees on Council land do not obstruct road signs or prevent street lights from illuminating roadways.

Pruning to maintain powerline clearances is undertaken by the energy provider. Council has very limited influence over this work.

Residents are responsible for maintaining vegetation clearances around service lines within their property (powerlines from the street pole to the house). Council approval is not required for this work provided it does not exceed energy regulation requirements. Powerline clearance pruning should be undertaken by an accredited contractor. Contact your energy provider for information about power line clearances.

9.4.3 Root pruning

No roots of any tree growing on Council land may be cut (whether those roots are on Council land or not) without Council's prior written consent, as this may cause the tree to fall.

Council may consent to minor root pruning as part of any approved works but generally Council will not consent to the pruning of any roots with a diameter of greater than 40mm.

All root pruning must be carried out in accordance with Section 9 of AS 4373-2007 *Pruning of amenity trees.*

9.4.4 Procedure

Trees do not generally benefit from pruning. It is often done for community benefit and in many instances to the detriment of the tree. The need for pruning must be established before any pruning work is carried out and the tree must not be adversely affected by the pruning works.

When a request is made to prune any tree on Council land an assessment will be made by an authorised Council officer (AQF 5 Arborist) or an independent consulting arborist.

Any subsequent action will depend upon this assessment.

As part of the assessment the following criteria will be considered:

- the health and structural condition of the tree
- whether the tree is part of remnant planting, a threatened species or on Council's Register of Significant Trees
- the impact of pruning on the health, structure, form and attractiveness of the tree
- the impact of pruning on surrounding trees
- the ecological, heritage and amenity values of the tree and the potential loss of these if the tree is pruned
- the landscape significance of the tree
- if part of the tree has the potential to cause significant harm or damage to people or property, whether this can be remedied by pruning, and
- whether any damage caused by the tree can be remediated without pruning.

Tree size, natural leaf, flower and fruit drop, and restricted solar access or views are not considered sufficient reasons to prune a tree.

Council may require a pruning specification to be submitted as part of any request for pruning works. The pruning specification must be prepared by a consulting arborist.

9.4.5 Standard of work

All pruning works carried out by Council or Council contractors will be performed:

- In accordance with Council Arboricultural specifications (see appendix and website)
- by experienced arborists with a minimum qualification of AQF Level 2 Arboriculture under the supervision of an AQF 3 Arborist
- in accordance with AS 4373-2007 *Pruning of amenity trees*, and
- in accordance with Safe Work Australia Code of Practice Guide to *Managing Risks of Tree Trimming and Removal Work*.

Lopping, topping, wound painting and flush cutting are all unacceptable practices and must not be carried out by any Council staff or contractors.

9.4.6 Pruning overhanging branches

If a private property owner wishes to prune branches overhanging their property from a tree on Council land the property owner must submit a Tree Pruning or Removal application form (go to Councils website) to be determined by Council. No pruning works may be

carried out by the private property owner. All pruning of trees on Council land must be carried out by Council or Council's contractors only.

Council has the right, at its own cost, to prune any tree overhanging public land from private property.

Information about the removal or pruning of trees on private property is set out on Council's website.

9.4.7 Pruning hygiene

Where there is a risk of spreading disease between trees, all pruning tools must be disinfected between trees. Trees in the family Arecaceae (palm trees) including Canary Island Date palms and Washingtonia palms are particularly susceptible to fungal disease, and tools must always be disinfected before and after pruning palms.


Shows

10. TREE PROTECTION

Trees on Council land provide multiple tangible benefits to the community, play a critical role in providing urban forest canopy cover within the City and make the City an attractive place to live, work and play. For this reason, Council protects trees on Council land by regulating all activities close to these trees.

Activity near and around trees can cause irreparable damage. This can be physical damage to trunks and branches from machinery, compaction from driving over root zones and damage from excavation works. Refer to Sections 5.10.1 (Parking under trees) and 5.10.7 (Excavation and trenching works).

Australian Standard 4970-2009 Protection of trees on development sites is the minimum requirement for the protection of trees in Penrith. The highest most recent industry standard shall be adopted as appropriate.

AS 4970-2009 provides guidance on protecting trees on land subject to development. Development includes:

- use of land that requires approval (for example, festival events, use of park areas, sporting events and other events)
- subdivision of land
- demolition of buildings or other structures
- construction of a house, building or other infrastructure
- construction of driveways and paving
- the use of land for compounds /storage
- road works, and
- installation of utilities and services.

As well as damage caused by development, trees can be damaged in the passive use of parks, for example overflow car parking and large groups congregating under trees may cause compaction, and the installation of temporary gazebos near trees may cause compaction and sever or damage roots if any pegs are driven into the ground.

Council may require a security deposit to be paid to ensure no tree on Council land is removed or injured during development works.

AS 4970–2009 Protection of trees on development sites sets out measures to protect trees from preventable damage. The principal mechanism for achieving this is the control of all activities within a Tree Protection Zone (TPZ) around a tree. The TPZ is a specified area above and below the ground around a tree which is isolated from development activity to protect a tree's roots and crown, to provide for the longterm viability and stability of the tree.

For single stemmed trees, the radius of the TPZ is calculated as follows: DBH x 12, where DBH is the diameter of the tree trunk at 1.4m from ground level. The radius is measured from the centre of the tree's stem at ground level.

In determining the TPZ Council will also consider the age of the tree, the tree's health and vigour and the tolerance of the tree species to changes in its environment.

Before any development works start, Council will require that measures are put in place to protect the area within the TPZ. These tree protection measures are specified in AS4970– 2009 *Protection of trees on development sites* but in summary include:

- engaging a project arborist (to assess and make recommendations)
- requiring all works within the TPZ to be supervised
- restricting activities within the TPZ, for example, excluding:
- machine excavation including trenching
- changing soil levels including placing fill material
- parking vehicles and machinery
- dumping waste, and
- washing down and cleaning equipment.
- installing protective fencing and relevant signage around the TPZ
- installing ground protection where some access is required within the TPZ, and
- installing stem and branch protection.

Council works are not exempt from tree protection measures.

All trees on Council land close to any development on private property must be retained and protected. Council will require an Arboricultural Impact Assessment Report to be

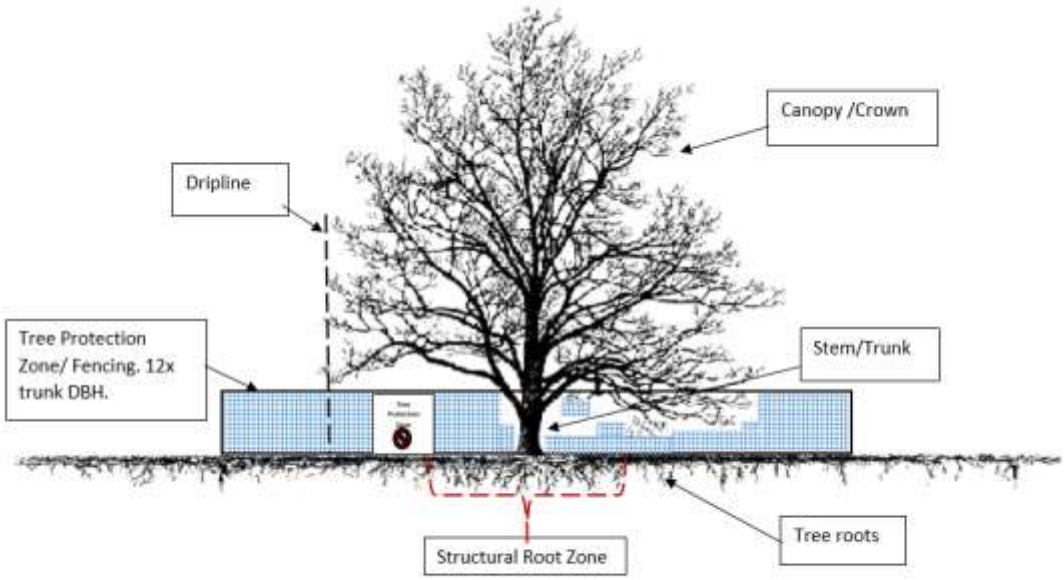
submitted which includes all trees on the site and all trees on Council land where any proposed development works (for example, excavation for footings and services, and changes in soil levels) will occur within the tree protection zone.

Council may also require a property owner or developer to:

- engage a project arborist to monitor the vitality of the trees throughout the construction process
- submit one or more of the following reports for consideration by Council:
- Pre and Post- Development Tree Assessment Report
- Pruning Specification
- Root Mapping Report, and/or
- Tree Protection Specification/Plan.

All reports submitted to Council must be prepared by a consulting arborist with a qualification of AQF level 5 or equivalent in Horticulture (Arboriculture) and at least five years post graduate experience. Council may reject any report prepared by an arborist who does not have this qualification or experience.

Information on driveway and crossover construction is set out in Section 5.10.8 (New driveways).



Tree Protection Zone Diagram

11. TREE REMOVAL

11.1 GENERAL

All trees age and eventually die. As trees become over mature or of advanced old age, they become more susceptible to disease, insect predation, and decay. Over time they may become structurally unsound.

To ensure the urban Forest canopy is not diminished when a tree is removed three (3) replacement trees must be planted.

Old trees require increased monitoring and maintenance to manage their hazard potential and to mitigate risk. Council does not currently have accurate information on the number of over mature or senescent trees and manages them on a reactive basis. The preparation of a Tree Asset Inventory will enable Council to make informed decisions, and plan tree removal and succession planting.

Council or Council contractors are responsible for the removal of trees on Council land.

Mulch generated from the removal of trees will be used in Council managed property in our City.

Council will take enforcement action against any person who removes or cuts down any tree on Council land without consent. Refer to Section 5.8 (Damage to trees on Council land).

11.2 PROCEDURE

When a request is made to remove any tree on Council land an assessment will be made by an authorised Council officer with a minimum qualification of AQF level 5 in Horticulture (Arboriculture) or an independent consulting arborist.

A consulting arborist is a person with a minimum qualification of AQF level 5 in Horticulture (Arboriculture) or equivalent and at least 5 years post qualification experience.

Any subsequent action will depend upon this assessment. The assessment must be documented and linked to a program or request.

Council considers the same tree removal criteria in every assessment to prevent indiscriminate removal. The criteria considered will be:

- the health and structural condition of the tree, and whether the tree is dead, dying or structurally compromised
- whether the tree has the potential to cause significant harm or damage to people or property that cannot be corrected by pruning, transplanting or other treatments
- whether any damage caused by the tree can be remediated without removing the tree
- whether the tree is part of a remnant group, a threatened species or on Council's Significant Tree Register
- the tree is a species that is controlled weed under the NSW Biosecurity Act 2015
- the ecological, heritage and amenity values of the tree and the potential loss of these if the tree is removed
- the landscape significance of the tree
- whether the aesthetic value of the tree is so low that the site is visually enhanced by the tree removal
- the sustainability of the tree in the location
- the useful life expectancy of the tree
- the impact of removal on surrounding trees
- whether the tree interferes with a tree or group of trees nearby to the extent that neither can develop to its full potential. The more desirable tree will be preserved.
- the tree is a species that is classified as an environmental weed
- the site conditions
- the sustainability of the tree in the location

- whether the tree is infected with a disease where the recommended control is not applicable, and removal will prevent disease transmission
- whether necessary building works and infrastructure improvements or maintenance on Council land will kill or render the tree a hazard or significantly impact on the tree's condition and useful life expectancy and no reasonable design alternatives exist, and
- whether the tree is significantly contributing to damage or nuisance to public or private property and no other viable means are available to rectify the damage or nuisance.

Tree size, natural leaf, flower and fruit drop, and restricted solar access are not considered to be sufficient reasons to remove a tree.

All trees will drop small diameter branches and deadwood from time to time. Occasionally trees will drop large branches in situations where the branch failure could not have been predicted and afterwards the reason for the failure cannot be determined. Council will not consent to the removal of significant trees because of a small number of branch failures. Trees that merely have some potential to cause damage through failure, dropping branches or root growth but which have not caused any actual damage, and that are assessed as being structurally sound, will not be removed.

If a tree is found to present an immediate danger to the public, the area will be fenced off and access restricted until the risk is remediated. A notice will be left in the closest residents' mailbox explaining the reason for the work.

11.3 STANDARD OF WORK

All removal works carried out by Council or Council's contractors will be performed:

- by experienced arborists with a minimum qualification of AQF Level 2 in arboriculture under the supervision of an AQF 3 Arborist, and
- in accordance with Safe Work Australia Code of Practice Guide to *Managing Risks of Tree Trimming and Removal Work.*

11.4 DRIVEWAYS

Property owners and developers are expected to find design alternatives to avoid the removal of trees because of driveway and driveway crossover construction. Design alternatives include:

- the deletion of second/additional crossovers to development sites and the requirement for shared access
- the altering of development design to relocate crossovers out of the way of street trees
- alteration to the design to minimise the impact on trees on neighbouring Council land
- the reduction in the number of allotments/ properties, and
- relocation of proposed services to minimise the impact on existing trees.

- See appendix and Councils website for procedure details

11.5 STREET TREE REMOVAL

Removal and replacement of street trees will generally be undertaken in a staged process. However, block removals and replacements may be undertaken in streets where the trees are in poor health and/or have short useful life expectancies.

Trees that are to be handed over to Council from developers must have a useful life expectancy of greater than 15 to 20 years otherwise the trees must be removed, replaced and established prior to hand over to Council. The exception is in areas of high conservation where the trees contribute to the habitat values of a site.

11.6 STUMP REMOVAL

Trees known to sucker/ re-shoot (for example Liquidambar, Robinia and some Eucalyptus) must be poisoned prior to removal or immediately after the tree is cut to stump level.

Stumps must be removed as soon as practical after tree removal. Trees to be removed will be cut to a stump height of not less than 1.4m. This is because a bigger stump is more visible and presents less of a trip hazard. Two yellow 'X' marks will be painted on opposite sides of the stump. Prior to stump grinding the tree and root system must be dead - no sucker or water-shoot growth should be evident.

Immediately before the stump is to be ground out the remainder of the tree stem can be cut and removed. The stump grinding debris must be removed and the hole filled with soil. Ground levels must be reinstated and left level with the surrounding soil to ensure that no trip or fall hazards exist.

See arboricultural specifications for details. A 'Dial before you Dig' application must be made, carried on site and reviewed prior to commencement of works.

11.7 FAUNA

Dead trees and hollow trees are important for habitat and biodiversity. An integrated approach will be taken in relation to the removal and disposal of trees within parks.

All native wildlife must be protected. Prior to the removal of any trees, an assessment must be carried out to ascertain whether wildlife such as birds, possums or micro-bats are present or likely to be present in the tree.

If fauna appears to be present:

- all removal work must stop
- an aerial inspection of the tree must be carried out before any works commence or continue
- the need to remove the tree and the timing of the removal must be considered, and if possible, the removal delayed until, for example, young birds have fledged and left the nest
- an ecologist/WIRES must be engaged to safely remove all fauna using non-injurious techniques and deliver the fauna to an appropriate equivalent habitat or wildlife centre, and
- stockpiled tree material must be inspected after tree removal and prior to chipping.

Consideration will be given to retaining large native trees as stags or habitat trees after canopy reduction to provide habitat (for example, hollows) for native fauna such as birds, possums and micro-bats. Where a tree must be removed entirely for safety reasons, Council will consider using any large logs in vegetated areas within the park as habitat and to increase the amount of woody debris on the ground. Staff carrying out the removal works must identify any hollows within the trees which may be reused elsewhere.

11.8 INFECTIOUS MATERIAL

Trees removed that have been affected by pests or insects shall remain on site (and be used as mulch) or be removed in a manner to prevent spreading the pest.

Chipped material, logwood, stump grinding and other debris from trees infected with, or that may be infected with, a pathogenic organism will be disposed of in a manner to prevent spreading the infection.

All equipment, vehicles and personal items that come in contact with infected or potentially infected material must be disinfected by approved methods before being returned to service.


CITY COUNCIL

12. STAFF

The Australian Qualifications Framework (AQF) and indicative employment levels for the Australian arboricultural industry are:

- Level 2 Horticulture (Arboriculture) - Tree Worker
- Level 3 Horticulture (Arboriculture) - Trade Arborist
- Level 4 Horticulture (Arboriculture) - Supervising Arborist/ Coordinator
- Level 5 Horticulture (Arboriculture) - Consulting Arborist/Municipal Tree Manager

In keeping with current industry best practice, staff carrying out all tree assessments specified in this Plan should have a minimum AQF level 5 or equivalent qualification and suitable experience in the tree care industry. However, because of the size of the Penrith local government area and resource limitations it is accepted that some assessments will be carried out by staff with an AQF level 4 qualification and suitable tree care industry experience.

All planning for new planting, tree replacement programs and other tree related programs or works which impact on trees on Council land will be carried out by or in consultation with staff with a minimum AQF level 5 qualification as set out above.

Staff undertaking Tree Inventory / Risk Assessment must have an AQF level 5 arboricultural qualification and accreditation and training in a recognised tree risk assessment method. Tree Risk Assessment Qualification (TRAQ) through the International Arborists Association (ISA) and Quantified Tree Risk Assessment (QTRA) are two recognised methods.

13. DEFINITIONS

In this Plan:

AQF means the Australian Qualifications Framework which is a national framework for education and training qualifications.

Arborist means a person with a minimum qualification of AQF Level 3 in Horticulture (Arboriculture) and suitable experience in the tree care industry.

AS means an Australian Standard published by Standards Australia as amended from time to time.

Bushland means land on which there is vegetation which is either a remainder of the natural vegetation of the land or, if altered, is still representative of the structure and/or floristics of the natural vegetation as defined in State Environmental Planning Policy No 19 – Bushland in Urban Areas.

Canopy means the portion of the tree consisting of branches and leaves and any part of the stem from which branches arise and refers to more than one tree.

Codominant stems mean stems of approximately the same size originating from the same position from the main stem.

Consulting arborist means a person with a minimum qualification of AQF level 5 in Horticulture (Arboriculture) or equivalent and at least 5 years post qualification experience.

Council means Penrith City Council or any Council officer authorised to act on behalf of Council.

Council land means land either owned by, or under the care, control and management of Penrith City Council.

Crown means the portion of the tree consisting of branches and leaves and any part of the stem from which branches arise and refers to a single tree.

Crown lifting means the removal of the lower branches.

Crown maintenance means pruning that does not reduce the volume of the crown and retains the structure and size of the tree.

Crown modification means pruning that changes the form and habitat of the tree.

Crown thinning means the selective removal of branches that does not alter the overall size of the tree.

Dead tree means a tree with no living vascular tissue, no longer alive and with permanent leaf loss/wilting. A dead tree is a tree no longer capable of performing any of the following processes:

- photosynthesis
- take up of water through the root system
- holding moisture in its cells, and • producing new shoots.

Deadwooding means the removal of dead branches.

Diameter at breast height (DBH) means the diameter of the trunk of a tree measured at breast height (1.4m above ground level).

Dripline means the ground area directly under the branches above.

Dying means declining health, loss of vigour and irreversible decline.

Endemic means specific to a particular geographic region (in this instance the Penrith local government area).

Environmental weed means a plant that has the potential to become a nuisance. Environmental weeds usually have the ability to grow and/ or spread rapidly and compete with desirable plants.

Exotic means a tree that is not locally indigenous.

Flush cut means a cut that removes or damages the branch collar and or branch bark ridge and which damages the stem tissue.

Formative pruning means the selective removal of specific branches to enhance form, improve structure or to directionally shape a young or establishing tree.

Habitat means an area or areas occupied, or periodically or occasionally occupied, by a native species, population or ecological community and includes any biotic or abiotic component.

Habitat tree means any tree which is a nectar feeding tree, roost and nest tree or a hollowbearing tree suitable for nesting birds, arboreal marsupials (possums), micro-bats or other animals and insects.

Imminent means about to happen soon, within 12 months.

Indigenous means a tree or other vegetation being of a species that existed in, or on land near the Penrith local government area before European settlement.

Lopping or Lop means the cutting of branches or stems between branch unions or at internodes on trees. This is an unacceptable pruning practice.

Project arborist means a person responsible for carrying out tree assessment, report preparation, consultation with designers, specifying tree protection measures, monitoring and certification. The project arborist is a consulting arborist with skills enabling them to perform the tasks required under AS4970–2009 *Protection of trees on development sites.*

Register of Significant Trees means Council's Register of Significant Trees which lists significant trees within the Penrith local government area, as amended from time to time.

Remnant tree or remnant vegetation means a native tree or any patch of native vegetation which remains in the landscape on the original soil profile, after removal of most or all of the native vegetation in the immediate vicinity.

Remove or removal means to cut down, fell, destroy, kill, take away, uproot or transplant a tree from its original location.

Retain means to keep in its position or condition, to maintain.

Selective pruning means the removal of identified branches to achieve a specified purpose.

Significant tree means a tree which is large, unique or rare or a tree with a cultural, historic, scientific, landscape and/or aesthetic value.

Stem means the part of the tree which supports branches, leaves, flowers and fruit. Also known as the trunk.

Succession Planting is to replace a tree immediately after a tree is removed.

Sucker means epicormic shoot growing from a latent bud in older wood. Such shoots are vigorous and usually upright and arise below the graft union on the understock or at or below ground from the trunk or roots.

Topping or Top means reducing the height of a tree through the practice of lopping.

Tree means a perennial plant with at least one self-supporting woody or fibrous stem (including palms, tree ferns and fruit trees) which, irrespective of whether the plant is endemic, locally indigenous, native or exotic:

- is 3 or more metres in height or has a stem circumference exceeding 300mm at 400mm above ground level
- is any tree on Council land of any size or • is any tree in Bushland of any size.

Tree Protection Zone (TPZ) means a specified area above and below ground and at a given distance from the stem set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained.

Trunk means the part of the tree also known as the stem (see above).

Urban forest means all trees and shrubs on all public and private land in and around urban areas, including bushland, park, garden and street trees.

Useful Life Expectancy (ULE) is an estimation of how many years a tree can be retained in the landscape provided growing conditions do not worsen and any recommended works are completed. It takes into consideration factors such as species, age, health, defects / hazards and site conditions.

Vigour means the ability of a tree to sustain its life processes and means the same as 'health' and 'vitality'.

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Penrith City Council would like to acknowledge the contributions from Council staff and residents.

PENRITH
CITY COUNCIL

INTERPRETING ASSISTANCE

ENGLISH	If you do not understand this, please contact the Telephone Interpreting Service on 131 450 and ask them to contact Penrith City Council on your behalf on (02) 4732 7777. Or come to the Council offices and ask for an interpreter.
ARABIC	(TIS) إذا لم يكن بامكانك قراءة النص أعلاه، الرجاء الاتصال بخدمات الترجمة الفورية الهاتفية على الرقم 131 450 والطلب منهم الاتصال بدورهم بمجلس مدينة بنريث نيابة عنك على الرقم 7777 4732 (02) . أو يمكنك الحضور إلى المجلس وطلب ترتيب مترجم فوري لك .
CHINESE	如果您无法阅读这些文字，请致电 131 450 联系电话传译服务中心，请他们代您拨打 (02) 4732 7777 联系 Penrith 市议会。您也可以亲自到市议会来并要求获得口译服务。
GREEK	Αν δεν μπορείτε να το διαβάσετε αυτό, τηλεφωνήστε στην Τηλεφωνική Υπηρεσία Διερμηνέων στο 131 450 και ζητήστε τους να επικοινωνήσουν με το Δήμο Penrith (Penrith City Council) για λογαριασμό σας στον αριθμό (02) 4732 7777, ή ελάτε στη Δημαρχία και ζητήστε διερμηνέα.
HINDI	यदि आप इसे नहीं पढ़ पाते हैं, तो कृपया 131 450 पर टेलीफोन दुभाषिया सेवा से संपर्क करें और उनसे कहें कि वे आपकी ओर से पेनरिथ सिटी काउंसिल से (02) 4732 7777 पर संपर्क करें. या आप काउंसिल आएँ और एक दुभाषिये की माँग करें.
ITALIAN	Se non riuscite a leggere questo, contattate il servizio telefonico di interpretariato al numero 131 450 e chiedetegli di contattare da parte vostra il comune di Penrith City al numero (02) 4732 7777 oppure venite in comune e richiedete un interprete.
MALTESE	Jekk ma tistax taqra dan, jekk jogħġbok, ikkuntattja lit-Telephone Interpreting Service fuq 131 450 u itlobhom biex jikkuntattjaw Penrith City Council f'ismek fuq (02) 4732 7777. Jew ejja l-Kunsill u itlob għal interpretu.
PERSIAN	اگر نمی توانید این مطلب را بخوانید، لطفاً به خدمات ترجمه تلفنی به شماره 131 450 زنگ بزنید و از آنان بخواهید با شورای شهر پنریث Penrith City Council به شمار ه 7777 4732 (02) از جانب شما تماس بگیرند. یا اینکه به شهرداری Council آمده و مترجم بخواهید.
SINGHALESE	ඔබට මෙය කියවීමට නොහැකි නම්, කරුණාකර දුරකථන අංක 131 450 මඟින් දුරකථන පරිවර්තන සේවාව (Telephone Interpreting Service) අමතා ඔබ වෙනුවෙන් දුරකථන අංක (02) 4732 7777 අමතා පෙන්රිත් නගර සභාව (Penrith City Council) හා සම්බන්ධ කර දෙන ලෙස ඉල්ලා සිටින්න. නැතිනම් නගර සභාව වෙත පැමිණ භාෂා පරිවර්තකයකු ලබා දෙන ලෙස ඉල්ලා සිටින්න.
TAMIL	இதை உங்களால் வாசிக்க இயலவில்லை என்றால், 'தொலைபேசி உரைபெயர்ப்பு சேவையை 131 450 எனும் இலக்கத்தில் அழைத்து 'பென்ரித் நகரவை'யுடன் (02) 4732 7777 எனும் இலக்கத்தில் உங்கள் சார்பாக தொடர்பு கொள்ளுமாறு கேளுங்கள். அல்லது நகரவைக்கு விஜயம் செய்து உரைபெயர்ப்பாளர் ஒருவர் வேண்டுமெனக் கேளுங்கள்.
VIETNAMESE	Nếu quý vị không thể đọc được thông tin này, xin liên lạc Dịch Vụ Thông Dịch Qua Điện Thoại ở số 131 450 và yêu cầu họ thay mặt quý vị liên lạc với Hội Đồng Thành Phố Penrith ở số (02) 4732 7777. Hoặc hãy tới Hội Đồng và yêu cầu có thông dịch viên.

Contact: Penrith City Council
Civic Centre
601 High Street
Penrith NSW

Telephone: 02 4732 7777
Facsimile: 02 4732 7958
Email: council@penrith.city