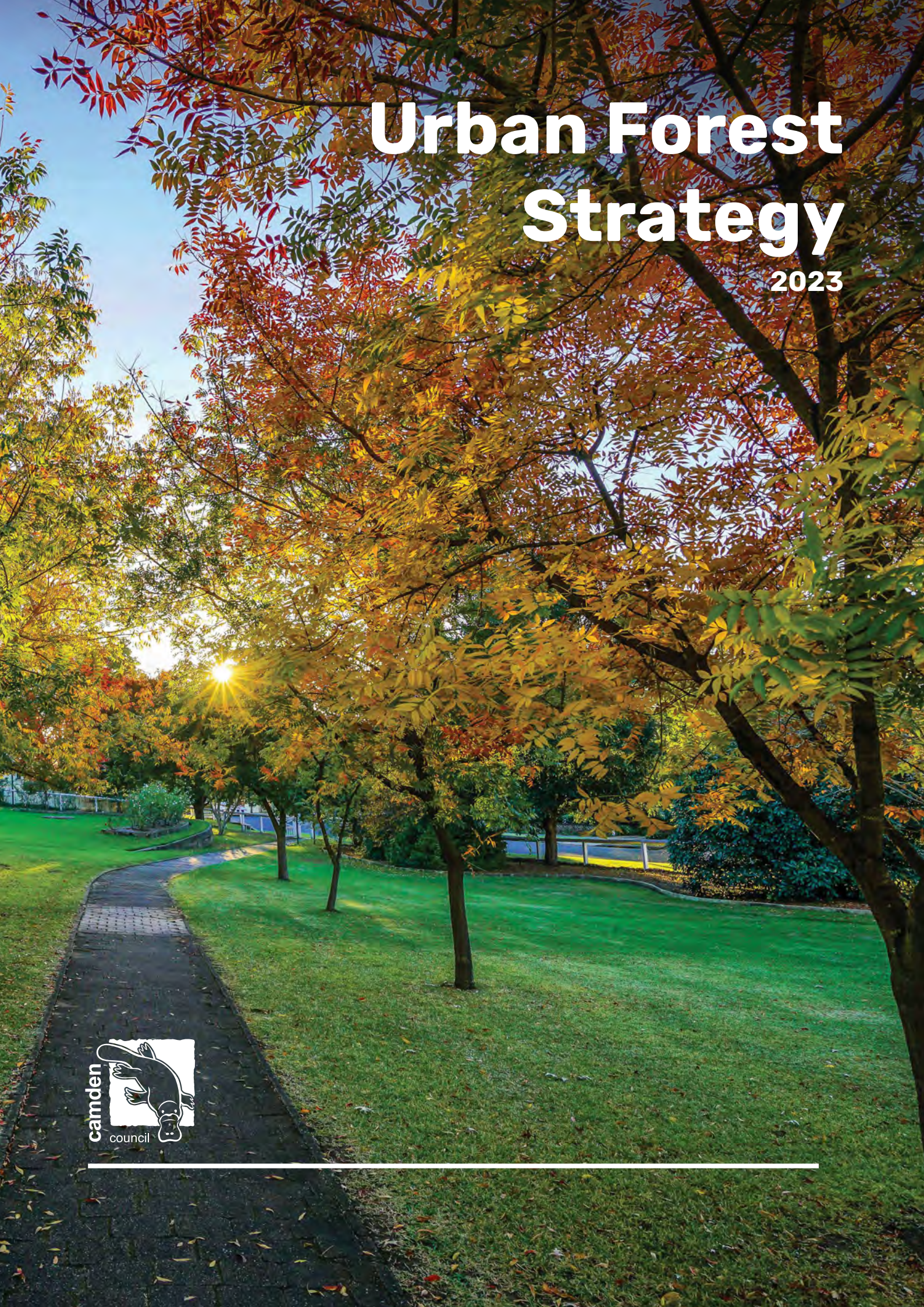


Urban Forest Strategy

2023

camden council

Artist: Melissa Barton
Bulawiri Nura - Three Country's

An artwork that depicts and celebrates the strength and unity, community and team work shared between the Dharawal, Dharug and Gundangurra peoples to care for Country in and around Camden. Camden being an area where these three nations met, held ceremony, corroboree, traded and looked after our sacred Mother Earth and Father Sky. Showing that traditional ways of caring for Country are significant and valuable to our way of living today.

Council acknowledge that the Camden LGA is situated on the sacred Traditional Lands and Waterways of the Dharawal peoples. We also recognise surrounding Dharug and Gundungurra people that may have connections to these lands. We pay our respects to Elders from the past, present, and emerging, and to all Aboriginal and Torres Strait Islander peoples on these lands and celebrate the continuing contribution of the Aboriginal community to the life of Camden LGA.

Acknowledgments

This project is part of the Greener Neighbourhoods grant program that is proudly funded by the NSW Government.

Camden Council acknowledges the contributions of Mosaics Insights with support from treeiQ in the preparation of the Strategy.

Mayors Message

Trees and other vegetation are essential components of our urban areas. Not only do they add a sense of character and charm, they produce real-world benefits which are backed by research, as you will find out about in this Strategy. In an urban area, they help mitigate the Urban Heat Island Effect, improve residents' health and wellbeing, and help biodiversity to flourish.

For those reasons and more, Camden Council is committed to creating an urban forest that thrives. The Urban Forest Strategy 2023 is how we get there.

The Strategy sets an ambitious target to increase our canopy from 15 per cent to 40 per cent by 2036 and lays out an action plan to get us there. We are one of the fastest growing Local Government Areas in Australia, and so it's important we act now to ensure we can meet these canopy targets through that growth.

The good news is, work has already begun. Since 2021, more than 27,000 trees have been planted in streets, parks, reserves and bushland areas. There's lots more to do and I look forward to partnering with you to see Camden's canopy grow for future generations.

Ashleigh Cagney
Mayor of Camden

Executive Summary

Camden's urban forest is the trees and greening (and the ecosystems, soil and water that support them) that exist across the urban area, in spaces that are planned, designed and managed.

Canopy cover across the Camden Local Government Area (LGA) is below the NSW State Government target of 40%. In 2019, areas within the LGA showed canopy levels as low as 2-3% with overall canopy coverage of just over 15%. The Connecting Camden Community Strategic Plan 2022-2036 (CSP) sets directions, objectives, strategies, and measures for progress to achieve the Camden community's vision with specific reference to protecting and sharing responsibility for the natural environment.

Camden is a connected, diverse, and thriving community, embracing opportunities of growth, while valuing our rich heritage and protecting and sharing responsibility for our natural environment.

This Strategy was developed based on available data and information, including data from the NSW Government and the community. The analysis of this data and information describes the current state and provides a baseline of information around tree canopy, Council's capacity and the community values.

To significantly increase tree canopy towards the NSW government target, we need to respond to current state information and the challenges and pressures we face. These include: rapid population growth and associated development, climate change, urban heat and equity of canopy for the most vulnerable communities, increasing competition for space, need for the right skills and knowledge across Council and the community, access to sound data and information, engagement with a wide range of stakeholders and robust policy and procedures. Building widespread community support for the urban forest will also be crucial.

The assessment of the current state of Camden's urban forest has informed the development of the vision, outcomes and strategic objectives as well as the definition of the urban forest for Camden:

2050 VISION

IN 2050 CAMDEN'S URBAN FOREST IS THRIVING, MATURE SHADE TREES ARE EVIDENT ACROSS CAMDEN AND CANOPY AND GREENING IS ACTIVELY MANAGED IN PARTNERSHIP WITH THE COMMUNITY

2050 OUTCOMES

- Camden Council is known for their proactive urban forestry practices
- The urban forest is valued and is seen and managed as an essential asset
- The urban forest is equitably distributed across Camden
- The urban forest is planned for resilience to a changing climate
- People actively work together on the protection, management and maintenance of the urban forest
- Space is provided for large trees and understory plantings across the LGA

STRATEGIC OBJECTIVES

Camden's urban forest is the trees and greening (and the ecosystems, soils and water that support them) that exist across the urban area, in spaces that are planned, designed, and managed

Asset
To manage the public urban forest as essential assets and integrate with water, soils and other infrastructure

Capacity
To increase the organisational capacity of Council to manage and respond to complex urban forest challenges

Data
To improve decision making around urban forest management using robust data and best practice urban forest management

Canopy
To increase canopy and green cover across Camden, prioritising areas of low canopy and high vulnerability to urban heat

Communication
To engage and partner with the Camden community and other stakeholders on urban forest management

A range of actions and a monitoring and reporting plan for the next ten years have been developed to support this Strategy.

Contents

Part One

Introduction

Local governments around the world are focused on better management of nature in cities and urban areas. The pressure experienced due to climate change and Covid lockdowns have highlighted the importance of urban vegetation: trees, canopy, understory plantings, open space and greening, for the liveability of cities and urban areas and the health and wellbeing of the people who live there.

This Strategy has been developed to provide a vision, and a pathway to recognise the importance of the urban forest in Camden and identify the actions we will take to protect, enhance and support the urban forest.

Camden's urban forest is the trees and greening (and the ecosystems, soil and water that support them) that exist across the urban area, in spaces that are planned, designed and managed.

Vision Statement

In 2050 Camden's urban forest is thriving, mature shade trees are evident across Camden and canopy and greening is actively managed in partnership with the community.

What is an Urban Forest?

An urban forest refers to native or introduced trees and related vegetation in the urban and near-urban areas, including, but not limited to, urban catchments, soils and related habitats, street trees, park trees, residential trees, natural riparian habitats, and trees on other private and public properties. An urban forest is a managed system different to natural bushland or ecosystems.

Benefits of the Urban Forest

The urban forest provides multiple benefits not often well known by the wider community. The benefits of the urban forest cover:

Shade and cooling
Trees and other vegetation help to mitigate the Urban Heat Island Effect (UHI effect)[1]. Through the process of transpiration and the provision of shade, trees help reduce day and night-time temperatures. They provide shade to streets and footpaths, and their leaves reflect more sunlight and absorb less heat than built materials, reducing the heat absorbed by the built environment.

A sense of place and social cohesion
Trees and other vegetation define the character and identity of urban places. Access to trees in green spaces improves various measures of social cohesion and community connection by providing pleasant and healthy spaces for the community to interact and relax.

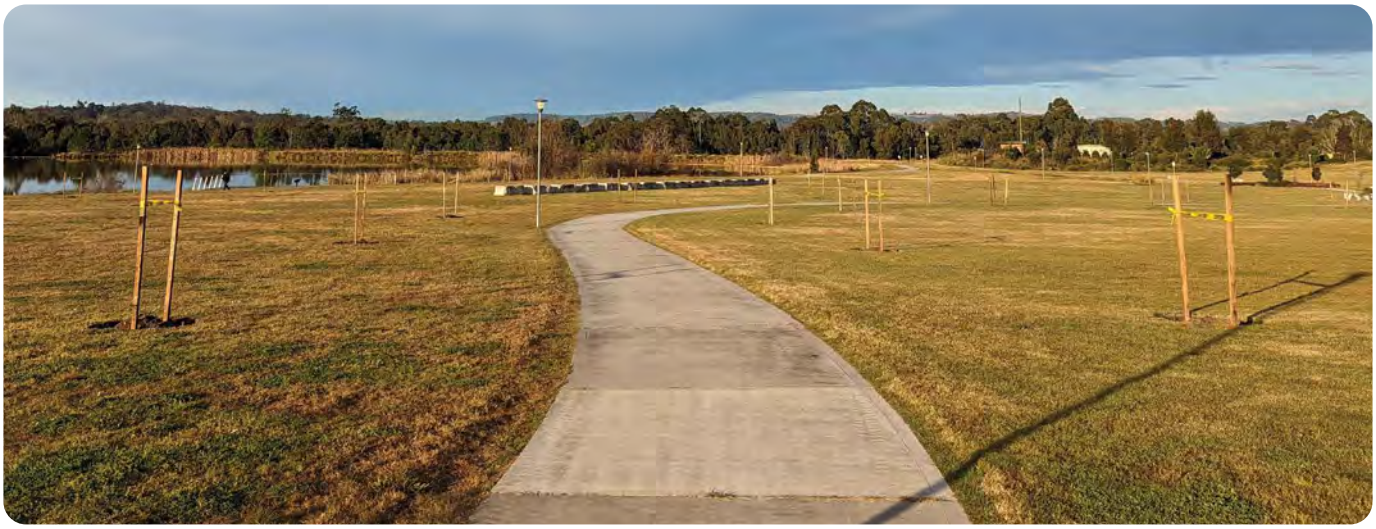
Human health
120 minutes of time spent in green space per week can significantly increase feelings of good health or wellbeing significantly for any age group. Increased urban vegetation is also linked to reduced levels of crime[2].

Healthier biodiversity
Urban forests support biodiversity by providing space for species to thrive and adapt. Biodiverse, complex, and connected plant communities in urban areas are vital to support biodiverse faunal communities and provide important connectivity to support biodiversity.

Reduced pollution
Trees and shrubs as part of a road buffer with good structure (understorey and canopy) assist in pollution reduction by reducing particulates such as PM2.5 and PM10[3].

A stronger economy
Trees and other vegetation significantly contribute to the economies of urban places by increasing property values and benefits, they add aesthetic values to properties, reduce expenditure on stormwater infrastructure services, reduce energy use and costs by improving passive cooling of built structures[4].

[1]Haider Taha, Heat Islands and Energy, Editor(s): Cutler J. Cleveland, Encyclopedia of Energy, Elsevier, 2004, Pages 133-143
[2]White, M.P., Alcock, I., Grellier, J. et al. Spending at least 120 minutes a week in nature is associated with good health and wellbeing. Sci Rep 9, 7730 (2019)
[3]Victorian Department of Heath (2021) Air pollution Department of Health, State Government of Victoria, viewed 30th June 2022 https://www.betterhealth.vic.gov.au/health/healthyliving/air-pollution
[4]Yenneti, K., Ding, L., Prasad, D., Ulpiani, G., Paolini, R., Haddad, S. and Santamouris, M., 2020. Urban overheating and cooling potential in Australia: An evidence-based review. Climate, 8(11), p.126.



Why is this Strategy important for Camden Council?

Canopy cover across the Camden LGA is consistently below the NSW State Government target of 40%. In 2019 areas within the LGA showed canopy levels as low as 2-3% with overall canopy coverage of just over 15%.

In June 2019, the NSW Government set priorities to increase the tree canopy and green cover across Greater Sydney by planting 1 million trees by 2022. The NSW Government committed to achieving 40% urban tree canopy cover for Greater Sydney by 2036.

As Camden is experiencing exponential population growth, higher than that experienced in any LGA in NSW, it is important that Camden acts now in order to achieve the ambitions identified in the Connecting Camden Community Strategic Plan 2022-2036 (CSP) and Local Strategic Planning Statement 2020 (LSPS). The CSP sets directions, objectives, strategies, and measures for progress to achieve the community's vision.

Camden is a connected, diverse, and thriving community, embracing opportunities of growth, while valuing our rich heritage and protecting and sharing responsibility for our natural environment.

The Camden community highly value the local rural and natural landscapes and have expressed concerns about increased urban heat resulting from growth and development. Investment in environmental protection, restoration and urban greening and maintaining, protecting, and increasing Camden's tree canopy are key objectives of the CSP to address the community's concern.

These objectives will be delivered through a range of strategies including Council's Sustainability Strategy 2020-2024, the Biodiversity Strategy 2023, the Greener Places, Healthier Waterways: A Vision for the Green and Blue Grid 2023, and this Urban Forest Strategy 2023.

Council has invested time and resources to increase canopy and greening and has been active in seeking additional grant funding and support from others to supplement the core Council programs.

Over the next two years, a further $1.3 million has been secured to continue increasing Camden's tree canopy. Funding has also been obtained through the WestInvest Community Grants program to deliver a community nursery facility that will significantly enhance opportunities for greening across the LGA.

As part of Council's continuing program to achieve a greener, cooler and liveable Camden, Council has developed this Urban Forest Strategy with funding support from NSW Department of Planning and Environment (DPE) under the Greener Neighbourhoods grant program. This Strategy will facilitate the realisation of a range of interconnected community goals and objectives within the CSP, LSPS, Sustainability Strategy 2020-2024, Biodiversity Strategy 2023, and Greener Places, Healthier Waterways: A Vision for the Green and Blue Grid 2023.

How was this Strategy developed?

This Strategy was developed in five stages (Figure 1) with a focus on understanding the context for urban forestry within Camden as a first step. The evidence gathered across stages one and two formed the basis for the strategic framework which includes a long-term vision and outcomes, strategic objectives, and major actions.

Stages one and two were spent in review of current documents and data. Available data on tree canopy, greening and the community were reviewed and analysed to understand the current state of the urban forest for Camden as well as the current community vulnerabilities and the changing community with future development pressures.

An assessment of the capacity of Council to deliver best practice and contemporary urban forest management was also completed. This provided valuable insights into the areas where we can focus our attentions to build capacity across skills and knowledge, project delivery and processes and policy. A community survey around perceptions and values of the urban forest completed these stages.

In stage three, the focus was on working with staff to create the structure of the Strategy, its vision, outcomes, and strategic objectives. These were based on the key challenges and pressures for the urban forest and feedback from community and Council staff from stage two.

The final stages (four and five) were focussed on developing actions and measures to support monitoring and reporting of achievements under this Strategy.

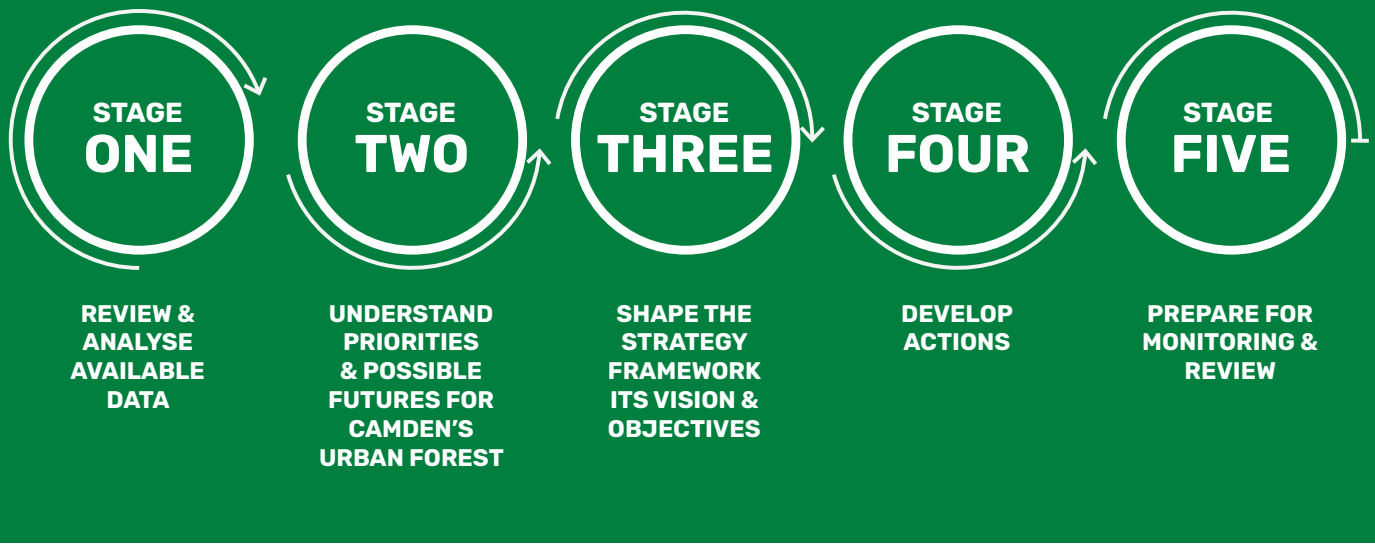
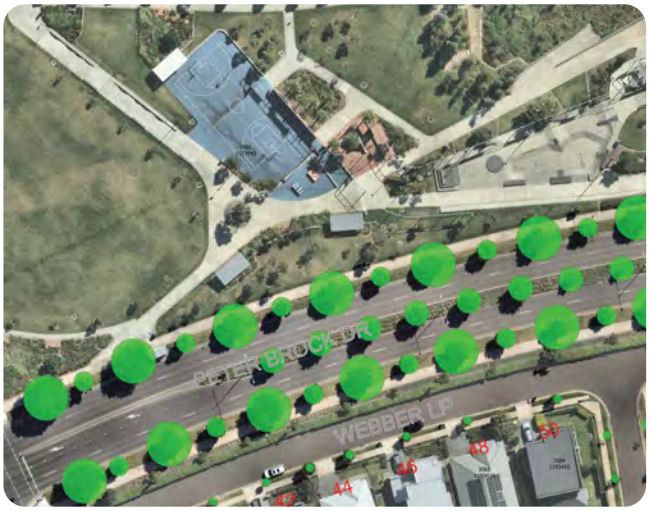


Figure 1
Stages of development for the Urban Forest Strategy



About data and canopy targets for Camden

Data and evidence are two major elements of an Urban Forest Strategy. The NSW Government's Greener Neighbourhoods Guide provides a range of examples on best practice in managing data and evidence for urban forestry, which includes:

- Access to scientific data and policies on the urban forest that are shared amongst departments
- Ability to analyse and predict the changes in urban forest due to climate change, natural changes or management changes
- Live database (comprehensive tree inventory);
- Learning culture linked with industry and local research activities
- Comprehensive Strategy for managing and assessing risks associated with urban forestry
- Proactive and adaptive organisational capacity for decision making based on data and evidence

Urban canopy is influenced by many challenges and barriers. For best practice, gathering data and evidence is key however challenges for Council include:

- Costs of tree inventories, mapping and data maintenance
- Limited understanding of ecosystem service concepts (climate change, water, soils etc)
- Limited resources available

Canopy targets can be a useful way to achieve an increase in healthy urban forest that support and enhance communities' quality of life and resilience to climate change. Previously, Council has set a target to increase its canopy by 25% by 2024 and to align longer term canopy with the NSW Government 40% targets.

Current canopy targets and measures

15% 2019

In 2019 Camden's overall canopy coverage was 15%

Canopy cover across the Camden LGA is consistently below the NSW State Government target. In 2019, areas within the LGA showed canopy levels of the 2-3% and overall canopy coverage of 15%.

25% 2024

Increase tree canopy by 25% by 2024

Council's Sustainability Strategy 2020-2024 is a four-year plan to bring together actions Council will implement to work towards creating a sustainable Camden. The Strategy adopts a target to increase tree canopy cover by 25% by 2024 to progress Camden towards 40% urban tree canopy cover by 2036.

40% 2036

40% urban tree canopy by 2036

In June 2019, the NSW Government set priorities to increase the tree canopy and green cover across Greater Sydney by planting 1 million trees by 2022 was established. The NSW Government committed to achieving 40% urban tree canopy cover for Greater Sydney by 2036.

Setting and achieving canopy targets is more complex than simply planting more trees. There are multiple elements that effect the growth of canopy and urban forest management. Often targets are unrealistic, untested and are linked to various other factors. Figure 2 represents several factors to consider while setting urban canopy targets.

While we have invested significant time and resourcing into urban tree and canopy management, and although thousands of trees have been planted in recent years, the 2024 canopy target will not be reached. This is partly due to the time required for trees to grow and mature.

This Strategy uses a range of measures to monitor the achievement of a healthy and thriving urban forest and urban canopy as we work towards the 40% canopy target. It applies a place and land use-based approach to monitoring improvements and will rely on improved data collected at the local and LGA-wide scale and establish realistic and locally relevant targets to drive further canopy gains over time.

This Strategy uses a range of measures to monitor the achievement of a healthy and thriving urban forest and urban canopy cover. It applies a place and land use-based approach to monitoring improvements and will rely on improved data collected at the local and LGA wide scale to establish realistic and locally relevant targets to drive further canopy gains over time.

Elements that influence canopy targets

- Are there sufficient resources to deliver and manage the target or are there limitations?
- Existing canopy cover, based on an analysis of spatial data.
- Capacity of specific land uses/types such as private land, streets and parks to deliver canopy.
- Geographical and climatic limitations: Some climates and places support more canopy than others.
- The timeframe for delivery of the canopy, ideally linked with other Council Strategies.
- Bureau of Meteorology data including annual rainfall.
- Australian Bureau of Statistics data including population density.
- The minimum canopy cover requirements for social, community or health outcomes, based on current research.
- Desired canopy cover: the percentage of canopy you hope to achieve and how to get there.

Figure 2
Elements that influence canopy targets (Greener Neighbourhoods Guide, NSW)

What are we already doing?

Over recent years, many projects have been implemented to not only increase tree canopy cover, but also to improve the management of our urban forest.

Partnerships
Council has also partnered with a range of organisations to undertake tree planting projects delivering significant plantings at John Oxley Reserve, Ron Dine Reserve, Rossmore Reserve and Burrell Road Reserve with more projects already planned for delivery.

Tree Planting Activities
Since 2021 over 27,000 trees have been installed within streets, parks, reserves, and natural bushland areas. The plantings are achieving improved amenity of highly valued community facilities, streetscapes, parks, and reserves and have potential for significant gains in canopy cover and urban heat reduction as the canopy continues to mature.

Council has been successful in gaining funding under the NSW Government's Greening our City Program for seven separate projects. This has seen the installation of more than 6,000 trees into the urban forest throughout 2020-2023 with an additional 2,070 street trees to be installed in 2023-24, and a further 3,000 trees into reserves to create a micro-forest carbon sink providing dense canopy and cooling benefits.

The program also included establishing a seed orchard of Camden White Gums at Elizabeth Macarthur Reserve. Fifty Camden White Gums were also planted at Ferguson's Land Cricket Facility. These genetically diverse trees will help to ensure the survival and resilience of this threatened species and will be maintained and monitored through a partnership under the Saving our Species program.

Building Community Support
Council's successful Love Your Tree program recognises members of the community that pledge to adopt a public tree. So far 300 residents have signed up, with participants receiving a care package including a Love Your Tree bucket, gloves, a native shrub for their own garden, information on how to love their tree, and a certificate to recognise their commitment.

Each year Council gives away native plants to schools, preschools and the community as part of our celebrations for Schools Tree Day, Picnic in the Park and at various events and workshops. In 2022 eight schools and twenty-seven pre-schools were provided with 20 native plants to install and increase green cover for habitat as part of Schools Tree Day.

Improving Data Management
Trees are often thought of as static elements in the landscape; however they are living organisms with a lifecycle and their wellbeing is dependent on a range of environmental factors and requirements including human intervention. Council is investing in improving data management capabilities to facilitate building a quantifiable tree inventory to better manage these assets now and into the future.

Camden Community Nursery
Council was successful in its application for $4 million under the WestInvest Community Project Grants program to build a community nursery at Smeaton Grange. The nursery will focus on the propagation of local native species and significantly enhance Council's capacity to deliver urban forest and urban greening projects into the future.

Part Two

Camden Context

Camden Council is the fastest growing Local Government Area in New South Wales, with the population forecast increase from 119,951 to more than 240,000 by 2036.

The Camden LGA covers a total land area of about 200 square kilometres, bounded by Liverpool City Council in the north, Campbelltown City Council in the east, and Wollondilly Shire Council in the south and west. Camden is a dynamic urban place which is defined by its unique history, rural backdrop with many opportunities presented by urban development and population growth. As a rapidly growing area containing a mix of agricultural land, country towns and villages, new residential areas, commercial and industrial development and in the context of a new airport (Western Sydney Airport), the Camden LGA offers unique opportunities for investment.

Camden LGA's population is expanding exponentially, and the diverse community still benefits from a rich cultural and rural settings with cafes, growers' markets, galleries and facilities set amongst the natural environment, with busy retail, industrial and commercial hubs spread across the LGA. Council is effectively balancing this new urban growth with the existing semi-rural country feel by providing people with the option to enjoy both urban and rural lifestyle.

Trees, shrubs and groundcovers are an essential aspect of urban areas, providing important social, economic and environmental benefits to the landscape and the community. Council manages the urban forest that includes over 50,000 street trees and over 70,000 park trees, plus gardens in streets, parks and town centres.

Council and the NSW government have made commitments to increase tree canopy through various programs. With the increased and rapid development pressure in the LGA, there is a need to ensure the urban forest is well planned and managed so that it contributes to a liveable city and the wellbeing of the community.

Strategic Context

This Urban Forest Strategy sits under a number of important strategic documents and is the link between the longer-term strategic desires and the operational delivery of urban forest actions.

Camden's urban forest is protected and managed through a framework of state and local laws, policies and programs. The documents and strategies that guide and influence Camden's urban forestry are shown in Figure 3.

Camden is a part of the Western Parkland City vision of Metropolis of Three Cities. The Greater Sydney Green Grid is the fundamental element for amenity across the Western Parkland City with a vision for a city that is landscape-led. The vision relies on increased tree canopy cover to provide shade and shelter for walkable neighbourhoods, prioritising the value that the South Creek corridor provides. Camden is expected to experience the highest increase in population in the Western Parkland City with strong growth across all age groups.

This Strategy is set to respond and achieve the goals of Camden's local planning documents, strategies, and plans. In the CSP, the objectives and strategies for a balanced Camden include actions to maintain, protect and increase Camden's tree canopy (B1.2) and to invest in environmental protection, restoration and urban greening (B1 .1).

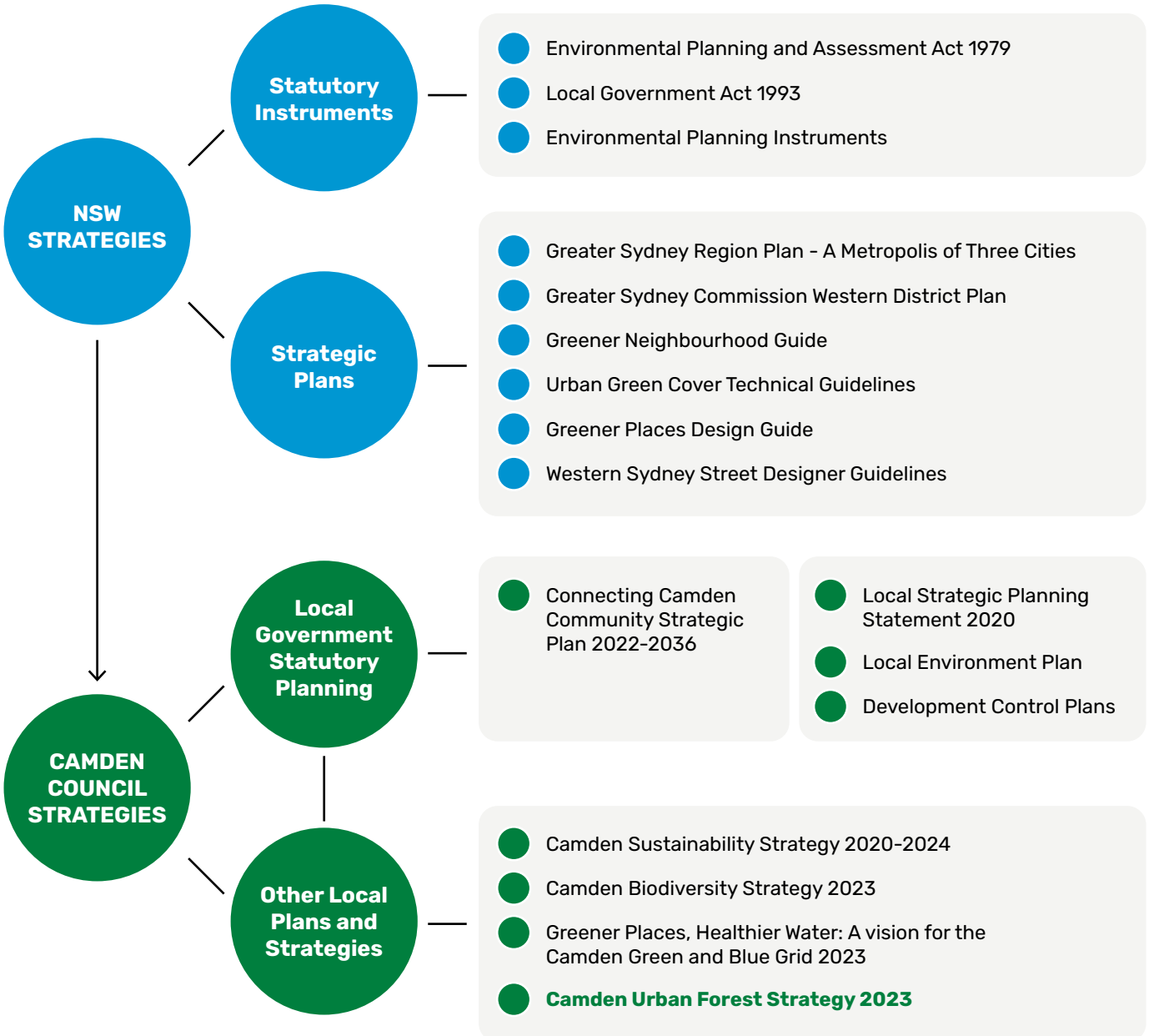


Figure 3
Strategic context of Camden's Urban Forest Strategy

Community Views

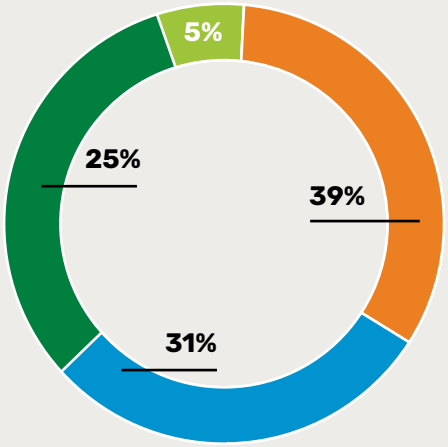
As an important step in building the capacity of the community to assist with management of the urban forest, Council asked the community about the urban forest and its importance in early 2023 through an online survey and engagement tools.

Overall response
Overall, the community views on the urban forest across all contributions were positive and insights from the feedback include:

- Community Strongly Agree to the various values and benefits of trees
- Community Strongly Agree that there should be more urban forest (86%) and it needs to be protected (74%)
- Community Agree that they need to be engaged in urban forest management in their neighbourhood (50%)
- Close to half the respondents do not feel their streets are shady.
- Incentives to plant trees and information and advice are needed to encourage people to plant trees on their property.
- Community is unsure if the urban forest is well managed and maintained (32%).

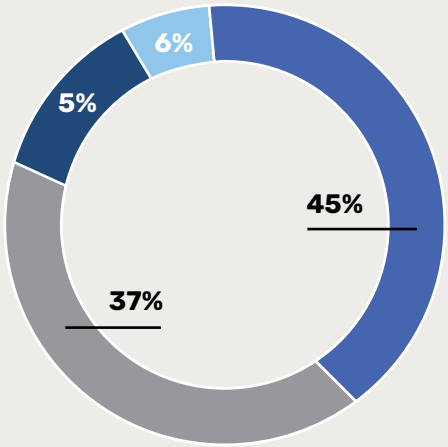
What do people like about street trees and urban forest?

- Creates cooler places
- Good for mental health
- Attracts wildlife
- Provide cooling on hot days
- Provides shade and greenery
- Adds value to neighbourhood
- Aesthetics
- Connects to nature
- Visual Value to streets



Trees on Streets:
(Community Description)

- THERE ARE TREES ON EVERY STREET
- THERE ARE TREES ON MOST STREETS
- THERE ARE TREES ON SOME STREETS
- THERE ARE NO OR FEW TREES



On a hot summer's day, my street is...

- SHADY IN PARTS
- NOT SHADED AT ALL
- NOT SO COOL & LEAFY
- COOL & LEAFY

What would encourage community to plant trees?

- Free trees
- Information on suitable trees
- Advice on planting
- Discounts/vouchers
- Advice on planting locations

Camden's Urban Forest Today

In order to develop a Strategy for improvement, it is important to understand the current state of the urban forest.

An analysis of the following data has been undertaken to understand the current state of the urban forest across Camden.

Available data used for the assessment of the urban forest included:

- Basic land information including land ownership, property, road, footpaths and other;
- Future development and population data
- Walking, cycling and fitness trails
- Spatial layers of possible tree obstructions (streetlights)
- Greater Sydney Region Tree Canopy to Modified Mesh Block 2019 (DPE)
- Greater Sydney Region Urban Vegetation Cover to Modified Mesh Block 2016 (DPE)
- Social data (ABS) including the SEIFA index, and human health and heat vulnerability indicators

The maps and information provided in this document use this data with Figure 4 providing an overview of the current tree canopy cover (DPE 2019) for the LGA. This information combined with available datasets helps to identify areas where urban forest action is most needed and where action could be targeted as part of the implementation of this Strategy.

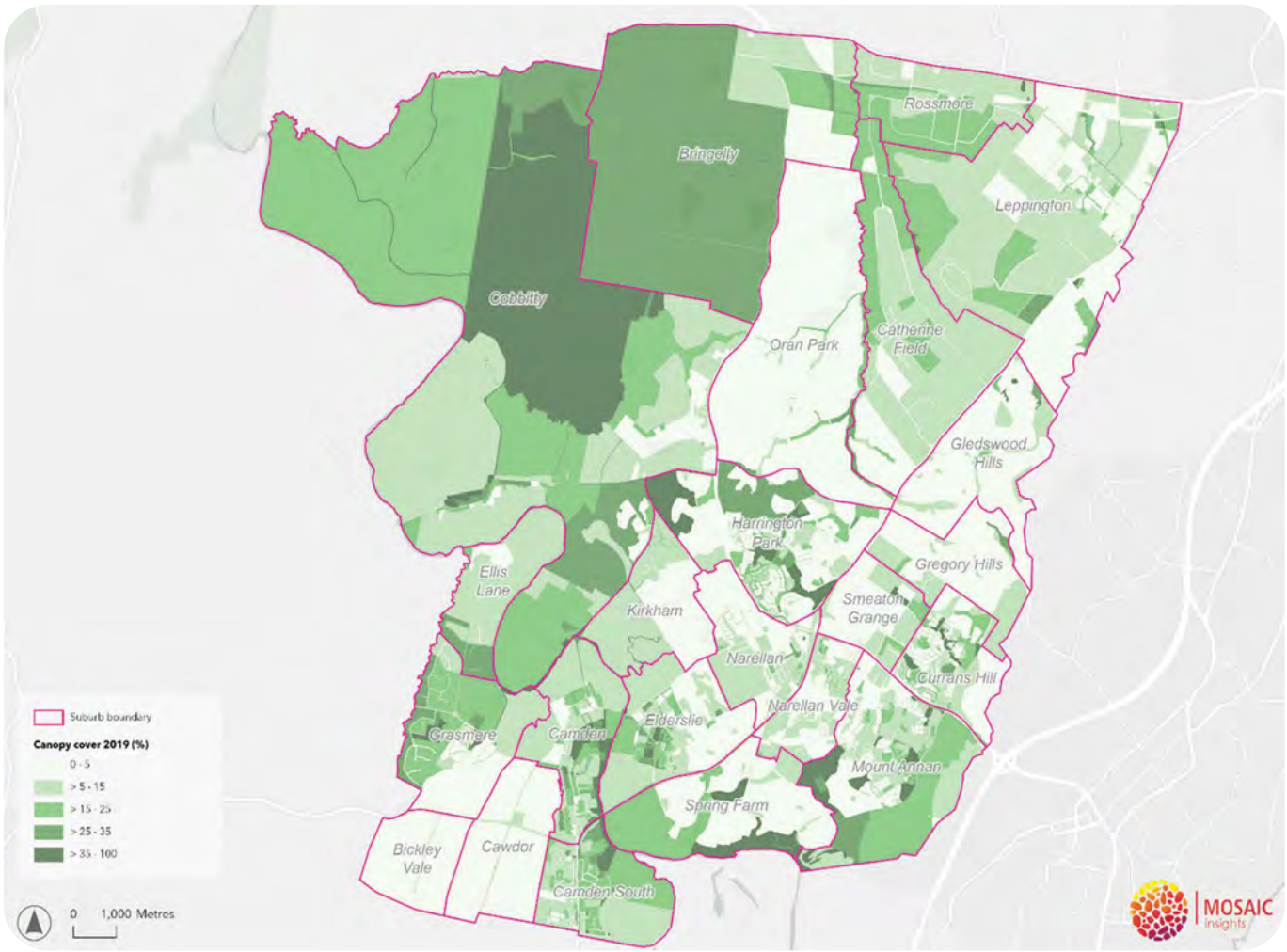


Figure 4
Camden's tree canopy cover to Modified Mesh Block (DPE, 2019)

Canopy Analysis

The current canopy and change in canopy for Camden was assessed using the NSW Government's SEED canopy data for 2016 and 2019. Canopy cover and change in cover was assessed at the LGA level and suburb scale. Analysis included whole suburbs as well as canopy cover over different land uses.

The canopy analysis for Camden shows that:

- The 2019 canopy cover was 15.28%.
- New greenfield suburbs such as Gledswood Hills and Oran Park have very low overall canopy coverage in 2019. This is due to age of plantings and has not taken into account the future canopy from extensive plantings being undertaken in these new residential development areas
- Rural and agricultural suburbs, such as Cobbitty and Bringelly have the highest canopy coverage (25.6% and 26.5% respectively) in 2019 however these areas are likely to experience significant development in the coming years that will cause pressure on its existing canopy
- Open space has cover ranging from above 30% to below 5%. There are large areas of open space with canopy under 5%, noting that the data did not separate sports fields from other open space

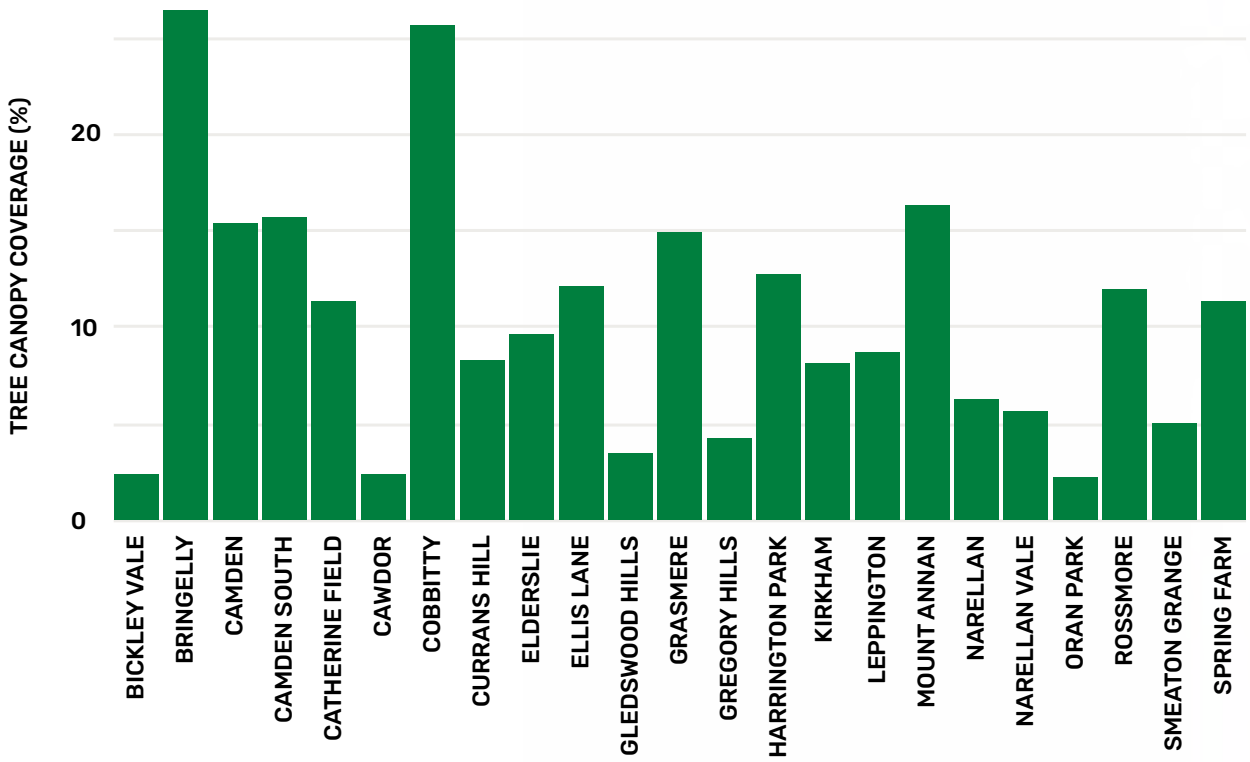
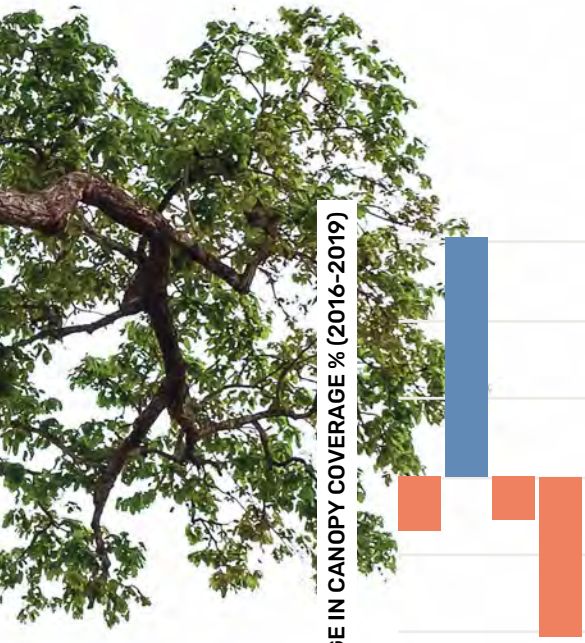


Figure 5
Tree canopy coverage (%) across suburbs (DPE, 2019)

- Most suburbs saw a decline in canopy coverage between 2016 and 2019, except for Cobbitty and Bringelly
- When considering the LGA as a whole, street canopy coverage is very low (6.1%), this canopy percentage (%) reflects the low capacity for canopy on major roads and transport corridors which are outside of Council's control

Figure 6 represents the change in canopy from 2016 to 2019. Rossmore is observed to have the highest negative canopy growth in the LGA with a 10% decrease over this period of time.

Other significant decreases were identified in Camden South, Catherine Field, Harrington Park, Leppington and Narellan Vale. Only two suburbs, Cobbitty and Bringelly, were observed to have an increase in canopy cover throughout that period.



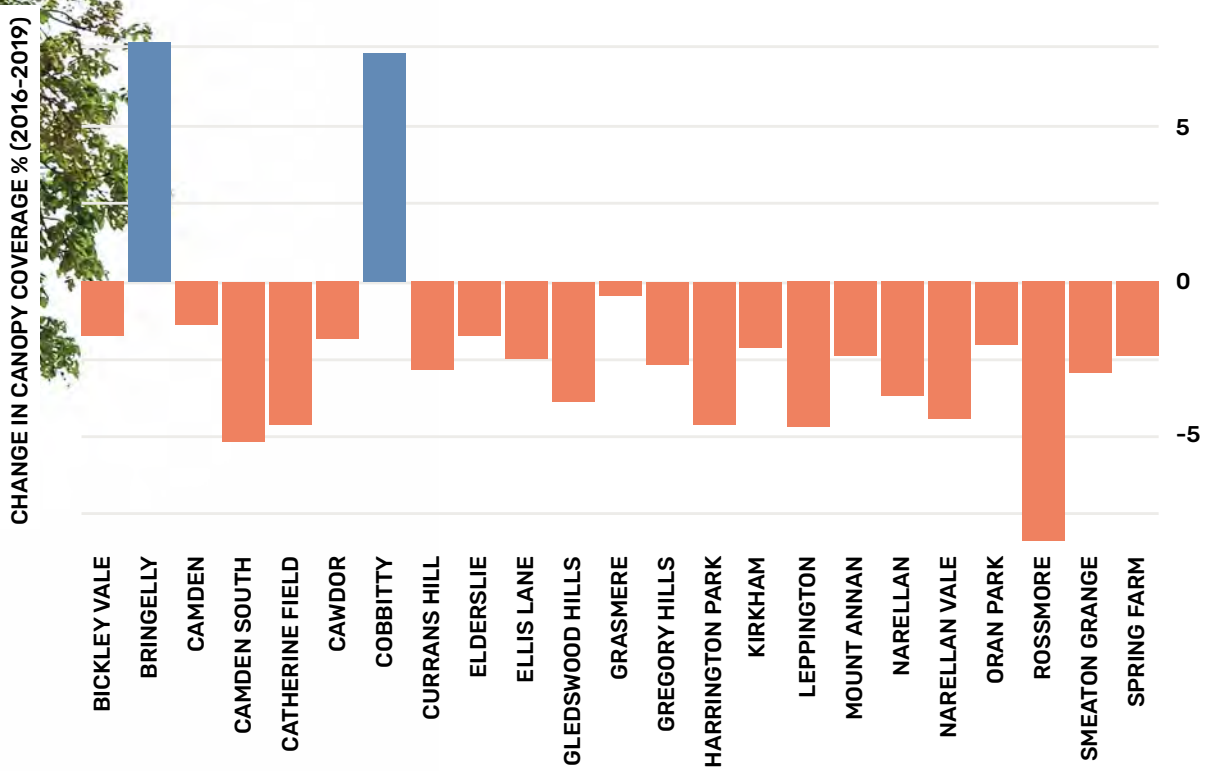


Figure 6
Change in canopy coverage by suburbs (2016 to 2019)

Heat and Vulnerability

As one of the significant climate change hazards for Camden, it is important to understand where the community is most vulnerable to the impacts of urban heat. The most recent Heat Vulnerability Index (HVI) data available is from 2016 which is likely not reflective of community vulnerability to extreme heat in new, rapidly developing suburbs (e.g. Oran Park). New SEIFA indices (a component of the HVI index) will be released later in 2023, allowing community vulnerabilities to heat to be characterised in growth suburbs.

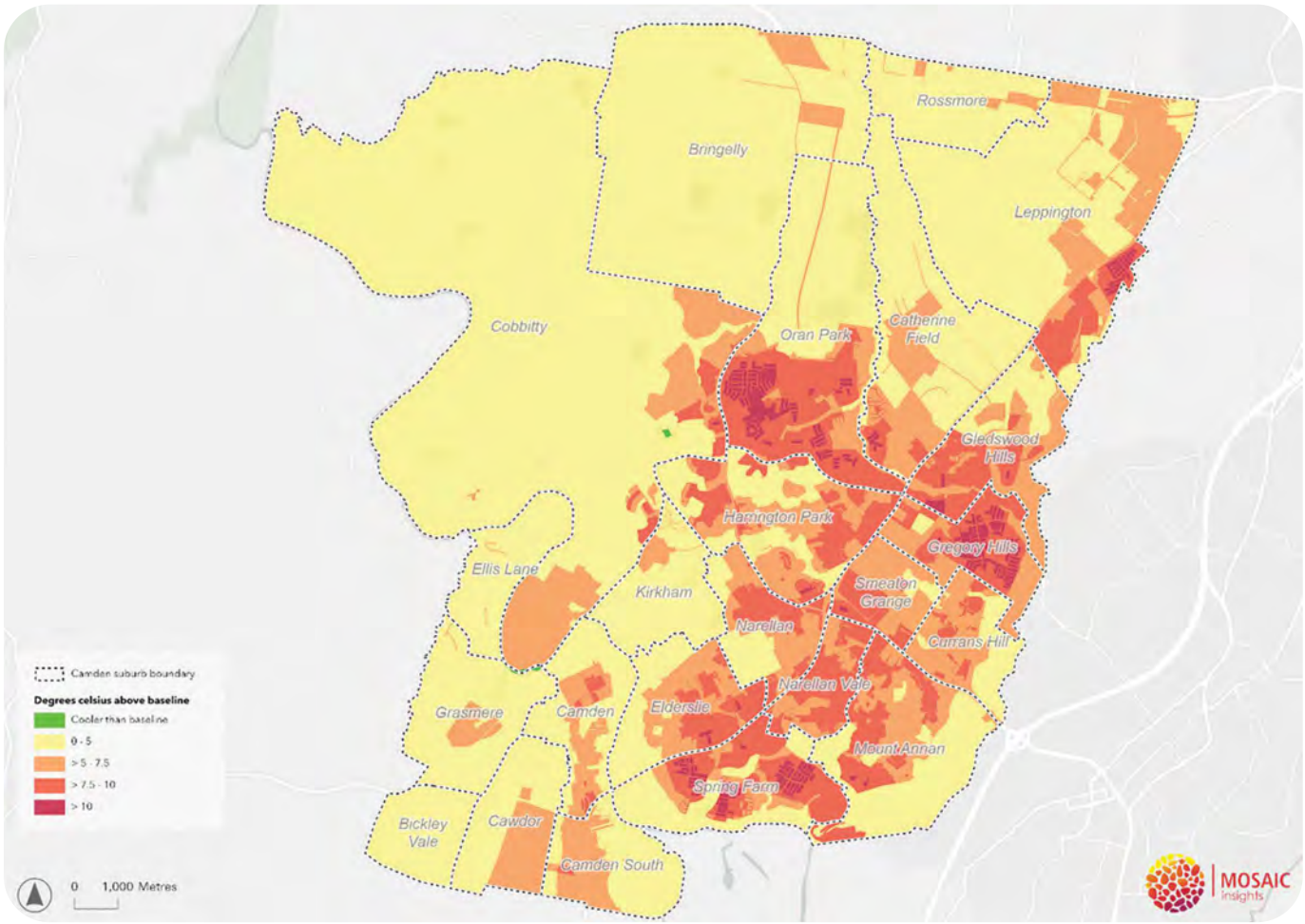


Figure 7
Urban Heat Index across Camden LGA (DPE, 2016)

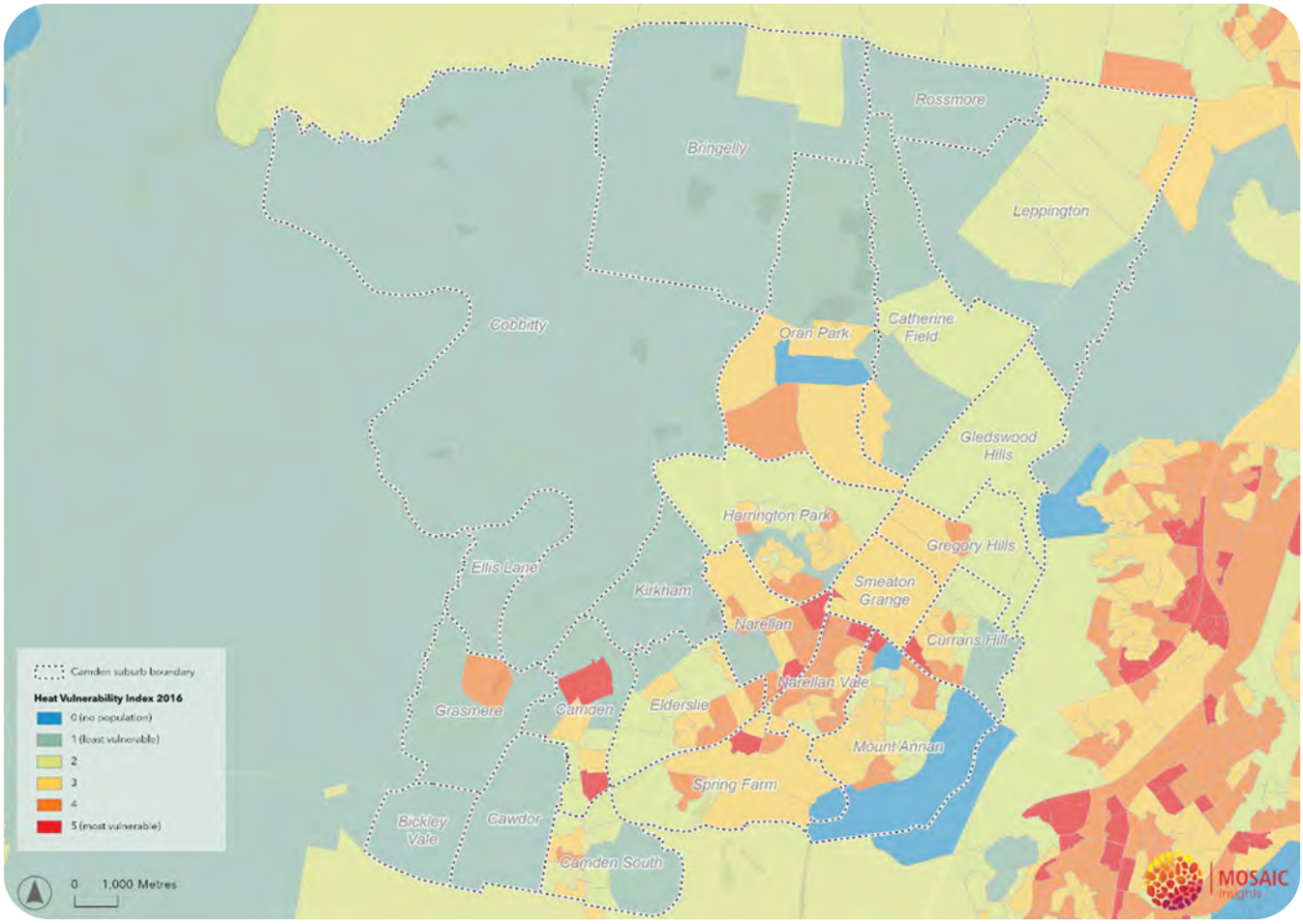


Figure 8
Heat Vulnerability Index across Camden LGA (DPE, 2016)

Analysis of available data on current canopy and urban heat vulnerability (Figure 7 and 8) found that:

- Urban Heat Island (UHI) effects are most pronounced in blocks within new residential developments (Oran Park, Gregory Hills, Spring Farm), with peak summer temperatures recorded of over 10 degrees Celsius above baseline in 2019
- Older, established suburbs with higher tree canopy coverage (like Camden, Mount Annan and Elderslie) appear to have less pronounced UHI effects, with residential areas recording peak summer temperatures 5-10 degrees Celsius above baseline
- Suburbs such as Cobbitty, Bringelly and Bickley Vale recorded negligible to small UHI effects.
- The centre of the suburb of Camden is notable for its residents having the highest vulnerability to extreme heat, as do pockets of older suburbs such as Narellan, Narellan Vale and Spring Farm
- Open space with high canopy coverage can act as refuges from urban heat
- Spring Farm, Harrington Park, Mount Annan, Camden and Camden South contain well-shaded community areas within their boundaries
- Spring Farm, Oran Park, Gledswood Hills and Gregory Hills are notable for their absence of cycleways in the newer residential areas, except along unshaded main roads around the periphery
- Canopy cover over streets is very low (6.1%) making cycling and walking less desirable especially in the summer months

Urban heat and climate change will also have an impact on the vegetation that will thrive and survive as temperatures rise.

Key Pressures and Challenges

Urban forests face multiple pressures and challenges. Climate change, population increase and urbanisation, limited availability of urban forest data, organisational capacity, variable community support for the urban forest and resources to manage urban forests all contribute barriers to the growth and health of Camden's urban forest. The strategic objectives of this Urban Forest Strategy were formed to respond to each pressure and challenge faced by Camden Council and community.

Pressures

Climate change is increasing the frequency, severity, and duration of extreme weather events including heatwaves, droughts, floods, bushfires and storm events. Each of these hazards poses a significant threat to trees and other vegetation.

Research undertaken by the School of Ecosystem and Forest Science at the University of Melbourne (2016) found that in addition to these hazard related impacts the urban forest is also vulnerable to ongoing and gradual impacts of climate change associated with increasing temperatures.

Even under a moderate warming scenario there are likely to be many existing species that will no longer be considered suitable[5] for Camden's climate.

At the same time, Camden is forecast to increase from the current population of 119,951 to more than 240,000 by 2036. This exponential rise in population and associated development is causing pressure on the existing land and resources.

The space needed for trees is compromised for development purposes and for other conflicting priorities such as line of sight requirements from pedestrian crossings and street intersections, footpath width requirements and parking.

Challenges

Organisational capacity and complexity of needs often hinder the delivery of best practice management and maintenance of urban forests. The leadership and management of the organisation (having the right skills and knowledge, decision making processes, reporting and continuous improvement), the availability of good data and analysis, sound engagement with community and others and the clear planning needed for a thriving urban forest are all essential in managing and delivering best practice urban forestry.

Managing the development pressures and responding to development that is often outside of the control of Council is a significant challenge and one faced by most local governments across NSW. Integrating urban forestry outcomes (trees, understorey plantings, water sensitive urban design and soil health) into all areas of Council challenges the status quo. Institutional barriers to change can be significant challenges to implementing a best practice Urban Forest Strategy.

Limited resourcing is often listed as the largest challenge to the delivery of best practice urban forestry. While lack of funding can be a significant barrier, resourcing is also best considered in a broad context to include funding, staff numbers and time allocated to urban forest management, the availability of evidence and data and the ability to analyse it.

Limitations

This Strategy relies upon information from 2016 and 2019, however due to the growth being experienced within the Camden LGA there are limitations of this data. The release of the 2022 Greater Sydney Canopy Dataset delivered from the NSW Department of Planning and Environment, expected in 2023, will provide more detail enabling further review particularly areas to target for future planting programs.

[5]Kendal and Baumann, 2016, The City of Melbourne's future urban forest: identifying vulnerability to future temperatures, Report to the City of Melbourne

Priority Areas for Urban Forest Enhancement

An analysis of the available data has identified the following areas as worthy of focus for increasing canopy and improving the urban forest. Figure 9 highlights areas of Camden that have high heat vulnerability and socio-economic disadvantage while also having canopy cover of less than 10%. These areas should be considered as a priority for the delivery of projects that will increase tree canopy coverage.

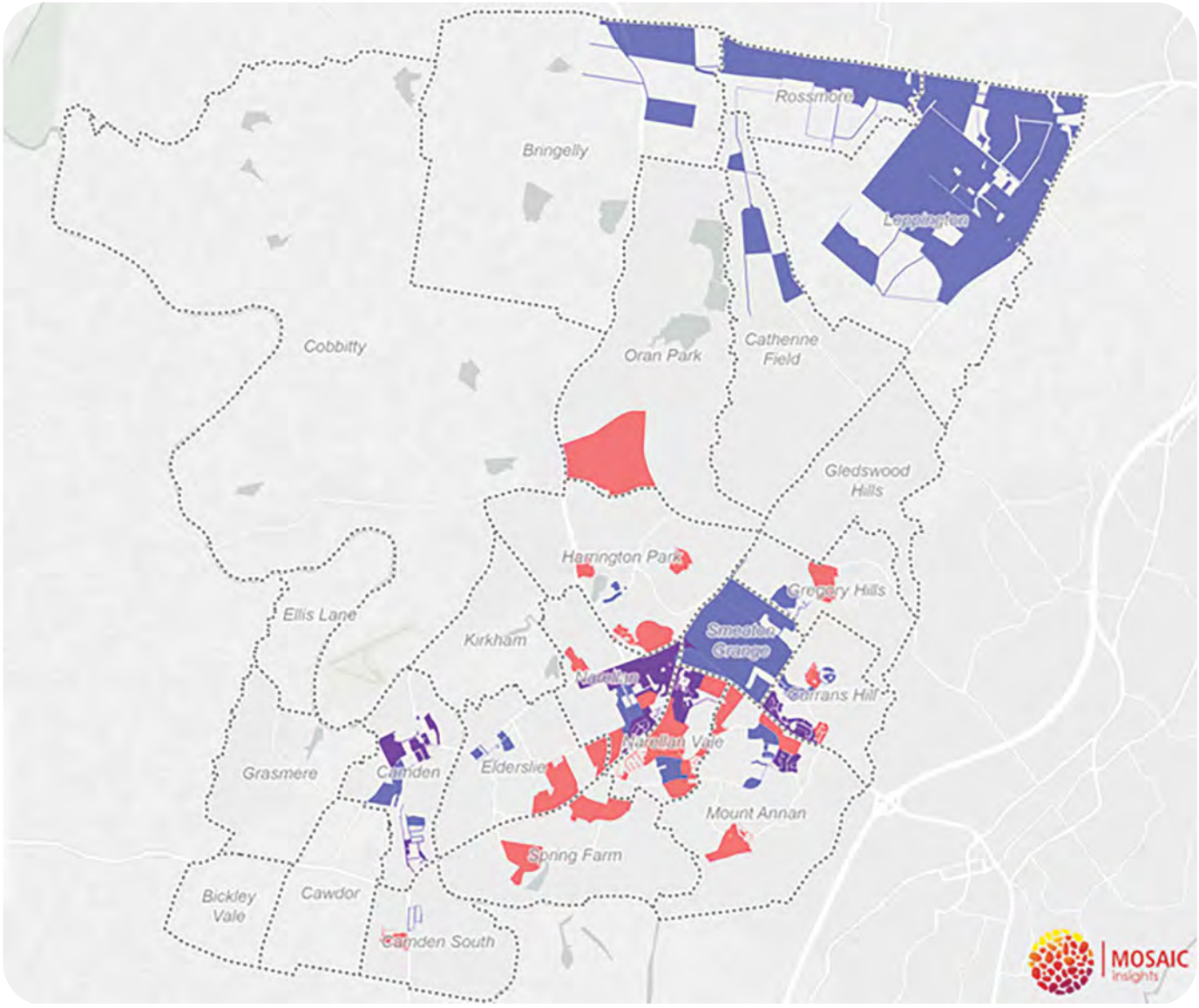


Figure 9
Areas of Camden that are most vulnerable to urban heat

- Suburb boundary
- HVI 4-5 (2016) and canopy cover <= 10% (2019)
- SEIFA state decile 1-5 (2016) and canopy cover <= 10% (2019)
- SEIFA state decide 1-5 and HVI 4-5 and canopy cover <= 10%

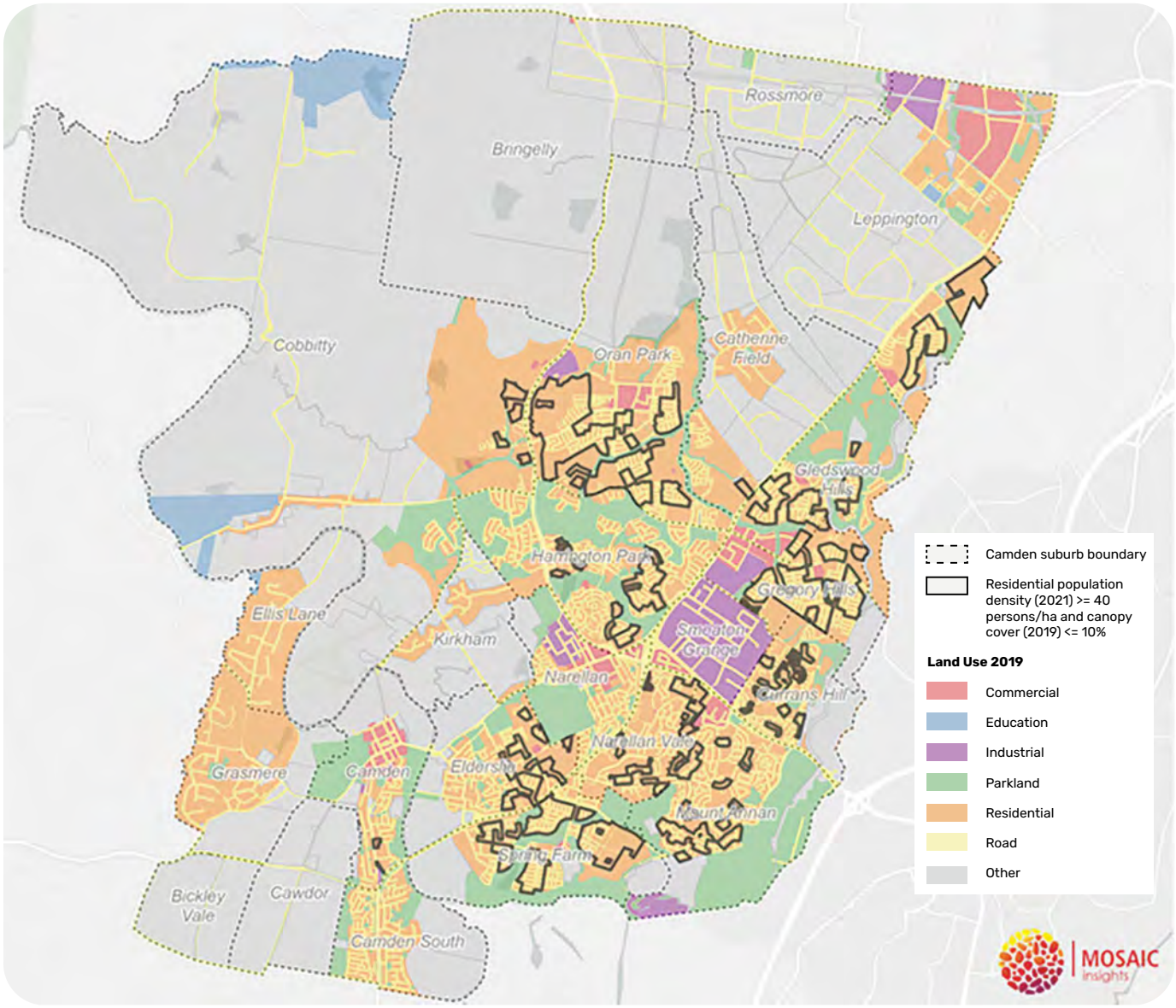


Figure 10
Camden land use and residential areas showing low canopy (<10%)

- Areas in red show communities that have a high proportion of residents vulnerable to urban heat and existing low canopy over (<10%) including areas in Oran Park, Harrington Park, Gregory Hills, Narellan and Narellan Vale, Currans Hill, Mount Annan, Camden, Camden South and Elderslie
- Areas in light purple show communities that experience highest socio-economic disadvantage combined with low canopy cover (<10%) including areas in Leppington, Catherine Field, Gregory Hills, Smeaton Grange, Narellan and Narellan Vale, Currans Hill, Mount Annan, Spring Farm, Camden South and Elderslie
- Areas in purple show communities with both high vulnerabilities to heat and socio-economic disadvantage with existing low canopy (<10%) including parts of Narellan, Narellan Vale, Currans Hill, Mount Annan and Camden

Further analysis and consideration of this data is required in the development and implementation of projects to ensure that local characteristics and any recent changes in land use and canopy cover are considered.

Given the increased population and associated development it will be important for Council to focus attention on continuing to improve the urban forest outcomes particularly in new development areas.

Figure 10 highlights the residential areas of Camden that have the lowest canopy (<10%). Some of these areas are newer developments and so canopy cover in 2019 will not be as evident as it may be now or will be in ten years e.g., Oran Park. This data is helpful to identify priority areas where Council knows there has been no active tree planting in the past five to ten years e.g., in older suburbs.

Figure 11 shows the tree canopy coverage by land use in Camden. The lowest tree canopy cover is observed in lands zoned commercial, industrial and roads with around 5% canopy cover, while the highest canopy cover is observed in education zones and in parklands with above 20% canopy cover.

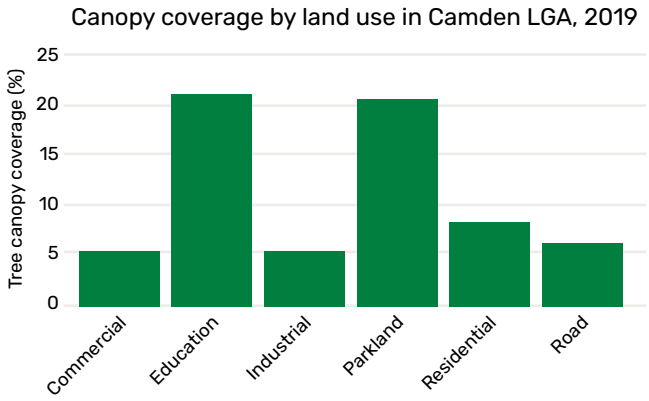


Figure 11
Tree canopy by land use (DPE, 2019)

Council Capacity

To achieve best practice urban forestry, it is important to understand where Camden has high capacity to deliver urban forestry outcomes as well as the areas needing improved management approaches.

Figure 12
Themes of best practice urban forestry to guide the Camden capacity assessment

Governance, Data, Engagement and Targets

Camden Council's capacity for urban forestry was assessed using a capacity assessment framework and tool informed by the NSW Government's Greener Neighbourhoods Guide; Urban Green UP's Nature based solutions decision support tool developed by Thami Croeser, and the CRC for Water Sensitive Cities Transition Dynamics Framework.

The assessment consisted of four main themes and seven subthemes (Figure 12) with success in each theme including:

- **GOVERNANCE AND LEADERSHIP**
  A learning and innovation culture exists and is supported by formal policy and day-to-day behaviours. There are performance plans in place that support collaboration and integration.

- **ENGAGEMENT**
  There is a strong track record of successful engagement processes and participatory decision-making for complex urban issues. There is in-house, expert support for engagement of stakeholders.

- **GOALS AND TARGETS**
  Clear drivers exist which are formal and well described for both public and private land. Relevant statements are included in the CSP and LSPS. There are corresponding objectives in the Delivery Program (DP), Operational Plans (OP) and budgets of several teams across Council. Management are driving better practice and participate at key stages in decision- making and planning.

- **DATA AND EVIDENCE**
  There is a wealth of data and information available across disciplines and the organisation to enable and inform decision making and management.

- Council's capacity in relation to the four themes of best practice urban forestry was assessed to be at the beginner level. This information has been used to help set the objectives and actions that will focus attention on the areas of concern and drive improvements in the management of the urban forest.

Part Three

3

Strategy

The Camden Urban Forest Strategy 2023 will guide action by Council, the community and others to deliver improved urban forestry to public and private landscapes across the Camden LGA.

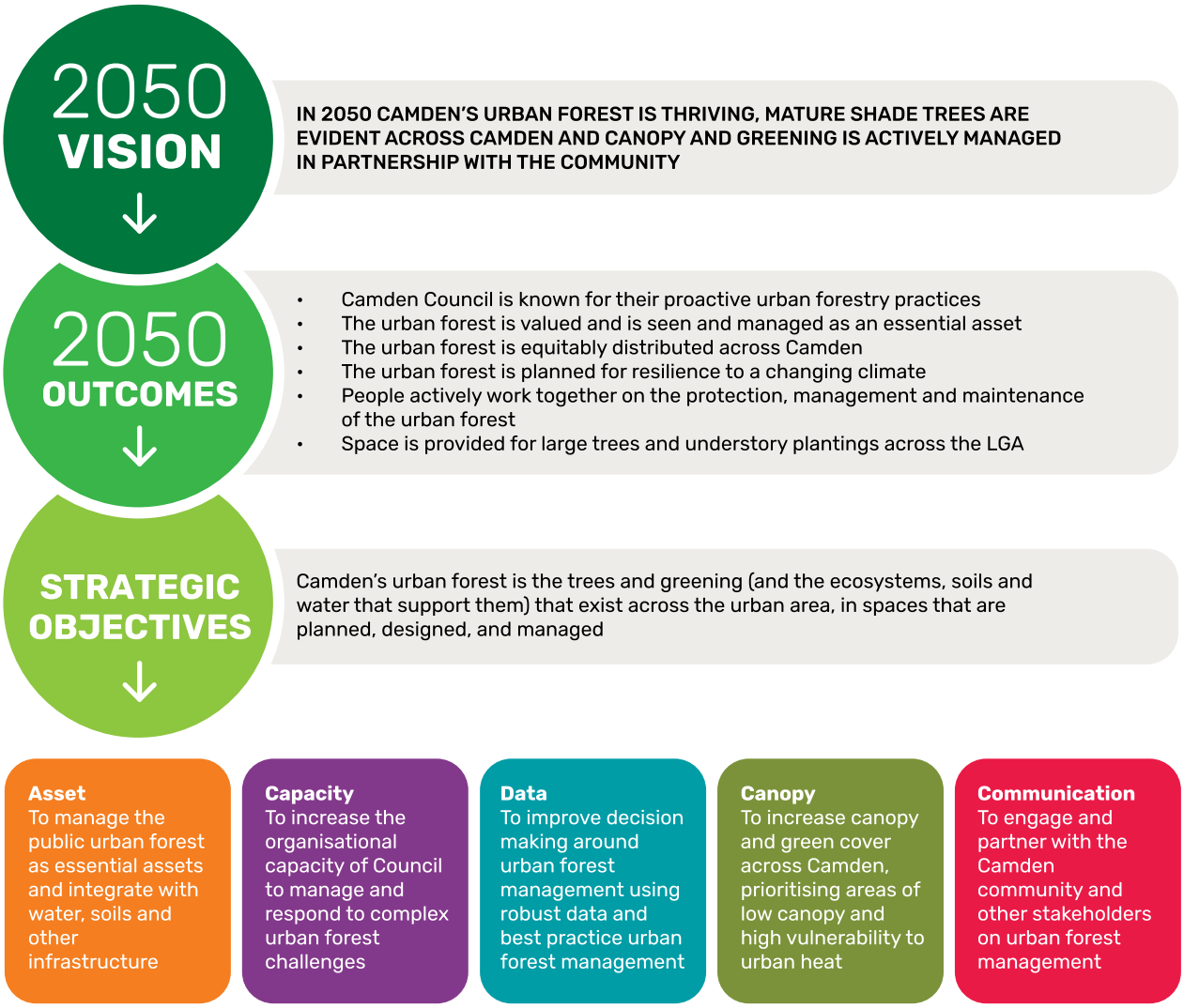
Camden Council has gathered available evidence about the urban forest and Council's own capacity to deliver best practice management. This evidence has influenced the Strategy, its long-term vision and outcomes, the strategic objectives, and major actions.

Strategic Framework at a Glance

Camden has set a long-term **vision** to 2050 for this Strategy in the knowledge that it takes more than ten years to achieve the outcomes desired.

There are six **outcomes** that will determine if Camden has achieved its vision for a thriving urban forest. They are statements to guide efforts by Council and the community in managing and growing the urban forest. They provide a link to the strategic objectives and a structure for long-term reporting on indicators.

The five **strategic objectives** will guide activity and actions by Council and their partners around the protection, enhancement and growth of the urban forest. The objectives respond to the current challenges and pressures faced by the urban forest in Camden in 2023. They are designed to be revised within five years.



Part Four

4

Action Plan

Purpose
Council has committed to creating a healthy urban and natural environment and improving sustainability. This action plan details the various activities Council plans to undertake through the next five years and beyond, to recognise the importance of the urban forest in Camden and identify the actions we will take to protect, enhance and support the urban forest.

Achieving the Vision and Outcomes
This action plan is linked to the vision and outcomes for each strategic objective:

1. Assets
2. Capacity
3. Data
4. Canopy
5. Communications

Prioritising Actions
Actions will be targeted for implementation over the short term (0-2 years), medium term (3-5 years) or ongoing.

Resourcing
The urban forest requires ongoing maintenance and significant resourcing will be needed to protect, enhance and support the urban forest. Where possible, Council will seek funding support through partnerships, grants and other initiatives to support and enhance our actions.

Monitoring and Review
Council will report annually on the key achievements, highlights and challenges associated with implementing this action plan. This Strategy and action plan will be reviewed in 2028 to ensure we are on target to reach the outcome and vision and to make changes as needed.

1. Asset

To manage the urban forest as an essential asset and integrate with water, soils and other infrastructure

You need to know what you have, to know how to manage it. The ability to map, track, manage and monitor public tree assets will allow Council to identify and mitigate risk, plan and budget for future maintenance and renewal programs and inform future planning and strategic directions more readily and proactively.

How will we measure our success?

- Council has access to good data and information with a complete inventory of all trees on public land

Asset

Ref	Action	Priority	Outcomes
ASSET.01	Complete an inventory of all trees on public land including streets and parks: • Prioritise data collection in the higher risk areas (town centres, bus stops, parks with playgrounds) and those areas with lowest canopy or greatest vulnerability • Data being collected to include genus, species, age class, useful life expectancy (ULE), risk, priority works and vacant tree sites	Short	Baseline data and information about public tree assets
ASSET.02	Develop an internal network to determine the future methods for: • Including urban forestry elements (trees, vegetation, soils and water) in the design of new infrastructure • Workflows for renewal and maintenance of all assets	Short	Trees are included with other asset management planning and delivery processes
ASSET.03	Identify and document a procedure to address conflicts between trees and hard assets that prioritise tree retention, use new approaches that demonstrate better outcomes between trees and infrastructure conflicts.	Short	Shifts in practices for integrated asset maintenance
ASSET.04	Require developers to provide an inventory of all new public trees as part of their works as executed and include new trees into the Camden Tree Asset Management System.	Short	Integrated and current urban forest asset data base
ASSET.05	Develop an Asset Management Plan for public trees – Street Tree Masterplan or Precinct Plans.	Medium	Trees recognised as an asset
ASSET.06	Integrate maintenance and tree management programs into tree asset management systems.	Medium	Integrated and current urban forest asset data base
ASSET.07	Quantify species diversity and resilience of the urban forest.	Medium	Climate resilience of tree populations

2. Capacity

To increase the organisation's capacity to manage and respond to urban forestry challenges

Improving Council's capacity in the four main themes of Governance and leadership; Engagement; Goals and Targets; and Data and Evidence will enable Council to deliver and manage a more sustainable urban forest.

How will we measure our success?

- Council's capacity for urban forest management is increased

Capacity

Ref	Action	Priority	Outcomes
CAP.01	Develop a plan to build the capacity of staff across Camden. Focus on priority areas: • Knowledge and innovation • Awareness and integration • Data, evidence and monitoring • Sharing information • Engagement of community and other partners	Short	Training needs are mapped and resources allocated
CAP.02	Identify champions at all levels of Council to advocate for protecting and enhancing the urban forest to achieve its vision around core issues: • Transition to a climate resilient urban forest • Innovations in planting in new developments and in public streets • Data and information • Community literacy around the urban forest	Short	Urban forest outcomes are achieved across the Council
CAP.03	Regularly review progress against the urban forest capacity assessment.	Medium	Continuous improvement and best practice management
CAP.04	Foster partnerships with key stakeholders including the Australian Botanic Gardens Mount Annan, to increase knowledge and capacity of staff and the community about urban forestry.	Ongoing	Increased knowledge for Camden Expanded capacity to deliver urban forestry actions
CAP.05	Utilise best practice examples from both within and outside of Council to profile as demonstration sites to build the capacity and understanding of key staff.	Ongoing	Evidence of best practice and innovation

3. Canopy

To increase canopy cover and urban forest across the LGA especially in priority areas
An increase in canopy will provide significant environmental and health benefits for the community including shading and cooling, healthier communities and increased biodiversity. However, challenges and pressures such as rapid population growth and associated development resulting in increased competition for space and impacts of climate change will need to be carefully managed to progress towards achieving canopy cover targets.

How will we measure our success?

- Canopy cover increases across the LGA

Canopy

Ref	Action	Priority	Outcomes
CAN.01	Investigate the pathway to including tree canopy and greening into the LEP.	Short	Statutory directions provided for urban forestry
CAN.02	Review and establish procedures and criteria that will be used to assess tree removals for tree retention on private property.	Short	Maintenance of canopy cover in the private domain
CAN.03	Establish compliance processes for tree protection (conditions and illegal removals) and replacement tree planting.	Short	Maintenance of canopy cover in the private domain
CAN.04	Adopt a species selection framework and undertake a comprehensive review of species lists with regards to climate risk .	Short	Climate resilience in tree populations
CAN.05	Council projects incorporate minimum tree planting requirements in line with the NSW Greener Neighbourhoods Guide for canopy cover.	Short	Increased canopy cover
CAN.06	Adopt the NSW Government's Greener Neighbourhoods Guide land use targets.	Short-medium	Developer led provision of future canopy and urban forest assets aligned with Council's Strategy
CAN.07	Prepare Urban Forest Guidelines to guide best practice tree and urban forest delivery.	Short-medium	Developer led provision of future canopy and urban forest assets aligned with Council's Strategy
CAN.08	Review existing street design guidelines for public and private domain and adopt for Camden Council.	Medium	Trees integrated into capital works
CAN.09	Develop an urban forest prioritisation process and prepare tree planting plans for priority sites.	Medium	Council resources allocated to highest need areas
CAN.10	Identify opportunities and sites to increase structural diversity of the urban forest in open space and road reserve and support expansion of native vegetation (understorey planting) from natural areas into the surrounding urban streets and neighbourhoods.	Medium	Increased diversity of the urban forest
CAN.11	Seek opportunities to enhance tree planting programs through partnerships, grants and other opportunities.	Ongoing	Increased canopy cover

4. Data

To improve decision making around the urban forest through the use of robust data and best practice analysis

Successful management of the urban forest relies on the availability of high quality and locally relevant data. Significant improvements have already been made towards building understanding of the urban forest; however, opportunities exist to build on this data and increase analysis to enable decision making, project planning and monitor the success of initiatives to improve the urban forest.

How will we measure our success?

- Locally relevant canopy targets established and monitored
- Urban forest data used as an input for decision making and project planning

Data

Ref	Action	Priority	Outcomes
DATA.01	Understand the data being captured for private tree removal and replacements and how this information can assist with improving tree retention and replacements.	Short	Increased canopy on private property
DATA.02	Establish a baseline measure of canopy cover percentage at various scales including locally relevant and realistic targets.	Short	Ability to report on canopy targets
DATA.03	Develop a process to capture plantings undertaken by staff from across the organisation.	Short	Ability to report on tree plantings
DATA.04	Review and identify priority areas for planting projects based on latest available data from the NSW Government.	Short	Priority areas identified for project delivery
DATA.05	Integrate data across roads and footpath upgrades and or renewals, traffic planning and traffic calming devices, stormwater management to identify opportunities to include large tree plantings and urban forestry outcomes.	Medium	Integrated multifunctional outcomes and more large trees in the public domain
DATA.06	Review and report on canopy cover and canopy cover change every 4 years using standard methodology to allow comparisons.	Medium	Known changes and improvements in canopy cover
DATA.07	Estimate canopy growth in focus or priority areas, and assess capital up-front costs and maintenance costs for priority precincts and sites (e.g. West Invest project sites) to compare various options of increasing canopy.	Medium	Confidence that efforts made now will positively impact future canopy cover
DATA.08	Integrate datasets to improve analysis and decision making to create a baseline.	Medium	Robust baseline data and data management

5. Communications

To communicate with and engage the community and key stakeholders in urban forest management

Building community awareness, understanding and support for the urban forest will be crucial to the delivery of this Strategy on both public and private land.

How will we measure our success?

- The community values and understands the urban forest
- Increased community participation in urban forestry

Communications

Ref	Action	Priority	Outcomes
COMM.01	Develop a community engagement program to promote the benefit of trees.	Short	Council has a clear plan and actions for communications and engagement
COMM.02	Increase understanding of community barriers and develop incentives.	Short	Increase community participation in urban forestry
COMM.03	Develop or find relevant case studies and/or local demonstration projects to promote best practice urban forestry.	Short	Increase awareness and capacity
COMM.04	Investigate the opportunity to include urban forestry and trees as a category in the Annual Garden Competition.	Medium	Increase awareness of the importance trees
COMM.05	Engage the community and other stakeholders on trees and urban forestry planting in parks and open space.	Medium	Increase community participation in urban forestry
COMM.06	Promote private tree application process and FAQs.	Medium	Increase community awareness
COMM.07	Leverage opportunities at the new community nursery to provide trees to the local community and deliver workshops to increase engagement around the value of trees.	Medium	Increase awareness and capacity
COMM.08	Align community campaigns with on ground works.	Ongoing	Increase community awareness

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