CUMBERLAND
CITY COUNCIL

Urban Tree Strategy

2020

Acknowledgement of Country

Cumberland City Council acknowledges the Darug Nation and People as Traditional Custodians of the land on which Cumberland City is situated and pays respect to Aboriginal Elders both past, present and future.

We acknowledge Aboriginal and Torres Strait Islander Peoples as the First Peoples of Australia.

Cumberland City Council acknowledges other Aboriginal and Torres Strait Islander Peoples living in the Cumberland Local Government Area and reaffirms that we will work closely with all Aboriginal and Torres Strait Islander communities to advance reconciliation within the area.

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PART A:
SETTING THE SCENE

Introduction

The Urban Tree Strategy will help Cumberland City Council manage its collective tree and canopy asset. It provides a strategic and coordinated approach to managing Council's tree population over 10 years and is supported by a short term action plan.

OBJECTIVES

The objectives of the Urban Tree Strategy are to:

- increase community knowledge and appreciation of trees
- maintain and protect existing trees
- align with regional strategies to strengthen green corridor connections.

This will be achieved through taking a holistic approach to managing tree assets to ensure that all aspects of tree management respond to our community and environmental needs.

POLICY CONTEXT AND PLANNING FRAMEWORK

This Strategy provides a framework and direction for managing our tree asset. It supports delivery of Council's Community Strategic Plan and supports regional plans to improve green corridor connections and address localised environmental issues.

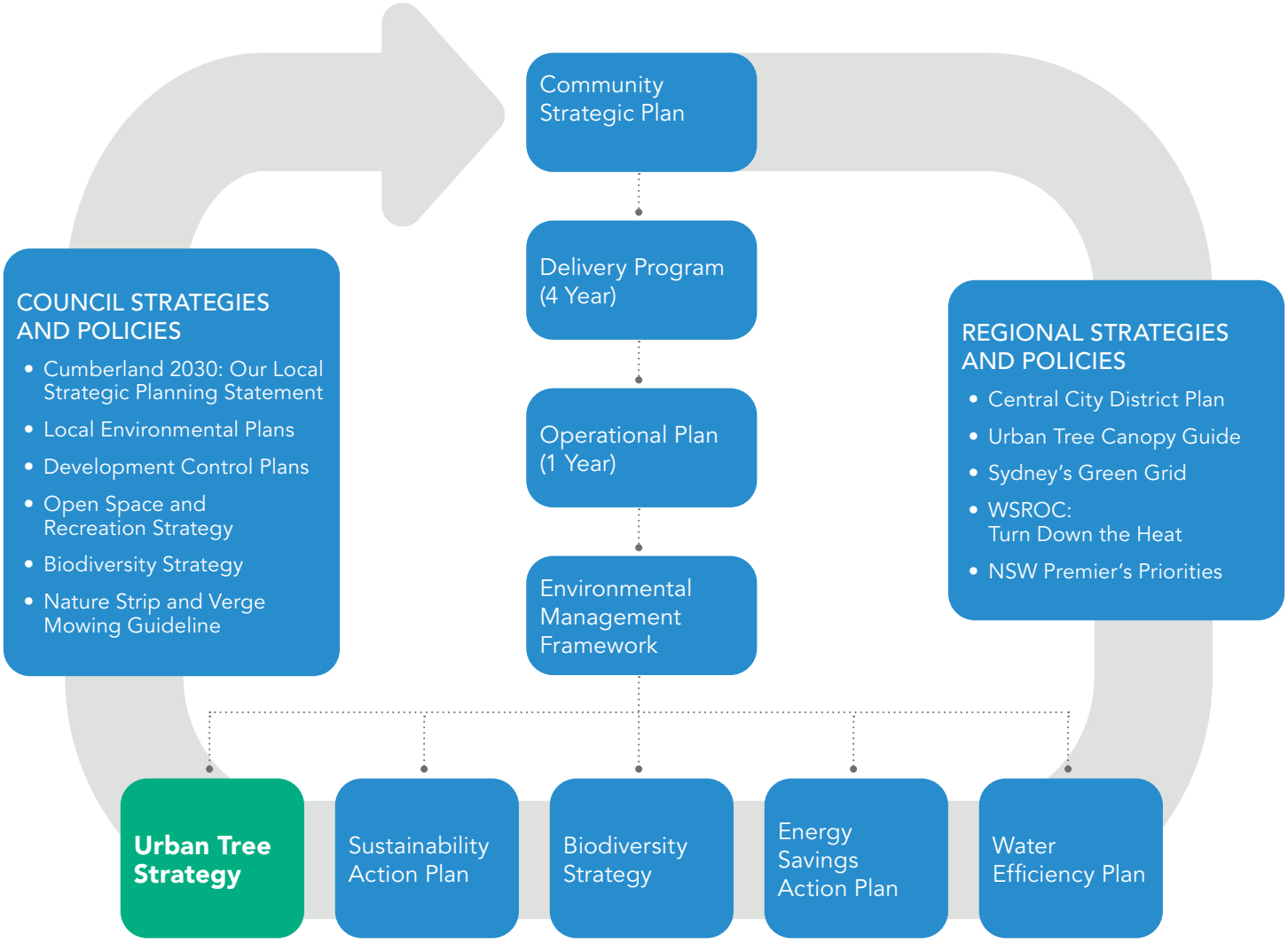
Central City District Plan

The Central City District Plan is a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision of Greater Sydney. The District Plan assists councils to plan for and support growth and change, and align their local planning strategies to place-based outcomes. The Urban Tree Strategy will help Council meet its regional commitments by addressing Planning Priority C16: Increasing urban tree canopy cover and delivering Green Grid connections.

Cumberland 2030: Our Local Strategic Planning Statement

Cumberland 2030: Our Local Strategic Planning Statement plans for the Cumberland area's economic, social and environmental land use needs over the next 10 years. The Urban Tree Strategy will help deliver three of the planning priorities from the Statement, including:

- Planning Priority 13: Protecting, enhancing and increasing natural spaces
- Planning Priority 15: Planning for a resilient city that can adapt to natural hazards and climate change
- Planning Priority 16: Supporting urban cooling to minimise heat island effects



Policy context and planning framework

The Urban Tree Strategy provides strategic direction and support to local and regional priorities

Community Strategic Plan

Cumberland's first Community Strategic Plan 2017-27 sets out our community's vision for the future and the strategies in place to achieve this vision. The Urban Tree Strategy helps to deliver Strategic Goal 3 for 'A clean and green community'. This Strategy will help realise our community's vision for a high quality and abundant green spaces, help mitigate heat island effects and protect our natural environment.

Open Space and Recreation Strategy

The purpose of the Open Space and Recreation Strategy is to provide Council direction for open space, sport and recreation services and facilities. The Urban Tree Strategy supports the Open Space and Recreation Strategy by directing tree plantings in public spaces to help link parks and natural areas. Increasing trees and tree canopy also encourages our community to participate in outdoor activities such as leisurely walks and picnics in our parks.

Biodiversity Strategy

This Biodiversity Strategy presents a strategic and coordinated approach that has been developed by Council in consultation with the community to attract and effectively manage resources for biodiversity protection and enhancement in the Cumberland area The Biodiversity Strategy aims to realise the community's vision for 'A clean and green environment for current and future generations to enjoy by protecting and enhancing Cumberland's natural areas and green infrastructure'. The Urban Tree Strategy helps to deliver Key Focus Area 2 'Habitat connectivity and condition'.

Sydney's Green Grid

The NSW Government has identified a network of high-quality green space that connects town centres, public transport hubs and major residential areas. This is known as Sydney's Green Grid. This plan highlights the importance of the interconnecting network of green space, riparian corridor and canopy cover. The Urban Tree Strategy supports corridor connections and ecological enhancement for the Duck River and Prospect Creek Corridors within the Cumberland area.

Urban Tree Canopy Guide

The Greener Places - Urban Tree Canopy Guide has been developed by the Government Architect NSW to help local councils design, plan and deliver green infrastructure across NSW. This Guide provides information on the importance of urban tree canopy and its capacity to improve urban climate, ecosystem and human health, and enhance health and wellbeing for communities across NSW. The Guide informs the scope of the Urban Tree Strategy.

WSROC: Turn Down The Heat

This Strategy by the Western Sydney Regional Organisation of Councils (WSROC) provides strategic direction and actions to increase awareness and mitigate the impact of urban heat in Western Sydney. The Urban Tree Strategy supports Action 8: Urban Forest Strategy to help keep trees healthy and increase green canopy to provide cooling on extreme heat days.

Verge Mowing Policy

Council's Verge Mowing Policy acknowledges the important role the community plays in maintaining nature strips adjoining their property. Council maintains the street trees but relies on residents to maintain the grass. The Urban Tree Strategy works alongside the Verge Moving Policy by encouraging residents to modify their section of nature strip by planting low growing, soft foliage plants. Any resident wishing to carry out modifications to the nature strip needs to apply in writing to council for approval prior to any works being carried out.

NSW Premier's Priorities

The Premier's Priorities are a commitment to enhance the quality of life of people in NSW. The Urban Tree Strategy will create greener public spaces by enhancing green canopy in parks and streets to reduce the urban heat island effect, increase biodiversity and improve air quality.

COMMUNITY ENGAGEMENT

The success of the Urban Tree Strategy relies on the support and involvement of our community. Our community can help to increase green canopy cover by planting trees on private property, identify planting locations, help water newly planted trees and participate in community planting days. As part of the development of the Strategy, Council delivered a range of engagement activities, including a focus group, online survey, social media awareness and community out reach days.

Resident Focus Group

Council invited 12 residents to attend a focus group to learn about the challenges and opportunities with planting trees on private property. Some findings from the focus group included:

- Reasons for planting trees
  - Increasing privacy
  - Providing shade on hot days
  - Improving the appearance of the surrounding area and their property
- Reasons against planting trees
  - Age and ability to maintain trees
  - Desire for tidy gardens
  - Availability of on-street parking
- Barriers
  - Lack of accountability amongst private certifiers and developers
  - Increased high density development, reducing deep soil area
  - High number of renters, with restrictions for tenants to plant
- Opportunities
  - Providing more information about what trees to plant
  - Run tree planting days and offer pop-up tree giveaways
  - Tree planting workshops

Survey

An online survey was available from December 2019 to February 2020. A total of 204 responses was received. When participants were shown pictures of their ideal tree canopy cover, 94% of responses selected medium to high tree coverage on both sides of the street. This represents a desire to have over 55% tree canopy cover along streets.

'Our parks MUST be cool places and our streets cool zones if we are to continue to engage with temperatures approaching 50 degrees in Sydney's west.'

'It is always a great idea to plant more tree as there are so many benefits. Even more important though is to protect existing established trees.'

'I would like to see streets, watercourses, town centres, industrial areas all treed. My hope is we can look at all areas in Council domain to be increased in trees.'

'Private properties are too small for a lot of trees. Many street trees are planted too close to intersections – they block visibility'

'It would be terrific if members of the public could contribute to public tree plantings.'

'Please stop cutting them the trees.'

'A great idea, but I think the maintenance is what most people worry about.'

'This council allows too many properties to cut down trees, especially where a house has been demolished and large duplexes are the replacement.'

'Try to plant and educate about endemic species that will attract native fauna and also provide for local native bee populations.'

In terms of planting trees on private property, 76% of participants indicated they were able to plant trees on their property. 24% indicated they were not able to plant trees on their property which could be due to a lack of available space, potential damage to property, knowledge of what to plant and the cost involved. Of the type of trees residents were interested in planting, residents showed the most interest in planting natives, fruit trees and flowering trees between 3m-6m and under 3m in height.

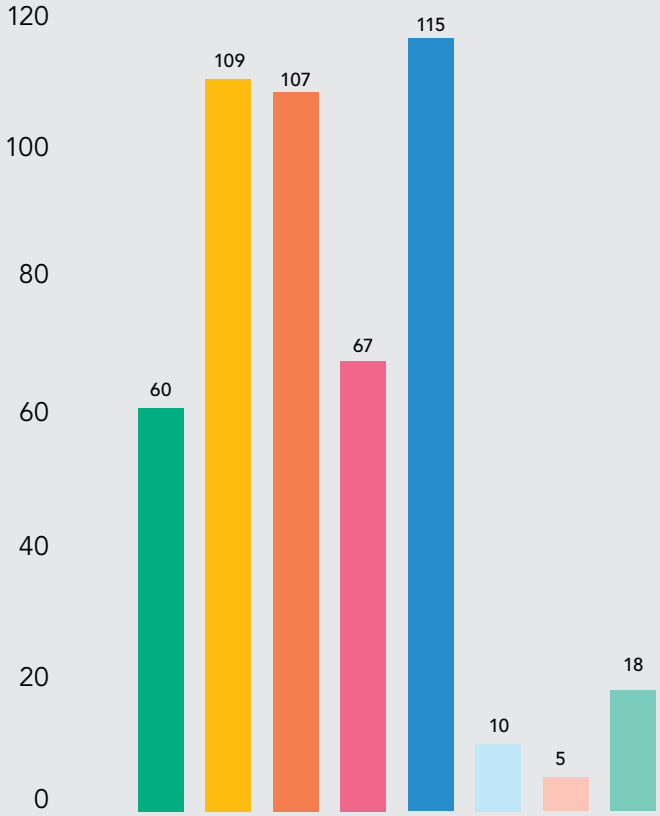
In regard to how Council can help residents plant more trees, residents showed strong interest in receiving more information about good trees to plant, followed by incentives (rebates and discounts) and more tree giveaways.

Residents also showed a strong interest in wanting to see more trees planted along residential streets, followed by parks and then town centres.

Snapshot of response from community engagement

"How could Council encourage tree planting on your property".

Strong interest in tree giveaways, receiving more information and planting incentives.

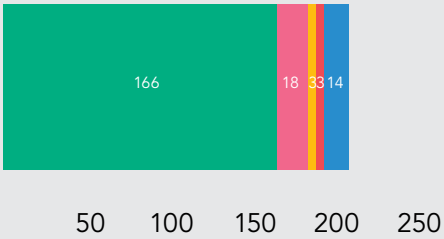


QUESTION OPTIONS:

- Gardening workshops
- Providing information about good trees to plant
- Incentives to plant trees (e.g. rebates and discounts)
- Providing information about how to plant trees
- Tree giveaways
- I don't have any space to plant trees
- I don't want to plant more trees
- Other (please specify)

(155 responses)

"I would like to see more trees planted in our local area."

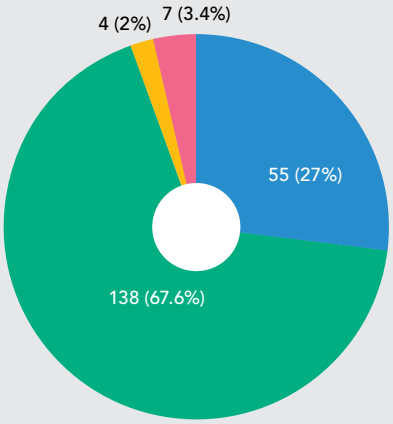


90% of participants would like to see more trees in the local area

Answer options:

- Definitely agree
- Somewhat agree
- Neither agree or disagree
- Somewhat disagree
- Definitely disagree

(204 responses)



"What is an ideal canopy cover percentage?"

Majority of responses desired a canopy cover of 55%

QUESTION OPTIONS:

- A - Tree coverage <10%
- B - Tree coverage >65%
- C - Tree coverage <25%
- D - Tree coverage 55%

(204 responses)

Context

WHAT IS AN URBAN TREE CANOPY?

An urban tree canopy is the total tree canopy area found in our public spaces and on private property. It is a network of all our trees and forms a key component of our green infrastructure.

Our tree canopy includes all varieties of our tree stock, including native and exotic species, deciduous and evergreens. Our tree canopy spreads out from our busy town centres to our commercial and residential streets, along our railway corridors, rivers and creeks to our green parks. Together, our network of trees play a critical role in our community and environment.

Trees help to create healthy cities by providing shade, habitat, cooling our surrounds, contributing to health and wellbeing and creating a sense of place and local identity.

Trees contribute to a healthy understorey and helps to support horticultural plantings. A healthy and well managed urban tree canopy and understorey forms an important part of our green infrastructure.

WHY DO WE NEED AN URBAN TREE CANOPY?

Our urban tree canopy plays an important role in our community and environment. It is managed by multiple groups who include individuals, private organisations, council and state government. The urban tree canopy does not stop within our local government area. It spans and connects beyond our area into our neighbouring councils and its management requires collaboration with other non-council organisations who include utilities, state government agencies, developers, individuals and organisations. This strategy provides a path to manage this important green infrastructure so that it continues to provide benefits for current and future generations.

WHAT IS THE ROLE OF LOCAL GOVERNMENT IN MANAGING URBAN TREES?

Local government is the closest tier of government to the local community. It is responsible for good governance and care of local communities and their environment. The Local Government Act 1993 states that Councils have a legal and moral obligation to manage its assets (including trees on private and public properties) to a standard that will not cause injury to the public.

Local Councils, in consultation with their communities, prepare Local Environmental Plans (LEPs) to control the form and location of new development, along with protecting open space and environmentally sensitive areas through zoning and development controls.

Development Control Plans (DCP) prepared by local councils can promote development that conserve and enhances bushland, waterways, biodiversity and tree canopy.

As such, the protection of trees at a local level is achieved through provisions in the DCP which identify when a permit is required to clear a tree or other vegetation under the State Environmental Planning Policy (Vegetation in Non-Rural Areas 2017).

Council also has a range of operational procedures for the management of trees on its assets, such as parks and local streets.

BENEFITS OF URBAN TREES

Habitat for Wildlife

Trees provide habitat and food for our native wildlife. Birds, mammals, insects, bugs and bees rely on trees for shelter, food and safe passage to move across our landscape. Increasing the number and species of trees helps to make our biodiversity and environment resilient.

Cleaner Air

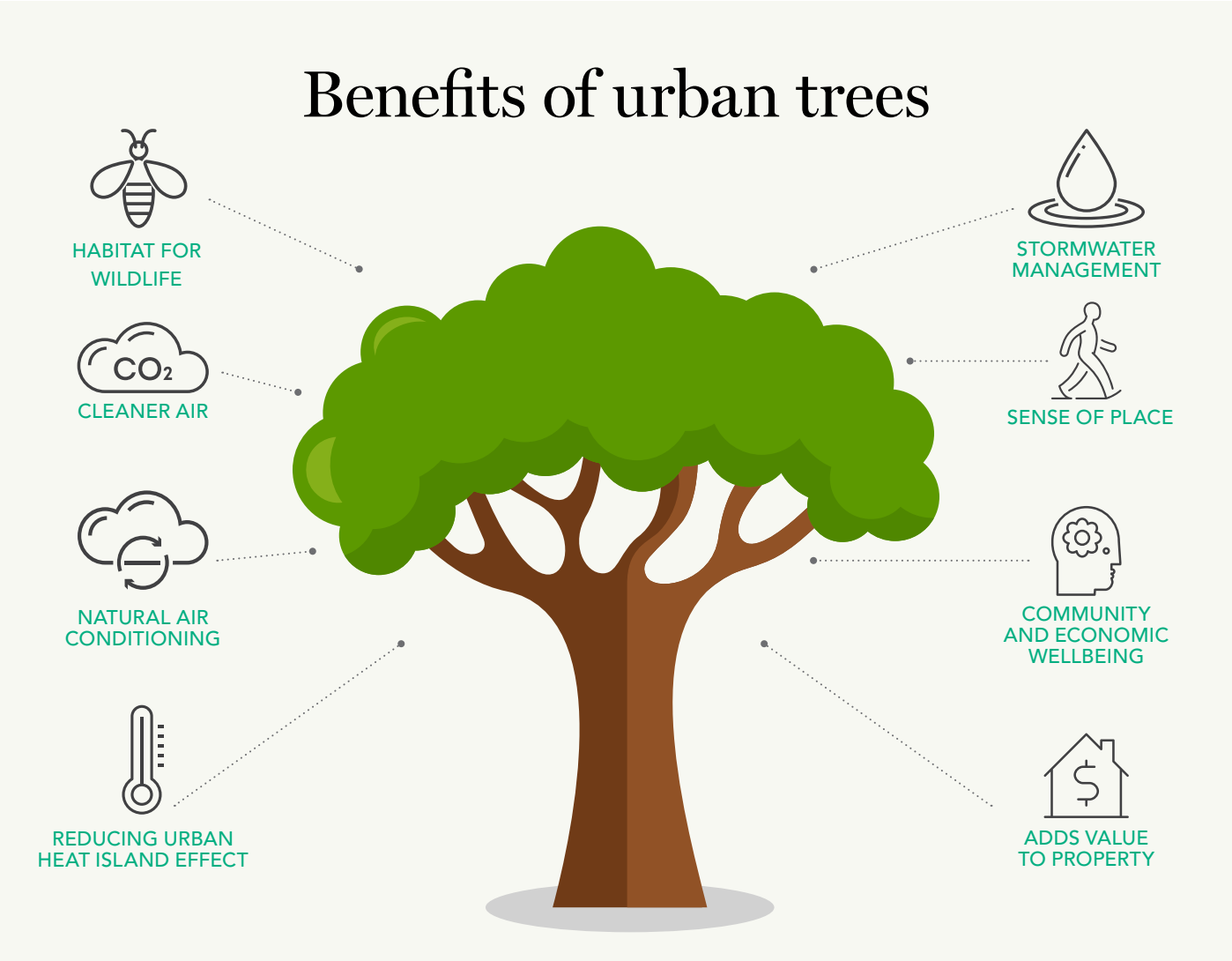
Trees help to improve air quality by absorbing air pollutants through their pores and filtering these chemicals and releasing oxygen back out into the environment. Through this same process, trees help to address climate change by absorbing carbon dioxide and storing the carbon in the tree, leaves and soil.

Natural Air Conditioning

Planting the right tree in the right location around the home helps to naturally cool and shade the house. Selecting the right tree will provide shade during summer, whilst dropping leaves in winter to let in the warm sun. This can help reduce electricity bills and lower environmental emissions.

Reducing Urban Heat Island Effect

The Urban Heat Island Effect is a localised weather event where an area is warmer than its surrounds due to hard surfaces like roads, roofs, pavements that absorb, hold and radiate heat for longer. This issue is made worse as our cities grow and replace natural green spaces with hard surfaces. As a result, more rain water is directed into the stormwater and away from green surfaces. This limits the role of water has on cooling our environment.



This effect is magnified on extreme heat days, where certain areas can experience hotter temperatures. A 2019 study by Cumberland City Council and Western Sydney University found that on extreme heat days, temperature differences in the area could vary up to 10oC. The research suggests that trees play a role in cooling our environment. Specifically tall trees, above 15m with dense canopies, provide the most cooling benefits for the community.

Urban heat creates additional health impacts to residents in Western Sydney. Periods of extreme hot weather affects the health and wellbeing of the very young, senior citizens and outdoor workers in our community. During heatwaves, instances of heat related injuries such as dehydration, respiratory and heart disease increase.

Stormwater Management

Trees help to manage stormwater flows during heavy rain. Trees help to keep soils healthy and reduce the rate and volume of surface water runoff, helping to delay peak flows into the stormwater channels. At the same time, tree roots, trunks, leaves, canopy and its soil absorb and filter pollutants and nutrients before flowing into the stormwater, creeks and rivers helping to keep our stormwater clean. Opportunities exist to incorporate water sensitive design with tree management, such as raingarden tree pits and tree inlet systems.

Streetscape Benefits

Trees help to create a 'sense of place' and contributes to the identity and character of an area. Well-designed tree lined streets have the ability to define our precincts and to soften our built environment by adding colour and screening undesirable sights. Trees support positive mental health by reminding us of seasonal changes as the foliage changes throughout the year. A healthy tree population can help create a sense of pride in the community.

Community Benefits

Trees play a pivotal role in improving community health and wellbeing. Trees encourage our community outdoors which helps to address obesity, mental wellbeing and create social cohesion. Well planned street trees play an important role in connecting our streets to our parks and green spaces. This encourages children and adults to reconnect with nature which has shown to positively influence our mental wellbeing, reduce stress and build social cohesion.

Economic Benefits

Trees work 24 hours a day throughout the year to our benefit. Trees are natural air filters that constantly work to clean our air, filter our storm water, produce oxygen for us to breathe and provide shade and cooling effects in our community. An abundant urban canopy allows for homeowners, businesses and commercial to save on energy cost by lowering air conditioning use. Tree lined streets improve the local economy by making our town centres attractive for people to visit and stay longer.

Add Value to Property

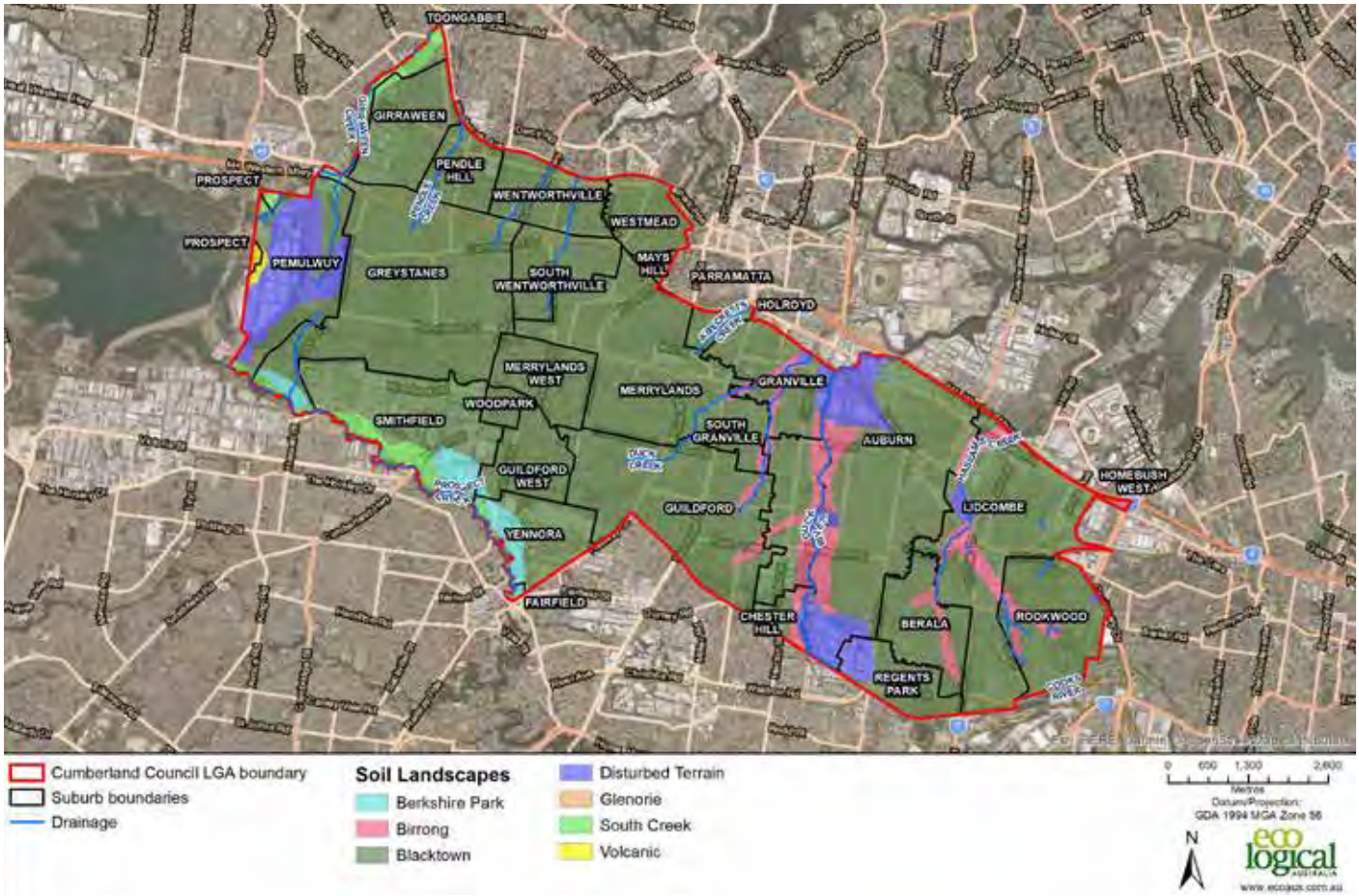
Leafy suburbs and streets have the potential to add value to property prices. Research shows that planting the right tree in the right location beautifies the property, cools the home, adds privacy and creates a sense of place. Planting two trees, or providing 20% of space for trees, has also been identified to increase property value.

THE CUMBERLAND LANDSCAPE

The Cumberland Local Government Area is situated 20 km west of Sydney CBD and covers 72 square kilometres. The Council stretches 16 kilometres from the Rookwood Necropolis to Reconciliation Road in Pemulwuy.

This area lies within the Cumberland Plain Woodlands, a distinct group comprised of Grey Box Eucalyptus, Forest Red Gums, Narrow-leaved Ironbarks and Spotted Gum. The woodlands once cover 30% of the Sydney basin but now is listed as a threatened community, reduced to less than 9% and fragmented across a highly urban landscape.

The landscape has gently undulating terrain with some flood-prone lands. The Blacktown soil landscape dominates the Cumberland area. It is characterised by gently undulating rises on Wianamatta Group shales with local relief 10-30m and slopes generally <5% but up to 10%. These soils are typically sodic, highly erodible and have poor fertility and drainage (Cumberland Biodiversity Strategy 2019). This clay soil supports dry sclerophyll woodland which is characterised by Grey Box, Forest Red Gum, Narrow-leaved Ironbarks and open woodlands with an understory of tufted native grasses. Examples of these original woodland can be found Central Gardens, Holroyd. Soil landscapes present along some of the main waterways include Birrong, Berkshire Park, South Creek, Volcanic and Disturbed Terrain.



Soil profile of Cumberland

Dreamtime Stories Time with Aunty Cleonie Quayle at NAIDOC Week Tent Program at the Fun 4 Kids Event held on 13 July

HISTORICAL PERSPECTIVES

Aboriginal History

For tens of thousands of years before European settlement, what would become the Cumberland was home to several clans of the Darug (also spelt Dharug, Daruk or Dharik) people.

Like all Aboriginal people, the Darug people did not own the land but belonged to the land. They respected it and referred to it as their mother and had excellent land management skills which meant they did not have to artificially cultivate crops to survive. Being primarily hunters and gatherers of their food, the Darug displayed seasonal and ecologically friendly practices within their environment. They only harvested food as was needed, before moving on to other sources, ensuring that plants and animals would be available the following year.

Darug culture had (and still has) a strong spiritual connection with the place an individual was born or conceived, which demanded a responsibility by each person to look after the land, as well as plant and animal life.

European Settlement

On 5 February 1788, soon after the landing of Captain Phillip at Sydney Cove, Captain John Hunter and Lieutenant William Bradley sailed up what is now known as the Parramatta River, to the area now known as Homebush Bay.

Around this time, the area was dry and open with small creeks cutting through the landscape with abundant vegetation. The landscape was dry sclerophyll woodland dominated by grey box, forest red gum, blackbutt, box and stringybark and apple-gums. A thick understorey of native grasses like kangaroo grass and blackthorn shrubs spread across the landscape.

Towards the western edge of the area the more hilly terrain supported similar woodland trees but with the addition of narrow-leafed ironbark, Australian indigo, green wattle and buttercups. In the low lying areas around Yennora, the clay soils supported an abundant population of paperbark scrubs, she-oaks and casuarinas along Prospect Creek.

This diverse natural vegetation provided habitat for native animals. The landscape support large populations of kangaroos and wallabies. Ducks and fowl were plentiful, so much so that the Duck Creek and Duck River was named for this reason.

Given the location and natural resources of Cumberland, early Europeans harvested the highly sought after timber needed to expand Sydney colony. The timber industry established quickly and large amounts of trees were harvested and hauled to the Duck River and ferried to Sydney.

In the decades that followed, the land was quickly cleared making way for farmland. In the early 1820s, large parcels of land were granted to farmers and graziers and fruit orchards flourished around Westmead, Toongabbie and Guildford. By the mid-1850s, the area began to change again as the construction of the railway enabled the townships to grow. This brought in new families and development of new industries and factories such as flour mills, brick works, slaughter yards and tanners. By the 1960s, the uninhabitable swampy low-lying lands around Yennora and Smithfield were rezoned to industrial estates.

View towards Prospect Hill, 1927 (Photo: Boral)

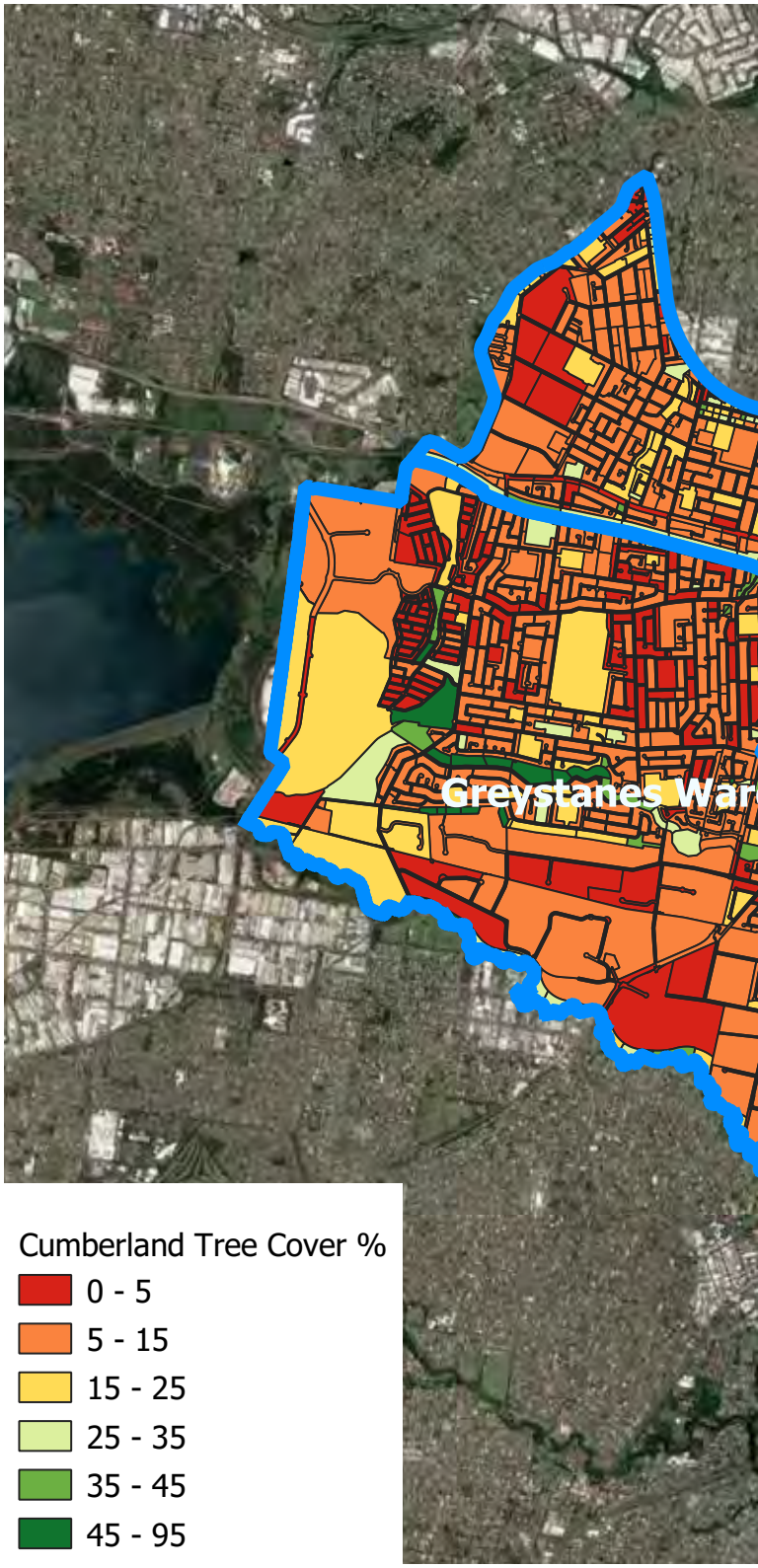
CURRENT STATE OF URBAN TREES

Canopy cover varies across the Sydney landscape. This is because of influencing factors such as historical evolution of town centres, planning decisions, land use priorities, soil types and tree management budgets.

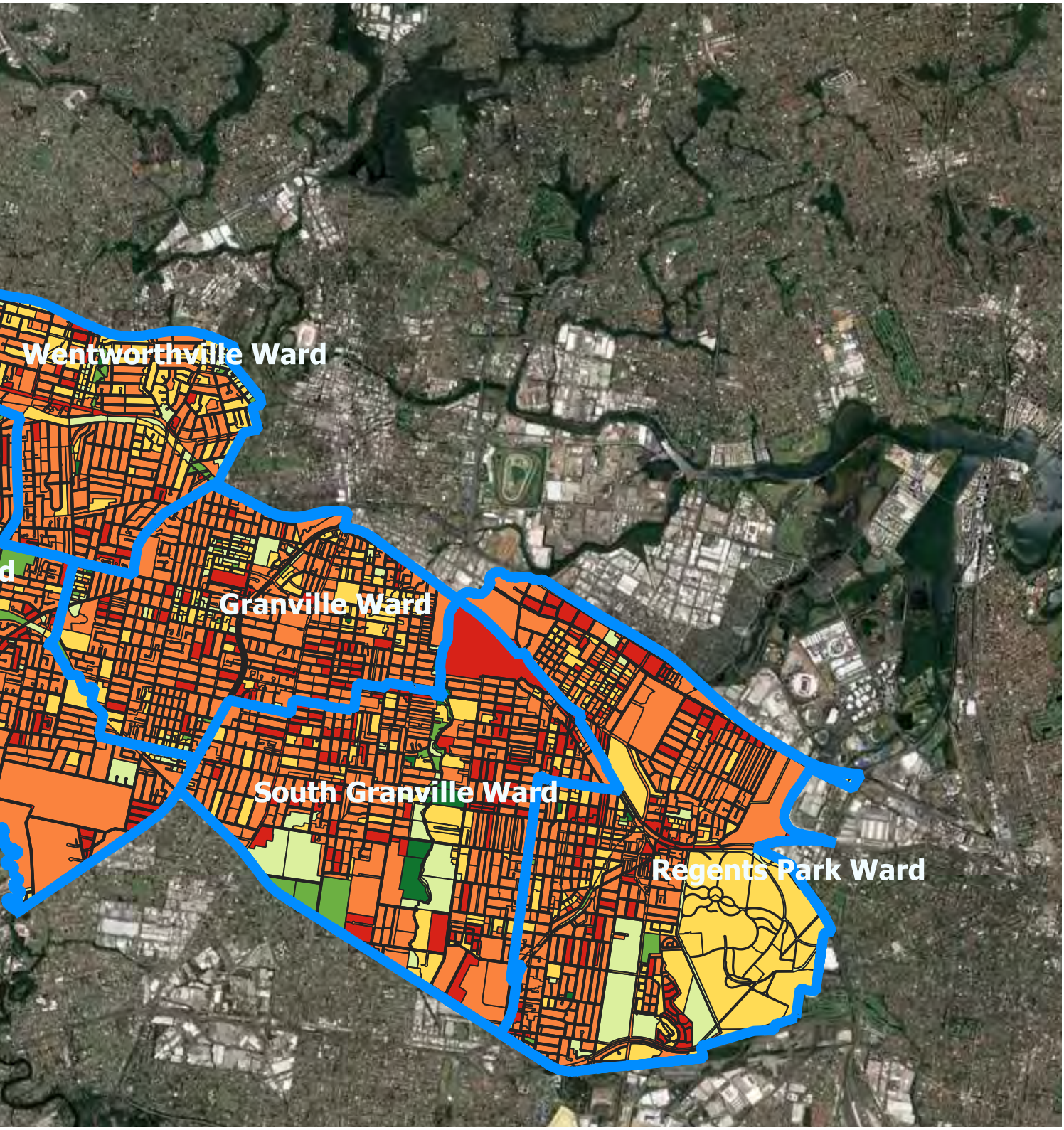
According to research by University of Technology Sydney, Cumberland's tree canopy coverage is approximately 15%, shrubland covers approximately 5%, 50% is hard surface and 30% of area potentially plantable areas consisting of grass or bare ground.

Tree cover percentage is consistent across all five Council wards. The areas to the eastern and western boundary show a higher percentage of canopy up to 25% because of the large green spaces of Grey Box and Lower Prospect Canal Reserves to the west and Rookwood Cemetery to the east. The highest percentage of canopy cover is found in our most ecologically diverse wildlife corridors along Prospect Creek and Duck River where green cover is above 45%.

There are 13 threatened flora species, 14 threatened fauna species and ten threatened ecological communities that have been recorded in the Cumberland area. These include Castlereagh Ironbark Forest, River Flat Forest and Shale Plains Woodland. Vulnerable tree species include Narrow-leaved Black Peppermint, Wallangarra White Gum and Magenta Lilly Pilly.



Cumberland tree canopy cover


Wentworthville Ward
Granville Ward
South Granville Ward
Regents Park Ward

TREE SURVEY OF TOWN CENTRES

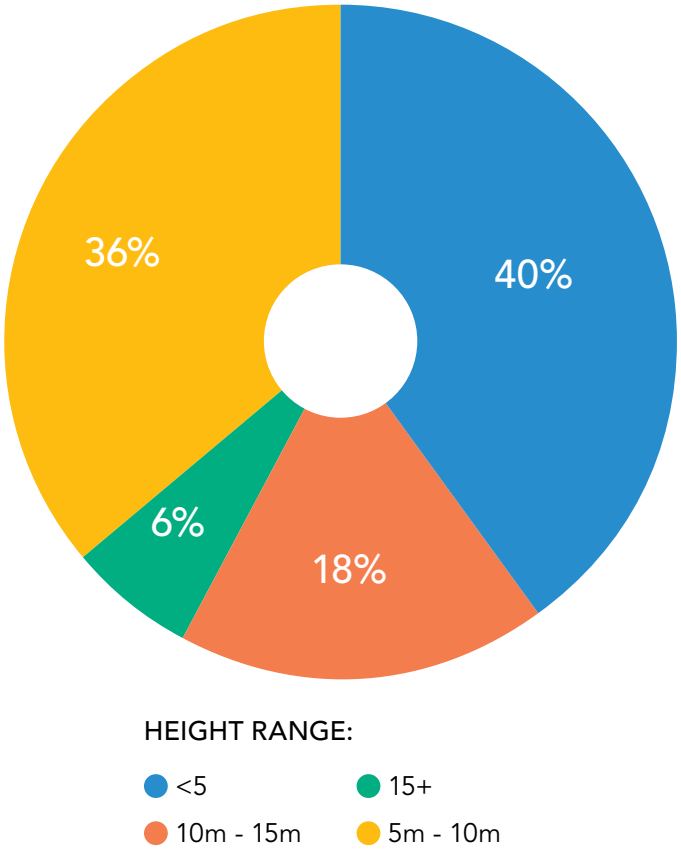
In September 2019, Council undertook a tree survey of 14 town centres. The purpose of the tree survey was to begin the process of building a database of Council's tree assets to find out how many trees are in public spaces, tree species diversity, tree size, GPS locations of trees and potential planting opportunities. Approximately 20% of Cumberland was surveyed, with a total of 14km^2 inspected, 340km of streets surveyed and 6,980 trees counted and 2,184 planting sites identified.

The study was undertaken at the following town centres:

- Auburn
- Berala
- Granville
- Greystanes
- Guildford
- Lidcombe
- Merrylands
- Merrylands West
- Pemulwuy
- Pendle Hill
- Regents Park
- Toongabbie
- Wentworthville
- Westmead South (Hawkesbury Road)

The key findings of the survey were:

- A healthy spread of tree genus diversity was found, with individual tree species being less than 20% of the total tree population
- Around two thirds of trees are less than 10m, which means that the number of larger trees may increase overtime
- 95% of trees in town centres have reached maturity, which will need to be monitored as these trees begin to grow old
- Around one third of trees are under powerlines, which will need to be monitored to ensure that the best type of trees are planted in these locations
- Opportunities are available to increase the number of trees in town centres



Tree heights in town centres

CURRENT TREE MANAGEMENT PRACTICES

Tree Planting

Cumberland has an active tree planting program involving staff and community. Council staff investigate feasible planting locations throughout the area for suitable planting locations, such as on nature strips, reserves, riparian corridors and in parks. Over 4,000 trees are planted in support of National Tree Day, Schools Tree Day and as part of our Free Plants Giveaway program. When Council determines a tree removal is appropriate, Council works with residents to select and replant the tree with a suitable species appropriate for the site. Currently, Council staff select species from the Cumberland Plain Woodland group or a species that minimise conflict with overhead powerlines or nearby infrastructure. Council's main planting period occurs mainly in late Winter and early Spring period. This is in line with industry best practice guidelines to minimise the stress on new plants, allowing them to establish successfully.

Tree Maintenance

Council's highly qualified team of horticulturist manages and maintains Council's tree stock in line with Council's operational procedures. Trees in parks are maintained through an annual inspection program and regular pruning in the winter season. Trees are assessed based on health, form and vigour through a ground based Visual Tree Assessment (VTA) before a decision to retain or remove is made. Newly planted trees are monitored and cared for up to a minimum period of six weeks. Currently, the tree maintenance regime is predominately reactive. Council is in the process of developing a more proactive approach to tree maintenance.

CHALLENGES

Managing and maintaining a healthy tree stock and canopy cover involves addressing complex and dynamic challenges. These challenges if left unaddressed, will negatively impact our tree population and exacerbate environmental issues like urban heat and loss of biodiversity. By addressing these challenges, we will identify opportunities to minimise and avoid harm to our environment, maintain and improve our tree canopy.

Urban Heat and Climate Change

Climate change is a change in the weather patterns of an area over a longer period of time and on a wider scale. Climate change effects are already evident in Cumberland. Western Sydney experiences hotter and drier conditions with longer extreme heatwaves. This impacts human health effecting our seniors, the very young and those with respiratory problems.

Climate change can increase the severity of storms, influence rainfall patterns and the bushfire season. This can increase property damage costs from storms and puts stress on our flora and fauna populations. As weather events intensify, rain, hail and flooding may potentially harm trees by uprooting trees, breaking branches and washing away soil. Less rainfall and longer drought periods will also increase cost of maintaining new trees and potentially increase frequency of tree death. Certain species of trees may be at the upper limit of their comfort zone and may struggle as temperatures continue to rise. Other species may thrive and establish quicker, frost sensitive species may grow more easily.

Increasing tree plantings and species diversity are ways we can address climate change and urban heat effects. Trees provide shade from the sun and release water vapour through transpiration to cool their local surroundings whilst diversity spreads the risk of tree loss from climate change.

Infrastructure Damage

Trees provide a range of positive benefits to our community. However, because of our built environment, some trees may create issues to our infrastructure and lifestyle, therefore it is important to select the right tree for the right location.

Even with proper planning and care, trees are living organisms and will grow in a variety of shapes and forms. As a result, some trees may cause damage because of their size and root system which uplift footpaths, crack pipes and interfere with powerlines. Often tree root damage is a result of limited available space for root growth. These issues are manageable by selecting the right tree for the right location and through applying tree maintenance techniques such as installing root barriers and pruning.

Tree root uplifting driveway

Population Growth and Competition for Space

Trees can only be planted where there is available space, and the willingness of people to plant and maintain a tree. Land use decisions and available resource further impact canopy cover as local and state government, town planners, engineers and community groups grapple with balancing the needs of the environment with the infrastructure required to support our growing area.

Like many urban Councils, Cumberland is going through transformation and there is increasing pressure on available public space. Our population is expected to increase and as Cumberland continues to develop with new housing and commercial areas being built, demand for quality green space increases. Available space on private property, in parks and along streets is shrinking, as a result, finding space to plant trees becomes increasing challenging. Trees need space above and below to fully mature to enjoy the benefits they provide. However, Council has to balance competing land use priorities of the community,

environment, residents and business, industry and public infrastructure. Council recognises these challenges and accepts that in some areas, achieving the maximum canopy possible may not be achievable, in areas like this, Council will prioritise planting trees when the opportunity arise.

Pest and Disease

A low species diversity mix increases the vulnerability of our tree population to pest and disease attacks. As our climate changes and average temperatures increase, the warmer environment favours the spread of pest and diseases as warmer temperatures encourage breeding.

There's also the potential of new pests and diseases traditionally outside of our bioregion attacking our tree stock as the warming climate increases their range. Outbreaks have the potential to destroy tree populations and reduce canopy cover, weakening structural integrity of trees and loss of habitat.

Restoring the tree stock back to a healthy state takes years and costs Council time and resources. Diseases that have the potential to harm Cumberland's tree stock include Myrtle Rust which has caused extensive damage to lilly pillies, paperbarks and box brush. In addition, Cumberland has a high number of Eucalyptus making these species vulnerable to Psyllids (plant lice) feeding from leaves and shoots and discolouring leaves increasing the risk of die-back.

Planting Under Powerlines

Selecting the right tree for the right location is important because it allows the tree to fully mature in a healthy state as well as minimising costs of management.

The majority of the Cumberland area has overhead power lines on one side of the road and this has a major impact on the performance of the trees. Some trees are physically constrained by overhead wiring and as a result needs pruning to avoid damage to powerlines.

Local service providers, Endeavour Energy and Ausgrid, undertakes a program of pruning trees away from the power lines. Legislation stipulates that energy suppliers are required to maintain set clearances for vegetation around the services. New trees under power lines need to be selected so that their mature height is less than the height of the powerlines and that the form of the tree is suitable for pruning if it does encroach into the clear zone.

Pruning trees under powerlines

Competition for space is making it harder to find planting sites

OPPORTUNITIES

Planting Green Corridors

Green corridors are an important green infrastructure asset. Green corridors are areas of connected habitat that provide important linkages throughout our landscape. These corridors provide important ecosystem services as they provide habitat for native flora and fauna, food, water and shelter and enable safe movement across the landscape. Cumberland's Biodiversity Strategy 2019 highlights two important green corridors within Cumberland, these are the Prospect Creek and Duck River corridors. Maintaining and increasing street tree plantings along our streets helps to create planted tree corridors to connect our green spaces and improves walkability in our streetscape. Increasing our planted tree corridors will also support Sydney's Green Grid by supporting connections to and from the Duck River Corridor as well as increasing the overall green canopy in Sydney.

Community Involvement

Our local community is highly diverse and each individual's behaviour and attitudes towards trees vary. Encouraging community participation in tree planting events and through education will help to strengthen the view that trees are an important asset for the community.

Research from our engagement survey shows that there is a lack of knowledge regarding the benefit of

Community planting event on National Tree Day

trees and that more information and activities to raise awareness of the benefits can encourage plantings of trees on private property.

The lack of understanding of trees in urban settings has created a perceived fear of trees from tree damage to property and personnel injury. This Strategy recognises that in order to increases green canopy, Council requires the support of residents and businesses to plant and maintain trees in private spaces.

Opportunities to increase community involvement include community planting days to foster a sense of ownership, supporting local bushcare groups, asking the community to nominate areas where planting can take place and what to plant, seeking support from community to look after newly planted trees.

Streets, Parks and Public Utility Land

The Cumberland area has approximately 24% made up of green space. These spaces include parks, reserves, green corridors and riparian zones where opportunities to plant trees exist. In addition, planting along streets create planted tree corridors which increases walkability, reduces urban heat and strengthen links to parks, reserves and green corridors.

Opportunities also exist by planting trees on non-council land. Council will advocate and support land managers to increase tree plantings along road reserves and on school grounds, utility and rail corridors when the opportunity arises. Where appropriate, Council will pursue natural regeneration or re-wilding restoration methods. These methods have been applied in the past through the 'Rewilding of Prospect Creek – Homes for Habitat' project.

Strategic Land Use Decisions

Cumberland's future tree canopy is influenced by the strategic land use decisions made today. Council has instruments, policies, controls and strategies that work together to form a foundation to maintain and increase the tree canopy cover. This Strategy complements Council's Local Strategic Planning Statement, Development Control Plan, Local Environmental Plan and strategic documents. Furthermore, this Strategy aims to support regional efforts to increase tree canopy such as Sydney's Green Grid and Central City District Plan.

Council will leverage its unique role in the community to manage and plan for optimal canopy cover regardless of whether the land is private or on public space.

Water Sensitive Urban Design

Cumberland is operating in a highly variable environment. With the impacts of climate change being felt, managing our natural resource is more important than ever. Water sensitive urban design (WSUD) aims to improve capture, treatment, storage and re-use of stormwater before it has a chance to pollute our waterways. WSUD principles can be incorporated into urban planning and tree management to manage, protect and conserve water in the urban environment. This can be achieved through a range of examples including:

- Raingarden tree pits
- Constructed wetlands
- Bio-retention and swale systems
- Stormwater harvesting systems

Constructed wetland at Pemulwuy provides habitat and improves water quality

PART B:

STRATEGIC FRAMEWORK FOR URBAN TREES

Urban tree management principles

In order to increase tree planting and green canopy cover in Cumberland, Council will follow and apply a range of principles to help our decision making process.

RIGHT TREE IN THE RIGHT LOCATION

Selecting the right tree in the right location is an important step in helping to increase our tree canopy cover. This means selecting the right tree that will reach maturity without negatively impacting its surrounding.

Tree selection will consider the historical performance of the species in the area and consideration should be given to:

- Potential to damage property
- Cracking pavement such as footpaths and driveways
- Overhead space and infrastructure, such as powerlines
- Below ground infrastructure, such as sewers and telecom infrastructure
- Impact on traffic and signage

Species that have a proven history of performing well in the area should be chosen over those that are known to be problematic. In the long term, this will ensure trees reach full maturity whilst minimising maintenance time, cost and risk to property and people.

Council has developed a tree species list as part of the Urban Tree Strategy that are suitable to be planted in our local area.

APPLY THE BIODIVERSITY MITIGATION HIERARCHY

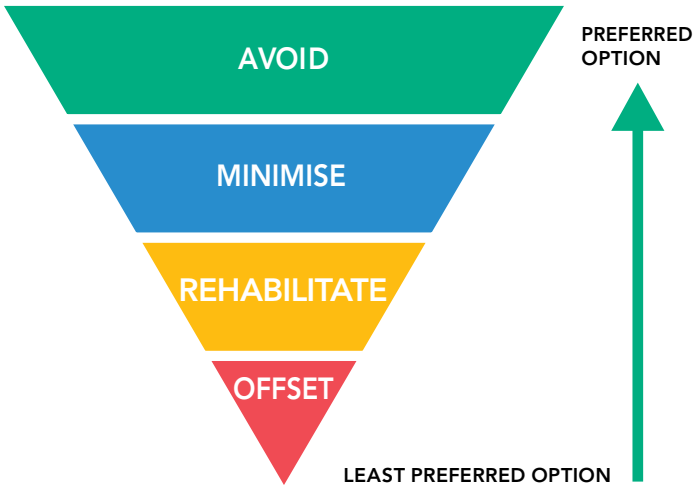
Trees are living organisms which grow, age, get damaged and eventually die. To maintain our tree stock and canopy, Council will apply the biodiversity mitigation hierarchy to firstly avoid, minimise, rehabilitate and as a last resort, offset tree loss to protect our tree canopy cover. Whilst tree removal is a last resort, Council on occasions will have to remove trees for public safety reasons. In these situations, Council will replace the tree with a suitable species to maintain our tree stock. Council will review and assess all tree removal applications and will enforce replacement tree plantings.

The following principles are not considered sufficient reasons to remove a tree:

- Leaf, twig, flower & fruit drop or deadwood drop
- Bird dropping/ insects/ animal nuisance
- To increase sunlight or views or reduce shade
- Tree doesn't suit the landscape
- Unsubstantiated fear of tree failure
- The height/ size of the tree/s
- Minor damage to paths or paving
- To increase sunlight to solar or pool panels

The biodiversity mitigation hierarchy prioritises planning activity in the following order of importance:

1. Avoid activities that lead to loss and damage of trees
2. Minimise actions and risks that harm trees to the lowest possible level
3. Rehabilitate and take restorative actions to bring the ecosystem back to its original state
4. Offset to compensate for tree loss either by planting more trees in the same location or within the same area to ensure no net loss of trees.



Biodiversity mitigation hierarchy

SUPPORT GREEN INFRASTRUCTURE

Green infrastructure is a network of green spaces, wildlife corridors, water sensitive urban design, stormwater harvesting systems, parks, rivers both planned and natural in our environment that provide a range of ecosystem services. Our tree canopy forms part of our green infrastructure network and is an important asset in our built environment. Council decisions should involve Strategic Planners, Tree Management Officers, Landscape Architect, Environmental Management and Operations Officers to integrate trees into our green infrastructure network. Trees are an important green asset that deliver cumulative benefits alongside other natural infrastructure to:

- Reduce the urban heat island effect
- Improve air, water and soil quality
- Enhance biodiversity and resilience
- Improve liveability and outdoor activity

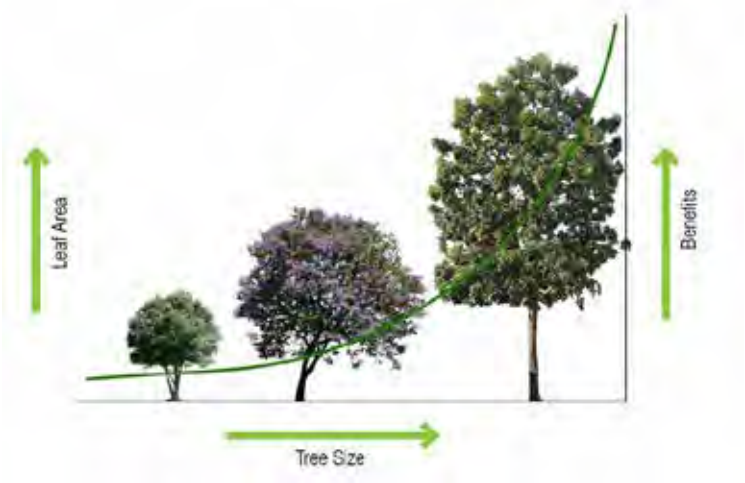
Green infrastructure at Pemulwuy helps to mitigate urban heat, improve air and water quality

LARGE TREES PROVIDE THE MOST BENEFIT

Council's 'Benchmarking Urban Heat Study 2019' found that large trees provide the most environmental benefits. The study found that large trees over 15m provide the most shade, deliver the most evaporative cooling effect and biodiversity gains. Not only does a larger tree provide a larger canopy, they also contribute to the aesthetics of the street, clean more air and stormwater and provide more habitat for wildlife.

Subject to verge width and constraints such as overhead power lines and building setbacks, larger growing trees should be selected wherever possible. Too often small trees are planted on both sides of a street, when a larger growing tree could have been planted on the non-wire side of the street.

When planting in large open spaces such as in parks, reserves and riparian corridors, preference should be given to endemic Cumberland Plains Woodland species followed by native species. This will allow these species to freely mature as they thrive best in large open areas.



Larger trees provide exponential benefits as they grow

CONSIDER CHARACTER OF THE STREET

The visual character of each street is important to creating identity and a sense of place. When selecting what to plant, Council will consider the existing visual character of the place to determine whether the new tree should maintain uniformity and consistency or select new species to add character to the place. An advantage of maintaining uniform plantings is that maintenance is more efficient when managing single species however planting different native and exotic species may be more appropriate for the location and increase species diversity. Additionally, having a variety of trees enhances local biodiversity and strengthens ecosystem resilience.

ALIGN WITH STRATEGIC LAND USE PLANNING

The application of the Urban Tree Strategy will align with the strategic land use planning framework for Cumberland. This includes:

- Application of strategies and plans, such as the Central City District Plan, Cumberland 2030: Our Local Strategic Planning Statement, and the Cumberland Community Strategic Plan
- Implementation through planning controls, such as the Local Environmental Plan and Development Control Plan
- Alignment with strategic documents, such as the Green Grid, tree canopy guide and urban heat masterplan

Planted street tree corridors adds visual character and improves walkability

Planting design and guidelines

The planting design and guidelines outline a range of considerations, including planting scenarios, overhead powerlines, interface with infrastructure, tree species, placement of trees, planting in town centres and paved areas, soil volume and drainage.

PLANTING SCENARIOS

A variety of planting scenarios exist in Cumberland. Each scenario has unique constraints that influence the type of tree that can be planted. These scenarios are summarised below and a list of suitable trees for each scenario is included in the Urban Tree Strategy. The tables cover planting scenarios for both public and private land.

Planting Scenario	Constraints	Tree Size
Parks, Reserves, Playgrounds, Prospect Creek and Duck River Corridors	No major constraints	Small Medium Large *Native species only
Narrow verge (<2.5m)	• Verge width • Above and below utility • Nearby infrastructure	Small
Wide verge (>2.5m)	• Verge width • Above and below utility • Nearby infrastructure • Pavement	Medium Large
Streets: Under powerlines	• Above and below utility • Nearby infrastructure • Pavement	Small (<3m)
Streets: No powerlines	• Above and below utility • Nearby infrastructure • Pavement	Medium Large
Town centres	• Pavement • Shop awnings • Street characteristics	Small Medium Large
In-road Mid-road islands Median strips	• Traffic sight lines • Parking and traffic analysis • Draining • Soil depth and volume	Medium Large
Public spaces	• Above and below utility • Nearby infrastructure • Pavement • Street characteristics	Small Medium Large

Planting scenario framework for public land

Planting Scenario	Constraints	Tree Size
Front and Backyards	• Above and below utility • Nearby property and infrastructure • Pavement • Solar access	Small Medium
Medium/High density Apartments	• Above and below utility • Nearby property and infrastructure • Pavement • Solar access	Small Medium
Town Houses	• Above and below utility • Nearby property and infrastructure • Pavement • Solar access	Small
Balconies	• Ceiling height • Planting Pot size • Solar access	Small (with pruning)
Commercial/Industrial	• Above and below utility • Nearby property and infrastructure • Pavement • Solar access	Small Medium Large

Planting scenario framework for private land

OVERHEAD POWER LINES

The majority of the Cumberland area has overhead power lines on one side of the road and this has a major impact on the performance of the trees.

Endeavour Energy

Endeavour Energy is responsible for maintaining the electricity supply for the majority of Cumberland. Endeavour Energy undertakes a vegetation maintenance program, to maintain the safety and reliability of our network for local families, households and businesses

Endeavour Energy undertakes a program of pruning trees away from the power lines on a cycle of 1 to 3 years, depending on rate of growth. The Electricity Supply (Safety and Network Management) Regulation 2014 stipulates that Endeavour Energy are required to remove and trim trees so as to minimise damage to or destruction of trees growing under or near power lines.

Endeavour Energy's Tree Management Plan 2017 lists the below tree management actions:

- Pruning: Trees are generally pruned on a cycle of one to three years, depending on the rate of regrowth, bushfire risk and local conditions and characteristics. Pruning standards and associated contracts require pruning of any branch within a 3m radius of the power lines and in accordance with Australian Standard AS 4373 Pruning of Amenity Trees.

  New trees under power lines need to be selected so that their mature height is less than the height of the lines and that the form of the tree is suitable for pruning if it does encroach into the clear zone required by Endeavour Energy.

- Tree Removal: The removal of trees growing in proximity to power lines will only be considered where alternative methods, as defined in this section of the plan, are not feasible or a tree has been assessed as a Fall-in Vegetation Hazard/Hazard Tree. In these cases, tree removal works are subject to the environmental assessment process (with the exception of emergency works and hazardous trees) and will only be undertaken following appropriate stakeholder consultation.
- Aerial Bundled Cable (ABC): These consist of a number of insulated wires bundled into a single cable which reduces the overhead space required for wires. ABC allows for reduced tree trimming safety clearances where ABC cables are used allowing for trees to grow around the cable.

It should be noted that the Plan may be updated during the life of the Urban Tree Strategy.

Ausgrid

Ausgrid manages a small portion of the electricity supply to the east of the Cumberland area. Ausgrid and their contractors employ horticulturist and arborist to make sure the trimming is done to Australian Standard for amenity pruning AS4373 so that trees remain healthy.

Ausgrid manages trees under powerlines in the following ways:

- Trimming: Generally, in residential areas the clearance around bare low voltage powerlines is 1 metre. Once crews have cleared to the minimum clearance distance they provide an allowance for regrowth so the branches do not enter the clearance distances before the next annual visit.
- Aerial Bundled Cable: In some areas, Aerial Bundled Cable (ABC) has been installed. ABC wraps the low voltage wires into one insulated cable. This insulation reduces the likelihood of a power interruption, caused by branches coming into contact with the lines and creating a short circuit. Replacing bare low voltage powerlines with ABC reduces the clearances for trimming, but it is likely that some sort of trimming will still be required.
- Underground: Powerlines or cables are also placed underground in some areas like all new urban residential developments and some commercial areas. While this removes the need to trim any tree branches, underground cables can still be affected by roots. Undergrounding electricity cables is the most expensive option. Costs vary depending on a range of technical and environment factors and we consider all requests for undergrounding on a case by case basis.

It should be noted that the management of trees by Ausgrid may be updated during the life of the Urban Tree Strategy.

UNDERGROUND SERVICES

There are many utilities and infrastructure assets that run underground. These include gas mains, electricity cables and water pipes which sometimes inhibit the growth of trees and damage to these services. Each planting site will be assessed on its merits to determine the feasibility plant trees near these underground services and structures.

GENERAL SOLAR ACCESS

Street tree species should be selected, that will provide an appropriate level of solar access to dwellings. This consideration applies more in streets with low density housing. This becomes less of a consideration where lots are larger and houses are set well back from the street. In these instances, the street trees typically impact less on solar access and the residents have an opportunity to manage and consider their sunshine and shade requirements within their own gardens and open areas. Unreasonable requests for tree removal or excessive pruning for solar access will typically be rejected by Council.

SOLAR PANEL ACCESS

Council supports the uptake of renewable energy. Council shall consider this factor when planning any new tree planting. If a resident already has legally installed solar panel collectors and their performance is significantly diminished by a street tree, the pre-existing arrangement should stand. That is, was the tree there first or was the receiver/panel prior to any street tree planting.

Even if the tree was small when the panels or receiver were installed, if it was reasonable for the mature size of the tree to be estimated and considered, then Council shall not be expected to prune the tree to maintain it at a smaller size.

If a resident currently relies on solar access for the operation of such a device, Council will typically avoid planting a new tree that will unreasonably shadow the device.

BUS STOPS

Clearances and setbacks for trees near bus stops are to be determined typically on a case by case basis.

When a bus stop is proposed by other authorities to be installed in a street that currently has not had a bus stop or a bus stop is proposed to be relocated within a street, the existing street trees should be considered as a material constraint.

Existing street trees should not be unreasonably removed to facilitate a new bus stop unless all other possible alternatives have been explored. Where a bus stop is positioned adjacent to an existing street tree, the impacts to the trees roots and canopy shall be minimised to maintain the trees health and vitality.

TREE SPACING

Spacing between trees is influenced by a variety of factors. These include species type, growth rate, soil conditions and level of care and maintenance. Often tree roots spread wide and beyond the reach of the tree canopy. To gauge how close trees should be, a soil volume calculator should be used to determine the minimum and maximum soil volume required for each species. A soil volume guide is provided in the Urban Tree Strategy. A general guide for the spacing of street trees is as follows:

- Small trees - 5 metre spacing
- Medium trees - 7 to 10 metre spacing
- Large trees - 10 to 15 metre spacing

PLACEMENT OF TREES

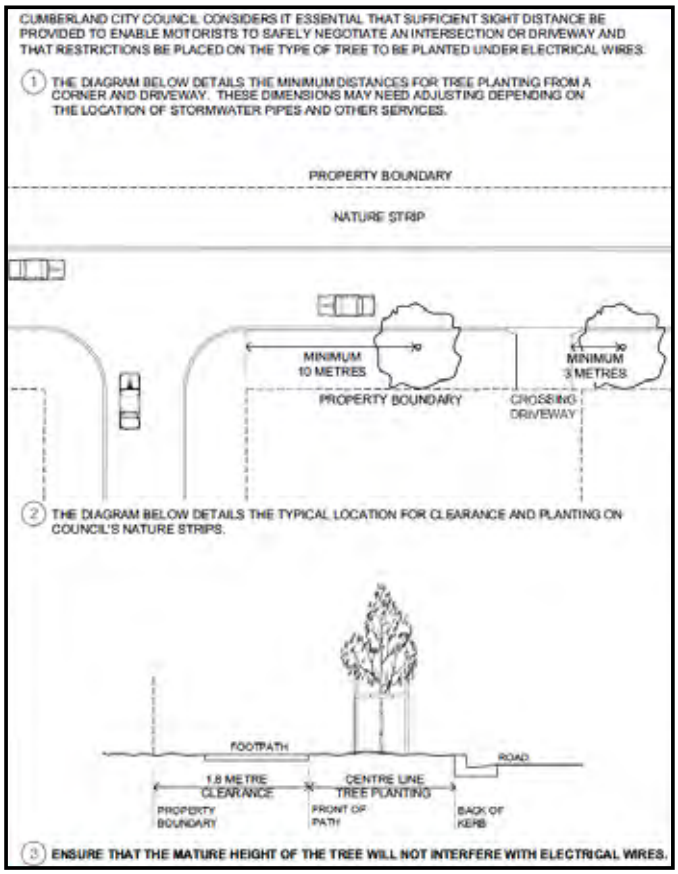
Council considers it essential that sufficient sight distance be provided to enable motorists to safely negotiate an intersection or driveway and that restrictions be placed on the type of tree to be planted under electrical wires.

A table has also been included in the Strategy that details the minimum distances for new tree planting from a corner, driveway and nature strip and roadway. These dimensions may need adjusting depending on the location of stormwater pipes and other services. Tree selection should ensure that the mature height of the tree will not interfere with electrical wires.

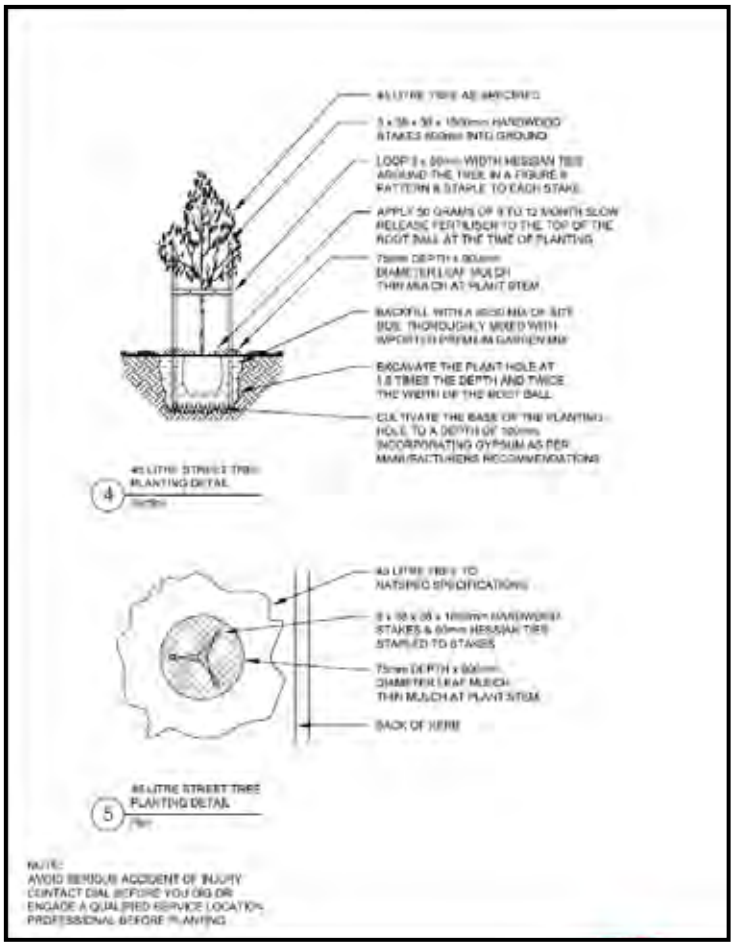
It should be noted that general site specific planning controls may apply on the placement of trees. These controls supercede guidance outlined as part of the Urban Tree Strategy.

Item	Distance Required
Street intersection	10m from intersection kerb line
Power pole and street lights	5m from the pole
Stormwater inlet	1m from edge of inlet
Major underground service junction	2m from edge of junction box
Bus stops	No trees planted along the length of bus zone
Traffic lights	15m from traffic signal pole
Pedestrian crossing	15m from the approach side of the crossing
Driveways	3m from the edge of the driveway
Major traffic sign	10m from the front face of the sign

Guidance on minimum clearances for new trees

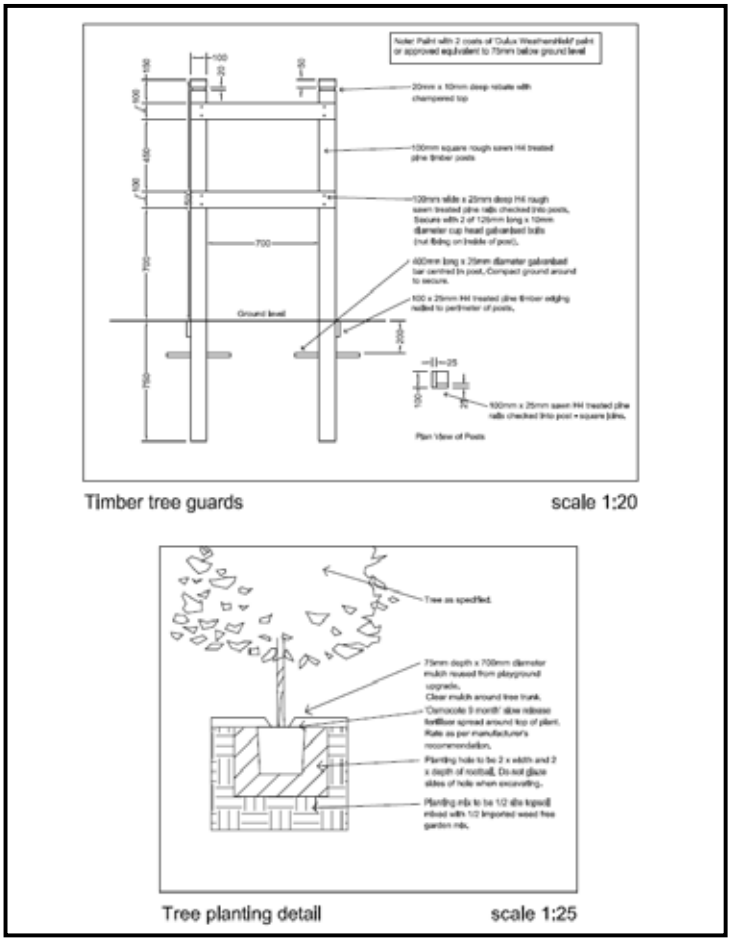


Guidance on clearances and planting on Council land



NOTE: Avoid Serious Accident Of Injury Contact Dial Before You Dig Or Engage A Qualified Service Location Professional Before Planting

Standard 45 Litre street tree planting detail



Standard timber tree guard installation detail

PLANTING IN TOWN CENTRES AND PAVED AREAS

Planting trees in hard surfaces require careful planning and consideration of soil mix, volume and access to nutrients. What is provided to trees below ground will dictate how the tree will grow above and below the ground. Planting trees with consideration of these important factors help to ensure trees remain healthy and reach full maturity and help minimise chance of root damage and uplift of pavements.

Tree Sizes for Town Centres

All trees within the hard paved areas of Town Centres to be ideally minimum 400L pot size. Council will consider the option for 200L pot sizes for locations with planting limitations. For new developments, Council requires developers to cover the cost of planting 400L trees.

Soil Consideration

All soils, potting mixes and composts used for landscaping and gardens will meet the following Australian Standards:

- Site and imported topsoil: AS 4419.
- Potting mixes: AS 3743
- Composts, soil conditioners and mulches: AS 4454

Suitable soil for tree planting can be classified into Type A and Type B. Type A soil includes clay, silty clay, sandy clay and clay loam. It is suitable as an all-rounder for landscape garden beds, grasses and flowering plants requiring. This soil should not be used for areas that will experience high pedestrian due to its poor compressive strength. Type B soil is more suitable for larger trees over 45L where deeper rooting is required, as Type B soil has lower organic matter composition and reduces the risk of waterlogging.

Structured Support Soils

Structured support soils are designed to support heavy surface loads such as roads and pavements whilst providing rooting volume for trees. These support systems create space within the structure, helping to reduce soil compaction which allows roots to grow and air and water movement.

Strata Cells

Strata cells help maximise the soil volumes for new tree planting in areas with hard pavements by providing support to heavy vertical loads. Strata cells provide a large module for space where root growth can occur maximising the opportunity for trees to grow into large canopies. This allows for gap spaces in the soil mixture to allow roots to grow through the soil, air and water to flow whilst providing a strong base to support heavy loads. Council has successfully used strata cells in Berala Town Centre to help trees reach maturity.

Trees in Auburn town centre add character and sense of place

SOIL VOLUME

One of the key factors that affect the growth size of the tree is the amount of soil available. Trees will only grow to match the soil volume provided to it. Minimum soil volume requirements for small, medium and large trees within town centres are provided in the table below:

TREE PIT DRAINAGE

Tree pit designs should incorporate draining pipes within tree pits in paved areas to allow for excess water to escape. A water logged tree pit can become anaerobic and lead to root rot. One example of incorporate water sensitive urban design is the 'raingarden tree pit'. This tree pit system removes pollution from stormwater before entering waterways, reduces the amount of water required to support the tree in a compact small design suitable for urban areas.

Tree inlets are an intelligent water sensitive urban design feature that takes advantage of kerbside stormwater run-off. The inclusion of stormwater inlets in kerbside next to tree pits allows for capture, storage and remediation of stormwater runoff to passively water street trees. The tree inlet system involves inserting a slitted faceplate into the kerb which allows for stormwater to flow through an anchor block directing stormwater into the tree pit.

Tree size	Height	Canopy development	Minimum soil volume m^2	Minimum soil volume m^3
Small	5-10m	5m	19.5	9.3
Medium	10-15m	8m	50	23.8
Large	15-20m	16m	200	95.3

Guidance on soil volumes

Example of using strata cells around hard surfaces (Photo courtesy of greenblue.com)

Tree inlets passively water trees by directing stormwater into the tree pit (Photo courtesy of spacedownunder.com.au)

Tree maintenance

Maintaining trees ensure they continue to provide environmental, economic and social benefits. This section discusses the ways in which Council maintains its tree stock.

TREE ESTABLISHMENT

Correctly planting a tree is a very simple process but an important one. Correctly handling the tree when planting, preparing the planting hole and caring for a tree after it has been planted will ensure the survival and optimal growth of the tree. Trees take up water through their roots. In general, trees require more water when they actively start to grow in spring and during hot summer months. Planting in autumn gives the tree more time to grow new roots and for roots to start growing into the surrounding soil before the increased demand for water starts. However, container grown trees can be planted at any time of the year if they are properly cared for after planting. Care during this period will lead to healthy and vigorously growing trees. The following maintenance practices should be regularly carried out during the establishment period:

- Watering: Water both the rootball and the surrounding soil thoroughly
- Weeding: Remove weeds close to the tree (weeds compete with the tree for water and nutrients)
- Fertilising: To maintain healthy growth in accordance with the fertiliser manufacturer's application instructions
- Pest and disease control: inspect to monitor and protect the tree from pests and diseases
- Mulching: Replenish water to keep the mulch depth to approximately 50mm deep.

Newly planted trees require regular maintenence to help them establish.

Root management ensures the tree grows healthy and reduces risk to the community and infrastructure.

PRUNING

Council will undertake tree pruning to improve tree health, structure and ensure safe clearances for walkways, buildings, powerlines and roads. Council maintains trees on its managed land in order to fulfil its legislative and management obligations to the community and the environment.

Where pruning is required under powerlines, Council will work with energy suppliers to ensure pruning work is completed to provide necessary clearance as well as protecting the health of the tree. Tree pruning will not be done to improve views, reduce leaf drop or reduce the impact from animals such as birds and bats. All pruning work should be in accordance with the Australian Standard for Pruning of Amenity Trees AS4373.

TREE PROTECTION ZONE

The tree protection zone is an area set aside for the protection of a tree's crown and roots. It is an estimate of the area required to protect a tree from adverse construction impacts. No construction activity or changes to soil levels should occur within this area. Tree protection zones are required before soils levels are altered by excavation or fill close to a tree, if works are within the tree protection zone, a Tree Permit must be obtained for the works before they commence. Council may specify tree protection requirements in a Tree Permit or Development Application. All tree protection requirements must comply with AS 4970 'Protection of trees on development sites' and be installed before any works commence and before any machinery or material taken on to the site.

TREE ROOT MANAGEMENT

Certain tree root treatment work, including selective root pruning and root barrier/deflector installation, may occasionally be performed. This work is required for risk management, to maintain public safety and contain tree root growth to avoid damage to infrastructure. Where necessary, root pruning is also required to undertake repairs or prevent damage to property, roads and pavements.

Root pruning may increase fine root growth within the root ball. Shaving or trimming off the very outermost edge (up to 20mm) of the rootball of a container grown tree will stimulate root division and growth. An increased root system will allow the tree to absorb more water and nutrients, and consequently the tree may establish more quickly.

REPLANTING OPPORTUNITIES

Council aims to continue existing street characters and tree planting wherever possible. Council will investigate opportunities to increase the urban canopy, which may include:

- Town centre renewals
- Parks and reserves
- Grant funded initiatives
- New developments
- Commemorative tree programs
- Community tree planting events
- Free Plant Giveaway
- National Tree Day
- Schools Tree Day

Free plant giveaway by Council at Auburn Botanic Gardens

Tree species selection

Trees are an important long term green infrastructure assets that may live for 50 years and beyond. It is therefore important that the right species is selected for the right location. When selecting the tree to be planted, consideration should be given to the criteria outlined in this section no matter the trees origin or type. The species with a strong proven performance in Cumberland, with respect to environmental and functional requirements will be the main primary selection criteria.

TREE SIZE

The tree with the largest size and canopy suitable for the location should be planted. Research has consistently shown that medium to large trees with dense canopies provide the greatest ecological and community benefits in comparison with small trees. This is particularly evident during extreme heat days. Cumberland City Council's 'Benchmarking Urban Heat 2019' study found that under tall trees greater than 15m with dense canopies can be 5-6oC cooler underneath compared to trees less than 10m. In addition, large trees create more canopy spread and shading benefits, absorption of more gaseous pollutants, and achieve higher canopy clearances over buildings and utilities. Medium and larger growing trees typically have longer life spans and provide exponential benefits as they get larger.

SPECIES DIVERSITY – NATIVE AND EXOTIC

As part of the tree survey across the town centres, Council identified that there are parts of the Council with high concentrations of a single species. With little species diversity there is an increased risk of the urban canopy being decimated by insects and disease.

Both native and exotic species provide unique benefits and disadvantages. Whilst native indigenous species thrived prior to European settlement, our landscape has fundamentally changed due to urban development resulting in hard infrastructure, underground and overhead utility, compacted soils and disturbed drainage patterns.

Common species of the Cumberland Plains thrive in wide open spaces with excellent drainage and freely maturing without constraints. These optimal growing considerations are rare in our highly urbanised landscape and may only be suitable in limited planting scenarios. When planting in large open spaces such as in parks, reserves and riparian corridors, preference should be given to endemic Cumberland Plains Woodland species followed by native species.

Exotic trees do provide an important advantage in the urban context in that they include many species of deciduous trees, which provide greater solar access to the streets through the winter months. Compared to native trees, there are only a limited number of native species that are deciduous and most of these lose their leaves in spring or early summer.

Exotic species also benefit from selective breeding making them more pollution tolerant, resilient to root area compaction and greater resilience during construction and repair works around the tree. Importantly, the canopy shape and growth of the tree responds well to pruning and shaping required in an urban environment with public infrastructure, pavements and overhead wires.

Council's Urban Tree Strategy aims to use both native and exotic trees to increase species diversity and resilience. In order to do this, Council will apply the principle of selecting 'the right tree in the right location' regardless of whether they are native or exotic.

CLIMATE CHANGE AND DROUGHT

It is understood that climate change is happening and the effects are wide and varied. These include prolonged periods of drought, longer extreme heat waves, stronger storms and extended bushfire season. For urban trees in our area, the impact includes:

- Decreased tree planting due to the potential affects of water restrictions and drought
- Increased impact of disease and pests on tree health as warmer weather can increase reproductive potential and increase the geographic range of pest
- Premature death of some tree species due to intolerance to heat, including young and vulnerable trees
- Increased branch and whole tree failure of otherwise healthy trees due to high winds and heavy rains
- Increased risk of damage caused by tree failure, increasing potential claims and litigation. The increased risk raises community concern and results in tree removal, and is likely to perpetuate climate change impacts
- Healthy, diverse and structurally sound urban trees are far more likely to adapt to the challenges of climate change

Species selection should consider the resilience of trees in a warmer and drier environments. For example, broad-leaved, deciduous species, commonly planted as street trees in south-eastern Australia, may be at the upper edge of their temperature range and are likely to perform poorer in conditions of increased temperatures.

For many species, higher temperatures will allow more rapid establishment and growth if water is available. Rapid tree establishment is an advantage in many areas. Frost sensitive species may be grown more widely and easily. During extended drought periods, mulching tree root zones reduces water loss due to evaporation. Retaining water runoff through implementing water sensitive urban design can help tree survivability rates during dry periods.

The right tree in the right location, regardless whether it is native or exotic species

PEST AND DISEASE TOLERANCE

A widespread infestation of harmful pests and disease has the potential to harm Council's tree stock. There are a variety of pests and diseases which have been identified in the Sydney area including(but not limited to) Psyllids, Sycamore Lace Bug, Myrtle Rust, Fusarium Wilt, Armillaria, and Phytophthora. Consideration should be given to a tree's resistance level to known pests and diseases. Monitoring tree health and increasing tree diversity has the potential to minimise the impact of specific disease and pest attack.

LOW MAINTENANCE

Species should be selected and planted to minimise maintenance costs, both during establishment and over the life of the tree. Key maintenance considerations include:

- Watering, pruning and other establishment costs
- Pruning away from pedestrian and vehicle paths, overhead power and telecommunications cables, signage, traffic signals and other infrastructure.
- Cleaning of leaf, fruit and branch drop
- Repair of damage to infrastructure (footpaths, kerbs and underground services).
- Pest and disease control

LEAF FALL AND ALLERGIES

Trees are living organisms and dropping leaves are part of their natural process. Trees that produce large seed pods or are continuously dropping leaves or fleshy fruit should be avoided to reduce maintenance for Council and residents. Excessive leaf fall has the potential to increase street cleaning requirements to clear stormwater drains.

Although trees produce a limited quantity of pollen compared to grasses, consideration should be given to the potential impact of allergic reactions that can occur in some people. Most problems, such as hay fever, eye allergies and respiratory problems, occur due to the presence of pollen between September and January.

TOLERANCE OF COMPACTED SOILS

Trees should be selected that are tolerant of compacted soil with low oxygen levels, as this is a common situation in the urban streetscape. This occurs when the soil has been compacted so much so that there is minimal pore space reducing oxygen in the soil and decreasing soil drainage ability. Much of Cumberland's soil profile has been disturbed with the original soil removed and replaced by construction material, hard surfaces and landfill. Trees that are able to adapt to a wide range of soil types and conditions are preferred and should be selected in these areas.

DECIDUOUS AND EVERGREEN TREES

Deciduous trees lose their leaves in the winter, providing sun in winter and shade in summer. They give a sense of the seasons and can produce spectacular seasonal displays. Evergreen trees maintain their foliage throughout the year, providing all year round screening, greenery and shelter. An advantage of deciduous trees is that they renew their leaves annually, allowing them to shed foliage that has become affected by disease and pollution. Consideration should be given to whether the location requires privacy screening year round, protection from wind or foliage year round for aesthetic and habitat reasons.

Jacaranda trees provide spectacular blooms in spring and drop leaves in winter

Tree species list

The following list recommends species to be grown in Cumberland City. These categories are further broken down into small, medium and large trees. It is important to note that some species may have very wide applications, while others will only be used in very limited or specific locations. Tree sizes listed below are guidelines only and are dependent on local conditions. Planning controls or development approvals may provide specific guidance on tree species or planting arrangements that need to be considered in these circumstances.

Small Size Trees

Botanical name	*Ceratopetalum gummiferum*
Common name	NSW Christmas Bush
Foliage	Evergreen, mound-shaped
Mature size (H x W)	3m x 2m
Flowers	White, red
Fruit	-
Flowering season	December
Growth rate	Slow
Origin	South East Australia

Botanical name	*Backhousia citriodora*
Common name	Lemon Myrtle
Foliage	Evergreen, glossy green dense foliage
Mature size (H x W)	5m x 2m
Flowers	White, cream
Fruit	-
Flowering season	Summer, Autumn
Growth rate	Fast
Origin	Northern NSW, Southern Queensland

Botanical name	*Corymbia ficifolia*
Common name	Red flowering gum
Foliage	Evergreen, Spreading
Mature size (H x W)	5m x 3m
Flowers	Red, pink through to orange and white
Fruit	Gum nuts
Flowering season	All year
Growth rate	Moderate-Fast
Origin	Native south-west of Western Australia

Botanical name	*Tristaniopsis laurina*
Common name	Water Gum
Foliage	Evergreen, spreading crown
Mature size (H x W)	5m x 3m
Flowers	Yellow
Fruit	-
Flowering season	Spring, Summer
Growth rate	Slow
Origin	Eastern coast of Australia

Botanical name	*Leptospermum petersonii*
Common name	Lemon-scented teatree
Foliage	Evergreen, Spreading
Mature size (H x W)	2m x 1.5m
Flowers	White
Fruit	-
Flowering season	Spring
Growth rate	Fast
Origin	East coast of Australia

Medium Size Trees

Botanical name	*Calodendron capense*
Common name	Cape Chestnut
Foliage	Semi deciduous, spreading tree, greyish green leaves
Mature size (H x W)	10m x 6m
Flowers	Pink orchard-like flowers
Fruit	-
Flowering season	Summer
Growth rate	Slow
Origin	Exotic - South Africa

Botanical name	*Buckinghamia celsissima*
Common name	Ivory Curl
Foliage	Evergreen, dense glossy green foliage
Mature size (H x W)	8m x2m
Flowers	Creamy white
Fruit	-
Flowering season	Summer, Autumn
Growth rate	Slow
Origin	Rainforest Northern Queensland

Botanical name	*Elaeocarpus reticulatas*
Common name	Blueberry Ash
Foliage	Evergreen, green foliage
Mature size (H x W)	10m x 3m
Flowers	White, soft pink
Fruit	Dark blue berries
Flowering season	Spring
Growth rate	Fast
Origin	Eastern Australia

Botanical name	*Cupaniopsis anacardioides*
Common name	Tuckeroo
Foliage	Evergreen,
Mature size (H x W)	8m x 7m
Flowers	Cream, bright orange
Fruit	Orange to yellow capsules
Flowering season	Autumn, Spring
Growth rate	Fast
Origin	Eastern and Northern Australia

Botanical name	*Waterhousia floribunda*
Common name	Weeping Lilly Pilly
Foliage	Evergren, weeping
Mature size (H x W)	10m x 5m
Flowers	White fluffy flowers
Fruit	Pink to pale green fruit
Flowering season	Summer
Growth rate	Medium-Fast
Origin	Eastern Australia

Botanical name	*Syzygium smithii*
Common name	Lilly Pilly
Foliage	Evergreen, smooth waxy green leaves
Mature size (H x W)	7m x 3m
Flowers	Clusters of green and yellow
Fruit	Pink, white, purple fruits
Flowering season	Summer
Growth rate	Fast
Origin	Northeast Queensland to Southeast NSW

Botanical name	*Lagerstroemia indica*
Common name	Crepe Myrtle
Foliage	Deciduous, vase-shaped tree
Mature size (H x W)	8m x 4m
Flowers	white, pink, mauve or purple bloom
Fruit	-
Flowering season	Summer
Growth rate	Moderate-Fast
Origin	Exotic – Indian subcontinent, Asia

Large Size Trees

Botanical name	*Angophora costata*
Common name	Sydney Red Gum
Foliage	Evergreen, spreading canopy
Mature size (H x W)	25m x 10m
Flowers	White
Fruit	-
Flowering season	Summer
Growth rate	Average
Origin	Eastern Australia

Botanical name	*Eucalyptus microcorys*
Common name	Tallow Wood
Foliage	Evergreen, glossy green
Mature size (H x W)	20m+
Flowers	White to lemon flowering buds
Fruit	-
Flowering season	Summer
Growth rate	Slow
Origin	Eastern Australia

Botanical name	*Lophostemon confertus*
Common name	Brush Box
Foliage	Evergreen, dense green foliage
Mature size (H x W)	10m x 5m
Flowers	White fluffy flowers
Fruit	-
Flowering season	Spring, Summer
Growth rate	Fast
Origin	Eastern Australia

Botanical name	*Koelreuteria bipinnata*
Common name	Chinese flame tree
Foliage	Deciduous tree, spreading broadly conical crown
Mature size (H x W)	15m x 8m
Flowers	Small yellow flowers
Fruit	-
Flowering season	Summer
Growth rate	Fast
Origin	Exotic – Southern China

Botanical name	*Eucalyptus amplifolia*
Common name	Cabbage Gum
Foliage	Evergreen, shiny dark green foliage
Mature size (H x W)	25m+
Flowers	White
Fruit	-
Flowering season	Summer, Autumn
Growth rate	Fast
Origin	Eastern Australia

PART C:
IMPLEMENTATION

Implementation approach

The Urban Tree Strategy demonstrates Cumberland City Council's commitment to increase tree planting, canopy cover and mitigate urban heat island effect in Cumberland. This Strategy recognises that support and involvement from our community is vital to ensure that the Strategy is successful. In addition, this Strategy highlights the important role Council has in both the short and long term strategic planning to manage urban development, urban heat and climate change.

VISION AND KEY FOCUS AREAS

The Urban Tree Strategy 2020 provides a strategic and coordinated approach to managing Council's tree population over a 10 year period. As part of this Strategy, a vision and Key Focus Areas have been developed.

FUNDING

Funding for the delivery of the Urban Tree Strategy will be covered by a range of sources. This includes recurrent budgets within Council, capital works, developer funded and grant opportunities from the NSW and Australian Government. Council will continue to explore future funding opportunities to deliver on the Urban Tree Strategy.

Vision

'A **CLEAN** and **GREEN** environment for current and future generations to enjoy by **PROTECTING** and **ENHANCING** Cumberland City Council's natural areas and green infrastructure.'

Key Focus Area 1: **Community Education and Engagement**	**Key Focus Area 2:** **Maintain, Protect and Increase Existing Tree Canopy**	**Key Focus Area 3:** **Strategic Planning and Innovation**
KFA 1.1 Encourage community involvement at location based events such as tree planting days	**KFA 2.1** Identify and progress planting opportunities to increase tree canopy	**KFA 3.1** Embed tree management protection into strategic plans and development controls
KFA 1.2 Raise awareness and educate the community and businesses on the benefits of trees and tree planting best practices	**KFA 2.2** Continue to maintain, monitor and protect publicly owned trees	**KFA 3.2** Investigate opportunities to incorporate green and blue infrastructure into strategic plans and development controls
KFA 1.3 Develop initiatives to encourage tree plantings on private land	**KFA 2.3** Increase species diversity to ensure urban canopy is resilient	**KFA 3.3** Review Council's operational procedures for tree management
	KFA 2.4 Collaborate with external agencies to protect and enhance tree canopy	**KFA 3.4** Investigate opportunities to develop tree canopy cover baseline and tree asset database

Vision and Key Focus Areas

MONITORING

Actions will be monitored to determine if they are meeting the objectives of the key focus areas. A review and re-prioritisation of remaining actions will be undertaken at each review, to account for relevant funding opportunities, changing legislation or a change in regional strategic direction. The Action Plan will remain flexible to meet the changing needs of the Council over the life of the Strategy. The Strategy will be subject to a full review after a five year period.

As part of Council's continuous improvement philosophy, the Strategy actions will be reviewed annually and adapted where:

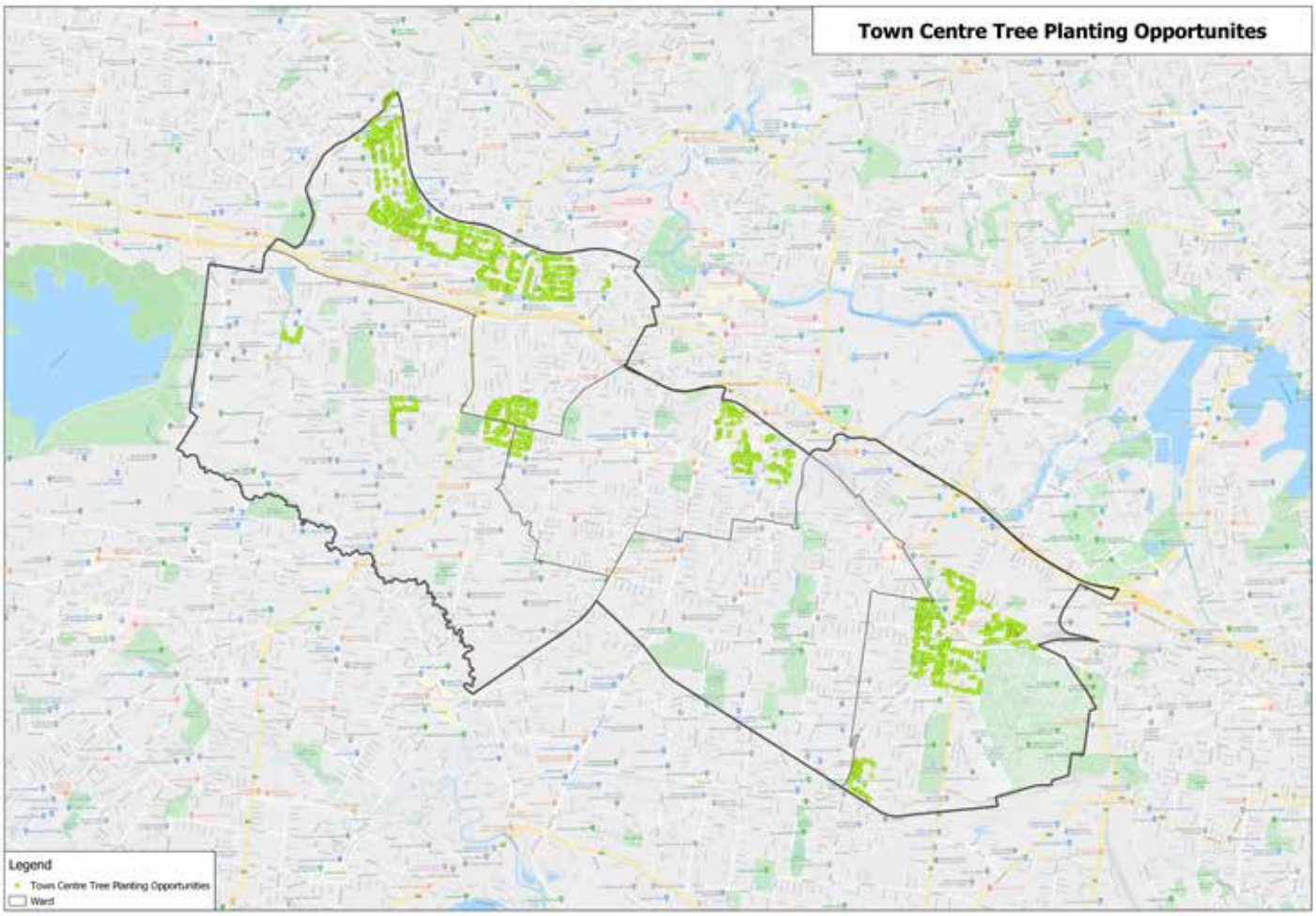
- Monitoring results indicate a change is necessary
- New technology or best practices improve tree management practices
- New opportunities arise to increase greenery.

TREE PLANTING PROGRAM FOR COUNCIL

As part of the Urban Tree Strategy. Council has identified a strategic program to focus efforts on tree planting for Council assets and public areas. The program will focus on the following areas:

- Tree planting in town centres
- Tree planting along road verges, nature strips and open spaces
- Tree planting to support biodiversity corridors in Cumberland

Further detailed work will be undertaken by Council to progress the development and implementation of this strategic program, aligned with available resources.



Council has identified tree planting opportunities in town centres

Key Focus Areas

Key Focus Area 1:

Community education and engagement

Objectives	Increase knowledge and appreciation of the value and benefits of trees					
	Create opportunities to increase tree plantings on public and private land					
Measures	Number of education and engagement initiatives delivered annually and attendees at events					
	Community satisfaction survey response for 'Environmental education programs'					
Actions		**Timeframe**				
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
KFA 1.1	Encourage community involvement at location based events such as tree planting days					
KFA 1.2	Raise awareness and educate the community and businesses on the benefits of trees and tree planting best practices					
KFA 1.3	Develop initiatives to encourage tree plantings on private land					

Key Focus Area 2:

Maintain, protect and increase existing tree canopy

Objectives	Maintain, protect and increase tree canopy cover
	Increase the diversity of tree species
	Improve connectivity of green corridors in the area and in line with regional strategic plans
Measures	Number of new trees planted in public places
	Number of trees given to Cumberland residents at tree giveaway events
	Record numbers of approved tree removals/loss vs numbers of trees planted in public and private spaces

Actions		**Timeframe**				
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
KFA 2.1	Identify and progress planting opportunities to increase tree canopy					
KFA 2.2	Continue to maintain, monitor and protect publicly owned trees					
KFA 2.3	Increase species diversity to increase tree population resilience					
KFA 2.4	Collaborate with external agencies to protect and enhance tree canopy					

Key Focus Area 3:

Strategic planning and innovation

Objectives	Incorporate tree management principles into Local Strategic Planning Statement, Development Control Plans and Local Environmental Plans and strategies
	Support regional efforts to increase tree canopy in Sydney, such as Central City District Plan and Sydney's Green Grid
Measures	Establishment of processes and compliance tools to protect tree canopy
	% of canopy cover change or number of trees planted in the local government area (subject to baseline being developed)

Actions		**Timeframe**				
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
KFA 3.1	Embed tree management protection into strategic plans and development controls					
KFA 3.2	Investigate opportunities to incorporate green and blue infrastructure into strategic plans and development controls					
KFA 3.3	Review Council's operational procedures for tree management					
KFA 3.4	Investigate opportunities to develop tree canopy cover baseline and tree asset database					

CUMBERLAND
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