



# **Ordinary Meeting of Council**

**23 March 2022**

**UNDER SEPARATE COVER  
ATTACHMENTS**

**ITEM 9.1**



**QUEANBEYAN-PALERANG REGIONAL COUNCIL  
ORDINARY MEETING OF COUNCIL**

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# **QUEANBEYAN-PALERANG REGIONAL COUNCIL**

## **Council Meeting Attachment**

**23 MARCH 2022**

ITEM 9.1                      ADOPTION OF QPRC URBAN FOREST COOLING STRATEGY

ATTACHMENT 1      SUMMARY AND ANALYSIS OF SUBMISSIONS MADE  
                                 FOLLOWING PUBLIC EXHIBITION

## Urban Forest Cooling Strategy- Public Exhibition

### Summary and Analysis of Submissions Made Following Public Exhibition

Public Exhibition- Feedback	Response-QPRC , Project Steering Group, Mosaic Insights (consultant)	Action
The strategy should look at reducing 'certain' large species of eucalyptus plantings in public places- too big and drop branches onto cars or people.	Noted- utilising a variety of tree species including large eucalyptus and natives are important factors in ensuring a healthy urban forest.	No change proposed
Please develop a 'publicly accessible' online tool or database of individual public place trees including a reporting mechanism. Similar to that of Melbourne City Council	Council is currently undertaking a trial audit of public place trees in Braidwood. As part of this Council will investigate and look to trial a publicly available online tool, database or map of public place	Amended, included action 2.7 and put this as medium-term action: 'Investigate and undertake a small trial of a publicly available online tool, database or map of public place tree in Braidwood.' This
Reconsider current vegetation management plans in light of urban cooling, especially where destruction of some existing trees is preferred. Often certain tree (e.g. Willows) are considered a pest or weedy when in fact if their ecological roles are considered in a wider context, they can be seen to provide numerous benefits e.g. cooling	The identification and assessment of invasive plants is always evolving, and vegetation management plans reflect current best practice. Council is currently reviewing its LEPs to ensure best practice vegetation management is undertaken with the LGA.	No change proposed
I have observed people in my street poisoning trees on council land that potentially impact on	Reporting mechanisms through Council already exist for any 'alleged' tampering of trees and or vegetation	No change proposed
Communications need to be widened to publicise and seek feedback via media outlets.	Noted	No change proposed
Hold education sessions for residents and help them obtain resources to establish and protect	Noted- include within action 1.4.	Amend action 1.4 to 'Education resources ( <b>online and in person</b> ) on greening and cooling in private

One of the main objectives could include incentivising the planting native plant tree, shrub and plant species for urban residents and encouraging them to retain trees on their properties. This could include adopting programs such as Habitat for Wildlife run by the Community Environment Centre.	Already included in action 4.5	No change proposed
Hold public meetings on the strategy (online or otherwise) to establish local groups that champion the care of reserves e.g bush care groups	Developing a community tree champions program already exists within the Strategy. Council notes the advice on holding public meetings to 'establish community champions'. Council will review the appropriate engagement strategy during the development of the program, this may include public meetings.	No change proposed
Remove the word(s)urban forest and replace with 'greening the urban landscape'.	Noted- 'Urban Forest' is the most appropriate and widely used discourse when describing urban greening.	No change proposed
A hotter future climate will present us with more fires and ember/ash attacks like 2019-2020. The strategy should include more references and focus on fire resistant tree spp.	Noted-Council believes that bushfire prevention through maintaining asset protection zones and reducing fuel load is key to preventing bushfire attacks in urban environments. Although some trees are more fire resilient than others no tree is resistant to bushfires.	Amended dot point in 3.3 to include 'considers heritage <b>and bushfire</b> issues'. Amended 3.4 to include 'Develop technical guidelines for urban vegetation management <b>(including, for example, bushfire management, infrastructure integration, pruning)</b> that includes relevant policy documents, a summary of statutory tools, Council processes and standards for design, management, maintenance, compliance and reporting. Make this available to all staff and integrate its use in core business'

We need firm plans on where tree canopy will be established and how it will be maintained - especially follow up watering and care of plants until established.	Noted- identified in actions 3.4, 4.3, 4.4, 4.7, 5.4, 1.4, 1.7.	No change proposed
A major push should be for the 'on ground works' i.e. street tree plantings and increasing canopy cover to take place ASAP. Rather than the 3+ years stated in the Strategy. We urgently need to develop a plan and encourage householders and industry to go beyond the minimum and get trees in the ground	Noted- Council anticipates that it will take 12-24 months to develop the precinct level planting plans. Following this 'on ground' public place planting works related to this Strategy will begin.	Council will start immediately applying the principals of this Strategy upon adoption and will encourage the community to do so as well.
Establish micro-forests on public land, in particularly small plots. This could be a community run program supported by Council.	Noted- Council will support community	Amended action 1.1 "1.1.Continue to manage and promote existing <b>Council-led</b> programs (National Tree Day, Environment Week) <b>and support community-led activities and programs, where appropriate.</b> "
Requirements need to be established for all urban development proposals that support urban forest cooling considerations across their life cycle.	Noted- many actions within Strategy 4 look to establish consistent development control and requirements across the LGA.	No change proposed
Table 1: Focuses on planning developments. What about revitalising existing green spaces and street verges?	Noted- may be potential overlap with other QPRC plans and strategies.	Amended 3.3 to "identify priority areas for planting of new and existing spaces at the precinct scale"
Table 2: Still relying on voluntary participation and endless audits. Audits can be justified but on-the-ground action is required quickly.	Noted	No change proposed
There is a lack of community participation/involvement, especially for those who are socially isolated, suffering with mental illness, and/or people with disabilities would be an engaging activity and have individual and social benefits.	Council will look to include and to an extent focus on vulnerable people and those living with disabilities during the development and operation of the 'Urban Greening Volunteer Program'- action 1.5.	No change proposed

Ensure mature and remnant native trees are conserved	Noted	Amended p8 under Natural Environment "This is articulated through actions to increase natural and green spaces, establish formal wildlife corridors, protect significant heritage trees and proactively conserve high quality environmental vegetation <b>including mature and remnant native trees.</b> " Amended p27 "Action 4.4 recommends development of a Tree Management Policy, in which the Significant Tree Policy and Tree & Vegetation Vandalism Directive could form chapters <b>to protect trees including significant trees, and mature and remnant native trees.</b> "
What was not there was the development of an effective process for community consultation in the situation that a street tree is assessed as requiring attention and especially if the intention is removal. Please develop a method along the lines of other councils in which, attached to the tree for easy public scrutiny is a summary of: the assessment, plan for management, the time frame and direction for community comment, and intended replacement species should the proposal be to remove a tree.	There is no to minimal scope for community consultation on the removal of every tree in the urban environment. Limited due to staff resources.	No change proposed

Removal and replacement: Where a tree is removed (and to be a replanted) a like for like tree species should be replanted. E.g. natives should be replanted with natives.	Tree replacement (succession) will be undertaken on a case by case basis throughout urban centres within LGA. Council doesn't believe that a broad level policy to plant like for like tree species would serve the best purpose. Instead, Council will select trees which deliver the best overall outcome for the particular location- this will be further identified in the precinct level planting plans (action 3.3).	Amended strategy 3 paragraph 2 (p26) to reflect Councils position against like-for-like in favour of right tree in the right place: "Planning at the precinct scale will also enable Council to determine the most appropriate tree species based on its proposed function and place-based conditions, enabling a fit-for-purpose tree planting and replacement program. Planting the right tree in the right place supports a healthy and responsive urban forest. "
Braidwood becomes a wildlife refuge in times of drought, flood and fire, surrounded as it is by millions of hectares of forests. This should be recognised in the Urban Tree plan and the importance of native species plantings to ensure appropriate refuge is available should be a priority.	Noted- this will be explored further within the precinct level planting plans.	No change proposed
Building awareness of the value of 'urban forest' in the community may include creating many spaces within new housing areas that can be set aside for parklands, trees, grassed areas.	Noted	No change proposed
Council staff need to be trained about the use of herbicides around trees especially for ease of mowing.	Noted- Council staff are frequently trained on the use of pesticides and herbicides.	No change proposed
Wood resulting from tree removal from public land be used for fauna habitat and community benefits.	Noted- In large reserves and in peri-urban settings this may be appropriate. But not in a street or other settings.	No change proposed

I'm concerned about the planting of 'climate adapted' large trees that we will not be enhancing the habitat values for endangered birds and animals.	This will be identified and further explored within the precinct level planting plans.	Amended Action 3.3 relevant dot point "provides a tailored appropriate tree species lists for precincts based on character, tree function, <b>habitat value</b> , climate (current and future), soil conditions, lifecycle costs and diversity requirements"
It is assumed that there is sufficient empirical data about suitable species etc already; how will policies and industry partnerships get trees in the ground? A priority should be for trial areas to be identified, for council to organise the planting + maintenance, and for the results to be evaluated for an expanded program.	A future climate ready trial tree planting is already been undertaken at the Bungendore Sports Ground. Ongoing evaluation and monitoring will be undertaken to determine the species(s) suitability for our current and future climate. This program may be expanded further. To date 14 tree species are being trialled from warmer/drier climates.	No change proposed
The Strategy should focus on native trees and reintroduction of native grasslands.	At this strategic level Council does not believe that the Strategy should focus a on particular tree species,	No change proposed
Integration of shared responsibility between Council and home owners and developers for our urban forest in the planning and development particularly important.	Noted	No change proposed
It is critical that holistic urban planning is incorporated into all aspects of development, redevelopment, and renewal strategies within the QPRC. This means the seamless incorporation of the natural environment into the urban environment to ensure a variety of benefits for everything that inhabits those environments.	Noted	No change proposed

<p>UFCS currently lacks ambitious targets e.g. -Canopy cover (eg 40% by 2040)</p> <p>– Trees classified as healthy (eg 90% by 2040)</p> <p>– Biodiversity (eg no one species making up more than 5%, no one genus making up more than 10% of one genus of our urban forest and a balanced age profile of trees by 2040)</p> <p>– Planting trees (eg 30,000 new trees by 2040).</p>	<p>Noted- Council will continue to work on developing ambitious (UF) targets upon adoption of the Strategy.</p> <p>Council hopes to have a range of targets developed, endorsed, and adopted within 12-24months of adoption of the Strategy. Action 3.1. states 'Once tree inventories have been established, set tree canopy targets for precincts and incorporate these into planning document.'</p>	<p>Amended 3.1 to "Set urban forest targets to guide future planning and evaluation such as tree canopy cover, biodiversity, number of trees planted and tree health. Incorporate these targets into relevant planning documents and policies." and moved to quick wins</p>
<p>Strategy needs to consider any heritage issues that may or may not impact on tree planting in Braidwood. In particular, whether it is appropriate to have trees planted along Wallace Street, Braidwood's main street.</p>	<p>Will be addressed in the precinct level planting plans (action 3.3).</p>	<p>Amended- Includes 'considers heritage issues' as a bullet point action 3.3</p>
<p>The strategy however does not highlight an 'Ageing Tree Stock' as a key challenge. The ... suggests that this be added to the list of key challenges.</p>	<p>Should be included as a 'threat' to the urban forest.</p>	<p>Ageing Tree Stock' included as a threat to the urban forest.</p> <p>'Queanbeyan-Palerang is lucky to have a number of very mature trees which are an important component of the current tree stock particularly in the historic parts of the urban centres. Many of these trees are reaching the end of their normal life and in the absence of adequate maintenance will be lost. There has also not been adequate succession planting to replace these trees and maintain the streetscape they have created.'</p>



Associated with an 'Ageing Tree Stock', the action on succession planting should be strengthened (fifth and last bullet point of action 3.3 on p26). It currently states 'Consider succession planting'. At the very least, this important aspect of tree stock management should be 'included' rather than just 'considered' and ideally there should be a separate and specific action on succession planting.	Noted	Amended- Last bullet point in action 3.3 'includes succession planting.'
Introduce specific positions responsible for coordinating actions across teams and building organisational capacity.	A number of different Council service areas have been identified as the responsible coordinators of individual actions within the Strategy more specifically within the implementation plan, pages 30-34. The identified service area will be responsible for the delivery of the action(s)...this may include introducing or assigning specific positions. Action 5.3 also identifies a number of positions/resourcing improvements to address capacity and capability through filling skill gaps.	No change proposed

Actions do not explicitly call for the adoption of the Significant Tree Policy. The ### urges QPRC to correct this omission.	Noted	Strategy 4 includes the following "Action 4.4 recommends development of a Tree Management Policy, in which the Significant Tree Policy and Tree & Vegetation Vandalism Directive could form chapters to protect trees including significant trees, and mature and remnant native trees". Action 4.4 amended to "Establish a Tree Management Policy <b>incorporating and updating existing tree-related policies, to provide</b> a framework for consistent decision making, documentation and standardisation of processes of tree management and maintenance issues"
This fact needs to be made clear early in the document, that the bulk of existing and emerging 'heat islands' in our region are in many rural areas of the Council. It is suggested that the map of heat islands at the end of the document could be brought forward to the introduction to emphasise this point.	Noted	Appendix A removed and figure located on page 14.
The strategy needs to place more emphasis on Climate Change mitigation, and not to concentrate on heat adaptation in isolation. In addition to carbon dioxide uptake by vegetation, longer term strategies and actions need to take a dualistic approach to ensure that every opportunity is taken to reduce carbon emissions, so that they link directly to implementation of the Council and Community Climate Change Strategies.	Although the Urban Forest Cooling Strategy is primarily focused on climate change adaptation a number of actions have multifaceted benefits, including climate change mitigation. For example, planting more trees equates to greater carbon sequestration rates within the LGA.	No change proposed

INFRASTRUCTURE: 5.2- On top of this, the strong, general trend to smaller residential blocks needs to be highlighted as a factor that exacerbates this (universal) trend and how this can be addressed.	Already stated as a 'threat' to the urban Forest under Urban densification (6.3).	Amended 4.3 dot point "Promote urban design and development that encourages tree planting and urban cooling such as increasing pervious areas and reducing dark coloured materials.."
It is hoped that the proposed DCP and changed building regulations will regulate the use of hard surfaces, dark coloured materials, roofs in particular, as these exacerbate heat islands – heat absorbent roofs are proposed to be banned in Sydney.	Noted- a variety of new/refined planning instruments are stated in action 4.3.	Amended 4.3 dot point "Promote urban design and development that encourages tree planting and urban cooling such as increasing pervious areas and reducing dark coloured materials.."
Water Sensitive Urban Design (WSUD) needs some definition and description in the Strategy, with a heading and some examples, eg current good current practice in the insertion of gravel filled sumps in a number of street drains in Googong, capturing and storing stormwater in contour swales, avoiding ground compaction.	Noted	Amended, WSUD described on p15.
It is recommended that contiguous vegetation in large reserves, eg Mount Jerrabomberra, be excluded from canopy (average) estimates as it hides inadequacies elsewhere in the urban area. Queanbeyan gets an (average) coverage of 30% but the effective benefit to residents is far lower.	Noted	Amended to provide additional commentary removing Environment zoned land from canopy estimate to demonstrate unequal distribution across the urban area.

Section 6.3. The statement that we will have less rain needs to be modified. In fact, there is a possibility our region may receive more rain, especially in summer, but the rainfall will be more erratic, or more variable, more unpredictable. Higher temperatures would mean more evaporation and water stress. These features make the need for passive watering, ie to retain and store stormwater of greater importance, eg sumps in gutters, replacing cement surfaces with water absorbing paving, swales, retention ponds as ephemeral wetlands.	Noted	Update wording in 6.3 Climate change and Urban Heat from 'less rainfall' to 'variable rainfall'.
Suggest that the Cross-departmental group also liaise with the ACT in its own Urban Forestry Strategy.	Noted	No change proposed
Tree Management Policy and other reference to 'trees' should include 'other vegetation' throughout the Strategy, as already included in 4.2 and other actions.	Noted- At this stage the Tree Management Strategy will most likely relate to 'Trees' only. If circumstances change and a decision is made to include vegetation during its development, then the Strategy will be updated accordingly.	No change proposed
Suggest that the short and medium actions also include novel incentives for raising community awareness and involvement, such as giveaway plants, annual garden inspections/competitions and community orchard plantings, in addition to the long-term incentives in Action 4.5.	Noted	Amended dot point "A coordinated, well-resourced and promoted program of events <b>including competitions and giveaways.</b> "

Establish a Community Consultation Committee representing a range of community organisations and interests and also population centres. This group could facilitate the proposed Urban Greening Volunteer Program (Action 1.5) and also assist with planning and carrying out events such as national Tree Day.	Noted	Amended to "Establish an Urban Greening Volunteer Program to coordinate community and Council efforts for tree planting and support more impactful initiatives. <b>Investigate the potential for the program to be run by a community consultation committee representing a range of community organisations and interests.</b> "
The Tree and Vegetation Management Policy to explicitly provide for the development of the proposed guidelines and training for the establishment and caring of vegetation (5.5). Guidelines will be needed particularly for establishing native plant corridors, eg along	Noted- Council will review this feedback during the development of the Tree Management Policy	No change proposed
Planting actions and guidelines need to acknowledge the need for sunlight in winter for human comfort, thus the need for deciduous plants in appropriate high density locations	Noted, will also be further explored within the precinct level planting plans (action 3.3)	Amended to include "Selection of appropriate tree species can increase human comfort in urban areas through providing shade (cooling) during summer and sunlight (warmth) during winter. " at end of first paragraph
Page 6- I would comment that mature trees, in particular, need to be protected from root compaction ie cars and heavy vehicles being parked regularly in the shade on a trees root zone can overtime impact on the health of the tree.	Noted-will be reviewed as part of development of the Tree Management Policy (action 4.4)	No change proposed

Page 6- "Trees cool the air and ground with shade and evaporative cooling." Not all trees are equal in this and I would argue that stunted tree with a sparse canopy is unlikely to perform as suggested. Recommend that the wording be amended to: "Mature trees with a good healthy canopy cool the air and ground with shade and evaporative cooling."	Noted	Amended wording page 6- 'Mature trees with a good healthy canopy cool the air and ground with shade and evaporative cooling.'
It is not enough to plant the tree and expect results, the trees need to be nurtured and maintained throughout their life particularly in the harsh urban environment and this needs to be reinforced throughout the document	A lack of maintenance is already included as threat to the urban forest and is reinforced throughout the document. A variety of actions within Strategy relate to ongoing maintenance of the urban forest.	No change proposed
Suggested action (page 24- Strategy 1)- Interactive fun and informative Council Webpage for tree education. Location of the new trees being planted; how many, how they are doing, photos? Fun facts eg showcase information on specific tree with T° in shade of tree vs T° adjoining footpath, animals that live in that specific tree options for community involvement – showcase your favourite tree? Photos of benefits of trees- Trees that screen something ugly? long term GIS interactive - from the tree inventory (asset management) - what's your street/park tree?– click for information? Links to volunteer programs.	Noted	Included a dot point under 1.4 "An interactive, informative and fun Council webpage on tree education."

(Strategy 3) While Council has a tree planting program delivering 1,200 trees per year, how many have survived after 1, 5 10 years? And are they growing as they should? I believe the Actions should include monitoring and evaluation of the existing tree planting programs to ensure that it is delivering measurable goals, if not being done already. If the program is not meeting measurable goals, what is being done to improve the program?	Noted- will include monitoring and evaluation in action 3.3.	Amended- Action 3.3. now Include 'monitors and evaluates plantings' as a bullet point
Action 3.3- Recommend an additional consideration - Tree planting program supports businesses – new trees planted to 'frame' line of sight to business signage not obscure existing business signage.	Noted	No change proposed
Action 4.5 – Perhaps consider including an additional point - Investigate policy and planning controls that penalise development that damages adjoining existing mature street trees (Council green infrastructure) (or require to make good) . Mature, healthy street trees need to be treated as an asset as per councils hard infrastructure. Possible options may include require developer provide arborist report and management plan for adjoining street trees as part of a DA to ensure mature street trees are not impacted by proposed development. The proposed development should also demonstrate that it does not impact on the root zone of street trees. Bonding of street trees?	Noted	Amended 4.5 to "Investigate policy and planning controls that incentivises additional planting and retention, <b>and regulates the loss and damage of trees and vegetation</b> , including:"

Action 3.3 consider succession planning Perhaps the long-term benefits could be included here? In terms of maintaining a preferred minimum percentage of urban tree canopy over the long-term, succession planning is required.	Noted	No change proposed
Investigate 'adopt a Tree program'	Council will be exploring the development of a tree champions program as stated in action 1.4.	No change proposed
Page 17- traditional custodians of the land needs to be reviewed. Maybe excluding certain indigenous families, clans and tribes.	Noted	Council will work with Council's Aboriginal Liaison Officer and consultants to address this issue before adoption of the final Strategy.
Review Vegetation SEPP information	Vegetation SEPP is relevant in QPRC	No change proposed
Council currently delivers a public tree planting program of 1,200 trees each year- Is this sufficient should this be increased? How about a target of 15,000 trees per annum?	Noted	Amended, see row 33
Educate and provide tools to ensure good pruning practices across QPRC works to promote healthy growth, pride in landscape appearance, prolong life of trees and demonstrate good maintenance practices to the community- What about the pruning done by electricity and telephone companies around poles and wires?	Noted- educational resources on pruning practices/maintenance will be included within action 1.4. Pruning activities undertaken by utilitt companies will guide and be guided by the development of Council Tree Management Policy and Tree & Vegetation Management DCP. Pruning training/education will be provided to QPRC staff as per action 5.4.	No change proposed
Review formatting, definitions, spelling and grammar.	Noted	Reviewed by Council staff and cons



Page 25 - All inspections must be undertaken by a qualified (Level 4 or above) arborist. – this should be level 5. A level 5 arborist has completed a Diploma in Arboriculture that covers risk assessment. The Level 4 is an old horticulture qualification that does not delve enough into tree specific risk assessment.	Noted	This is a direct quote from the Vic Courts ruling and so cannot be amended. Amended to include "While the Victoria Courts recommendations listed above require a Level 4 or above arborist, it is further recommended that this be amended to Level 5 to ensure appropriate understanding of tree specific risks when undertaking assessments."
Council's draft Significant Tree Policy does not perform the same function as a Significant Tree Register – the policy outlines the application and use of the Register. The Register is a physical/digital list of all the Significant Trees (needs updating) and the Policy tells us how we manage that Register. Different functions.	Noted	Amended to "Council's draft Significant Tree Policy sets out roles and responsibilities of Council, residents and landowners relating to the identification, nomination, registration and maintenance of Significant trees. A 'Significant Tree Register' will need to accompany the policy providing a list of significant trees within the municipality." and updated action 4.4 to include 'and development of a significant tree register'
I can clearly see Urban Forest Management being split into two roles: Tree Management Officer (Urban Landscapes Team) and Biodiversity Compliance Officer (Planning and Assessment Team).	Noted- already included in action 5.3.	No change proposed
Re-establishment a Council-owned	Already included under Strategy 1	No change proposed
Council considers using treated sewage effluent in Bungendore and Braidwood to fertilise urban woodlots which could be coppiced to provide local timber/firewood.	Noted- Biosolids can only be utilised in the Urban setting if they meet certain criteria (contamination grade A, stabilisation grade A). Please refer to the below website for more information. <a href="https://www.epa.nsw.gov.au/~media/EPA/Corporate%20Site/resources/water/BiosolidsGuidelinesNSW.ashx">https://www.epa.nsw.gov.au/~media/EPA/Corporate%20Site/resources/water/BiosolidsGuidelinesNSW.ashx</a>	Amended 1.7: Develop partnerships with universities, research institutes and other regional organisations to support knowledge sharing and understanding of best-practice management of the urban forest <b>and explore innovative methods of maintaining the urban forest.</b>

Trees should predominantly be deciduous species, providing winter sunlight and summer cooling.	Noted	No change proposed
Abandonment of the current requirement for kerbing and guttering of all streets. This urban design feature is counter-productive for the successful establishment of street trees/vegetation because it drains water away from the nature strip and into gutters which then take this vital resource into a storm drain. The storm drain then pollutes our waterways. Simple grassy swales, such as are still found in some of the older streets of Bungendore, and most notably in our most prestigious real estate, the "Old Elmslea" area, provide natural drainage which enhances both the effectiveness of rainfall in helping to keep trees alive, and the appearance of the town.	Noted	No change proposed
Multi-rowed windbreak plantings to the west and south of the new Sports Hub site, to mitigate the effects of the cold winter/hot summer winds which will rage across the sports grounds making conditions extremely uncomfortable for players and spectators, not to mention swimmers if the proposed pool ever gets funding.	Already being undertaken as part of the future climate ready trial tree plantings at the Bungendore Sports Ground.	No change proposed
Information on tree friendly construction techniques (for engineers, builders) should be included as an action, including internal education to planners (assessments), engineers and designers.	Already included within the Strategy, please refer to actions 1.4 and 5.5.	No change proposed

Sufficient undisturbed soil is not identified.	Noted	No change proposed
Photos within the Strategy are not of local urban areas.	Noted	Updated images and photos to those of local urban areas, trees, streetscapes etc.
Strategy should include guidelines to ensure tree plantings are done correctly. This may be included as an action to develop.	Noted	This is covered under "Education resources (online and in-person) on greening and cooling in private spaces including building design, tree planting, maintenance and selection methods."
Strategy needs information on the structure/design of tree plantings so to have best overall benefit for the community i.e. several small trees or fewer large trees or a combination.	Noted- will be investigated further as part of development of the precinct level planting plans and through partnerships with universities and research organisations (action 1.7). Any findings/information will be communicated to the community through education resources as identified in action 1.4.	Correct tree planting structure/design will be place-specific and cannot be identified at this level. The precinct planning will guide this. Amended Strategy 3 to include: Planning at the precinct scale will also enable Council to determine the most appropriate tree species and recommend design principles based on proposed function and place-based conditions, enabling a fit-for-purpose tree planting and replacement program. Planting the right tree in the right place supports a healthy and responsive urban forest.

Page 27 – the fifth dot point under action 4.3 should read: to promote tree planting in new developments and additional dot point added that reads: to provide tree protection documentation requirements (Tree Management Plan) at the development application stage to better protect existing canopy cover from development related damage (or similar)	Noted	Action 4.3 amended to "4.3.Review and refine planning instruments to: <ul style="list-style-type: none"><li>•Support multifunctionality of blue, grey and green infrastructure, particularly WSUD integration opportunities.</li><li>•Provide tree requirements for public open space in new developments.</li><li>•Ensure sufficient information is provided for tree retention, maintenance, planting and location in handover documents.</li><li>•Promote urban design and development that encourages tree planting and urban cooling. Examples include increasing pervious areas, supporting green walls and roofs and reducing dark coloured materials.</li><li>•Ensure protection of existing canopy cover."</li></ul>
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# **QUEANBEYAN-PALERANG REGIONAL COUNCIL**

## **Council Meeting Attachment**

**23 MARCH 2022**

ITEM 9.1                      ADOPTION OF QPRC URBAN FOREST COOLING STRATEGY

ATTACHMENT 2      PUBLIC EXHIBITION - 'YOUR VOICE' COMMENTS AND  
WRITTEN SUBMISSIONS



## Urban Forest Cooling Strategy Public Exhibition

### 'Your Voice' Comments & Written Submissions

Ref:



## 2 Public Exhibition 'Your Voice' Comments & Written Submissions

**Offices:** Council headquarters – 256 Crawford St  
Bungendore Office – 10 Majara St  
Braidwood Office – 144 Wallace St

**Contact:** P: 1300 735 025  
E: [council@qprc.nsw.gov.au](mailto:council@qprc.nsw.gov.au)  
W: [www.qprc.nsw.gov.au](http://www.qprc.nsw.gov.au)



### 3 Public Exhibition 'Your Voice' Comments & Written Submissions

#### PUBLIC EXHIBITION

Following the public exhibition period (3 August 2021- 1 September 2021), the online data analysis indicates that a total of 58 visits occurred on the 'Your Voice- QPRC Urban Forest Cooling Strategy' webpage with 16 visitors downloading the documents. Of these visitors, 13 participants responded to the survey questions shown below. Most participants live in Queanbeyan-Palerang and were mostly from Queanbeyan, Bungendore, and Braidwood.

#### 'YOUR VOICE' COMMENTS

During the course of public exhibition (4 August 2021- 1 September 2021), Council received a total of 23 'Your Voice' comments.

#### WRITTEN SUBMISSIONS

During the course of public exhibition (3 August 2021- 1 September 2021), Council received a total of 6 written submissions.



4 Public Exhibition 'Your Voice' Comments & Written Submissions

# 'YOUR VOICE' COMMENTS



## 5 Public Exhibition 'Your Voice' Comments & Written Submissions

### **Question 1- Do you have any general comments that you would like to make on the draft Urban Forest Cooling Strategy?**

<i>Comment 1</i>	I don't think there is a need for council to expand its current activities, there are plenty of trees now and there appears to be no lack of maintenance. This has the potential to spend a lot of ratepayers' money and not result in any more tree cover than usual. In fact, there will inevitably be fewer trees, so they don't shade people's solar panels. Good luck planting a large tree in the microscopic backyards of Googong.
<i>Comment 2</i>	I strongly support this initiative.
<i>Comment 3</i>	I support the development of the strategy and hope that it focuses on native trees in order to also support local wildlife.
<i>Comment 4</i>	This is a worthwhile initiative from Council. Preparing urban centres for increased temperatures and severity of heatwaves is an essential activity and certainly something Council should be supporting. The strategy document seems appropriate and thorough.
<i>Comment 5</i>	<p>Thank you for providing the opportunity to comment on this very important issue. Many people in the Braidwood Community are very concerned about environmental issues nationally, and in the Braidwood district specifically.</p> <p>Professional environmental scientists and active locals have opinions they would like to be considered in large- and small-scale decision making. This can be about a Strategy and/or the removal of a local public tree that is valued by the Community.</p> <p>The democratic process requires the voice of individuals and communities be listened to and respected.</p> <p>The draft Strategy 1 speaks of:</p> <p>Build awareness and encourage participation in urban greening.</p> <p>My Recommendations</p> <p>1. Communication to be widened to publicise and seek feedback via media outlets eg</p> <p>a. Changing Times times@bwdmag.com.au</p> <p>b. Braidwood Bugle braidwoodbugle@gmail.com</p>

## 6 Public Exhibition 'Your Voice' Comments & Written Submissions

### Comment 6

2. As well as consultation with Community groups, individual opinions need to be listened to.

Goal: increased biodiversity and tree canopy

My Recommendations

1. Exceptional trees and those with high biodiversity or eco-cultural value have the highest levels of protection.
2. Mature and remnant native trees are conserved.
3. Provide a diverse and urban forest that supports biodiversity, habitat and resources for wildlife.

Strategy 3. Co-ordinate tree and vegetation planting and management.

Recommendation

1. Provide incentives for the community to keep and maintain trees.
2. Create and maintain a significant tree register in consultation with local experts and organisations.
3. Develop a plan of tree removal and replacement in consultation with Community.
4. Wood resulting from tree removal from public land be used for fauna habitat and community benefits.

One of the issues you identified in the Urban Forest Cooling Strategy is loss of habitat, reduced habitat connectivity, fragmentation of habitat and loss of diversity.

As part of the Urban Forest Cooling Strategy one of the main objectives could include incentivising the planting native plant tree, shrub and plant species for urban residents and encouraging them to retain trees on their properties. This could include adopting programs such as Habitat for Wildlife run by the Community Environment Centre. <https://cen.org.au/projects/habitat-for-wildlife>

It could be as simple as holding education sessions for residents and helping them obtain resources to establish and protect habitat on their properties. Backyards have the potential to become havens for all sorts of endangered plants and animals.

I am worried that is the focus is only on planting 'climate adapted' large trees that we will not be enhancing the habitat values for endangered birds and animals.

## 7 Public Exhibition 'Your Voice' Comments & Written Submissions

<i>Comment 7</i>	<p>I think it would also be great to have community engagement on the strategy to include meetings (online or otherwise) to establish local groups that champion the care of reserves. I live adjacent to two environmental reserves and have seen the rapid decline of grassland species because they are constantly being mowed. Can council look at the floral studies that exist for these areas and establish Bush Care type groups to enhance the habitat values of native grasslands and put back some of local species that have been removed since European settlement.</p> <p>A greener urban environment science has shown, makes cityscapes, towns, cooler. 'Forest' seems a little misleading, I would prefer 'greening the urban landscape'. Residents need to know there are real forests as in national parks, reserves and other naturally existing areas that need to be protected for all our futures. The 'green' of plant growth is also calming, however, painting buildings green, as suggested, is no replacement for plantings.</p>
<i>Comment 8</i>	<p>There is a lot of jargon in the strategy, simple practical language would be more valuable. It is known that individuals benefit psychologically if out amongst trees and plantings and exercising in fresh air.</p>
<i>Comment 9</i>	<p>Congratulations, a much-needed strategy. Support Principles of a Greener Places and strategy to prevent urban heating. Pleased to see emphasis on biodiversity, wildlife conservation, tree inventory, succession planning, training and improvement on risk assessment and pruning practices.</p>
<i>Comment 10</i>	<p>Looks good however has council considered veg selection with fire retardation in mind ... if a hotter climate changed future presents us with more fires and ember/ash attacks like 2019-2020 then additional defence through fire resistant tree spp selection may also assist.</p>
<i>Comment 11</i>	<p>I think this is a great idea</p>
<i>Comment 12</i>	<p>It is critical that holistic urban planning is incorporated into all aspects of development, redevelopment, and renewal strategies within the QPRC. This means the seamless incorporation of the natural environment into the urban environment to ensure a variety of benefits for everything that inhabits those environments.</p> <p>As an environmental consultant, I appreciate that having base line data and frequent audits can be useful. However, I feel this strategy is too heavily weighted towards arborist assessments and voluntary works to plant trees. We need firm plans on where tree canopy will be established and how it will be maintained - especially follow up watering and care of plants until established. It is assumed that there is sufficient empirical data about suitable species etc already; how will policies and industry partnerships get trees in the ground? A priority should be for trial areas to be identified, for</p>

## 8 Public Exhibition 'Your Voice' Comments & Written Submissions

### Comment 13

council to organise the planting + maintenance, and for the results to be evaluated for an expanded program. A major push should be for street plantings to ameliorate the effects of urban heat sinks and this needs to happen sooner rather than later given the time it takes for canopy to form.

I note that Jerrabomberra is a severe heat island. The new Poplars development is going to adversely impact on this heat island, especially as the current grassland with remnant yellow box trees will be made into a Brindabella Park like office precinct. While no doubt they will plant tree in the development, I don't think these will offset the additional heat the buildings will generate and hold. I would like to see a substantial tree planting effort in Jerra, particularly along the easement that runs along the back of the Jerrabomberra school and Firethorn Place in order to counter, to some degree, this additional heat.

I am also interested in establishing a micro-forest on the vacant block of land located at 33 Firethorn Pl. I am informed that this parcel of land, which is a triangular shape is currently zoned for future road. I suspect that this is an old zoning decision, as the Poplars development behind will not be designed to connect with this land and the creek that runs behind Firethorn Pl is not suitable for a road and there is nowhere for it to go.

I envisage a small park like place, planted with native plants like calistemon, leptospermum, banksia, grevillea etc and some taller trees like yellow box, blue gum etc. I would like to install a table and chairs for families to come and have a picnic and some quiet time. It could also be used as an educational garden with names of the plants, whether or not they are bird, moth or bee attracting and if they were interested, the students at the Jerra school could be involved in the planning and implementation.

## 9 Public Exhibition 'Your Voice' Comments & Written Submissions

### ***Question 2- Do you have any comments on the actions in the draft Strategy?***

<i>Comment 1</i>	People already like trees, let's not waste money 'building awareness'. Council has done a good job managing footpath maintenance surely, we can apply the same for existing trees with little extra expense. I think the existing council workers, who are doing a great job, are perfectly capable of planting a few extra trees where they think they would be useful. Just make sure they aren't big Eucalyptus in public places that get too big and drop branches onto cars or people. The Rutledge Street Plane trees are perfect but it's too late for urban planners to leave 18-foot-wide nature strips to accommodate them. Kurrajong trees are inappropriate where they drop sap which will lift the paint on cars parked underneath.
<i>Comment 2</i>	Integration of shared responsibility between council and homeowners and developers for our urban forest in the planning and development particularly important.
<i>Comment 3</i>	You should add in individual identification of trees (via email addresses, as has been done in Melbourne) so that the public can notify you when there is tree damage or insect attack.
<i>Comment 4</i>	<p>Regarding coordination within the overall strategy, it would be a benefit if QPRC were to reconsider current vegetation management plans in light of urban cooling, especially where destruction of some existing trees is preferred as a matter of course. Specifically, recent Frogs Hollow development in Bungendore includes unnecessary destruction of willow trees despite these trees providing cooling, soil stability, and wildlife habitat. Because these trees were widely planted to prevent erosion and provide shade for stock, they are highly visible in many disturbed landscapes. This has meant they are seen as invasive and their removal is automatically assumed to provide some environmental benefit. In fact, when their ecological roles are considered in a wider context, they can be seen to provide numerous benefits (e.g. cooling and wildlife refugia—see recent article published by Tanya Doody of CSIRO) and their removal only adds to previous environmental disturbance. These trees could instead be managed using successional processes by strategically planting other vegetation which will gradually overshadow and replace them.</p> <p>With regard to QPRC engagement with local community groups, please note there are already several local volunteer environmental groups in the Braidwood township. The Braidwood Urban Landcare Group (BULG) is the most appropriate contact as we have completed (and have currently underway) several relatively large urban planting projects. We designed and established all plantings</p>



## 10 Public Exhibition 'Your Voice' Comments & Written Submissions

*Comment 5*

in Braidwood's Bicentennial park as well as installing the Floodcreek footpath, including gym equipment and tree plantings in this area. Further, we have recently teamed with the Commonwood Farm association to conduct several tree planting projects on the Braidwood Common. These areas provide a large part of Braidwood's recreational space. We regularly attract crowds of 30 or more volunteers to our planting events. We have planned planting projects for Spring on the Braidwood Common and (in association with Braidwood Central School) on the local school agriculture plot. We would be very grateful for any advice or assistance QPRC could provide for our current and future tree planting projects in Braidwood and would be happy for further discussion with regard to QPRC urban forest cooling initiatives.

I think you would get more community buy in for these projects if you asked people what they want and have meetings in each town or online.

*Comment 6*

I have observed people in my street poisoning trees on council land that potentially impact on their view or their use of council verges. There should be a reporting mechanism for this type of behaviour and fines. Council staff need to be trained about the use of herbicides around trees especially for ease of mowing. If a young tree is consistently being given sub lethal doses of herbicide they will struggle to grow. This is a problem where I live.

Agreed, this strategy is essential for any urban centre and suburbs within that centre. Building awareness of the value of 'urban forest' in the community may include creating many spaces within new housing areas that can be set aside for parklands, trees, grassed areas.

I would like to draw council's attention to two things; firstly the comment on greening vacant sites of public land - I applaud this, but do wonder about the sale of vacant or old housing blocks, for example sites along congested Cooma road, where council has permitted high density housing. There is no room for any trees along this road, let alone space for widening. Cars instead, are growing at an alarming rate, as is parking in this high-density housing.

Secondly, I often walk along the Queanbeyan River, where the new walk, cycle path has grown along the old tracks (area from the new bridge right into Queanbeyan central) I am dismayed this area has not been looked after. There were 'greenings' in the past but these have not been cared for and there has been huge weed growth that has seeded and flourished. Is this one of the areas of 'vacant public land' the council wishes to green further with native plantings? Just back from Barracks Creek's new foot-bridge there is a small reserve. There used to be over 20 kangaroos

## 11 Public Exhibition 'Your Voice' Comments & Written Submissions

*Comment 7*

here. Since the new vehicle bridge, Ellerton Drive, and housing development off River Drive, just near the bus stop there, I can only see four or five 'roos' occasionally. The bower birds here have moved off once the houses replaced their scrub.

Green spaces, trees, areas where people can walk is the saviour of any town. Queanbeyan has a beautiful river, the riparian zone needs to be protected, and access to local bushland for native animals, the kangaroos, platypus, echidnas, rakali and beautiful native birds that live in our region will be something only old people remember.

Pleased to see plans for the Significant Tree Register and Tree inventory (including a record of assessments and actions) included.

What was not there was the development of an effective process for community consultation in the situation that a street tree is assessed as requiring attention and especially if the intention is removal. Please develop a method along the lines of other councils in which, attached to the tree for easy public scrutiny is a summary of: the assessment, plan for management, the time frame and direction for community comment, and intended replacement species should the proposal be to remove a tree.

Removal and replacement: Where a large canopy tree is removed the community should be able to rely on a similarly canopied tree replacement.

Additionally, the community should also be able to rely on consistency in street plantings: for example, in Wilson St Braidwood two large eucalypts have been removed (much to the community's chagrin). It is proposed to replace them with maples. Wilson Street's character includes native tree plantings.

*Comment 8*

Finally, Braidwood becomes a wildlife refuge in times of drought, flood, and fire, surrounded as it is by millions of hectares of forests. This should be recognised in the Urban Tree plan and the importance of native species plantings to ensure appropriate refuge is available should be a priority.

*Comment 9*

Community participation, especially for those who are socially isolated, suffering with mental illness, and/or people with disabilities would be an engaging activity and have individual and social benefit.

Requirements need to be established for all urban development proposals that support urban forest cooling considerations across their life cycle.



12 Public Exhibition ‘Your Voice’ Comments & Written Submissions

<p>Comment 10</p>	<p>Table 1: agree but focuses on planning developments. What about revitalising existing green spaces and street verges?</p> <p>Table 2: still relying on voluntary participation and endless audits. Audits can be justified but on-the-ground action is required quickly...</p> <p>Table 3: I would have thought these things were a priority not to be left for 3+ years. We urgently need to develop a plan and encourage householders and industry to go beyond the minimum and get trees in the ground. Surely there is enough information out there to know what sort of trees should be planted and how to go about maintaining them. As said above, a major focus should be street trees and so consultation with residents and council initiatives should be a priority.</p>
<p>Comment 11</p>	<p>I notice that Jerrabomberra is a priority area for tree planting and that you are keen to establish an Urban Greening Volunteer Program. I am keen to become involved, not only in Jerra, but also in the district.</p>

13 Public Exhibition 'Your Voice' Comments & Written Submissions

# WRITTEN SUBMISSIONS





## BRAIDWOOD COMMUNITY ASSOCIATION

PO Box 199, Braidwood. NSW 2622

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### Submission on the Draft QPRC Urban Forest Cooling Strategy

The Braidwood Community Association (BCA) welcomes the opportunity to comment on the Queanbeyan-Palerang Regional Council (QPRC) Draft Urban Forest Cooling Strategy (Draft Strategy).

The BCA welcomes the thrust of the draft strategy to have 'five key strategies' and a series of actions identified to support Council and the community to prioritise, manage and implement this strategy. These will address the impacts of climate change, increased urbanisation and other challenges and help make our urban environment cooler while increasing the amenity value of our urban forests to our communities.

However, comparing this draft strategy with the Urban Forest Strategies in the [City of Melbourne](#)<sup>i</sup> and the [ACT](#)<sup>ii</sup> it currently lacks inspiration. In particular, these two strategies both have ambitious key targets which can galvanise political commitment. The BCA believes the strategies would benefit from having some high-level defined targets for creating and protecting the urban forest, such as :

- Canopy cover (eg 40% by 2040)
- Trees classified as healthy (eg 90% by 2040)
- Biodiversity (eg no one species making up more than 5%, no one genus making up more than 10% of one genus of our urban forest and a balanced age profile of trees by 2040)
- Planting trees (eg 30,000 new trees by 2040).

The BCA notes that Braidwood at present has only 19.3% tree canopy cover. This compares unfavourably with 30.9% canopy cover in Queanbeyan, and the average canopy cover across Australian LGA's of 39%. It reflects the limited area of open public space in Braidwood, as shown on the map on p19. This map also reflects the absence of trees in our main street.

The BCA urges QPRC to consider any heritage issues that may or may not impact on tree planting in Braidwood. In particular, whether it is appropriate to have trees planted along Wallace Street, Braidwood's main street. On one level this an obvious location to provide shade for shoppers and tourists, but not if it is found to undermine the heritage values of Braidwood. The BCA is open to advice of heritage experts on this point.

The draft strategy rightly lists in section 6.3 a range of threats to the urban forest (p21) including 'Climate change and urban heat' and 'Urban densification', 'Loss of habitat', 'Governance and resourcing' and 'Community understanding' as key challenges facing our urban forest, that this Strategy seeks to address.

Braidwood is blessed by having a number of significant, historic and mature trees, which form an important part of Braidwood's streetscape. Many of these trees have already reached maturity and need considerable ongoing maintenance. There has been little or no succession planting to ensure the streetscape lasts into the future. The strategy however does not highlight an 'Ageing Tree Stock' as a key challenge. The BCA suggests that this be added to the list of key challenges.

Associated with an 'Ageing Tree Stock', the action on succession planting should be strengthened (fifth and last bullet point of action 3.3 on p26). It currently states 'Consider succession planting'. At the very least, this important aspect of tree stock management should

be 'included' rather than just 'considered' and ideally there should be a separate and specific action on succession planting.

Regarding urban densification, new developments in Bungendore and elsewhere in the LGA appear to require minimal provision of open public spaces and recreational areas. As Braidwood inevitably develops beyond the existing town boundaries, the BCA will advocate for a defined percentage of new residential areas to be devoted to open public space, to achieve all the acknowledged benefits of the urban forest. We support the suggestion that planning and design controls should be put in place to 'protect and enhance tree planting, resilience and maintenance'.

As residential areas near Braidwood and other parts of the LGA expand, the threat of habitat loss for native flora and fauna will increase. The BCA supports the recommendation that holistic planning and management will be needed to minimise biodiversity loss, and to maintain existing flora and fauna habitat.

The BCA notes the comments under 'Governance and resourcing' that 'Management of the urban forest crosses multiple jurisdictions and disciplinary boundaries' and 'This leaves the urban forest and its monitoring and management split across different responsibilities and areas of interest within council.' The BCA supports the concept of responding to this gap by 'introducing specific positions responsible for coordinating actions across teams and building organisational capacity'. In particular, we urge Council to ensure that the Urban Forest Strategy is reflected in planning requirements for new residential and other developments. This should include the preservation of native habitat and biodiversity as a priority.

The draft strategy (p22) identifies priority tree planting locations based on the 2020 Surface Heat Mapping Report. For Braidwood, this includes 3 locations. It also suggests that further investigation is needed based on five criteria before a clearer agenda for tree planting is developed. The BCA endorses this approach. Planning for the urban forest of the future is essential.

Braidwood has an engaged and committed community. The BCA therefore endorses the actions to include the community in future landscape and planning projects (Action 1.3) to establish an Urban Greening Volunteer Program to coordinate community and Council efforts for tree planting and support more impactful initiatives (Action 1.5) and to actively partner with existing conservation groups, Local Aboriginal Land Councils, local Landcare, Friends of Groups and other organisations to deliver urban greening and cooling education and outreach programs and events (Action 1.6). It is our community and we want to have a say in what happens.

We note that our local Landcare groups and the lessees of the Braidwood Common (Commonwood Farm) have undertaken major tree planting projects over recent years, in particular along Bombay Road and on the Braidwood Common. Without their efforts, there would be no increase in the tree cover on the outskirts of our town. Local residents have created a tree-lined walking path along Bombay Rd, and this has recently been extended to include a walk along Flood Creek. This is the only public access our town has to this creek. It is now used by many of our residents, of all ages, and provides access to a platypus viewing area at the junction of Gillamatong and Flood Creeks. Commonwood Farm have planted many new trees on the Common through volunteer working groups. So our community is already actively engaged in some of the above-mentioned actions.

As stated above Braidwood and district has some significant and historic trees, three of which are on the [Big Tree Register](#). For this reason, the BCA has considerable interest in the draft Significant Tree Policy. The draft strategy states that 'Council's draft Significant Tree Policy

performs the same function as a 'Significant Tree Register', setting out roles and responsibilities of Council, residents and landowners relating to the identification, nomination, registration and maintenance of Significant trees' (p27). However, the actions do not explicitly call for the adoption of the Significant Tree Policy. The BCA urges QPRC to correct this omission.

Finally, recent [research](#)<sup>iii</sup> has highlighted institutional barriers as a major reason for an observed implementation gap between the vision and action of so-called nature-based solutions (NBS). It found that the greatest barriers were outside the influence of project teams involved, highlighting understaffing, a lack of intra-organisational processes, and risk-averse organisational cultures as impediments. The findings of this and other international research emphasise that after cities embrace NBS at the strategic and political level, it is vital that executives follow through with the necessary pragmatic reforms to enable delivery.

In the light of this the BCA urges Councillors and senior council staff to take ownership of this strategy by adopting it, resourcing it and ensure it is fully enacted by being engaged in its implementation. Thank you for your consideration.



On behalf of the Braidwood Community Association

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<sup>i</sup> City of Melbourne (2012), Urban Forest Strategy: Making a great city greener 2012-2032

<sup>ii</sup> ACT Government (2020), Urban Forest Strategy 2020-45

<sup>iii</sup> Croeser, Thami et al (2021), Diagnosing delivery capabilities on a large international nature-based solutions project

## Comments on the draft Urban Forest Cooling Strategy

**Page 4-** *"We pay our respect to the Traditional Custodians of the Queanbeyan-Palerang area, the Ngunnawal and the Walbunja peoples on whose land we live and work. We acknowledge that these lands are Aboriginal lands and pay our respect and celebrate their ongoing cultural traditions and contributions to our surrounding region. We also acknowledge the many other Aboriginal and Torres Strait Islander peoples from across Australia who have now made this area their home, and we pay respect and celebrate their cultures, diversity and contributions to the Queanbeyan-Palerang area and surrounding region."* However, there is some problems referring to just the Walbunja people for the Braidwood district. There are also the Munkata-Yuin. We tend to use the term Dhurga language group.

**Page 8-** how does a green infrastructure lead to reduced obesity, safer and more accessible streets, improved public transport options? On the other hand, you could add increased life expectancy.

**Page 11-** I do not know much about planning, but this does not seem to relate to the realities of planning in QPRC, not does it relate to the issues discussed in strategy 4: Review planning policy and development controls. I would get the planning department to have a close look at this.

**Page 16-** *'Rural Ambiance'.* What is this about? What 'rural ambiance is there currently in the urban centres?

**Page 21-** Aging Tree Stock *"Queanbeyan-Palerang is lucky to have a number of very mature trees which are an important component of the current tree stock particularly in the historic parts of the urban centres. Many of these trees are reaching the end of their normal life and in the absence of adequate maintenance will be lost. There has also not been adequate succession planting to replace these trees and maintain the streetscape they have created"*

**Page 24-** While this strategy has a range of detailed actions, these are geared towards achieving some headline targets applying across Queanbeyan-Palerang area. These are to achieve:

- 40% canopy cover by 2040
- 90% of trees classified as healthy by 2040
- Biodiversity with no one species making up more than 5%, no one genus making up more than 10% of one genus of our urban forest and a balanced age profile of trees by 2040
- Planting 30,000 trees by 2040

These are just indicative values to start discussion. The strategy needs some aspiration. These will need some elaboration if we decide to go down this route.

**Page 28-** *'Council currently delivers a public tree planting program of 1,200 trees each year.'* Is this sufficient? Should there be some discussion on the adequacy of this number and whether there should be a more ambitious target?

**Page 30-** Action 5.4. What about the pruning done by electricity and telephone companies around poles and wires?

## Comments on the draft Urban Forest Cooling Strategy 2021

**P6-** I would also comment that mature trees, in particular, need to be protected from root compaction ie cars and heavy vehicles being parked regularly in the shade on a trees root zone can overtime impact on the health of the tree.

**P6-** *"Trees cool the air and ground with shade and evaporative cooling."* Not all trees are equal in this and I would argue that stunted tree with a sparse canopy is unlikely to perform as suggested. It is not enough to plant the tree and expect results, the trees need to be nurtured and maintained throughout their life particularly in the harsh urban environment and this needs to be reinforced throughout the document. Recommend that the wording be amended to: "Mature trees with a good healthy canopy cool the air and ground with shade and evaporative cooling."

**P18-** While mature trees on private land should be considered within the strategy, I believe that council should be aiming to achieve the maximum desirable tree canopy for urban cooling on public land and that trees on private land are a bonus. Justification for this is that council has more control over strategic location of plantings, ongoing tree maintenance etc for trees on public domain and therefore greater likelihood of achieving and maintaining required levels of tree canopy in the long term.

The document states that increasing canopy within the industrial zones is an opportunity to improve the canopy cover within Bungendore. My experience with tree planting in industrial areas is that street trees rarely develop a decent canopy, as they get damaged and 'pruned' by the heavy vehicles (approx. 4m high) that frequent industrial areas. In my experience, trees in industrial areas will do better if they can be planted a couple of meters back from the street and driveways. Strongly support the additional street tree planting, particularly in residential areas where tree shaded and cooler footpaths make walking and cycling more attractive.

### **P24-** Strategy 1 – Actions –

- Perhaps investigate 'Adopt a Tree program'
- Interactive fun and informative Council Webpage for tree education
  - Location of the new trees being planted; how many, how they are doing, photos?
  - Fun facts eg showcase information on specific tree with T° in shade of tree vs T° adjoining footpath, animals that live in that specific tree
  - options for community involvement – showcase your favourite tree?
  - Photos of benefits of trees- Trees that screen something ugly?
  - long term GIS interactive - from the tree inventory (asset management) - what's your street/park tree?– click for information?
  - Links to volunteer programs

### **P26-** Strategy 3

1. While Council has a tree planting program delivering 1,200 trees per year, how many have survived after 1, 5 10 years? And are they growing as they should? I believe the Actions should include monitoring and evaluation of the existing tree planting programs to ensure that it is delivering measurable goals, if not being done already. If the program is not meeting measurable goals, what is being done to improve the program?
2. Action 3.3 consider succession planning Perhaps the long-term benefits could be included here? In terms of maintaining a preferred minimum percentage of urban tree canopy over the long-term, succession planning is required. Succession planning ensures that newly planted trees to come to a degree of maturity before the



older trees within the space come to the end of their lifecycle and need to be removed and provides a continuity of visual amenity.

3. Action 3,3 recommend an additional consideration - Tree planting program supports businesses – new trees planted to 'frame' line of sight to business signage not obscure existing business signage.

**P27-** Strategy 4 Action 4.5 – Perhaps consider including an additional point - Investigate policy and planning controls that penalise development that damages adjoining existing mature street trees (Council green infrastructure) (or require to make good) . Mature, healthy street trees need to be treated as an asset as per councils hard infrastructure. Possible options may include require developer provide arborist report and management plan for adjoining street trees as part of a DA to ensure mature street trees are not impacted by proposed development. The proposed development should also demonstrate that it does not impact on the root zone of street trees. Bonding of street trees?





*Queanbeyan Landcare Inc. PO Box 848 Queanbeyan 2620*

Queanbeyan Palerang Regional Council  
Crawford Street  
Queanbeyan nsw 2620

Attention Cameron Pensini  
Sustainability Project officer

On behalf of members of Queanbeyan Landcare, I submit comments on the draft urban Forest Cooling Strategy July 2021.

Queanbeyan Landcare welcomes the report and this initiative and we support the draft report, noting that it is an urban response to global warming. This fact needs to be made clear early in the document, that the bulk of existing and emerging 'heat islands' in our region are in many rural areas of the Council. It is suggested that the map of heat islands at the end of the document could be brought forward to the introduction to emphasise this point. The principles and practices contained in the Strategy can be promoted to, and 'adopted' by, residents living in rural areas.

There are excellent links aligning this Strategy with other Council and Community strategies and regulations, including the Climate Change Strategies, the Queanbeyan CBD Place Plan and also State Native vegetation legislation and regulations. In particular the QPRC Local Strategic Planning, 2040 vision Statement stresses the role of native vegetation and habitat enhancement and provides for the increase of natural and green spaces, establishing formal wildlife corridors and protection of heritage trees.

**Adaptation and Mitigation:** We feel that the strategy needs to place more emphasis on Climate Change mitigation, and not to concentrate on heat adaptation in isolation. In addition to carbon dioxide uptake by vegetation, longer term strategies and actions need to take a dualistic approach to ensure that every opportunity is taken to reduce carbon emissions, so that they link directly to implementation of the Council and Community Climate Change Strategies. These can include resource use (and reuse).

The title is Urban *Forest* Cooling Strategy. However, the document in the strategies and actions often refers to 'tree' planting, when in fact the cooling strategy will require trees, shrubs, groundcovers and even grass, all providing complementary contributions to cooling.

**INFRASTRUCTURE:** 5.2 describes how the impact of increased urbanization and higher density provides a challenge to greening and cooling and the need to plan and implement robust

mechanisms to create and protect (eg to supply adequate water) green spaces, plus 'green' infrastructure and building materials, design and structures.

- On top of this, the strong, general trend to smaller residential blocks needs to be highlighted as a factor that exacerbates this (universal) trend and how this can be addressed.
- It is hoped that the proposed DCP and changed building regulations will regulate the use of hard surfaces, dark coloured materials, roofs in particular, as these exacerbate heat islands – heat absorbent roofs are proposed to be banned in Sydney.

This alone requires a major review of regulations and changing the way we do just about everything. The implications for planning should not be under-estimated in this Strategy and this should be stressed in the report. Given that we have Climate Change Strategies in place at all levels of Government, the process is mitigation of global heating, not just adapting to global heating.

**Water Sensitive Urban Design (WSUD):** 5.3 *WSUD* is referred to briefly in Section 5.3. amidst a list of 'opportunities'. *WSUD* is a critical concept, which has been around for a while, in terms of utilizing water more effectively and efficiently. It needs some definition and description in the Strategy, with a heading and some examples, eg current good current practice in the insertion of gravel filled sumps in a number of street drains in Googong, capturing and storing stormwater in contour swales, avoiding ground compaction.

- The concept of 'rain gardens', planted swales and retention ponds for catching and holding rainwater, was strongly promoted in the Healthy Waterways ('H2OK') program in the ACT Region, funded under the \$90million Murray Darling Basin Commission program. A large number of 'best practice' demonstration projects were constructed in the region, including in Queanbeyan.

**Guidelines For 'Biodiversity Corridor Planting Schemes'**, Section 5.4: Landcare welcomes the inclusion of environmental protection and biodiversity connectedness as a central plank in this strategy and inclusion of general guidelines and staff training. Biodiversity inspired plantings will require guidelines on species selection, composition and blend of groundcovers, shrubs and trees, including the spacing of trees. This will become more relevant as our weather becomes more changeable and extremes occur more frequently.

- For example, there have been recent concerns expressed in relation to 'micro forests' emerging in parts of the ACT, where groups have been promoting dense plantings of trees and shrubs. This can be self-defeating as plants will suffer increasingly from competition and shading. This is also potentially a waste of resources.

Page 18: Reference to Figures 4, 5 and 6, images of our main streets on page 18 appears to be incorrect, 4 and 5 are absent.

**Section 6. Canopy Cover Estimates:** Section 6.1 is excellent in describing what our vegetation was pre white settlement and managed by Ngambri-Ngunnawal people. The return of native vegetation (and advent of other vegetation) demonstrates how landscapes can be changed in a surprisingly short time, as demonstrated in the many gold rush landscapes across the country which were totally cleared.

The heat mapping and canopy cover estimates through section 6.2 provide an excellent baseline for measuring the success of this Strategy. We support the biennial canopy audits (Action 2.5) and comments from the project Steering Committee members that these estimation techniques not only be continued on a regular basis into the future, but the Strategy include **broad targets** in terms of

canopy change over time and impacts on stemming or even reducing heat radiation into the future. Similarly, broad targets could also include the extent of and percentage of native plantings as a percentage of total plantings, and the number of species utilised.

- It is recommended that contiguous vegetation in large reserves, eg Mount Jerrabomberra, be excluded from canopy (average) estimates as it hides inadequacies elsewhere in the urban area. Queanbeyan gets an (average) coverage of 30% but the effective benefit to residents is far lower.

Section 6.3. The statement that we will have less rain needs to be modified. In fact, there is a possibility our region may receive more rain, especially in summer, but the rainfall will be more erratic, or more variable, more unpredictable. Higher temperatures would mean more evaporation and water stress. These features make the need for passive watering, ie to retain and store stormwater of greater importance, eg sumps in gutters, replacing cement surfaces with water absorbing paving, swales, retention ponds as ephemeral wetlands.

This section highlights the critical importance of having cross-council coordination and integration, including introducing a cross-departmental working group and dedicated positions for this process. While the Action Plan in 8.2 picks up the need for a Cross- Department Working Group, the need for **resourcing dedicated positions** is not picked up. Resourcing is essential and needs to be secured, not based on short-term grant-funded positions to ensure continuity of this work and development of expertise in-house.

- Working Groups have a tendency to lose their influence over time, while the strategy is long term.
- Such positions can dovetail with the human resources managing the implementation of the Community and Council Climate Change Strategies.

**Community understanding and Acceptance:** The Strategy and the Action plans stress the need to instill community awareness, trust, support and involvement in the strategy, and puts forward ways to do this including community education, promotion and some opportunities for ongoing public input.

- In addition, direct community input may be provided through a Community Consultation Committee representing a range of community organisations and interests and also population centres. This group could facilitate the proposed Urban Greening Volunteer Program (Action 1.5) and also assist with planning and carrying out events such as national Tree Day.
- We suggest that the short and medium actions also include novel incentives for raising community awareness and involvement, such as giveaway plants, annual garden inspections/competitions and community orchard plantings, in addition to the long-term incentives in Action 4.5

**6.4. Priority tree planting locations:** Agreed, except that the concept of multi-purpose, connected corridors is not featured here. Waterways, including small tributary waterways, provide the opportunities for linking up vegetation and habitat, achieving multiple objectives.

**7.1 Goals** supported.

**7.2 Strategies and prioritised actions:** Supported;

- Suggest that the Cross-departmental group also liaise with the ACT in its own Urban Forestry Strategy.
- 4.4: Tree Management Policy and other reference to '*trees*' should include '*other vegetation*' throughout the Strategy, as already included in 4.2 and other actions.
- The Tree and Vegetation Management Policy to explicitly provide for the development of the proposed guidelines and training for the establishment and caring of vegetation (5.5). Guidelines will be needed particularly for establishing native plant corridors, eg along waterways, drainage reserves, incorporate contour mounding and swales.
- Establishment of dedicated staff positions for the strategy in tandem with the implementation of the Council and Community Climate Change Strategies.
- Planting actions and guidelines need to acknowledge the need for sunlight in winter for human comfort, thus the need for deciduous plants in appropriate high density locations.

Yours Sincerely


Queanbeyan Landcare Inc  
1 September 2021

## **Feedback from Bungendore Community Landcare Group Inc. re QPRC Draft Urban Forest Cooling Strategy**

Bungendore Landcare members are pleased that Council is developing an Urban Forest Cooling Strategy and support the implementation of this plan.

We thank Council staff for this opportunity to comment on the policy and would like to make the following suggestions to improve the plan:

### **Targets**

Speaking from the viewpoint of a small community group whose members plant hundreds if not thousands of trees per year on our own properties, the main improvement we suggest would be for Council to adopt far more ambitious targets, e.g. to have all urban streets lined with sufficient trees within 10, or at most 20 years.

The current tree planting rate of 1500 trees per year is lamentably slow and inadequate for an LGA the size of QPRC, given the circumstances we find ourselves in. It amounts to one tree per 3500 hectares of the Council area, which wouldn't even keep pace with natural senescence of our existing urban tree inventory. How about a target of 15,000 trees per annum?

### **Re-establishment of Council-owned Nursery**

As proposed in the strategy, we believe that a Council tree nursery is essential to Council's goal of cooling urban areas such as Queanbeyan, Googong and Bungendore. A nursery could easily produce 15,000 deciduous trees to be planted bare-rooted/semi-advanced as street trees every year, Canberra's early visionaries foresaw the vital need for trees to shade and shelter the new city. Yarralumla Nursery was set up to fulfil that need, hence the dense, cooling tree canopy in Canberra's established suburbs. It could only happen because the founders of Canberra made trees a high funding priority.

It's true that plant nurseries have struggled financially in recent years but many commentators are noting an increase in community interest in gardening thanks to COVID restrictions over the past 18 months. This revival in the commercial viability of nurseries, and the fact that significant savings could be gained by Council growing their trees rather than having to buy them in, indicate that now would be a good time for Council to return to that activity asap.

### **Which Trees to Plant?**

The strategy defines urban forest as "trees and other vegetation". In our opinion, the "trees" should predominantly be deciduous species, providing winter sunlight and summer cooling. There is cooler shade under deciduous trees than under eucalypts. The "other vegetation" can be native trees and shrubs such as Acacias, Casuarinas, Callistemons, etc., with particular emphasis on less flammable species.

### **Principle 3: Multifunctionality**

We are thrilled to discover that Council recognises the many benefits that trees can offer in addition to providing shade.

We suggest that Council considers using treated sewage effluent in Bungendore and Braidwood to fertilise urban woodlots which could be coppiced to provide local timber/firewood. We understand that the Upper Lachlan Council is implementing such a project and other Councils have already done so, e.g. Wagga Wagga.

### **Correct Site Selection requires a Master Plan for Bungendore**

Bungendore desperately needs a Master Plan which outlines opportunities for tree planting. Included in the plan should be:

- Drainage lines (e.g. Turallo Creek and the watercourses which feed into it); these make excellent tree planting sites
- Abandonment of the current requirement for kerbing and guttering of all streets. This urban design feature is counter-productive for the successful establishment of street trees/vegetation because it drains water away from the nature strip and into gutters which then take this vital resource into a storm drain. The storm drain then pollutes our waterways. Simple grassy swales, such as are still found in some of the older streets of Bungendore, and most notably in our most prestigious real estate, the “Old Elmslea” area, provide natural drainage which enhances both the effectiveness of rainfall in helping to keep trees alive, and the appearance of the town. Just compare the cool and leafy streetscapes of Elmslea Drive and Reardon Place, and likewise the villages of Hall and Gundaroo, with the increasingly harsher, suburbanised (and hotter) new developments of Bungendore.
- Multi-rowed windbreak plantings to the west and south of the new Sports Hub site, to mitigate the effects of the cold winter/hot summer winds which will rage across the sports grounds making conditions extremely uncomfortable for players and spectators, not to mention swimmers if the proposed pool ever gets funding. Care needs to be taken with species selection, given that if a wildfire threatens Bungendore, it's most likely to come from the north-west/westerly direction. Treated effluent from the STP could be used to establish the windbreaks.

### **Save the Trees!**

Finally, Bungendore Landcare members respectfully suggest that there isn't much point in planting hundreds or thousands of new trees in the urban areas of QPRC if development of housing, roads and infrastructure is going to proceed without consideration and regard for the worth of existing trees and other vegetation.

The practice of removing mature trees – which were each providing ecosystem services such as shade, shelter, erosion control and habitat - and replacing them with

little bare sticks has become common in all the towns in this LGA. Though all plantings are welcome, a young tree will not provide shade, food, habitat or protection from wind for many years. An established tree, no matter what the species, is an important asset now that Climate Change is rapidly heating our environment and causing reduced rainfall and high evaporation, and extreme weather events such as destructive storms and frequent gale force winds. Council is talking about getting trees in the ground, but the conditions are becoming increasingly challenging for tree establishment. Please can we make retention of existing vegetation just as high a priority as planting young trees? This will require a serious re-assessment of Council's and our community's priorities, but that is what climate change adaptation is all about.

[REDACTED]

Bungendore Community Landcare Group Inc.

30/8/21



# Bungendore Community Landcare Group Inc.

ABN 45 278 454 424

Attention: Tim Geyer.  
Cameron Persini

17th August, 2021.

The Councillors and Staff,  
Queanbeyan-Palerang Regional Council  
Queanbeyan NSW 2620

Dear Councillors and Staff,

We write to express our concern that tree planting in Bungendore is not keeping pace with residential development and its associated heat-sink effect.

The proliferation of large houses on small blocks which Council is approving, in our opinion, places an extra responsibility on Council to compensate the town environment with additional street and park tree planting. We submit most of these trees should be large deciduous trees providing dense shade and cooling.

We would like to see Council's tree planting plan for Bungendore. It is surely time Council commissioned a Master Plan which balances growth and the environment. The community will have to be closely consulted in the development of a Master Plan to ensure community "ownership" and acceptance



2.



## Bungendore Community Landcare Group Inc.

ABN 45 278 454 424

*of the Plan.*

*We would like to open a line of communication with Council to further tree planting in Bungendore. Direct phone numbers of key Council staff would be a helpful start,*

*yours faithfully,*

[Redacted signature line]

[Redacted address block]

[Redacted address block]

[Redacted address block]

BUNGENDORE  
NSW 2621.

[Redacted address block]



# Bungendore Community Landcare Group Inc.

ABN 45 278 454 424

## TREES for BUNGENDORE recommended species.

### General points

1. replicate what is already there in partially planted streets.
2. in parks, plant groups of same species, say 3-9 trees per clump.
3. eucalypts are not suitable street or car park trees. They give inferior shade in summer and unwanted shade in winter.

David Watson 62381234.

COMMON NAME	BOTANICAL NAME	Height	Spread	Street	Park	Car park	Avenue
DESERT ASH	<i>Fraxinus oxycarpa</i>	15	10	✓	✓	✓	✓
CLARET ASH	<i>Fraxinus oxycarpa</i> "raywoodii"	15	10	✓	✓	✓	✓
GOLDEN RAIN TREE	<i>Koelreuteria paniculata</i>	6	6	✓	✓		
BLACK WALNUT	<i>Juglans nigra</i>	14	8	✓	✓		
CRAB APPLES	<i>Malus</i> sp.	4-8	3-4	✓			
WHITE MULBERRY	<i>Morus alba</i>	18	11	✓	✓		
PARROTIA	<i>Parrotia persica</i>	6	4		✓		
PISTACHIO	<i>Pistacia chinensis</i>	8	5	✓	✓		
PLANE TREE	<i>Platanus orientalis</i>	20	12	✓	✓	✓	✓
YUNNAN POPLAR	<i>Populus yunnanensis</i>	22	12		✓	✓	✓
CHERRY PLUM	<i>Prunus cerasifera</i>	6	5	✓	✓		
RED OAK	<i>Quercus borealis</i>	15	8	✓	✓	✓	✓
TURKEY OAK	<i>Quercus cerris</i>	15	10	✓	✓	✓	✓
SCARLET OAK	<i>Quercus coccinea</i>	15	10	✓	✓	✓	✓
VALLEY OAK	<i>Quercus lobata</i>	20	12	✓	✓	✓	✓
PORTUGUESE OAK	<i>Quercus lusitanica</i>	16	12	✓	✓	✓	✓
BURR OAK	<i>Quercus macrocarpa</i>	20	15	✓	✓	✓	✓
PIN OAK early leaf fall	<i>Quercus palustris</i>	20	15	✓	✓	✓	✓
WILLOW OAK	<i>Quercus phellos</i>	20	15	✓	✓	✓	✓
ENGLISH OAK	<i>Quercus robur</i>	20	30		✓	✓	✓
BLACK LOCUST	<i>Robinia pseudoacacia</i>	15	10	hardy, thorns		suckers	✓
JAPANESE PAGODA	<i>Sophora japonica</i>	12	10	✓	✓	✓	
CHINESE ELM	<i>Ulmus parvifolia</i>	12	10	✓	✓	✓	✓
ENGLISH ELM	<i>Ulmus procera</i>	30	20		✓		✓
KEYAKI	<i>Zelkova serrata</i>	12	8	✓	✓		
ARGYLE APPLE	<i>Eucalyptus cinerea</i>	15	10		✓		✓
BLACK GUM	<i>Eucalyptus aggregata</i>	16	10		✓		✓

# **QUEANBEYAN-PALERANG REGIONAL COUNCIL**

## **Council Meeting Attachment**

**23 MARCH 2022**

ITEM 9.1                      ADOPTION OF QPRC URBAN FOREST COOLING STRATEGY

ATTACHMENT 3      COMMUNITY SURVEY AND WORKSHOP RESULTS -  
   COMMUNITY CONSULTATION



# **QPRC Urban Forest Cooling Strategy**

## **Survey results**



## UFCS Survey Results

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**Offices:** Council headquarters – 256 Crawford St  
Bungendore Office – 10 Majara St  
Braidwood Office – 144 Wallace St

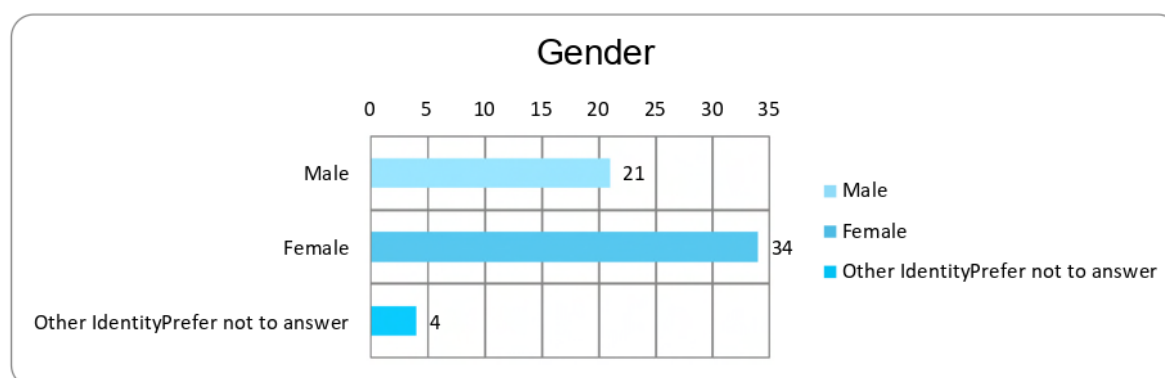
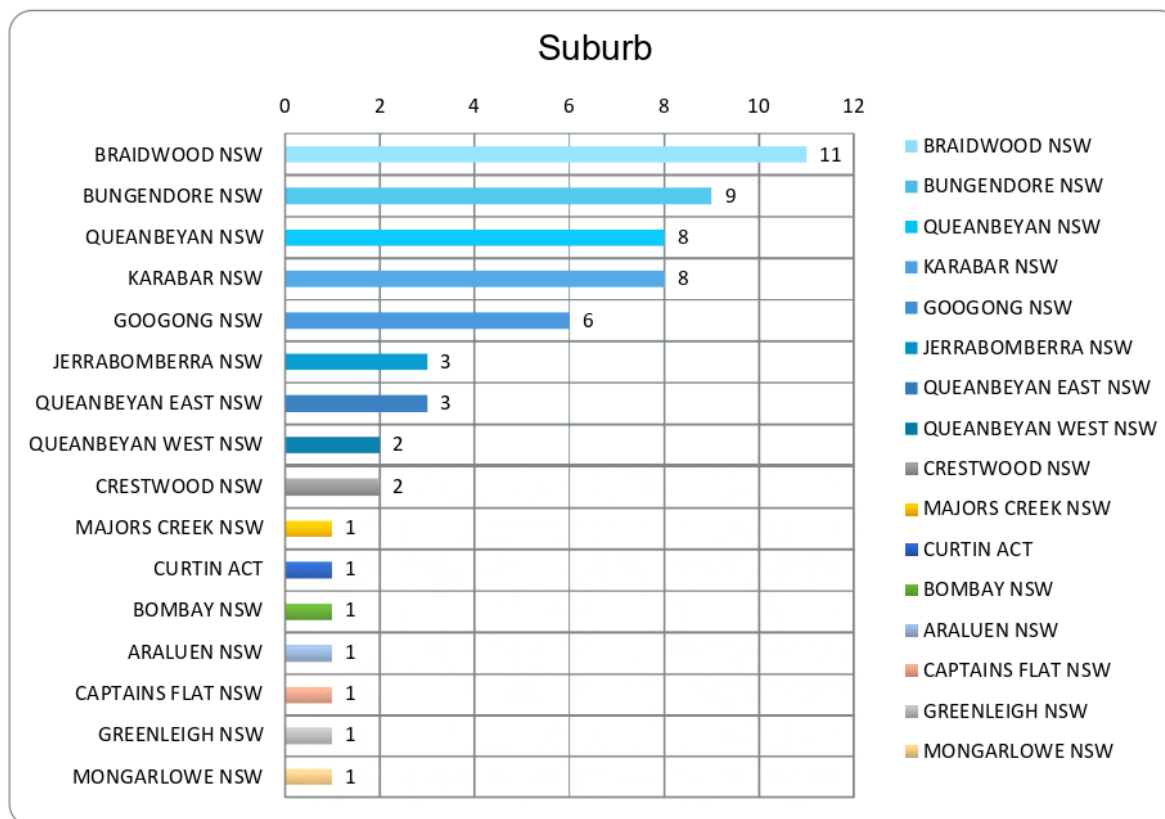
**Contact:** P: 1300 735 025  
E: [council@qprc.nsw.gov.au](mailto:council@qprc.nsw.gov.au)  
W: [www.qprc.nsw.gov.au](http://www.qprc.nsw.gov.au)



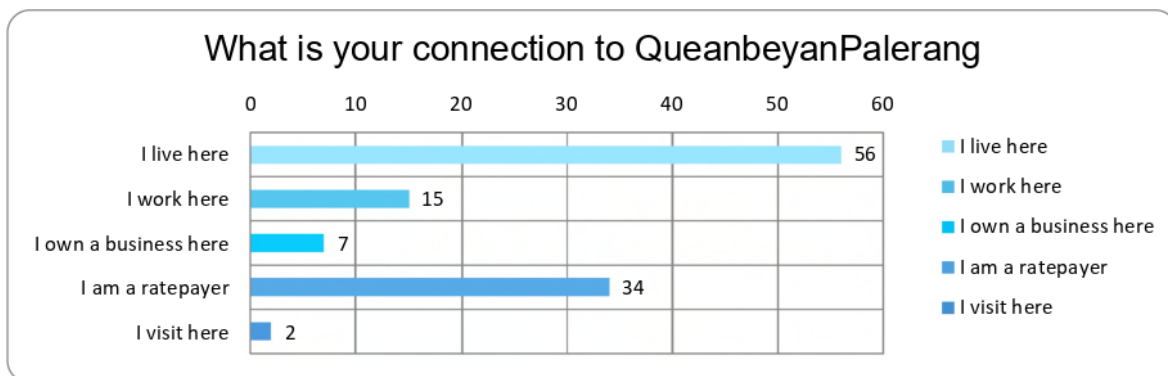
## UFCS Survey Results

**Total respondents: 59**

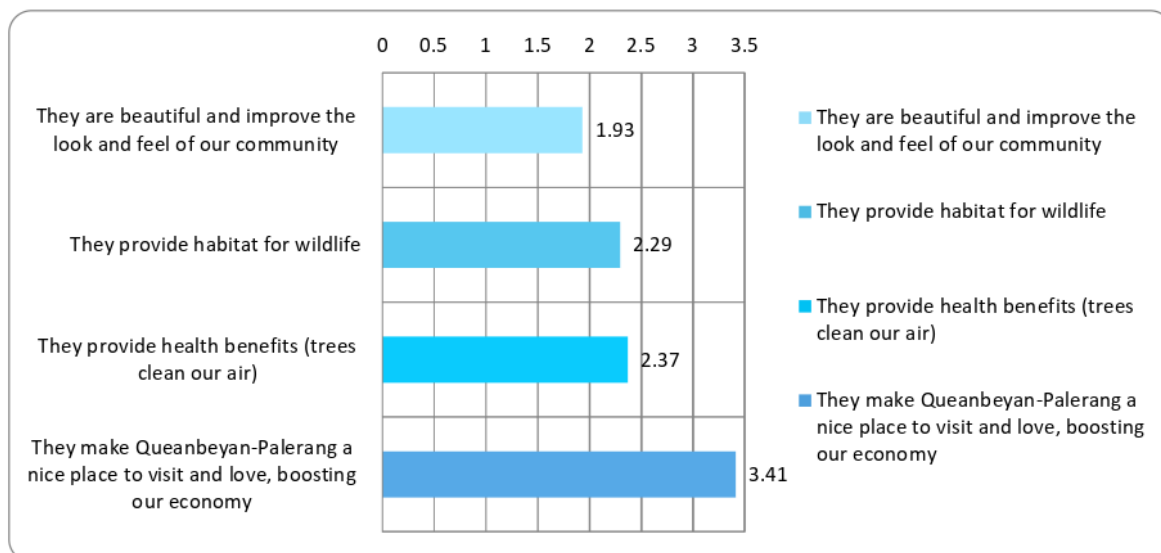
### Demographics



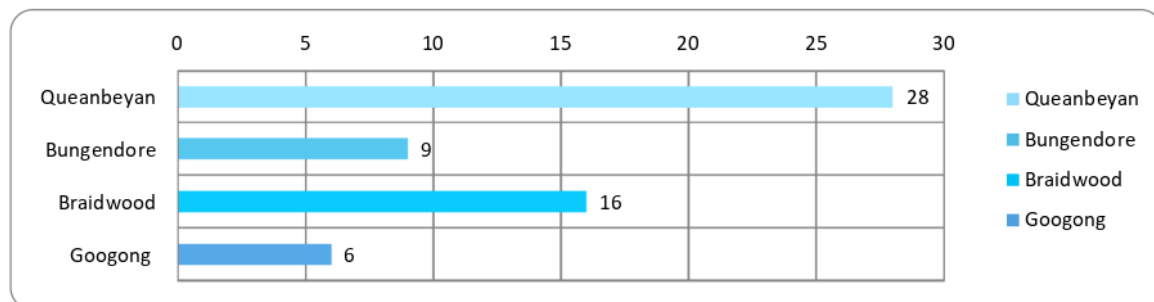
## UFCS Survey Results



**Question 1: What do you value most about Queanbeyan-Palerang's urban trees? Rank from most important.**

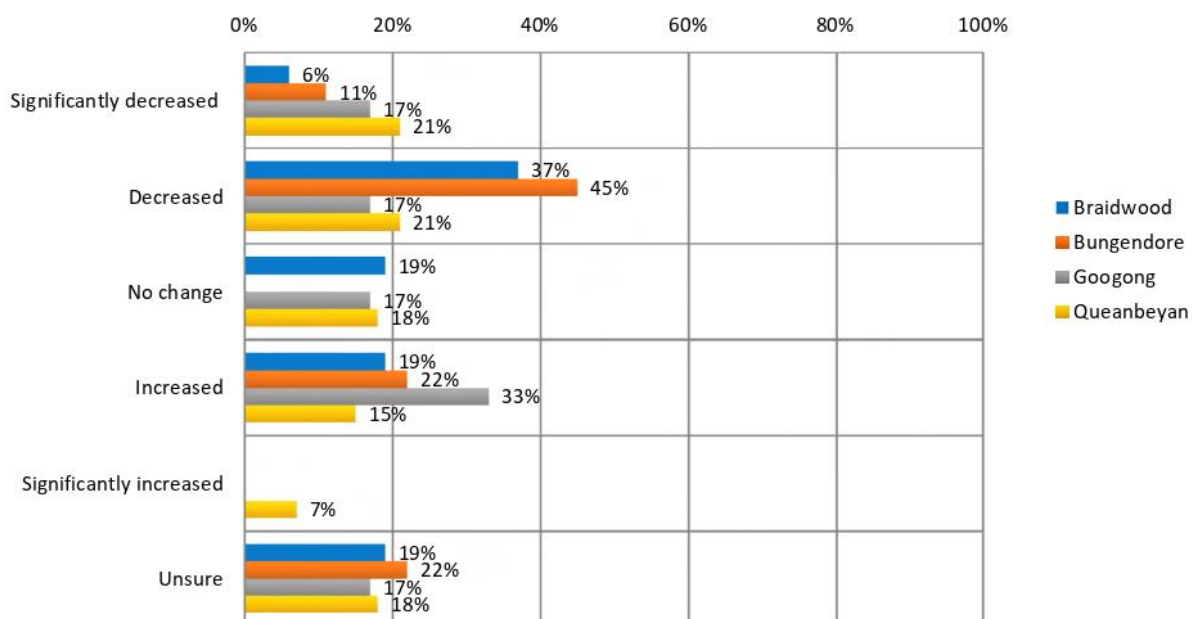


**Question 2: Select your urban area (if you live in a rural area this maybe the urban area you visit the most)**

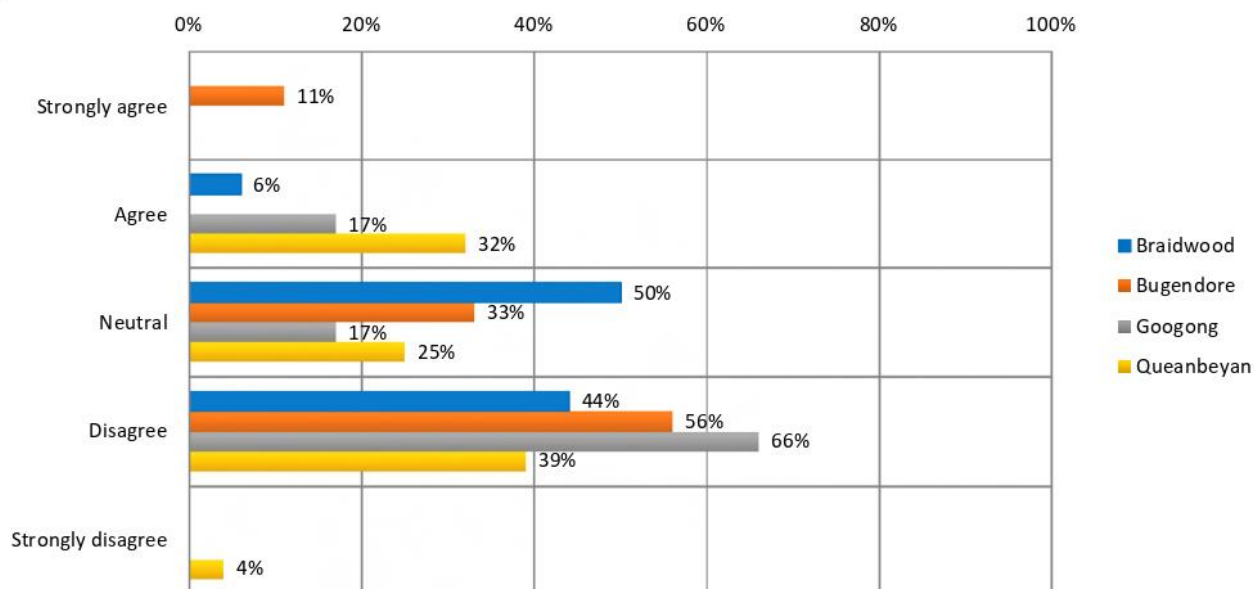


## UFCS Survey Results

**Q2 A. How has the tree canopy cover changer over the past ten years in your urban area?**



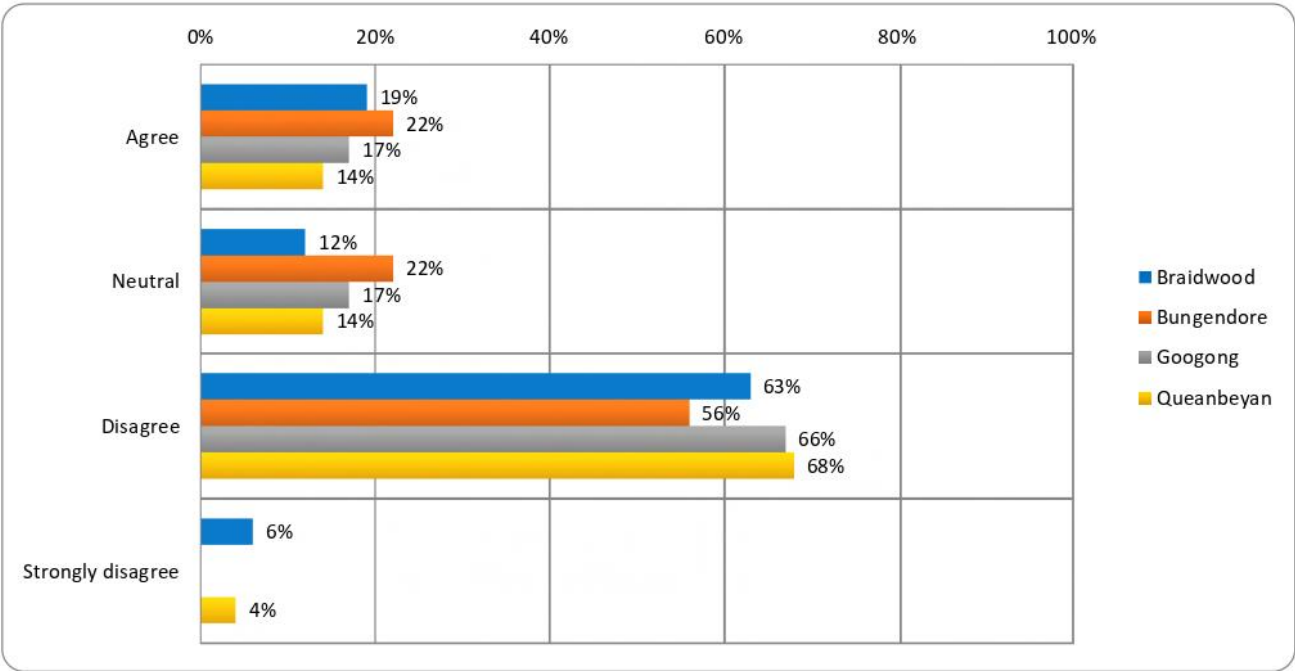
**Q2 B. Our urban forest is healthy**



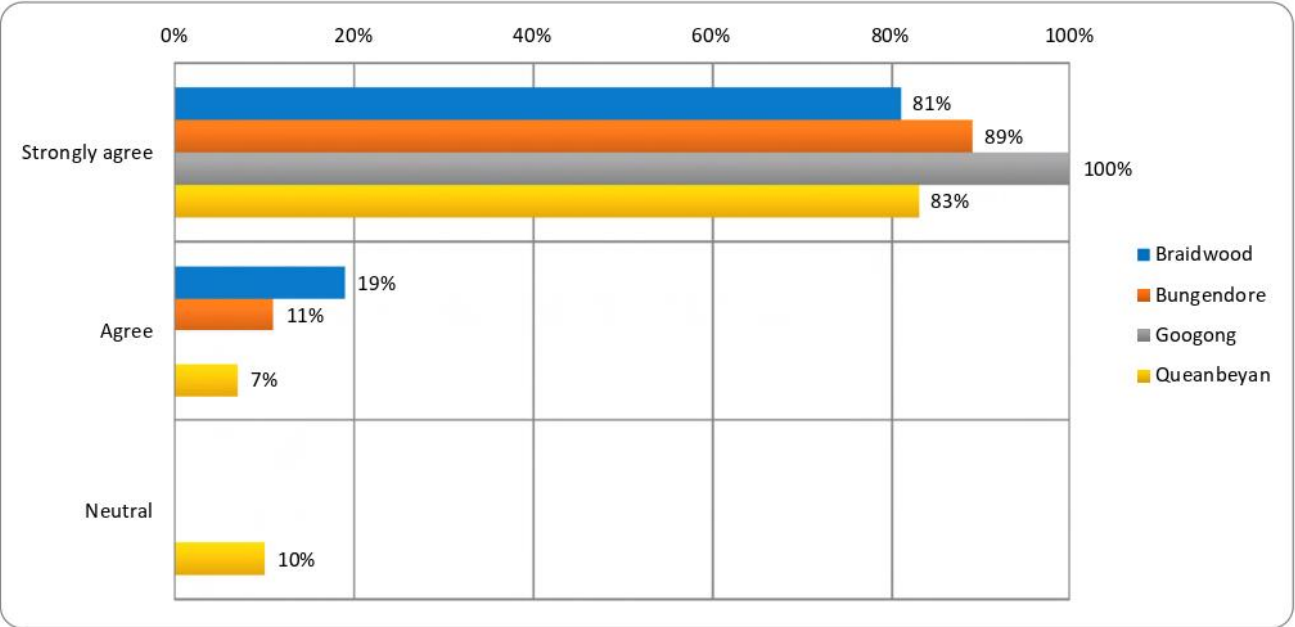


UFCS Survey Results

Q2 C. Our urban forest is equally distributed

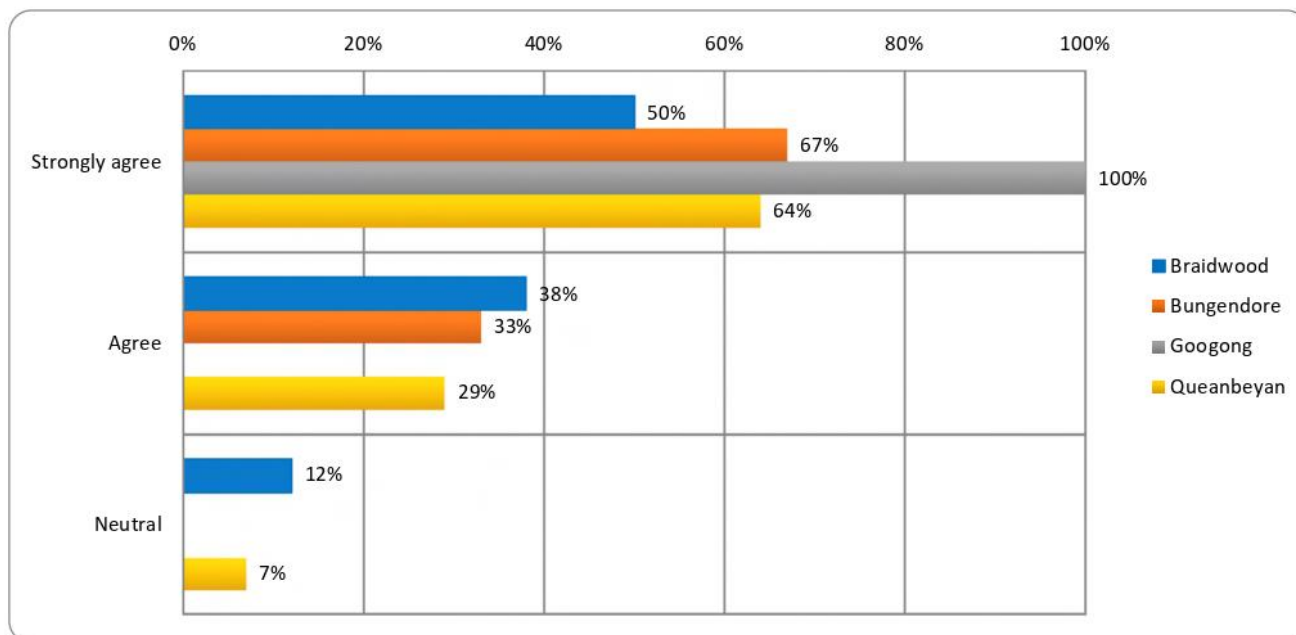


Q2 D. Our urban forest should be increased

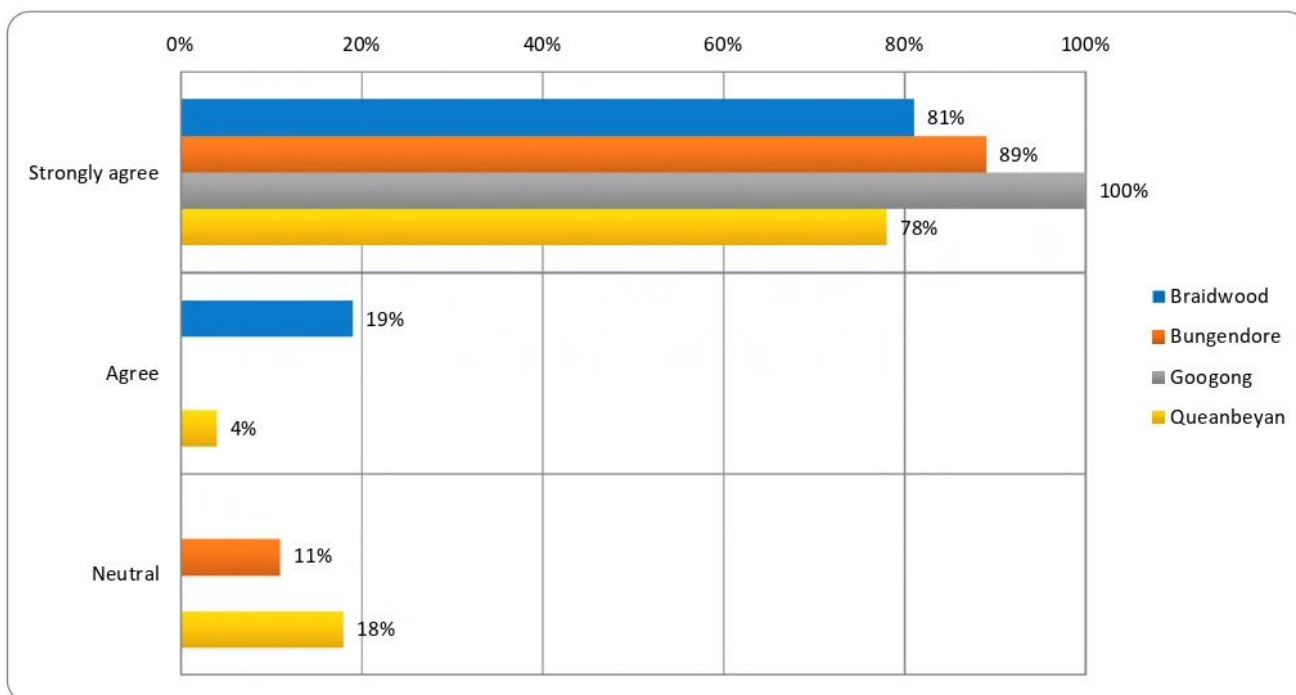


## UFCS Survey Results

### Q2 E. Our urban forest is important as habitat for local fauna

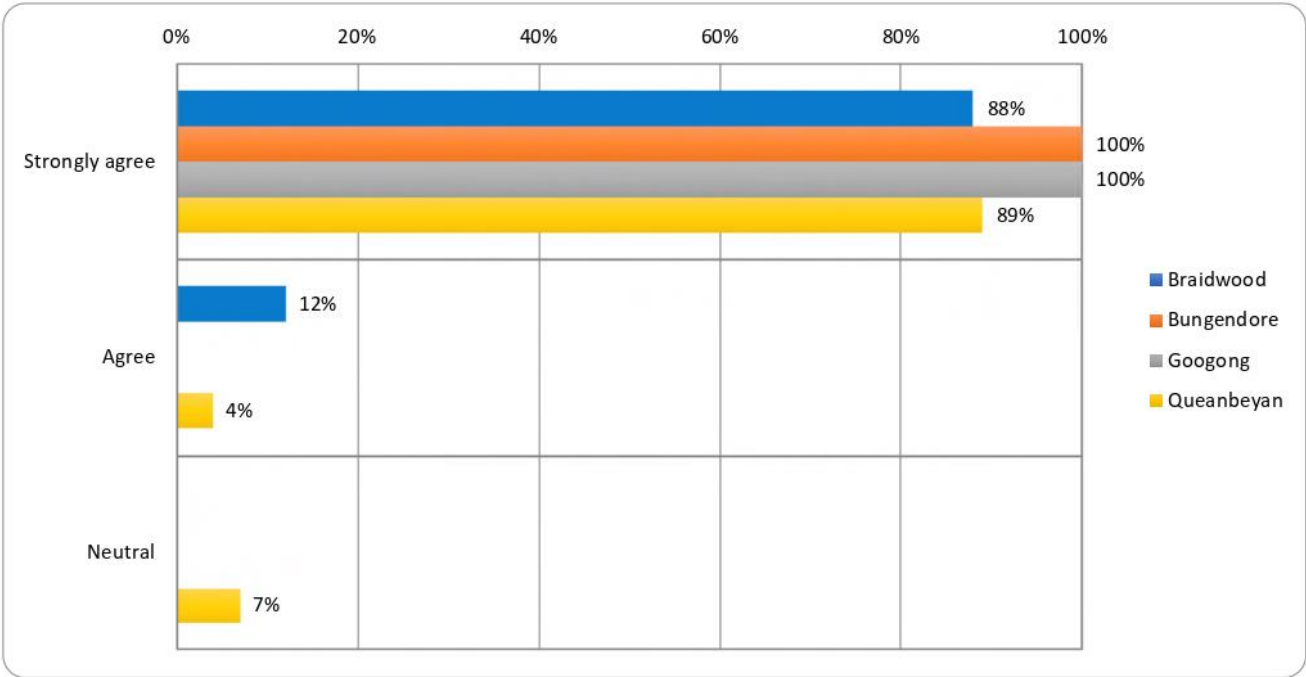


### Q2 F. Our urban forest is important for human health and wellbeing

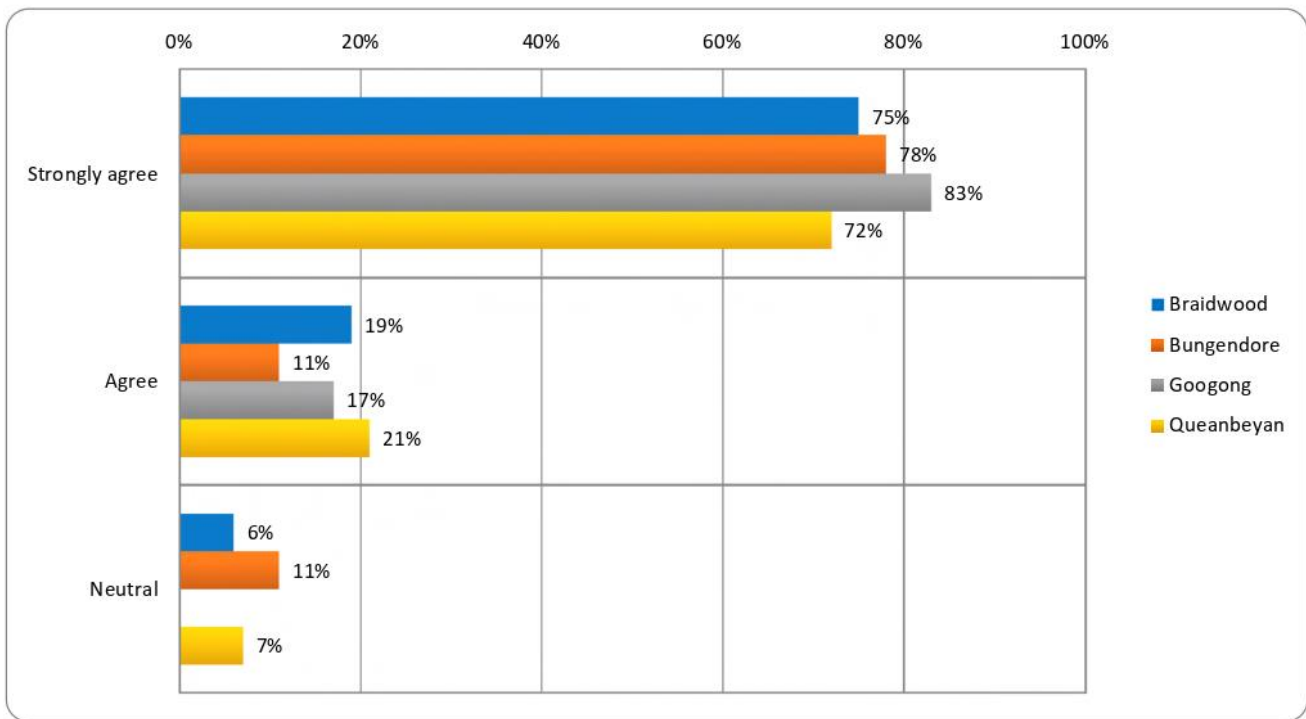


UFCS Survey Results

Q2 G. Our urban forest is important for liveability



Q2 H. Our urban forest is important for resilience



Q3 A 2020 study of QPRC found that 85% of our urban areas experience urban heat island effects. Other than trees, what other cooling strategies or infrastructure might help us cool our towns and cities?

Summary of key themes from most popular to least popular
Reduce impermeable surfaces
Cool roofs (light coloured)
Increase green spaces (Inc. native grasses and shrubs)
Sustainable/heat mitigating building design
Increase parks and sportsfields (irrigated grass)
Shade structures or covered areas
Green roofs and vertical gardens
Create wetlands similar to the ACT
Road/pavement surface colour
Water features throughout the urban setting
Protecting riparian zones
Ban over a certain percentage of synthetic turf, pebbles or gravel in nature strips
Underground or shaded carparks
Increase garden beds
Minimum green space requirements
Appropriate housing sizes to allow for green spaces
Portable planter boxes
Reduce traffic in CBD areas and reclaim carparks for greenery
Heat pumps
Shading with solar panels
Misting fans
Education
Mandate or set requirements for utilities to be placed underground

## UFCS Survey Results

Responses
Less concrete. Local native perennial grasses on nature strips like Canberra. Great for lizards. DONT CHOP DOWN TREES over 10 years old when building new developments. 20 years till they come back. Offsets at the very least. Green roof strategies. 'Groofs' underway in Melbourne. Employ more urban park managers with proper local wildlife habitat bush regeneration credentials not just arborists and horticulturalists. Things like mistletoe are excellent at cooling and proving food and refuge in heat for birds and arboreal animals. Just need management by paid staff with proper training.
Wetlands in parks.
Less use of concrete, soft underplanting's, more grassed areas.
House/building sizes that better match the lot. Minimum green space rules
Green walls and green roofs
Additional grassed areas, shade parking areas with shade sails, vegetate traffic islands with native species, allow lighter/reflective roof coverings and discourage new buildings from having dark coloured roofs.
Unfortunately, only trees
Permeable surfaces e.g. footpaths
Shade sails, water gardens, turf and other plant cover, moveable planters
Less ground surface locked under bitumen and concrete. More parks and gardens. Protected and rehabilitated riparian zones so creeks and rivers suffer less evaporation.
more research on roof materials to reduce heat sink ban synthetic turf building design!! to reduce need for air con etc extend urban forest idea into the suburbs so area is enlarged - at present far too many Queanbeyan trees are being cut down
3/4 of the urban centres in QPRC see significant vehicle traffic (Canberra to coast) especially during the hotter months. Strategies to funnel this flow of traffic away from the hotter areas would help, though it must be balanced with economic needs. Eg: Reclaim some parking space in the city centres to support more urban greenery and establish shaded, natural-surfaced car parks in the periphery & on green strips would reduce the number of hot cars soaking and radiating heat in the centres.
Smart/porous pavements that promote water retention and evaporative cooling would help too, especially in Braidwood where the main street floods in heavy rain events. Water retention in the city centre supports more urban greenery with less reliance on irrigation (see above suggestion about reclaiming some parking spots in main streets).
Designing new developments with improving air flows in mind.

## UFCS Survey Results

<p>Improve building isolation at every opportunity, to provide more options for taking refuge from the heat without relying on energy-intensive solutions like A/C. Explore the use of heat pumps for heating/cooling needs (some egs from Europe at various scales: <a href="https://www.ehpa.org/fileadmin/red/03_Media/03.02_Studies_and_reports/Large_heat_pumps_in_Europe_MDN_II_final4_small.pdf">https://www.ehpa.org/fileadmin/red/03_Media/03.02_Studies_and_reports/Large_heat_pumps_in_Europe_MDN_II_final4_small.pdf</a>)</p> <p>If there is ever off-street parking developed in Braidwood, I would love to see it shaded with solar panels to power nearby buildings (they do this in Western Australia). Having healthy weed free waterways also helps- there are a few creeks through town that could provide cooling and microclimates, as well as lovely recreational areas but are very congested with weeds.</p> <p>Mister on the verandas of main street, terraces</p> <p>Open public buildings for refuges</p>
<p>Minimising reflective hard surfaces, green roofs on all new building</p> <p>Shrub and grass cover as well as trees, linked to replacing hard, impervious ground surfaces with pervious, vegetated surfaces (see ACT plants for hotter future report and list by Cris Brack and others from ANU for good recommendations). Shade provided via eaves, external structures, etc around dwellings, along with passive cooling design for dwellings and other buildings. Fine scale planning to ensure air/wind movement in built-up areas.</p> <p>Reduce large areas of concrete and paving</p> <p>Change in the colour of the road surface and roof tiles. Reduction in hardscape areas of new buildings.</p> <p>If you mean outdoors, shade sails in playgrounds etc.</p> <p>Stop planning from allowing dark coloured rooves!!!! Reduce bitumen and hard dark surfaces.</p> <p>Reduce reflective surfaces</p> <p>Build better/smart buildings which reduce heat effect</p> <p>Reduce city car parks. Car parks are high heat absorbing materials (increase more public transport, or undercover car parks</p> <p>Green spaces</p> <p>Not running out of water. Creation of wetlands in surrounding rural areas</p> <p>Green walls on buildings. Garden beds in public areas. Water features in public areas.</p> <p>Refer to your Surface Heat Mapping Report, e.g. encourage green roofs on commercial buildings (where PV panels are not present), green walls on larger multi-unit developments, lighter colouring for roofs and pavement, develop stormwater wetlands (see ACT examples), selective installation of fountains, covered pavements (more verandas over footpaths and even pergola-like structures, especially with vegetation, over walkways), and reduced expanses of open car parking.</p> <p>Shade structures in public areas. Sprinkler systems on open parks. Misters. Designing for the environment - passive solar and cross ventilation air flow.</p> <p>Stop using concrete, especially large central car parks. Bungendore is a very good example currently, cancel that plan.</p>



## UFCS Survey Results

I think the best approach is a combination of trees and revitalising disused infrastructure. The report overlooks the use of man-made materials, such as shade cloths.

Minimise the use of dark coloured paving tiles and bitumen where possible... They suck in the Sun's heat; I favour the use of light colour tinted paths and pavers. Where possible replace thirsty grass lawns with hardy ground cover plants.

Ban black roofs and black walls which receive significant sunlight on hot days these act as heat banks, especially tiles and bricks or concrete walls.

Less hard surfaces, more reflective rather than heat retaining structures, reduced traffic

Less paved area where it isn't necessary. Grass/other vegetation instead of concrete

Replace front lawn with native vegetation

Reduce open air car park and/or shade them

Require buildings to have cross ventilation and shade

Reduction of concrete and changes to bitumen used to reduce heat retention and increase in plantings along roadways.

reduce road widths / lanes - create more urban green space.

Lighter coloured roofing?

The types of buildings and construction materials in future development. Roof top or balcony gardens and vertical gardens

Less concrete paving, pathways, wider nature strips, better aircon units that don't pump hot air out.

Ban dark roofs (grey colour) and focus on albedo generating housing (white).

Setting goals on reflection capacity of new buildings

Water features in urban settings

Try and space out the massive car parks everywhere. I drive and walk but Queanbeyan is a really crappy place to get around in on foot, so often you have to walk across big car parks to get to a location

Underground car parks

There are too many black roofs. Ban black roofs and black walls which receive significant sunlight on hot days. They act as heat banks, especially tiles and bricks or concrete walls. The local concrete paths (lightly coloured) are relatively cool on hot days. When we built, there were certain bricks at the brick place that were noticeably cooler in the direct sun (possibly denser bricks?).

Aside from trees, shrubberies, hedges, grasses both lawns and native plantings, other groundcovers, all have a critical role in cooling.

Planning regulations need to work so as to reduce concrete in driveways, living areas and replace with softer materials, vegetation,

## UFCS Survey Results

paving. Seek bitumen with lighter shades and similar.

Buildings can have more reflective outer skins to reflect solar radiation.

Googong is an example of poor town planning. Look at Google satellite maps to note the sea of grey roofs. No wonder it is a heat trap. All proposed buildings should have shading impacts noted and addressed via available software apps.

More gardens and grass, rather than concrete and bitumen. Light coloured roads and carparks.

More grass

Less concrete

Green buildings and rooftops

Any green in the landscape (apart from plastic grass) will help, meaning gardens and lawns as well as trees and shrubs; deciduous plants are the best choice in this climate for that job. Severely restricting the use of concrete and bitumen, and replacing with other surfaces that are permeable and allow plants to grow in between will help. One example is the use of concrete or paved tracks for driveways rather than concrete slabs. The colour of buildings is important too: the current fashion for black or grey roofs is not good for keeping urban areas cool and Council should mandate against that choice of colour. Another fashion, for using pebbles or gravel instead of plants on nature strips, is also a problem that Council could solve. Even footpaths and gutters could be redesigned to be heat reflectors instead of heat retainers in towns.

Light coloured roofs, air flow and ventilation, water for heat sinks may perhaps assist

Reduce heat retention of land surfaces through e.g. reflectivity.

Large to medium bodies of water. Reducing emissions on a larger scale via a conversion to electric transport.

Use white roofs, roads, vehicles or anything white to reflect heat away. NASA has said that if all of the world's roofs were white there would be no global warming! But still retain and plant trees!

- QPRC/NSW should treat 'heat emissions' under a pollution strategy, whereby an externality of one entity negatively impacts other non-related entity(s). This might enable use of many more robust instruments to shape behaviours of private, commercial and public actors.

- QPRC needs to amend their processes to consider permeable area of individual approvals and works within their local context. Take Googong as an example - how have we approved the building of a suburb in the 2010s with such poor heat island performance metrics?

This effect is also occurring on a smaller scale. Take for example the new river walk footpath along Trinculo Place in Queanbeyan. I regularly use this path and thought it was a wonderful job by Council, but if we stand back, what we have actually done is nibble away at the river corridor...only by 1-2m...but it all adds up over time. What we could have done is absorb the footpath into the existing roadway - or ideally remove the road and other footpath gaining permeable area by then only needing 1-2 m of paving in total. I would be surprised if the land value of nearby apartments didn't rise as a result, assuming vehicle access was addressed.



## UFCS Survey Results

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- More pressure should be placed on utility companies to put phone and electricity underground in established suburbs. Above ground they obviously reduce tree canopy - we are effectively having to pay people to heat our cities by having them trim the trees. This is a perverse decision driven by short term economics which don't account for externalities.

- Information is of course always important, so the Council has a role in 'packaging' information to support decision making. For example, I was unaware of the 'carbon sink forest offset' from the ATO. I wonder how many other programs are already available for various actors. This would require development of 12-15 'personas' and matching incentives/disincentives to the desired behaviours. And Council could take an active role in feeding back why these initiatives are not being adopted by citizens of the QPRC region.

- Lastly, I would urge QPRC, the Local Government Council Association and/or the State Government to collaboratively rely on "expert" advice. While I have my opinions, I know a lot of research has already been done in this area. We should pool our expertise for this work.

Unsure. My thoughts are that shade provided by tress, along with the transpiration would be the best (and cheapest?) way to cool a streetscape.

Action to reduce carbon emissions to zero by 2030 by councils, state and federal governments as well as by individuals. Plus, more wetland areas, ponds, fountains, verandas, awnings and replacing concrete and bitumen paths and drives with less heat absorbing materials.

Fix up council regulations for building houses - ban dark rooves, black/charcoal bricks, concrete driveways.

Mass tree planting on public land. Planting of good shade trees on every street in Bungendore.

Enforce developers to tree up 30% of land developed for housing estates.

Conservation policy to protect existing trees. I have witnessed hundreds of trees destroyed during the last 15 years in Bungendore.

The "2020 study" by Edge Environment is a bogus report describing problems that simply doesn't exist. I hope that council hasn't paid them any money for that rubbish. Bungendore is not an "urban heat island" at all. Quite the contrary, Bungendore township day temperatures are lower than the surrounding farmland and natural bushland as clearly shown in Figures 1, 6, 12 and 15. The maps also indicate that Queanbeyan and Googong are no worse than the surrounding countryside. Trees are nice, but the 2020 report is by no means a valid document upon which to base council planning decisions.

UFCS Survey Results

Q4 During a heatwave and/or extreme hot day, how do you currently take refuge from the heat? For example, in an air-conditioned shopping centre, a park, or at home.

Summary of key themes from most popular to least popular
Stay at home with air cooling system on
Stay at home (other e.g. passive cooling)
Go for a swim in the river or local pool
Visit air conditioned business and attractions
Sit in the shade (under a tree, shade structure)
Visit the local Library
Escape to cooler climates e.g. the mountains or the coast

Responses
Cool house with cold towel around my neck and fan. Air con in office
Sit in the shade.
Stay indoors at home or find a shady spot under a tree
At home with air conditioning
Stay inside, at home, air-condition and go for swim
Air-conditioned shopping centre/movie theatre, stay at home and hide from the heat.
Stay indoors in our house.
At home



## UFCS Survey Results

Evaporative cooling at home, during humid days when the evap does not work we close up the house, adjust our activities to be quiet during hottest times, sit on the tile floor, feet in a bucket etc. We do not usually go out.

I usually stay at home or go out to the river.

at home or park def not shopping centre

Usually at home with low-energy solutions (evaporative cooling with a wet towel and a fan). In more extreme cases, use of air conditioning (at home or in a public space)

I go inside the oldest part of my 160-year house, which is stone. I do not really go outside. In the morning of a hot day I might go to the Shoalhaven river at Bomby. But I like to stay near home so I can check on animals and water plants as needed.

If at home inside

In Monga national park

In the library a/c

Mostly at home (which is not air conditioned)

Minimise reliance on air conditioning by active management of dwelling, eg opening house at night to cool, use of thermal curtains, blocking sunlight entry during heat of day.

At home

stay inside with the house all closed up and an air conditioner running intermittently.

At home

At home, where I shut the house down with curtains drawn closed and then open the house up at night to cool down. I have also planted shade trees in my garden.

Stay at home, go to an air-conditioned shopping centre. Stay in shade

At home

I go to places where there is water and there is deciduous trees. Swim in the river.

At home

Have done all three on various occasions, but they would be the main ways. Have also less frequently chosen to escape to cooler areas like the coast or mountains for a reprieve.

## UFCS Survey Results

At home or at a pool

Keep away from urban centres with large areas of concrete and tar. We have very good cool areas in our garden thanks to thick deciduous tree cover. This is a no brainer.

At home. Our home is naturally cool without air-conditioning due to the verandas.

I have roller shutters and magnetite retro fitted double glazing at home to shut out the extreme Summer heat or Winter nights cold. In Summer I mostly just reduce activity and have lots of ice-cold drinks, fans on low and South facing front door is open wide, I have solar skylights and don't need to switch on lights. When I go to town I go early and come home before it gets too hot. My transport is a bicycle.

Air-conditioned house. Visit the Pool.

Air-conditioned business, shady park

Stay home inside.

I don't have air conditioning, so I close all the windows and curtains

If extreme I go to the art gallery in Canberra

to the large Queanbeyan park late afternoon for respite once the house is too hot

In a well-insulated, well-built home that we actively cool at night with the Easterly winds. I do also like Dickson pool. The tree canopy there is very effective

home or Queanbeyan pool

Stay home in air conditioning

At home

At home- large garden, sunblock blinds, house closed during the day and opened at night.

Lock up the house, shut blinds.

At home, downstairs where it is cooler

stay at home

## UFCS Survey Results

Air conditioning at home or work

We rely on our air conditioned house. Sometimes we head down to the local creek or visit the cinema or shopping centre.

air -conditioning in home (retired) or resting in shaded gardens, parks .

If at home, inside. We have no air conditioning as we built a double glazed home that was orientated to benefit from changing solar position and wind direction.

At home.

At home

In the shade outside e.g. Town Park

Our home is an old stone house which stays cool except in heatwave conditions, when we used fans to cool off a bit. The house is also surrounded by mature deciduous trees which provide brilliant shade and a cool refuge from the hot sun, while letting the sun in to warm the house through the winter. We planted the trees ourselves 4 decades ago because we recognised the importance of creating a microclimate around our house.

Under a tree outside or inside at home

In a cool part of the house. Nowadays we have air-conditioning too.

At home now we have aircon!

Under a tree or Home.

We stay inside and manage the house. We have planted more than 35 trees on our urban block and have installed a range of passive (awnings, double glazing) and active (evaporative) cooling. We are yet to 'lighten' our roof (due to cost), but plan to do so in the future.

Stay indoors with the fan on. Stay off the main street of Braidwood where the bitumen road absolutely bakes.

I work from home and stay inside which is air conditioned (by solar panels).

Palerang shire rarely has days hot enough to warrant seeking refuge. Use of words like "heatwave" and "extreme hot day" is an exaggeration. That being said, refuge from any unpleasant weather is usually taken at home when not at work.

## UFCS Survey Results

**Q5 In 10 years' time, if Queanbeyan-Palerang has a healthy urban forests and cool urban centres, what would you see in your area?**  
Provide up to three phrases or sentences to describe your vision

Responses
Native perennial grassland cover to protect soil from drying out heat. Use of local native shrubs and willows to ensure we are a haven for woodland birds as we are in their habitat. Every street frontage enabled to grow shade trees that endure drought. No awful photinias.
Look at Googong, what a disaster. It wasn't there 10 years ago and now it's the most heat affected area. Are the planners so unaware, has heat mapping just been invented?
Stop building such dense green less expanses of dark roofed, fence to fence mansions.
Greater birdlife in urban areas
More people spending time outdoors in summer
Overall mental health benefits
More greenery, more people enjoying outdoors
No comment
Healthy established neighbourhood trees in available council land (retention basins) and vegetated road islands that use indigenous native species. Dark roofs would also be discouraged to reduce heat absorption into homes/buildings.
As we live on a rural block, probably not much difference, but our trees will be larger.
Every available space would be planted with trees.
More trees and vegetation throughout Braidwood, including Wallace Street.
More green and shady places as I walk around. Less exposed dirt and places for weeds to thrive. Lots more people outside enjoying a more hospitable environment.
Far more tree cover throughout the electorate, particularly focused on wildlife corridors and riparian zones.
Large deciduous trees down the Main Street of Braidwood and along all roads (not just the highway) leading out of Braidwood.
Revegetation of areas of any size throughout the Braidwood urban area that can be planted up, whether road verges (such as Bombay Rd), picnic areas (such as Archer Picnic Area), or commons (such as Hassell Reserve).
as much urban forest as possible with the best town planning and building design to work with the urban forest
Urban centres that are greener, more shaded and less congested with traffic. An integrated mix of natural and technological solutions for trapping and harnessing heat and regulating moisture.
We would see more kids and adults playing and walking around enjoying our lovely streets. More tourists enjoying our town. More diverse populations of birds and insects.
More native trees throughout the shire to create healthy habitats for wildlife and for humans
Also some nice deciduous trees to make the area a destination for tourists



## UFCS Survey Results

Shade trees complemented by shrubbery and ground cover  
Green roofs on all council buildings and new builds  
Enhanced management of vegetation along river corridor and urban creek/drainage corridors; greater use of local tree and shrub species, especially dwarf varieties of main local eucalypt species and kurrajong for drought reliance; long term plan for replacement of mature trees, including wildlife breeding hollows.  
Street trees with a spreading canopy under which you could walk and park your car.  
More grasslands and less concrete.  
Covered outdoor seating areas e.g. Umbrellas and shade sails.  
A connected community. Healthy people and places. A liveable city.  
Lots of shady deciduous trees in all town streets, along pathways and in public spaces  
Why are the leafy suburb the desirable wealthy ones? Poor suburbs could be leafy and desirable too and make our lives richer in every way, even if not in money terms.  
Green/Cool/shady outdoor places to be with family  
Less cars in the centre of town.  
Lots of big green drought tolerant trees lining our streets  
Much more green space and more trees  
We would have restored the soil, vegetation and waterways as much as possible. We would have water security, natural in-place fire breaks, and productive landscapes. Mostly this would happen on the fringes of the urban areas.  
Queanbeyan's urban areas coolest in Australia thanks to the intense tree planting over the past 10 years. There's not a street in Queanbeyan that isn't amassed in trees. The streets are so cool as the trees shade the road pavement.  
Streets and outdoor areas with shady tree cover. Cool, shady oases with water features that allow sitting in a cooling breeze.  
1. Flourishing wildlife by creating conservation areas and thoughtfully constructed corridors for wildlife.  
2. An abundance of flourishing green spaces to everyone to enjoy and connect with nature  
3. Healthy ecosystems for flora & fauna to flourish & clean air and water for us  
A proper tree protection plan (currently council does not seem to place higher value on existing trees than on the seedling that may be planted to replace it. The best time to plant a tree is 20 years ago, a freshly planted seedling will not have a positive effect for a long time, protect what is already there.)  
Proper community consultation on all issues pertaining to the removal of trees.  
Phase out concrete as the main material used in car parks. Encourage Bungendore residents to use bicycles and walk so that we don't need as many car parks.

## UFCS Survey Results

Tree lined streets. Currently there are few trees. The streetscape in old suburbs, such as Kingston in the ACT are significantly cooler and more attractive than those in newer suburbs such as the developed areas of Bungendore. While this takes many years to establish, hopefully in 10 years time the main work to developing a robust canopy would be completed.

I love urban infill and detest urban sprawl.

Give me more neighbours in buildings that have trees on the rooves, plants growing up the outside walls. Safe balconies large enough for people to have young children playing in the fresh air, not confined inside and to be able to grow vegetables and decorative plants. I don't like the way we are having to travel further each year before we find natural countryside and native bushland. More places close to home for people to take the children to play. Parklets should be within easy walking distance.

More urban forests, with lots of large indigenous trees for shade and habitat.

More trees in parking areas such as schools and shops.

House development which allows more trees on each block.

I would like to see large trees that provide ample shade. Native birds nesting. Currently we have a massive problem with myna birds which wouldn't be so bad with more native flora/fauna.

Birds

More walking

The streets are lined with large native canopy trees and shrubs. The green spaces and parklands that are currently under planted are now growing larger locally native trees that are vital to native animals. Increase in animal activity and more people walking around because it's a more much pleasant place to explore.

I would love to see something like the trees at Dickson pool at Bungendore pool and park or green spaces. It is also lovely to walk along tree canopy places

Very well shaded footpaths and walking tracks, specifically around the entire bridge-to-bridge loop in Qbn. Qbn CBD children's parks (including Japanese sister park in Qbn East) have heavy shade and CBD streets share similar urban tree coverage and pedestrian space as Crawford street near Royal Hotel.

Kids able to play in outdoor spaces.

Increase wildlife and healthy habitats.

A healthy lush environment with minimal pollution.

Increased street planting; cheaper water to encourage gardening

No extra large roads, focus on cycling and small paths, and better public transport connections, especially to Canberra. This includes allowances for eScooters and bikes on buses.

A predominantly native urban forest with plants selected to fill three levels - canopy, bush layer and ground cover. An urban forest which has continuity with natural areas such as parks to provide continuous foraging habitat for native animals including hollow-dwellers. An urban forest which is cared for by local residents, who understand the importance of habitat and carbon uptake as well as cooling effects of trees and plants

Leafy, Pedestrian friendly, progressive



## UFCS Survey Results

### Improved liveability

More urban forests, with lots of large indigenous trees with good canopy cover for shade and habitat. More trees in parking areas such as schools and shops to provide shade for vehicles. More large trees in public areas such as parks, playgrounds.

Broad and elongated vegetated areas that have dense segments for habitat, segments for human movement, to reduce heating and slow drying winds.

Some of these vegetated areas can comprise sustainable fruit orchards, eg figs, nuts, quince, various berries, various plums, olives....

Some of these vegetated areas can provide new community gardens.

A number of larger taller buildings will have rooftop gardens, plantings.

More space between residences. Subject future building proposals to rigorous solar passive design principals. Treat each major urban area separately as they each have unique microclimates - one design philosophy won't suit all locations.

Public buildings built with sustainable practises and materials, eg roofs covered in plants. Native trees and grasslands acting as corridors for wildlife. Lots of houses with solar panels on their roofs.

Green buildings and rooftops

Urban parks with vegetation cover

A lot more street trees

I would definitely hesitate to make any predictions about what we will see in our area in 10 years' time, given the melting of ice caps and glaciers, the warming of oceans and the consequent rapid change in climatic conditions, especially in Australia. Much of Australia may be unfit for human habitation by then, given the rate global heating is progressing, and extreme weather events are making huge changes to landscapes and will only have accelerated by that time. However what I'd like to see is a town-scape dominated by vegetation, which I gather is what this strategy is about, rather than what we have now, which is a very human-dominated landscape.

More comfortable and pleasant place to be on hot summer days

Green surrounds are good for mental health

Tree corridors link in with regional vegetation belts as habitat and climate-influencers

Shady trees over car-parks in the city centre. More street trees.

A beautiful place to live that we can be proud of and our children can love to grow up in. A cooler and more charming town centre and suburbs.

Cool, pleasant, shaded areas, including street trees, provided Council waters them!

'The metrics would need to be refined, but:

UFCS Survey Results

- Evapotranspiration within any urban statistical mesh block remain -2/+2 degrees of pre-settlement estimates on the coldest/hottest 24 hr period annually.
- Total domestic and commercial energy and water usage (even on extreme days) remain within (a range) based on long term annual (as opposed to seasonal) averages.
- Outdoor activity by citizens remains the same or increases on extreme days. That is, people seek out public spaces for relief rather than needing to retreat into private spaces. (An historical example is where groups planned picnics at swimming spots during heatwaves)
- Shade trees for the main street of Braidwood.
- Additional shade trees throughout the town.
- Community solar farm enabling people to keep cool in summer.
- Complete overhaul of council regulations regarding developers' and householder responsibilities.
- Increase in wildlife -and fewer species on the endangered or threatened list.
- We don't need any wordy phrases to explain what we want here. Just more trees please, particularly along roadsides and in parks.
- Maybe some more shrubs and grass too. It's not rocket science.

**Q6 Are there any other ideas, feedback, or comments you would like to make in relation to the Urban Forest and Cooling Strategy that is currently being developed?**

Responses
Stop cutting back every living thing 3m from the edge of the road. If you plant low lying strong native perennial wildflowers like billy buttons you can exclude weeds and not have to spray or slash. Spraying all the roadside creates dead vegetable matter that is a fire risk too. And it certainly makes the roads HOTTER. Better to slow traffic down than kill the trees. Roadside trees are some of the biggest and most important habitat trees because they have not been historically cleared for agriculture.
Look at Googong ... then look at the plans for Tralee, North Bungendore et al and draw the bloody dots.
I would love to see council support the growing of fruit trees and vegetable gardens on nature strips. It's important to have shade and habitat but to include food forests as part of the plan would be a significant improvement, particularly for low income families who would benefit from the fresh free food.
Please ensure more natives are planted, not exotics
Yes. Please consider safety in relation to roads, sight distances, intersection, vision of vulnerable road users such as motorcyclists, pedestrians and cyclists when considering urban forests. The trees in Queanbeyan are amazing, but want



## UFCS Survey Results

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to ensure no safety risks and hazards are introduced that compromise safety of people navigating Queanbeyan because they are obscured by trees.

Revegetation of traffic islands (Cooma St and Southbar Rd are good examples) with native indigenous species. At the moment, small isolated cement cut outs act as de facto plant beds that are filled with unattractive plants that provide no sheltering canopy. This project provides a good opportunity to improve the ascetics of these strips and also provides habitat and food sources to insects and birds. Water management will also need to be thought through as debris has been washed over the roads in the past.

Stop allowing developers to built ghettos that have no space on each building block to plant trees either on the block or on the sides of the streets!

We should be looking at more moveable shade options for the city centre. Along Crawford street it can be baking hot in summer - large semi-mobile tree planters with under planting would improve the amenity of this space which is relatively flat and smooth. I think they have done something similar in Sydney (featured in michael mobbs' sustainable house book?). Milkwood permaculture have used this idea to good effect in their rooftop garden project in Sydney too - details and plans on their website.

Support and education for landowners/farmers to encourage tree planting and holistic land management. There is incredible work being done in this region by Mulloon Creek Natural Farms and others - we need to showcase the benefits of farming and grazing in this way so that Queanbeyan/Palerang becomes a centre for regenerative agriculture, which has been shown to draw down carbon, build soil, hold moisture and drought-proof our land. That's the best cooling strategy I think we have.

extend it out into the suburbs!!!

More street planting in Braidwood. Develop the old D and S site as an off street car park with more trees and solar panels. Clear out and maintain the waterways through town. Encourage land owners to develop beautiful verge gardens instead of boring grass or gravel.

I really think more native trees and shrubs are a must to help our natural environment

Integrate urban vegetation planning and establishment with biodiversity conservation: most public plantings do not have wildlife habitat value.

A comprehensive street tree planting program for all of Braidwood, with trees having a spreading habit. Trees under powerlines can be pruned as in the ACT.

I would really love to see a green fund that builders/developers/tree removalists etc could pay into when clearing vegetation. It is not always appropriate to replace a tree in the same location and often replaced trees are not cared for adequately. If Council managed a green fund they could plant trees in public places and then nurture the trees to maturity. The funds could also go to public education, green experiments, habitat enhancement etc.

Please plant lots of shade trees, preferably deciduous. Native trees often don't provide good shade and are a fire hazard.

UFCS Survey Results

Just get on with it!!!! I have been asking for the last 5 years for trees to be planted along Cooma Road! And plant proper tall shade trees, of all sorts, not just Chinese Pears!

You are promoting urban forest for climate control and yet you plan to take much of our only park to put large buildings to further distress our environment

We have destroyed 95% of the soil, vegetation, and waterway function. We are on the last 5%. Therefore we are having the problems with drought, fire and flooding. We have working models of how landscape repair can solve these symptoms of damaged landscapes. All the experiments are done, and the scientists are modelling it. It is now up to government at all levels to make it happen.

Keep up the good work. I hope you receive the funding to implement all your ideas.

Long overdue, given the time it will take for trees to mature. A possible side benefit of more tree-lined streets is drivers will slow down. The strategy should be complemented by an overall planning strategy more consistent with achieving greater liveability, sustainability and climate resilience.

If council is taking this issue seriously, they must not build the car park in Bungendore (and learn the obvious lessons this process can tell). The area proposed to demolish for a car park is currently already an urban forest. There will be significant urban warming in Bungendore's heart if it goes ahead. If it does, we will know you are not serious about this issue.

I have concern that periods of drought will be poorly accounted for. Irrigated areas, such as grassed ovals may be difficult to maintain in periods of drought. Additionally, they may provide the perception to the community that conserving water is not a priority. Therefore, I think drought proof cooling should be a target. I am strongly in favour of an increased canopy over irrigated open spaces.

Fruit trees should be incorporated for the dual benefit of also nourishing the community.

Deciduous trees should be considered as they bring nutrients to the surface as they drop their leaves, which in turn increases biodiversity. They also may protect from heat in the summer and allow warmth during the colder months. Additionally, they are also attractive such as the streets of Kingston in the ACT and the entrance to Tarago (which is a popular location for filming commercials.

The approval of new developments should include a minimum tree per distance on the side of new roads so these initiatives are not required by Council.

New common areas (such as the Bungendore sports hub) should include trees to provide shelter for spectators in the long term.

Local businesses, and possibly residents, should be given the option to offset their carbon footprint by funding local tree



### UFCS Survey Results

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planting. If this was implemented, it should be ensured that funding actually goes to additional tree planting in the local area.

Thank you for the opportunity to have a say.

More light-coloured roofs, to reduce solar heat gain on hot days and high R value roof insulation for winter, eg R6.3- R.7 to reduce heating costs.

The blocks in new development areas are way too small. They're all house - gutters sometimes touching. There is minimal room for trees and vegetation on the tiny blocks.

I would like residents to be supported to plant vegetation in front lawns to reduce watering requirement and provide better habitat for animals

I'm in full support of this initiative. Please consider choosing experienced consultants who choose endemic plants and consult with the local Indigenous community to embed their cultural connections into the plans.

Fantastic to hear.

Offer each Household in QBN 1 or 2 free trees selected by QPRC for pickup and planting on their property or on their nature strip. Use this as basis for establishing a QBN plant nursery. Replicate success in the ACT using Yarralumla nursery to create a garden city - decades of tree handouts allowing residents to plant and take ownership of their street scapes.

Encouragement for the community to also improve and grow their own trees and gardens to add to the urban greening.

Trial a temperate climate version of the Arbor being trialled in Cavanagh St in Darwin on Monaro St and Crawford St.

The community needs to be kept informed about progress towards meeting objectives and to be encouraged to participate - so Council needs clear targets and a clear enunciation of how neighbourhoods will benefit. Find places which are currently waste land and work out how to make them into forested areas - the areas either side of the railway come to mind - Council should negotiate with railway owners to enhance habitat e.g. make a planted walking corridor on the disused part of the rail line to Cooma. Encourage industrial area owners/renters to green their land - don't just limit the strategy to Council owned lands. Make sure it is not dominated by non-native trees (need education on value of natives). City of Melbourne has some good ideas <https://www.melbourne.vic.gov.au/SiteCollectionDocuments/urban-forest-infographic.pdf> and particularly re community involvement (individual tree data):

<http://melbourneurbanforestvisual.com.au/>

I love that there is a strategy being developed, I hope you get given enough teeth and funding to pull it off. Would make a big difference to the area.

Avoid large Eucalypts in public areas, they drop dangerous limbs and poison the soil. The Plane trees on Rutledge Street are ideal.

More light coloured roofs, to reduce solar heat gain on hot days and high R value roof insulation for winter, eg R6.3- R.7 to reduce heating costs.





## UFCS Survey Results

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Less restriction over grass verges. Allow us to plant drought resistant natives that demand less water usage than grass. Googong claims to be sustainable but only allowing grass is clear and blatant and unforgiving water wastage.

More creek lines in the city and nearby be revegetated with native regional species for biodiversity.

PA Yeomans "The City Forest" published 1971 should be mandatory reading for every urban planner/engineer applying for a position with QPRC. This 50 year old book predicts the inadequacy of contemporary urban design as demonstrated so tellingly by QPRC's approval of Googong

Climate change as well as human activity has produced urban heating. In order to combat climate change we must do a variety of actions now. QPRC could be a leader in this area, but unfortunately doesn't have the necessary determination or understanding to act. Things like motivating people to get solar power, use less water and gas, or to change to electric vehicles could easily be undertaken by the Council. Sadly, they are not interested.

The fact a strategy is being developed is a positive move my council.

I'm glad that Council has this strategy but at the same time the Council is approving and encouraging huge development plans which will only exacerbate the problems the strategy is supposed to be solving. I hope that when new councillors are elected in September, the direction of Council's policies will change towards real sustainability and away from development that benefits the pockets of developers and destroys amenity for residents.

Tree species selection is important - should be able to handle droughts/ low water demand, but also low bushfire risk.

Deciduous species good to allow sunshine in during winter... if there are such species out there! Layout for public safety (low risk of falling branches, safe to walk in at night etc) is also important

I think it's an excellent idea. Although native trees are great please also consider big deciduous trees such as elms and oaks which provide vast shade and beauty.

Please STOP knocking down established trees. They are so hard to nurture. Council has bulldozed them at the new sports area in Bungendore and presumably will in the new car park. And when you do plant trees WATER them for some years. After the debacle of uprooting the hardly ever watered London Plane Trees from Molonglo St, replanting them on Frogs Hollow and again initially not watering them, you didn't water the replacement trees sufficiently so that the three most westerly ones were in dire straits at the end of summer.

'- The report did not describe the difference from baseline (e.g. pre-settlement). This will be essential to tell us where to target effort and how much effort is required.

- The report included rural areas. It would be preferable if the urban and rural strategy/performance were separate. This is not because they are not connected, but because it's likely action in the rural areas will be easier than acting in the urban areas. Planting "a million trees" (only on farms), while admirable, won't address the urban heat island effect, which is what will proportionately impact people.

- The data is not granular enough to support policy making. It doesn't tell us the greatest contributors (Council, State or

UFCS Survey Results

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Private or particular infrastructure such as dark roofs/solar panels!) This doesn't have to be from the QPRC area but could leverage comparable work already done.  
<https://researchdata.edu.au/search/#!/rows=100/sort=score%20desc/class=collection/p=1/q=heat%20island/>  
<https://aurin.org.au/data-playground-for-research-students/>

- Googong should be a case study into the interaction of QPRC/NSW/National planning and approval processes as well as incentives/influences contributing to unsustainable suburbs.

Two years ago, in the lead-up to the bushfires I stepped out on to Wallace Street to speak to a friend in his parked car. The temperature was 38 degrees on that day but standing on the bitumen road surface was considerably hotter and so unbearable I had to leave - immediately!

It was a furnace and with no tree cover these summer temperatures will kill all daytime foot traffic in town. It is extremely unpleasant, and yet shade trees could change this with the added benefit of providing beautiful leaf colour in Autumn.

In my opinion the methods for implementing this strategy are the same as the methods for implementing urban beautification strategies. Trees, shrubs, and grass look good.





# **QPRC Urban Forest Cooling Strategy**

## **Community consultation workshops-summary report**





## **UFCS- Community Consultation Workshops Summary Report**

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## UFCS- Community Consultation Workshops Summary Report

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### Introduction

This report summarises the findings and public opinion from two community consultation workshops regarding the development of Council's Urban Forest Cooling Strategy (UFCS). The consultation was undertaken by Mosaic Insights (engaged consultants) and QPRC to discuss the Strategy's vision, identify priority actions and gain insight from community members about the region's current urban forest and cooling infrastructure.

### About the Urban Forest Cooling Strategy

Queanbeyan Palerang Regional Council is currently developing an Urban Forest Cooling Strategy for its major urban centres of Queanbeyan, Bungendore, Braidwood and Googong. This follows on from the results of the QPRC Surface Heat Mapping study which found that over 85% of urban land in the region fell within an urban heat island (2 degrees hotter than surrounding natural areas).

The Urban Forest Cooling Strategy will aim to:

- Lessen the impacts of extreme hot days and heat waves by reducing urban heat islands in urban (built up) areas.
- Ensure a healthy, resilient and sustainable urban forest.
- Increase and diversify urban biodiversity.
- Develop infrastructure to support the urban forest and urban cooling.
- Engage the community.
- Support adaptation actions throughout our urban centres.
- Mitigate climate change by storing carbon

### Workshops

Two online community consultation sessions (workshops) were held on the 8<sup>th</sup> and 9<sup>th</sup> June 2021 with a total of 10 participants. Council's social media and sustainability mailing list along with emails to UFCS survey participants were used to promote the workshops. Participants registered through Eventbrite with information and the Zoom link sent to the registered email addresses.

The workshops were held during the morning and evening on separate days to encourage attendance. Despite this, only small numbers of attendees were recorded. Attendance at the workshops was recorded as follows:

Workshop	Date	Time	Venue	Participants
Weekday Workshop	Tuesday 8 <sup>th</sup> June 2021	10-11.30am	Online	5
Evening Workshop	Wednesday 9 <sup>th</sup> June 2021	6-7.30pm	Online	5

### Methodology

Background information, survey results and initial analysis findings were distributed to participants two days prior to the workshops to ensure that the objectives of the workshops

## **UFCS- Community Consultation Workshops Summary Report**

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were met and to encourage further community input. This allowed participants to understand the current urban forest/cooling infrastructure and think about what they might want to contribute.

During the workshops, participants were initially briefed on the background information, preliminary analysis findings (tree canopy cover), survey results and key challenges through a PowerPoint presentation.

Participants were then asked to consider and respond to a number of questions/statements in three separate discussions. For the discussions, participants were split into two separate groups in breakout rooms facilitated by Mosaic Insights and Council. Mural Boards and written notes were used to gather data and information.

### **Representation**

The views collected in this report cannot be said to be statistically valid because of the small number of participants that attended the workshop. Nevertheless, an important snapshot of the community was obtained.

### **Participants**

The community workshops were open to all residents of Queanbeyan-Palerang and interested parties (e.g. business, visitors). The workshop sessions were facilitated by Mosaic Insights and Council staff.

At the conclusion of the workshop session, participants were asked to provide feedback.

### **Objectives**

Workshop sessions can build a sense of community and are a useful tool for in-depth insight into the opinions of a small group, allowing many contributions. Unlike a survey, they enable the discussion of complex issues and underlying concerns and allow for deliberation and the brainstorming of ideas. Key objectives of the workshops were to:

- Engage the community in the development of the strategy and provide ownership.
- Gain insight into key issues within the community.
- Gain insight from community members into the regions current urban forest and cooling infrastructure.
- Enable the community to provide input and advice into the background information and initial analytical findings.
- Develop a draft vision.
- Discuss and prioritise actions and focus areas.

## **Findings**

### **Discussions**

During the workshop's participants were asked to consider and respond to a number of questions/statements in three separate discussions.

- Discussion one (5 minutes): What are your thoughts on the background information, analysis findings, survey results and key challenges, did anything surprise you? Do you agree with the findings? What do you believe are some of the key issues in your area? Is There anything more you would like to know about the urban forest? What do you do to care for the urban forest? What could you do?



## UFCS- Community Consultation Workshops Summary Report

- Discussion two (10 minutes): Read the vision and write down one thing you like and don't like about it. As a group review the vision and identify any missing words or themes. Vision 'A cooler, greener Queanbeyan-Palerang is a city without urban heat islands with a healthy, equitably distributed urban forest that encourages people to enjoy the outdoors and connect with nature. Council and community understand the importance of urban cooling and actively care for the urban forest.'
- Discussion three (15 minutes): Brainstorm as many ideas as you can and then as a team discuss and select five focus areas to enable Council and community to achieve its vision.

**Discussion one (5 minutes): What are your thoughts on the background information, analysis findings, survey results and key challenges, did anything surprise you? Do you agree with the findings? What do you believe are some of the key issues in your area? Is There anything more you would like to know about the urban forest? What do you do to care for the urban forest? What could you do?**

Grouping	Response
<b>Issues or inaccuracies with the findings</b>	<ul style="list-style-type: none"> <li>• Need to understand what the baseline is, what is normal, so we know what we are working towards/working from.</li> <li>• Bungendore – 1000 new houses planned for the area, re-look at population numbers.</li> <li>• Wallace Street (Braidwood) has no street trees, however the analysis (LIDAR) indicated that there is, need to re-look at this.</li> </ul>
<b>Agreement with findings</b>	<ul style="list-style-type: none"> <li>• Overall, most participants noted that the findings did not really surprise them, especially with regards to tree canopy cover and lack thereof in some locations.</li> </ul>
<b>Key issues with regards to the urban forest and cooling in their area</b>	<ul style="list-style-type: none"> <li>• QPRC has no street tree planting program or overarching policy.</li> <li>• There are many disincentives for planting trees, how do we respond to those.</li> <li>• Braidwood – no trees in the local centre (Wallace Street), this is a sensitive heritage issue.</li> <li>• Planning mechanisms are currently not being utilised to mandate building design requirements (e.g. shade on western walls) or tree canopy cover.</li> <li>• In appropriate material selections when designing and building houses (e.g. dark roofs).</li> <li>• Current urban forest in Braidwood is aging significantly even with recent plantings by Council.</li> <li>• Public/private interface is important and a key issue.</li> <li>• Little to no recognition of significant historic trees.</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>• Individuals should be planting in private spaces but if there is no space then it is not possible – no use having a goal for private tree planting (e.g. Googong)</li> <li>• Trees are not the only option to avoid urban heat islands, what about other infrastructure? (solar panels)</li> </ul>

## UFCS- Community Consultation Workshops Summary Report

are seen as good for the environment, but do they increase urban heat?).

- LGA wide tree register. Braidwood Garden Club currently uses and engages with the National Significant Tree Register.

**Discussion two (10 minutes):** Read the vision and write down one thing you like and don't like about it. As a group review the vision and identify any missing words or themes. Vision *'A cooler, greener Queanbeyan-Palerang is a city without urban heat islands with a healthy, equitably distributed urban forest that encourages people to enjoy the outdoors and connect with nature. Council and community understand the importance of urban cooling and actively care for the urban forest.'*

Grouping	Response
What do you like	<ul style="list-style-type: none"> <li>• Focuses on a connection with nature and enjoying the outdoors. focusing on more than just cooling opportunities.</li> <li>• Intention for equality across the LGA.</li> <li>• Coverage of all aspects/practices is there. Captures where we want to be and is generally pretty good.</li> <li>• Goal or commitment to no (or reducing) heat islands by Council.</li> </ul>
What do you not like	<ul style="list-style-type: none"> <li>• Should be stronger and shorter. The vision seems a bit convoluted.</li> <li>• 'No heat islands' appears to be a bit negative and hard to reach. Maybe 'reduced' is a better word.</li> <li>• Does not include wildlife or biodiversity.</li> <li>• Does not include a commitment to managing and caring for the forest.</li> <li>• Use of the word 'city'.</li> <li>• No mention of shade.</li> <li>• There is no time imperative.</li> <li>• Queanbeyan-Palerang is an odd phrase for most residents.</li> <li>• Missing people, what about businesses?</li> <li>• Outdoors is great but what about our indoor climate. Could address the built environment as well.</li> <li>• Community is a bit bland.</li> <li>• No mention of limits to what can be done.</li> <li>• Does not encourage people who are anti-trees to get on board.</li> <li>• Equitably distributed might not work if we want diversity of landscapes.</li> </ul>
What do you want to change	<ul style="list-style-type: none"> <li>• Change 'understand' to 'value'.</li> <li>• Include healthy environment for wildlife.</li> <li>• Change without urban heat islands to 'free' or 'reduced'.</li> <li>• Remove the word city and replace with a more inclusive term.</li> <li>• Including refuges from heat.</li> </ul>



## UFCS- Community Consultation Workshops Summary Report

- Capture urgency.
- Use 'fairly' instead of 'equitably'.
- Improve the conditions of the indoor climate.
- Use the word 'place'- potential connection with indigenous owners.
- Utilise phrases such as protect, enhance and healthy.

**Discussion three (15 minutes): Select five focus areas to enable Council and community to achieve its vision. Brainstorm as many ideas as you can.**

Grouping	Response
What actions do you want to see in the next year (prioritised)	<ul style="list-style-type: none"> <li>• <b>High:</b> DCP to require tree plantings as mandatory and/or permeable pavements. DCP restrictions or bans on certain building materials e.g. dark coloured roofs or alternatively incentives for appropriate designs.</li> <li>• <b>High:</b> Plant trees in under used areas.</li> <li>• <b>High:</b> Establish targets and report annually.</li> <li>• <b>High:</b> Maintain protect and improve existing stock of trees. E.g. retain a certain % or number of existing trees in new developments.</li> <li>• <b>High:</b> Trail permeable pavements.</li> <li>• <b>High:</b> Education, make benefits clear. Basic toolkits. Engage and inspire people to get involved.</li> <li>• <b>High:</b> Partnerships with existing groups e.g. Landcare, however, also look into establishing a dedicated urban tree working group. Empower local groups to engage in the process.</li> <li>• <b>High:</b> Free trees or tree giveaways, preferably from a community or Council run nursery. Perhaps free trees for new properties.</li> <li>• <b>High:</b> Planning to maximise retention of green spaces.</li> <li>• <b>High:</b> Look at incentives for tree planting and disincentives for tree removal.</li> <li>• <b>High:</b> Succession planting and planning or growth over the longer term.</li> <li>• <b>High:</b> Vegetation shading on western walls, vertical/rooftop gardens- a need for uptake by businesses in CBDs.</li> <li>• <b>Medium:</b> Multi-pronged approach across the area-process to engage Intention for equality across the LGA.</li> <li>• <b>Medium:</b> Provide expert advice to the community on the right tree and the right place.</li> <li>• <b>Medium:</b> Learn from best practices councils and communities in other parts of the world.</li> <li>• <b>Medium:</b> Sustainable homes or household garden tours</li> <li>• <b>Medium:</b> Local or street tree champions.</li> <li>• <b>Medium:</b> Water rate increases in the LGA a real issue and needs to be revised.</li> <li>• <b>Medium:</b> Ban astro turf in private spaces.</li> <li>• <b>Medium:</b> Larger stock trees when plantings (quicker time to fully establish).</li> </ul>

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	<ul style="list-style-type: none"><li>• <b>Medium:</b> Include water in public spaces e.g. fountains, ponds.</li><li>• <b>Medium:</b> Change site requirements from floorspaces to root footprint. Include alfresco areas.</li><li>• <b>Medium:</b> Report current heat emissions per landholder.</li><li>• <b>Medium:</b> Leverage state resources.</li><li>• <b>Medium:</b> Assessments tree health.</li><li>• <b>Medium:</b> Community tree planting days.</li><li>• <b>Low:</b> Build up not out.</li><li>• <b>Low:</b> Prioritise approach to climate change actions to mitigate emissions reduction.</li><li>• <b>Low:</b> Deep soil provision in private sites and in the street scape.</li><li>• <b>Low:</b> Map constraints on Council to act e.g. policy settings.</li></ul>
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# **QUEANBEYAN-PALERANG REGIONAL COUNCIL**

## **Council Meeting Attachment**

**23 MARCH 2022**

ITEM 9.1            ADOPTION OF QPRC URBAN FOREST COOLING STRATEGY

ATTACHMENT 4    DRAFT URBAN FOREST COOLING STRATEGY





QUEANBEYAN-PALERANG REGIONAL COUNCIL

Urban Forest Cooling Strategy  
December 2021



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Author/s Bianca Benjamin

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Front cover image credit: Suzanne Gearing

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Figures 6, 7 and 8 provided by Queanbeyan-Palerang Regional Council.

QPRC ran the 'Urban Forest Local Photo Competition' in September 2021 to provide local photos for use in the Urban Forest Cooling Strategy. Photographs have been attributed as requested.

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## Acknowledgements

We pay our respect to the Traditional Custodians of the Queanbeyan-Palerang area on whose land we live and work. We acknowledge that these lands are Aboriginal lands and pay our respect and celebrate their ongoing cultural traditions and contributions to our surrounding region. We also acknowledge the many First Nations peoples from across Australia who have now made this area their home, and we pay respect and celebrate their cultures, diversity and contributions to the Queanbeyan-Palerang area and surrounding region.

We would like to thank members of the community and Council staff who contributed by providing feedback in engagement activities during development of this Strategy. We would also like to thank TreeIQ for their contribution in preparing this Strategy.



Image credit: Emma Grey



## 1 Introduction

This Urban Forest Cooling Strategy (the Strategy) has been written at a time when Queanbeyan-Palerang continues to experience significant population growth and urban expansion, particularly in its established urban centres of Queanbeyan, Bungendore and Braidwood and in emerging centres such as Googong. This Strategy has been developed to support Council to continue providing housing and infrastructure for our growing population while ensuring urban centres are healthy and attractive environments for residents and wildlife.

The Strategy's key drivers have come from current and emerging challenges and overarching goals set by the community in regional and local strategic plans and during engagement activities in 2021. These drivers are:

- A changing climate
- Population growth, urban development and the effects of urban heat
- Liveability and amenity of urban centres
- Protecting the natural environment and biodiversity
- Enabling a healthy, active lifestyle

The Strategy has been prepared to provide Council with coordinated, local and practical actions to manage its urban forest. Management of the urban forest cuts across multiple sectors, roles and responsibilities within Council and many different agencies, organisations and groups in the community. Effective management requires a localised understanding of impacts, resource constraints and strategic priorities for Council and our community. After engaging with the community and Council staff, we have developed a Strategy that will:

1. Deliver on the community vision for urban greening and cooling in our urban centres:

**Council, businesses and the community value and actively care for an urban forest that is resilient, fairly distributed, and provides a cooler, healthier environment for people and wildlife.**

2. Achieve the following goals:

- A resilient urban forest
- A fairly distributed urban forest
- A cooler, greener urban environment
- Increased biodiversity and tree canopy
- An actively managed urban forest

The Strategy has adopted the four principles of Greener Places, a green infrastructure framework developed by the Government Architect of NSW (GANSW 2020a), to inspire and inform Council's approach to urban greening, these are:



PRINCIPLE 1.

### Integration

combine green infrastructure with urban development and grey infrastructure



PRINCIPLE 2.

### Connectivity

create an interconnected network of open space



PRINCIPLE 3.

### Multifunctionality

deliver multiple ecosystem services simultaneously



PRINCIPLE 4.

### Participation

involve stakeholders in development and implementation

## 2 What is an urban forest and why do we need it?

The urban forest can be defined as “all trees and other vegetation within [an urban area] and the soil and water that supports it” (2020 Vision 2014). The urban forest includes all vegetation within urban areas – from street trees to backyard lawns, from weeds in footpaths to remnant bushland. It is the vegetation in our streets, parks, gardens, along creeks, rivers and railway corridors, in public spaces and places, on our roofs and balconies.

All the vegetation in our urban forest relies on water (sourced from rainfall, groundwater or irrigation) and healthy soils as its foundation. A thriving urban forest is vital to healthy urban communities and needs to be well-designed, planned and managed to create cooler, greener environments for people and wildlife. Trees are fundamental to the urban forest and perform a myriad of functions for people and the environment. Trees survive amongst the built infrastructure of towns and cities (the roads, footpaths, powerlines and pipes) and can only thrive in this environment if given what they need, including adequate water, careful maintenance and attention in the early stages of establishment.

Mature trees with a good healthy canopy cool the air and ground with shade and evaporative cooling. They can slow water from rain and storms and protect land and built features from extreme weather events. Trees can catch pollutants from vehicles and move stagnant air that would otherwise be trapped in urban spaces. Many of the benefits provided by trees can be increased through planting and management of other vegetation. The urban forest is a critical asset that, when integrated in the planning and design of our urban environments, can create healthy, resilient, equitable and responsive places.

The GANSW Greener Places framework describes the urban forest as green infrastructure, ‘the network of green spaces, natural systems, and semi-natural systems that support sustainable communities...’. The framework sets the expectation that green infrastructure is integral to our urban environments and must be designed in coordination with other infrastructure such as transport, cultural and communications to create multi-functional assets that contribute to broader community, liveability, resilience and economic benefits.



Image credit: Tom Warry



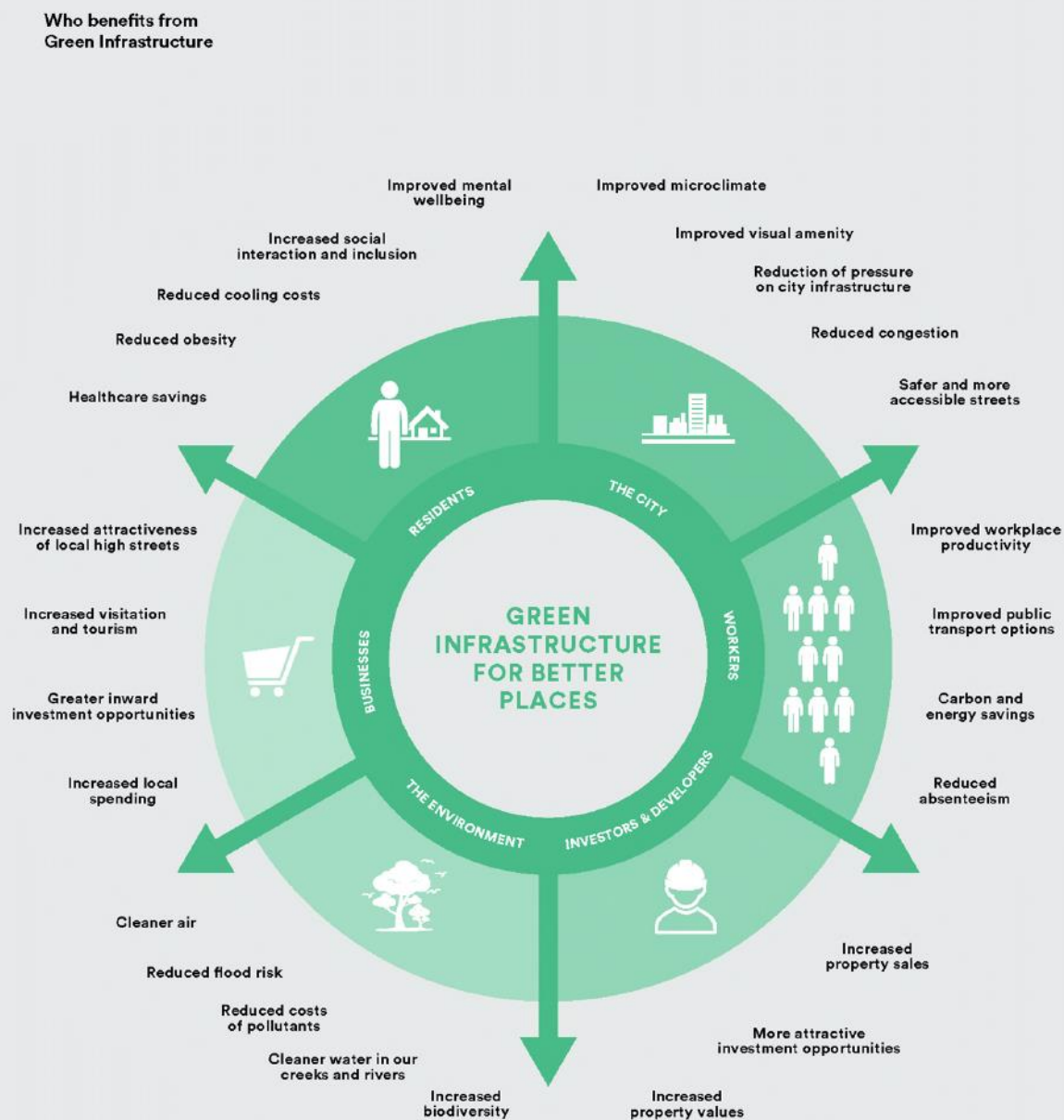


Figure 1 Benefits of Green Infrastructure (GANSW 2020a)



### 3 Policy context

This Strategy sits within Council's broader policy context, complementing community goals for climate change adaptation and resilience, planning and development, transport, biodiversity and environmental conservation.

#### 3.1 Community aspirations

The Community Strategic Plan sets out long term aspirations of the community by identifying priorities for the future and strategies for achieving them. The plan is driven by five strategic pillars, four of which are supported by this Strategy:

- **Community:** A safe community with opportunities for an active healthy lifestyle
- **Character:** Consider environmental impacts of future development, sound resource conservation and good environmental practice and sustainable management of the region.
- **Connection:** Promote better social connection and access for the community
- **Capability:** Enable Council activities to work towards the goals and aspirations set out under the strategic pillars.

#### 3.2 Regional planning

The South East and Tablelands Regional Plan 2016-2036 is a 20-year blueprint for the future of our region. The document sets four goals and 28 directions to achieve a vision for a 'borderless region in Australia's most geographically diverse natural environment with the nation's capital at its heart'. Four directions, in particular, are relevant to this Strategy:

- Direction 15: Enhance biodiversity connections
- Direction 17: Mitigate and adapt to climate change
- Direction 18: Secure water resources
- Direction 22: Build socially inclusive, safe and healthy communities



Figure 2 Policy context

#### 3.3 Local planning

Our Local Strategic Planning Statement (LSPS), *Towards 2040*, provides Council with a roadmap for land use planning over the next 20 years, aligned to the community's long-term vision and aspirations identified in the Community Strategic Plan. This Strategy provides a pathway for delivering several high-level actions of the LSPS.

The planning vision includes several key themes that are of particular relevance to this Strategy:

##### Natural environment

The vision for land-use in Queanbeyan-Palerang includes protection and management of the natural environment and its biodiversity. This is articulated through actions to increase natural and green spaces, establish formal wildlife corridors, protect significant heritage trees and proactively conserve high quality environmental vegetation including mature and remnant native trees.

##### Lifestyle

The LSPS seeks to provide a safe and relaxed lifestyle for our community enabled through passive and active enjoyment of the natural and

built environment. Key actions to achieve this include promoting interconnected green spaces, increasing the number of homes within 10-minute walking distance to green, open and public space, providing shade, both natural and build, and designing spaces that are healthy to live in, to work in and to visit.

#### **Climate change**

A climate change adaptation approach to planning is embedded in the LSPS and commits Council to considering the impacts of climate change in all planning decisions. Specific actions to support this include establishing adaptation strategies, employing urban design to minimise heat and encouraging new developments to be early adopters of sustainable approaches to reducing energy and water consumption.

### **3.4 Transport**

The Integrated Transport Strategy (ITS) guides investment and direction for all types of transport including walking, cycling and public transport. The ITS has three goals specifically relevant to the Strategy:

- **Social and economic inclusion:** Align accessibility of transport to needs of the community and economy, better connected communities and more travel choices for residents and visitors. Reduce obstacles to accessibility for disadvantaged groups.
- **Safety, health and wellbeing:** Design, construct and maintain transport infrastructure to meet acceptable standards and utilise a safe system approach to maximise the safety and security of all users of the transport system.
- **Environmental sustainability:** Minimise the impact of transport on the environment by supporting growth in public transport, walking and cycling for trips in the region

The ITS recognises the strong link between active transport and health and promotes sustainable transport methods such as walking, cycling and public transport for their social, economic and environmental benefits. This Strategy aligns actions with these goals by encouraging the planting and maintenance of green infrastructure along active travel routes to provide shade, visual amenity and access to nature as well as develop a network of linked green spaces and places.



### **3.5 Climate change**

Council continues to recognise that climate change is a serious and significant issue, and is committed to supporting the community in addressing it through a local response. We have developed two action plans to address climate change, the Council Operations Action Plan, which focuses on greenhouse gas emissions reduction, and the Community Action Plan. Many of the actions under both plans are interlinked with the benefits of an urban forest, in particular cooling and climate resilience. The Council Climate Change Action Plan specifically calls for the development of a heat adaptation and urban forest strategy as a key action (CO 7.1.8) as well as expansion of the QPRC Street Tree Planting Strategy. This Strategy focuses on the urban forest, recognising the important role it plays in responding to climate change alongside the various other climate change mitigation and adaptation efforts.

## 4 Relevant legislation and planning regulations

### Vegetation SEPP

The Vegetation State Environmental Planning Policy (SEPP) commenced in August 2017 and provides the mechanism to regulate the clearing of vegetation not linked to development on non-rural lands (including E zones, RU5 and urban and residential zones). The Vegetation SEPP applies to:

- Clearing of native vegetation above the Biodiversity Offsets Scheme (BOS) threshold specified in the Biodiversity Conservation Regulation 2017
- Clearing of vegetation below the BOS threshold, if the native or non-native vegetation is identified in council's Development Control Plan (DCP)

For the clearing of native vegetation on non-rural land that exceeds the BOS threshold, an approval is required from the Native Vegetation Panel, whether or not the vegetation is declared in a council's DCP.

If the vegetation clearing does not exceed the BOS threshold, is not identified in a DCP and is not linked to development requiring consent, it can be cleared without a council permit or authorisation under the Vegetation SEPP. While an authorisation is not required under the Vegetation SEPP, other legislative requirements may still apply to the proposed clearing. For example, if the proposed vegetation to be cleared is threatened species habitat, a listed threatened species or threatened ecological community, clearing can only occur with a valid Biodiversity Conservation Licence from the Department of Planning, Industry and Environment.

### Permits

For Council to regulate the management of vegetation that is below the BOS threshold, the vegetation needs to be identified in a DCP. Council can require a permit for clearing based on conditions set out in the DCP.

### Development consent

Clearing that is ancillary to development which requires consent is assessed as part of the development assessment process and may also require further assessment and approval under the *Biodiversity Conservation Act 2016*.

In addition, development consent is required for the clearing of vegetation that is a heritage item or that is located in a heritage conservation area, as well as vegetation that is an Aboriginal object or that is located in an Aboriginal place of heritage significance.



## 5 The need for urban greening and cooling

Urban greening is recognised globally as a key contributor to the liveability and climate resilience of urban areas (Ordóñez 2020). The natural landscape is highly valued by our community and valuable to the local economy. In a survey conducted as part of developing this Strategy, local residents named amenity and health benefits as the most valued attributes of the urban forest.

We held two community workshops and an online survey to understand community priorities and values, and to develop a shared vision for the future of the urban forest. The survey found that the vast majority (more than 95%) of respondents agreed that the urban forest should be increased, while respondents tended to disagree that the urban forest was equally distributed and were more likely to disagree than agree that the urban forest is healthy.

The following section outlines the key drivers informing this Strategy, including climate change, increased urbanisation, liveability and amenity of its urban centres, protecting the natural environment and biodiversity and enabling a healthy, active lifestyle for our citizens.



Image credit: Di Turton

## 5.1 A changing climate

The majority of our urban areas, including Queanbeyan, Googong, and Bungendore, fall within the hotter, north-west section of the municipality. The south-east area has lower surface temperatures, in part driven by a cool corridor influenced by Tallaganda National Park. The Braidwood urban area falls within this cooler section (QPRC 2020a). Figure 5 provides a map of the urban areas analysed.

Climate change is already affecting Australia, with a higher frequency and severity of extreme weather events including fire and heavy rainfall, an increase in extreme daily heat events, a decrease in extremely cold days and nights and increases in global GHG concentrations (CSIRO 2020). For Queanbeyan-Palerang, a business-as-usual approach will see a hotter municipality with more intense heat waves, increasing risk of flash floods, high intensity storms, fire and drought. There will be more hot days and fewer cold nights (OEH 2014a, OEH 2014b).

These general changes in climate and temperature will exacerbate the urban heat island effect in our town centres and have greater impact on the health and wellbeing of residents, electricity demand, resilience and health of local flora and fauna and broader economic and social impacts. As the climate changes, extreme weather patterns will place pressure on our urban forest at the same time as increasing its role in reducing heat, providing shade and bolstering resilience.

To respond to a changing climate, we will need to create a resilient urban forest through appropriate selection of trees that can adapt to the future climate. Providing equitable access to the urban forest and therefore shade, cool environments and protection from the heat will be critical to reducing urban heat inequality, especially when accommodating medium- and high-density housing that has limited available space for tree canopy.

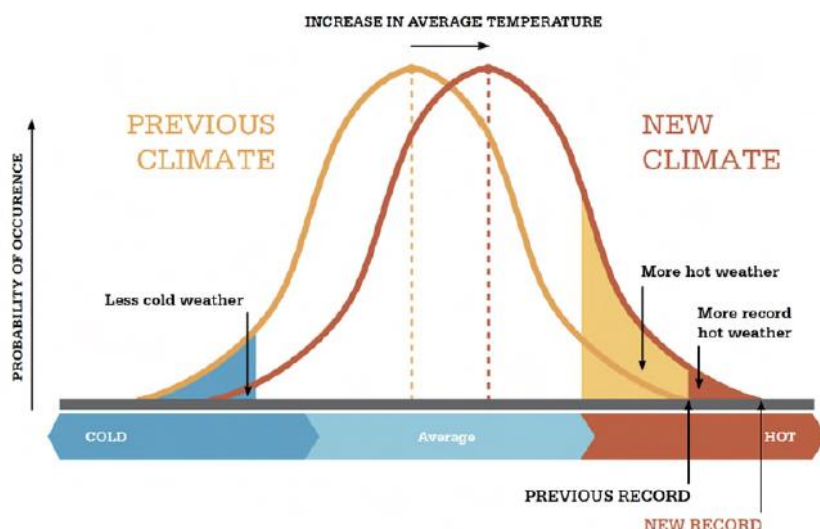


Figure 3 Relationship between temperature averages and extremes, showing the potential role for urban cooling and greening strategies (from Climate Commission 2013 modified from IPCC 2007)

### 5.1.1 Urban heat

Increasing heat is a significant issue in urban areas, where changing and intensifying land uses lead to more hard surfaces and less green cover. These surfaces absorb, store and radiate heat to create microclimates of significantly warmer areas. Human activity generates additional heat, adding to this effect. While smaller areas create pockets of heat, as land uses and human activities intensify, contiguous areas of retained heat create heat traps, leading to urban heat islands. These urban heat islands have significant impacts on the health, infrastructure, economy and environment of urban areas (UNSW 2015)

A Surface Heat Mapping Report (QPRC 2020a) for our urban centres prepared last year found that Googong and Bungendore classified entirely as a heat island, with most of Queanbeyan also classifying as a heat island Figure 4 and Figure 5.

The Surface Heat Mapping Report identifies urban greening as the key action to mitigating urban heat island effect in the four urban centres. In particular, the report identified trees as offering the best cooling outcomes due to direct shading and evapotranspiration.

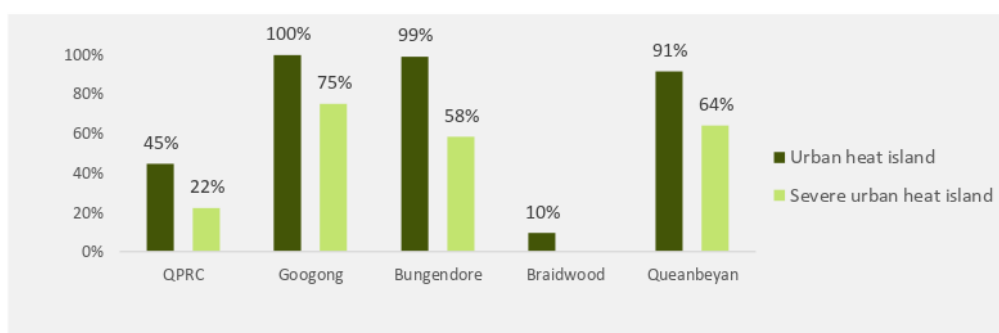


Figure 4 Percent area classified as an urban heat island or severe urban heat island in QPRC urban areas (QPRC 2020a)

#### Heat vulnerability

The stress caused by urban heat can pose a significant risk to public health (Hsu 2021). Vulnerability to heat is not equally distributed across a population. There are several factors that contribute to a person's ability to cope with heat:

**Exposure:** To what extent is a population exposed due to local weather patterns, climatic conditions and characteristics of the built environment.

**Sensitivity:** Certain socio-economic characteristics can increase a population's vulnerability to heat, including age, health and wealth. Heat vulnerability can be highest in low-income areas, areas with an aging population, and for members of the population with chronic illness.

**Adaptive capacity:** To what extent can a population adapt to the impacts of urban heat, both within their homes and in external environments. For example, are people able to change their transport mode to better adapt during a heatwave.



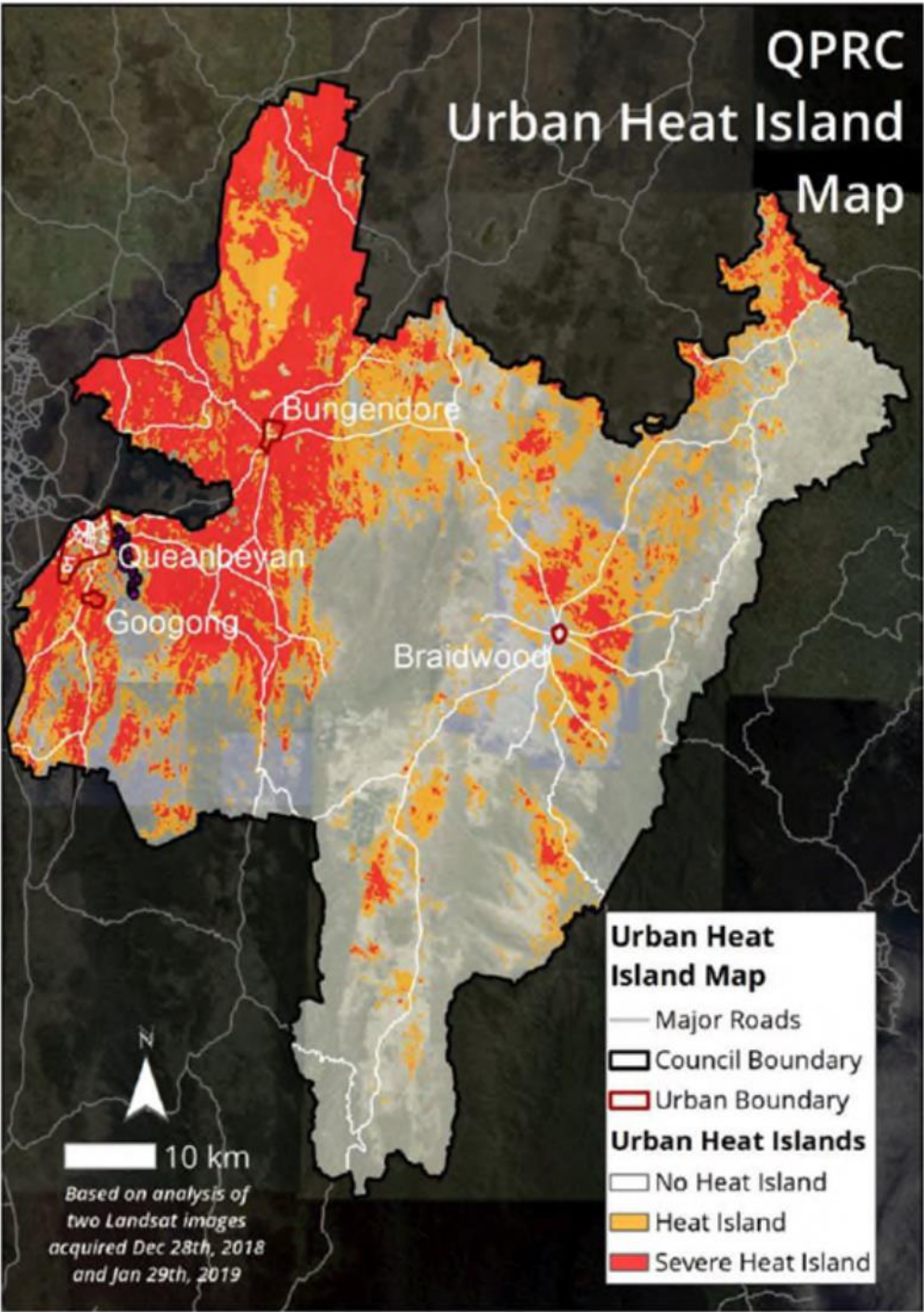


Figure 5 Surface heat mapping for the Queanbeyan-Palerang municipality (QPRC 2020a)

## 5.2 Increased urbanisation

Our policy and planning aim to balance urban growth and provision of opportunities for new housing with protection of the existing character and amenity of established residential areas.

Proximity to Canberra is a key growth and economic driver for Queanbeyan-Palerang, with approximately 18,500 residents travelling west to the ACT for work, education and other services. Approximately 5,000 residents of the Australian Capital Territory (ACT) travel east into Queanbeyan-Palerang for work and other purposes. The South East and Tablelands Regional Plan notes that 70 percent of the region's population growth to 2036 is projected to occur in the areas that share a border with the ACT.

Queanbeyan-Palerang is expected to see moderate to strong growth in population and associated housing over the next 15 years, with an average growth rate of 2.19% (.idcommunity 2021a). This growth is based around a combination of planned infill and greenfield development to meet demand in our urban centres.

The housing typology in the Queanbeyan urban centre differs from the rest of Queanbeyan-Palerang due to its proximity to the ACT (QPRC 2020b). Much of Queanbeyan's housing stock services workers from the nation's capital, resulting in a higher number of medium- and high-density housing and catering to a larger number of lone person households (more than 40% of the population) (.idcommunity 2021a). A general decline in average household sizes will also see a need for additional dwellings and likely increased density in established suburbs such as Queanbeyan East, Queanbeyan and Crestwood. The LSPS includes actions to investigate opportunities for infill and mixed-use development and allow higher density development in certain areas.

As density increases and urban areas expand to accommodate future residents, the impact of increasing land use types that retain heat, intensity of human activity producing heat will increase the urban heat island effect.

Without suitable controls and recognition of the role the urban forest plays in greening and cooling, the infill associated with urbanisation will continue to reduce vegetation and canopy in our urban areas.

Urbanisation and the urban forest can grow in tandem, as long as there are robust mechanisms in place to ensure appropriate conditions to protect vegetation and provide the conditions that will allow the Urban Forest to thrive (Julian & Sweeney 2020). In particular, public land presents a significant opportunity to increase urban tree canopy whether in parks, street verges or underutilised spaces such as carparks. Parks in urban areas that are treed and well-irrigated can have much greater cooling benefits for surrounding land and provide cooling for areas that can't maintain their own trees. Alternative green infrastructure, such as green roofs and walls can provide cooling where there is insufficient space for trees. With careful, coordinated and considered planning and active input from the community, increased urbanisation in our town centres can be balanced with innovative greening solutions to enable a cooler, pleasant urban environment.



### 5.3 Liveability and amenity of urban centres

The liveability and amenity of our urban centres is a key factor driving business and investment in the region. Improving the attractiveness and amenity of main streets in towns and villages while retaining rural ambience is identified as a priority for Queanbeyan-Palerang in the South East and Tablelands Regional Plan. Revitalisation of the main town centres presents opportunities for enhancing liveability through protecting and growing the urban forest. In particular, recognising and building on the proximity of some of our urban centres to the natural landscape by considering opportunities for ecological enhancement and extending biodiversity corridors. Opportunities also exist to bring the natural landscape into urban centres through increased tree planting, water sensitive urban design (WSUD), green roofs and walls and linking existing open spaces to create an interconnected green network. Selection of appropriate tree species can increase human comfort in urban areas through providing shade (cooling) during summer and sunlight (warmth) during winter.

The Queanbeyan CBD Place Plan identifies interventions to improve Queanbeyan's CBD including a 'green strategy', utilising paving to reduce urban heat island effect and building an understanding of microclimate to increase climate resilience and adaptation of the CBD. Trees and vegetation are critical to urban amenity. Revitalisation of the Queanbeyan, Braidwood and Bungendore town centres should consider opportunities to maximise shade, amenity and health benefits through:

- Designing public spaces, streetscapes and open space to ensure adequate space both above and below ground to support tree growth and vegetation that minimises impacts on other services. Reviewing planning controls to support heat mitigation and tree planting
- Integrating passive watering and WSUD measures for improved tree health, increased cooling, and management ease.
- Selecting trees for planting should aspire to keeping 'rural ambience', though they need also be resistant to urban constraints, and resilient to climate change and urban heat.



**Water Sensitive Urban Design (WSUD)** aims to improve the ability of urban areas to capture, treat and re-use stormwater.

Benefits of WSUD include improving water quality and reducing stormwater runoff as well as cooling our local environments, improving the appearance of our streets and parks and protecting existing waterbodies.

WSUD comes in many forms, such as raingardens, swales and constructed wetlands (Sydney Water 2018).

#### 5.4 Protecting the natural environment and biodiversity

There is a strong sense of community pride and value in the natural environment within and surrounding our towns. The LSPS vision for Queanbeyan-Palerang is a 'place offering a wonderful lifestyle for residents, families and visitors, a lifestyle created in large part by passive and active enjoyment of the natural and built environment. The lifestyle is friendly, safe and relaxed – the result of living in an environmental haven, with clean and pristine waterways and bushland, well maintained public spaces and a commitment to sustainable energy and waste'.

Through its strategic documents, Council has committed to the protection and management of the natural environment and its biodiversity, including specific goals such as:

- Designing to mitigate impacts on water including through WSUD
- Maintaining and enhancing ecological connectivity and establishing wildlife corridors
- Reviewing opportunities for high quality environmental vegetation to conserve
- Protection of significant heritage trees

#### 5.5 Enabling a healthy, active lifestyle

Enabling a healthy, active lifestyle for residents, workers and visitors is a key priority in many of our strategic documents. In particular, integrating walking and cycling networks, encouraging active transport and providing opportunities for people to enjoy the outdoors for exercise, recreation, socialising and access to nature. Provision of shade via urban tree canopy, cooling through vegetation and water and designing shade into buildings and transport networks are some of the ways in which this Strategy supports a healthy, active lifestyle.

The network of green spaces and linear parks in urban areas are critical to the community's health and wellbeing. If well-designed and maintained, green active transport corridors can have the dual benefit of making continuous cool spaces that support an actively lifestyle for residents and visitors, while supporting local flora and fauna movement and biodiversity.



Image credit: Kim Duggan



## 6 QPRCs urban forest

### 6.1 History of the urban forest

The Ngambri-Ngunnawal people are the traditional custodians of the land and waters that we now recognise as the Queanbeyan, Bungendore and Googong urban centres and people of the Dhurga language group as the traditional custodians of the region surrounding Braidwood. Their connection to the lands and waters, tangible and intangible cultural practices, knowledge and relationships have supported the health and wellbeing of Country, including the urban forest, over tens of thousands of years. This custodianship and connection continues today, despite the impacts of colonisation. (GANSW 2020b)

Early Europeans described the area as "a most beautiful forest as far as we could see, thinly wooded by Gums and Bastard Box, the tops of the Hills stony and stone sand, but in the valleys a fine Rich Soil" (ABS 2012).

Prospecting in the early 19th century led to the construction of homesteads, cattle runs, inns and other development, eventually leading to the establishment of Queanbeyan the township in 1838 (Queanbeyan Museum 2021). As agriculture and urbanisation activities increased, the Eucalypt woodland including brittle gum, snow gum, ironbark and stringybark trees was heavily impacted (Benson and Howell 1990), such that the area was decreed 'Devoid of Timber' in records in 1915 (artefact 2020). Remnants of the Natural Temperate Grassland and Box-Gum Woodland are retained within the Queanbeyan Nature Reserve.



Figure 6 Monaro Street 1926 (Queanbeyan) - Queanbeyan and District Historical Museum Collection



Figure 7 Wallace Street Braidwood 1920-30 (source unknown)

Street tree planting expanded through the mid to late 19<sup>th</sup> Century, beginning in Sydney and expanding to other NSW towns. Species were selected and prescribed through botanical gardens based on conditions of the receiving landscape, success in planting trials and features of growth form (e.g. capacity to shade, canopy density, shape uniformity) as well as prestige and fashion (Maiden 1917).

Locally commemorative plantings of *Fraxinus* sp., pin oaks and other species were planted in the mid-1930s and 40s (Australian Garden History Society 2018). Though Canberra's greening in the 19<sup>th</sup> and early 20<sup>th</sup> centuries was influenced by manicured City Beautiful and Garden City movements (Davison & Kirkpatrick 2014), early shots of our main streets (Figure 6, Figure 7, Figure 8) show limited greening, at least within commercial precincts (Norris 2003).



Figure 8 Monaro Street 1905 vs 2013 (Queanbeyan)- Queanbeyan and District Historical Museum Collection

## 6.2 The urban forest today

### 6.2.1 Tree canopy cover

One of the most common measures of an urban forest is the amount of coverage provided by tree canopy. This measure can help quantify benefits such as shade, stormwater filtration and carbon sequestration.

This Strategy used light detection and ranging (LiDAR) data to map canopy cover in our urban areas of trees greater than two metres tall. The following information and maps provide a general sense of the urban forest to support decision-making and action setting for the Strategy. We are currently undertaking several other actions to better understand the existing urban forest, including a review of species and trial of a tree inventory for Braidwood. Understanding the current health, status and characteristics of trees, vegetation, soil and water is critical to management and future planning of our urban forest. This Strategy sets several priority actions related to monitoring and data collection to support longer term objectives.

The average canopy cover in LGAs across Australia is 39 percent (Jacobs 2014). The GANSW Greener Places Design Guide provides an indicative canopy cover target of greater than 25 percent for medium to high-density areas and greater than 40 percent for low density areas. This is, of course, subject to the specific conditions of an area including climatic and land use patterns. In Queanbeyan-Palerang, tree canopy cover across our four urban centres varies from just over three percent in Googong to 31 percent canopy cover in Queanbeyan.

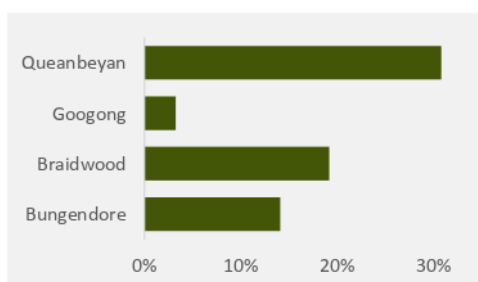


Figure 9 Overall tree canopy cover in urban centres

The significant difference in canopy cover in Googong is due to the majority of trees having only recently been established and therefore not reaching the height requirements to be detected by the LiDAR analysis. What this suggests is that Googong will have significant issues without provision of shade and other benefits from canopy trees over the next few years, and depending on subsequent planting regimes, maintenance and ongoing management, will continue to impact urban heat in the area over the long term. Queanbeyan, on the other hand, has the highest canopy cover generally due to the density of trees within the Jerrabomberra Mountain Reserve and Greenleigh residential area.

#### Measuring the urban forest

Tree canopy is just one way to measure the urban forest, other characteristics that support urban forest management include:

- age (young, mature, old, life-expectancy variation)
- species – variety in species, genera and family as well as mix of deciduous and evergreen.
- features (leaf shape and size, plant height, flower size, shape, colour etc)
- soil health
- climate data
- prevalence of pests and disease

This Strategy sets actions for Council to assess and continue monitoring various aspects of the urban forest to determine its overall condition and related risks. This will allow integration of green infrastructure with capital works and support future planning through budgeting, succession planning and scheduled maintenance.



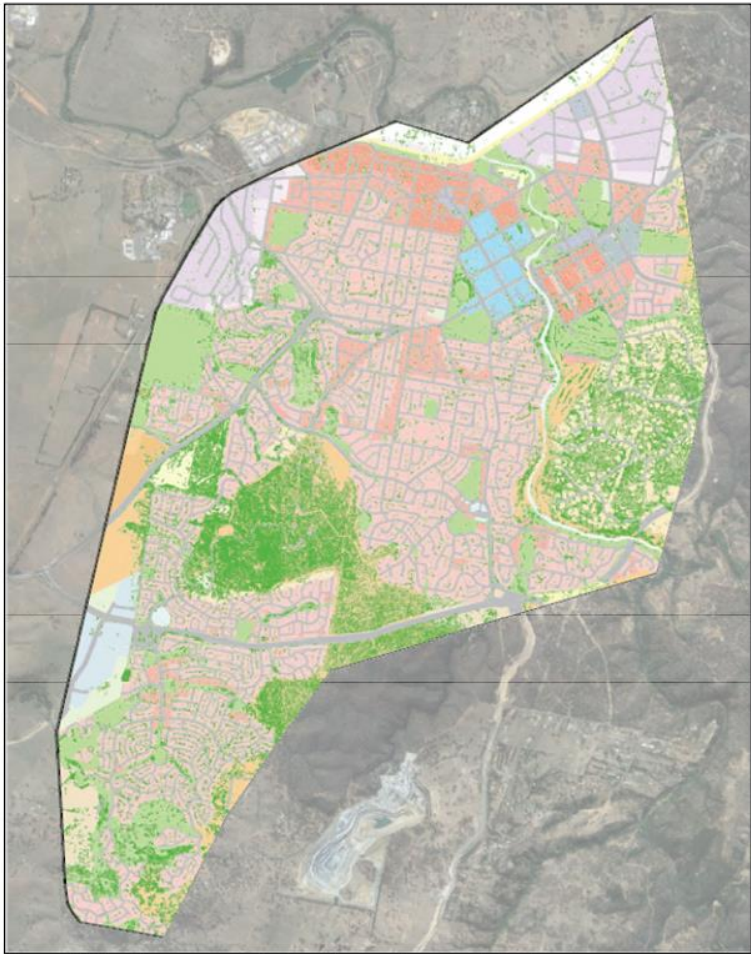


Figure 10 Map of canopy cover in Queanbeyan urban area by land use zone

QPRC Urban Forest Cooling Strategy

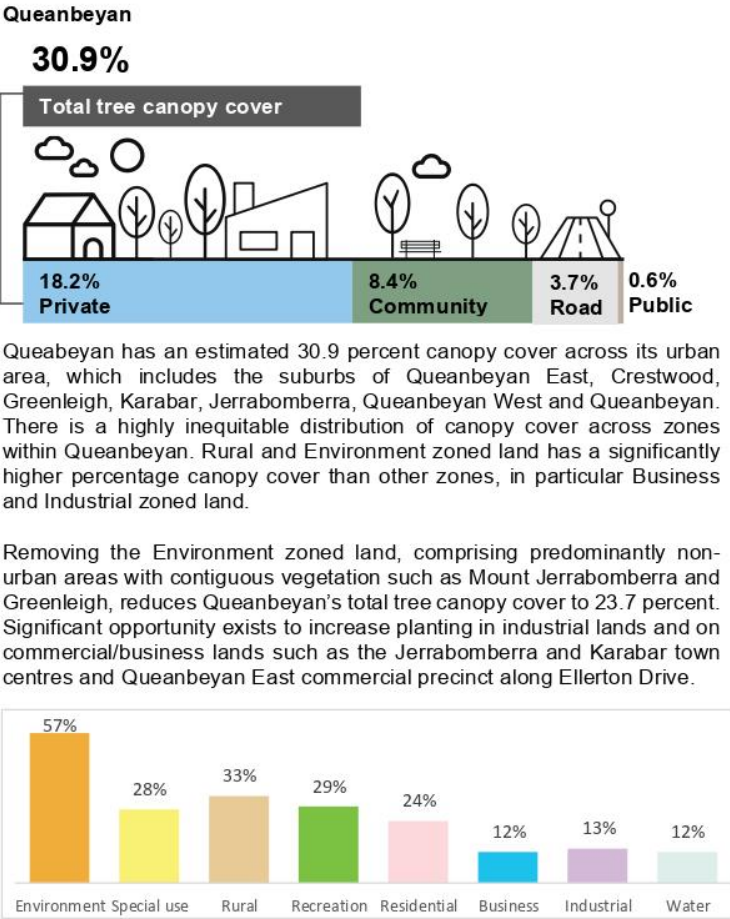


Figure 11 The percent of zoned land with canopy cover in Queanbeyan urban area

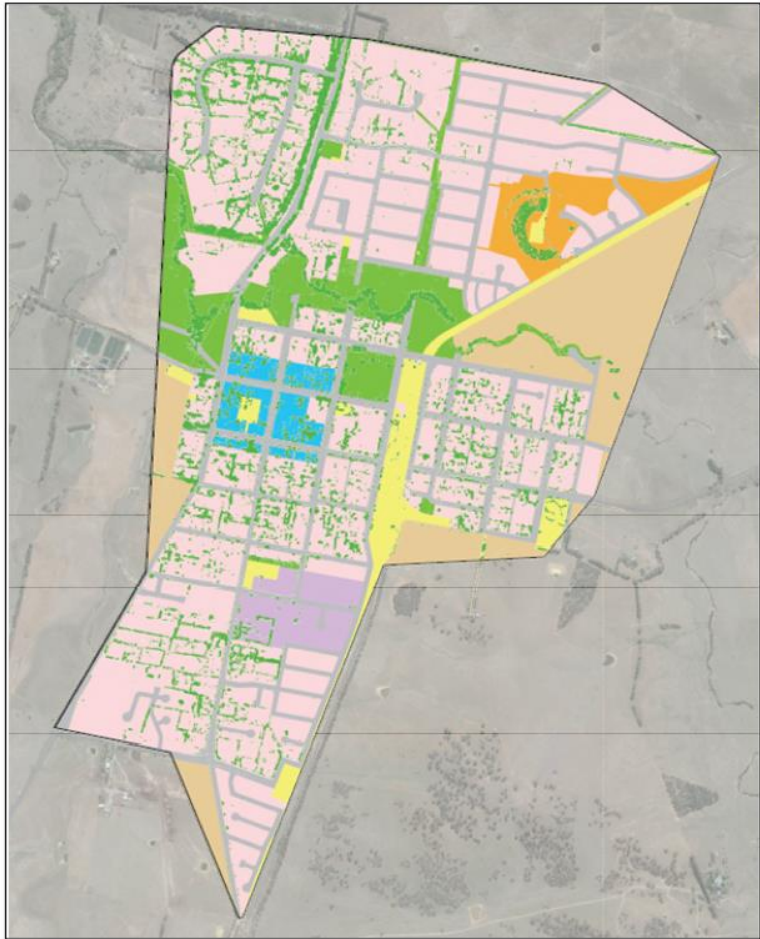
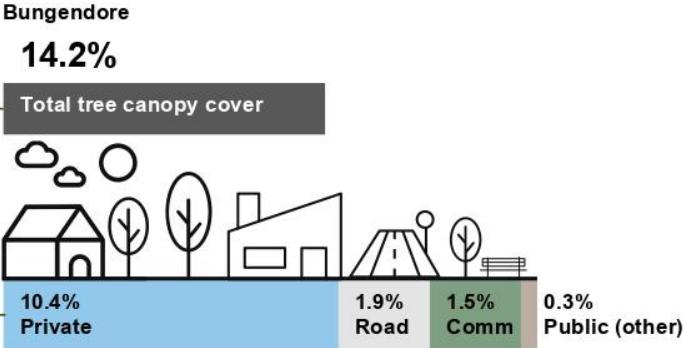


Figure 12 Map of canopy cover in Bungendore urban area by land use zone



Bungendore has an overall canopy cover of 14.2 percent, the majority of which is located on private land. Private property makes up 67 percent of land within Bungendore's urban centre and contains almost three quarters of the urban forest (74%). In contrast to Queanbeyan, land zoned for Business has the highest canopy cover of all land use zones at 22 percent. The canopy in the commercial centre is represented predominantly by trees within residential properties surrounding the commercial strip along Kings Highway and Ellendon Street, which themselves are moderately treed.

The tree lined Tarago Road to the north and canopy along the Turallo Creek make up a large portion of the urban forest in the residential and recreation zones, respectively. Rural zoned land has the lowest canopy cover at two percent, characterised by cleared grazing and farming land. Planting additional street trees and increasing canopy within the industrial zone present two opportunities to improve canopy cover in Bungendore.



Figure 13 Percent canopy cover by land use zone



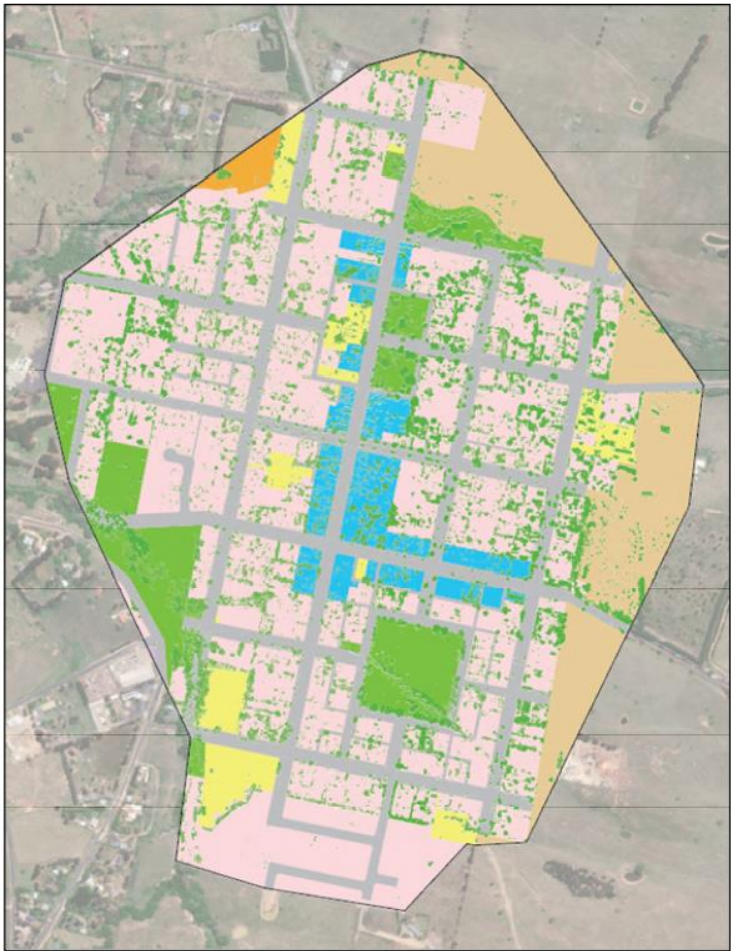


Figure 14 Map of canopy cover in Braidwood urban area by land use zone



Braidwood has an overall canopy cover of 19.3 percent. Private land makes up two thirds of the overall urban area (66%) and accounts for 72 percent of the urban forest. The remainder of the urban forest is mostly found within road reserves (16 percent) with only two percent of the overall tree canopy found in community-purpose public land.

Trees along the Gillamatong Creek, Flood Creek and Recreation Ground Creek provide the majority of canopy cover within land zoned for recreational use, along with trees within parks and reserves. While Figure 15 illustrates a very low canopy in industrial land, there is only a small portion of land zoned for that purpose at the south-western urban boundary. Opportunities exist to increase tree planting in residential areas and along road reserves.

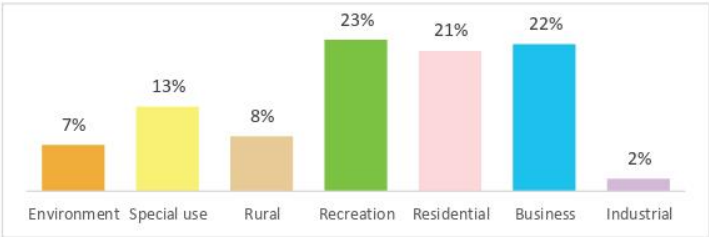


Figure 15 Percent canopy cover by land use zone



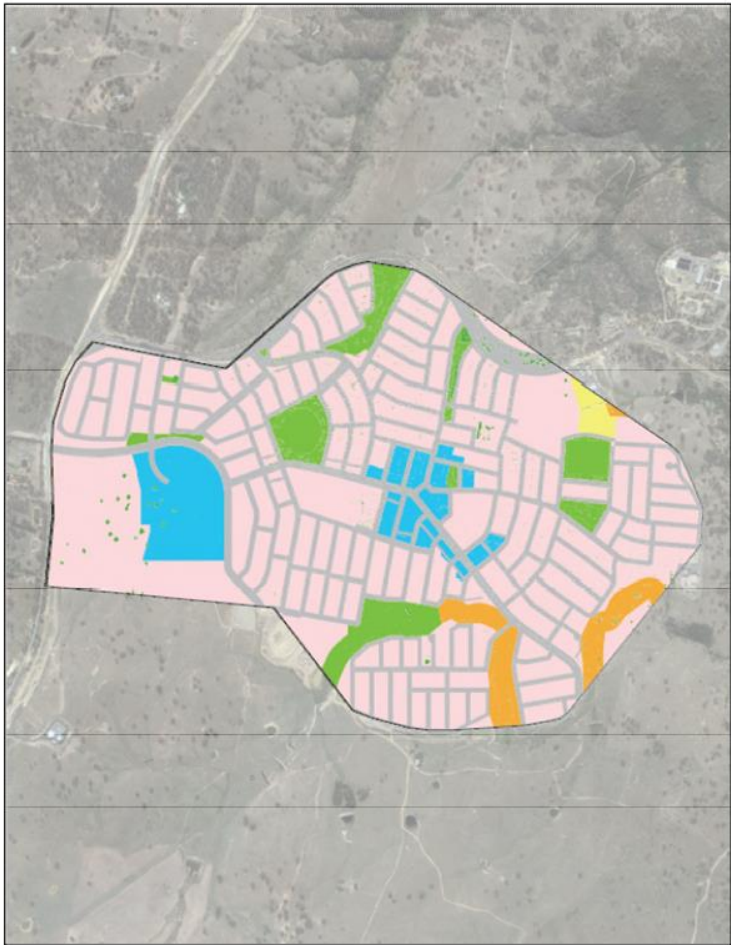


Figure 16 Map of canopy cover in Googong urban area by land use zone

Googong

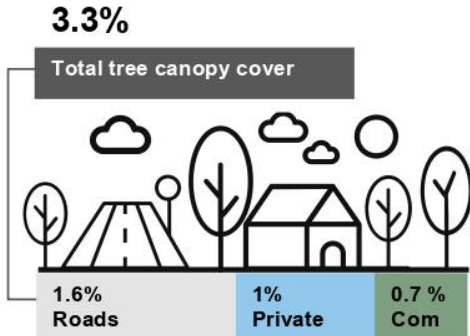


Figure 16 demonstrates the lack of existing tree canopy cover in Googong. Overall, Googong's tree canopy covers only 3.3 percent of land, the majority of which is found in road reserves. As discussed, this is largely due to the relatively recent development in Googong resulting in an absence of mature canopy trees. This absence of trees means the urban heat island effect will continue to effect residents in the coming years, particularly as the extent of impervious area across residential development provides little opportunity to plant trees for shade and cooling.

Land zoned for recreation has the highest canopy cover at seven percent, with business and residential the lowest at two and three percent, respectively. Opportunities for tree planting exist across the entire area including additional street tree planting and planting within parks and commercial centres.

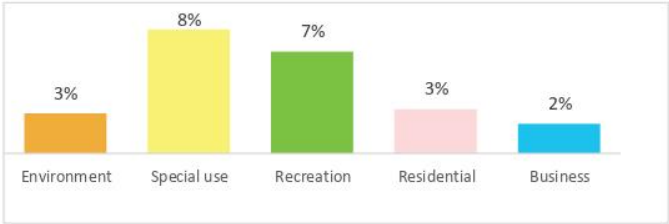


Figure 17 Percent canopy cover by land use zone

### 6.3 Threats to the urban forest

This section summarises the key challenges facing our urban forest that this Strategy seeks to address.

#### Climate change and urban heat

Our future climate is predicted to include warmer summers, variable rainfall and longer and more frequent heatwaves. Climate change will have implications for the cost of and approaches to maintaining urban green space. While tree canopy is effective in reducing urban heat it will also be affected by changes to climate including trunk scorch, shifts in tree habitat suitability and increase susceptibility to pests and disease as well as impacts on tree habitat including soil. Increasing heat due to climate change paired with trapped heat from human activities in urban areas will affect which tree species can survive in urban spaces (Norton 2015).

#### Urban densification

As our urban areas continue to grow and densify, there will be an increasing competition for space, in particular decreasing private open space in new developments and the need for urban infrastructure reducing opportunities for street tree planting. Unless planning and design controls are put in place to protect and enhance tree planting, resilience and maintenance there will be continued removal and replacement of trees and pervious surfaces with buildings and paved surfaces.

#### Aging tree stock

Queanbeyan-Palerang is lucky to have a number of very mature trees which are an important component of the current tree stock particularly in the historic parts of the urban centres. Many of these trees are reaching the end of their life and in the absence of adequate maintenance will be lost. There has also not been adequate succession planting to replace these trees to maintain the streetscape they have created.

Increased densification impacts not only urban trees but all manner of flora and fauna, which can lead to biodiversity loss. Without holistic planning and management, urban growth can lead to fragmentation of flora and fauna habitat and reduce connectivity, preventing the movement and dispersal of native flora and fauna and increased competition from invasive and exotic species.

#### Governance and resourcing

Management of the urban forest crosses multiple jurisdictions and disciplinary boundaries, including:

- Asset and project management
- Sustainability
- Biodiversity
- Design
- Heritage
- Development assessment
- Strategic planning
- Open space and recreation
- Stormwater and flooding
- Environmental management
- Maintenance
- Learning and Development
- Community Engagement
- Community Services
- Property

This leaves the urban forest and its monitoring and management split across different responsibilities and areas of interest within Council. A lack of strategic governance and coordination will often impact resourcing and funding potential for related activities, in turn limiting Council's capacity to provide adequate management of the urban forest. Setting clear goals and identifying roles and responsibilities can support coordination and integration of green infrastructure across planning and delivery. Other local governments have responded to this gap by introducing specific positions responsible for coordinating actions across teams and building organisational capacity.

#### Community understanding

Community and landowner acceptance and understanding is critical to the success of the urban forest (Ordóñez 2020). Without this, issues such as illegal tree removal, vegetation clearing, and vandalism will continue to occur in urban areas. Responding to community concerns and establishing clear, documented information to build awareness and engage in a dialogue will support our ongoing greening efforts.

## 6.4 Priority tree planting locations

The 2020 Surface Heat Mapping Report identified priority areas for tree planting to mitigate heat based on the mapping of severe urban heat islands, including:

- Googong (whole area)
  - Queanbeyan
    - Riverside Plaza;
    - some high-density residential areas south of Ellerton Drive;
    - Queanbeyan East
    - Crestwood
    - Queanbeyan West
    - some of the high-density residential areas in Karabar
    - Jerrabomberra
  - Bungendore:
    - north-east corner, east of Tarago Road and north of McMahon Drive
    - south-east areas
    - residential area between Ellendon Street and Trucking Yard Lane along Finch Street
  - Braidwood
    - far east of the suburbs, south of Wilson Street/Little River Road and east of Monkittee Street (appears to align with the hospital a new high-density residential development with minimal green infrastructure)
    - central north-south residential corridor just west of Wallace Street
    - intersection of Lascelles and Elrington Streets
- Areas undergoing revitalisation or as development controls are reviewed (e.g. Braidwood, Bungendore and Queanbeyan town centres)
  - Areas where additional tree canopy cover will have the greatest community benefit, that is areas with low canopy cover, significantly impacted by urban heat and where vulnerability to heat is high.
  - Vacant sites on public land that present opportunities for additional tree planting.
  - High pedestrian volume and movement areas such as playgrounds, public transport stops, public plazas, parks and community facilities as well as key cycling and pedestrian corridors as identified in Pedestrian and Mobility Plans.
  - Areas zoned for increased residential density and greenfield development.

While this is a good starting point, further investigation using the following criteria along with completing monitoring and data collection activities outlined in the action plan will develop a clearer agenda for tree planting:

## 7 The way forward

Our vision is that Council, business and community value and actively care for an urban forest that is resilient and fairly distributed providing a cooler, healthier environment for people and wildlife.

### 7.1 Our goals

This vision is articulated through five goals and underpinned by the principles established in the GANSW Greener Places. They are:

- **A resilient urban forest:** The urban forest is diverse, healthy and responsive to future conditions.
- **A fairly distributed urban forest:** The urban forest provides benefits to all citizens. Canopy cover is prioritised in areas where it is currently lacking, particularly in areas where there are high concentrations of vulnerable communities.
- **A cooler, greener urban environment:** Planning and design of our urban areas supports a thriving urban forest in the public and private realm that enables greener, cooler spaces and places for residents, workers and visitors.
- **Increased biodiversity and tree canopy:** A connected, strategically managed urban forest protects, maintains and enhances biodiversity and tree canopy in urban areas.
- **An actively managed urban forest:** Council, residents and the business community understand the benefits of the urban forest, are knowledgeable and are partners in managing the urban forest.



## 7.2 Strategies and actions

The actions have been grouped into five key strategies to support Council and community prioritise, manage and implement this Strategy.

### Strategy 1: Build awareness and encourage participation in urban greening

We must continue to build understanding of the benefits of the urban forest and share this information with others. This may involve partnering with organisations, business and the community to support urban greening.

Access to nature and open spaces are a cherished aspect of Queanbeyan-Palerang's landscape setting. Biodiversity protection and sustainable management of natural landscapes and water resources are priorities identified through strategic documents co-developed with the community.

Demonstrating to our community how the urban forest can enhance these lifestyle and amenity aspects of urban areas as well as informing people of the many benefits will increase support for urban greening and cooling efforts. A more informed and engaged community will also be able to actively care for and manage the urban forest by understand what trees need to survive and what actions might cause harm. A comprehensive, ongoing program of education and engagement will be essential to keeping the community informed about their role in enhancing and protecting the urban forest.

A coordinated engagement strategy will also keep the community up to date with specific activities and opportunities to be involved and partner with us in planning for the urban forest.

Queanbeyan-Palerang has an active community of volunteers engaged in caring for the natural environment (idcommunity 2021b), including participating in existing programs that support the urban forest such as National Tree Day planting activities.

Volunteers provide an invaluable service to our community, one that is increasingly being recognised (Volunteering Australia 2020). To support the vision of this Strategy it is necessary to take a coordinated approach to volunteer efforts to ensure volunteer time and energy is effectively spent and maximised.

Council may also wish to consider re-establishing a local nursery as a strategic and meaningful partnership between Council and the local community.

#### Actions

- 1.1. Continue to manage and promote existing Council-led programs (National Tree Day, Environment Week) and support community-led activities and programs, where appropriate.
- 1.2. Regularly demonstrate and communicate successes in urban greening and cooling to the community.
- 1.3. Include the community in future landscape and planning projects.
- 1.4. Prepare and deliver a coordinated, ongoing community education and communication campaign across the LGA. This may include:
  - Signage and interpretation information.
  - A community champions program.
  - A coordinated, well-resourced and promoted program of events including competitions and giveaways.
  - Community input on tree planting program and high-value areas.
  - Education resources (online and in-person) on greening and cooling in private spaces including building design, tree planting, maintenance and selection methods.
  - An interactive, informative, and fun Council webpage on tree education.
- 1.5. Establish an Urban Greening Volunteer Program to coordinate community and Council efforts for tree planting and support more impactful initiatives. Investigate the potential for the program to be run by a community consultation committee representing a range of community organisations and interests.
- 1.6. Actively partner with existing conservation groups, Local Aboriginal Land Councils, local Landcare, Friends of Groups and other organisations to deliver urban greening and cooling education and outreach programs and events.
- 1.7. Develop partnerships with universities, research institutes and other regional organisations to support knowledge sharing and understanding of best-practice management and explore innovative methods of maintaining the urban forest.
- 1.8. Work with developers and business owners to deliver greening particularly in industrial areas, new release areas and as part of urban renewal projects.



## Strategy 2: Expand data collection and monitoring of the urban forest

Council bears the responsibility for caring for public trees in streets and parks. Canopy mapping is a valuable tool, however alone it does not provide sufficient information to support robust management of tree assets.

We must expand our monitoring and evaluation of the urban forest to support evidence-based decision-making for tree maintenance, replacement, removal and planting programs.

In 2015, following the death of a child in a Bendigo Council park, the Victorian Coroner provided eight recommendations for LGAs to follow when managing trees under their responsibility (Victoria Courts 2015). These recommendations have been incorporated into the actions under this Strategy, with the exception of the three recommendations noted below. These should be noted and considered by Council when implementing tree monitoring and maintenance:

- In any tree inspection, tree assessment or risk assessment, it should be noted that the anatomy of a branch and of an epicormic shoot are quite different. The term "branch" should only be applied to tree structures that have a proper branch anatomy and epicormic shoots should be clearly identified as such in any assessment or inspection procedures.
- All local government agencies should have a computer-based risk assessment system that is applied to all trees contained within the tree inventory. Such a system may incorporate the use of systems such as QTRA or TRAQ, which are widely and readily available or another system which embodies the principles of risk assessment specified in the relevant Australian Standard.
- All inspections must be undertaken by a qualified (Level 4 or above) arborist.

While the Victoria Courts recommendations listed above require a Level 4 or above arborist, it is further recommended that this be amended to Level 5 to ensure appropriate understanding of tree specific risks when undertaking assessments.

### Actions

- 2.1. Incorporate the Braidwood tree inventory into Council's existing asset management system to enable recording of details (date, what was done and why) of all future and ongoing maintenance and inspection operations.
- 2.2. Expand the tree inventory to all urban areas and integrate with asset management. At a minimum this inventory must identify tree species and location but will ideally include age and height and other characteristics to support risk management and forward planning.
- 2.3. Review/develop tree inspection and risk assessment protocols to:
  - record the purpose and form of inspection (e.g. walk-by, any technological aids)
  - record whether inspection is ground-based or from above.
  - record date of inspection and indication of timelines for next inspection
  - record whether any additional arboricultural works are recommended, when they should be undertaken and the reason for recommending the works
  - ensure the use of relevant criteria to assess the trunk and canopy components at the time of inspection
  - include mechanisms to ensure recommended works are completed
- 2.4. Improve record keeping of tree complaints and referrals and link to asset management.
- 2.5. Undertake an audit of overall tree canopy loss and gains every two years, to determine impact of urban greening and cooling actions to support business cases for continued urban forest management funding and inclusion in operational plans.
- 2.6. Investigate and map dieback, areas of high biodiversity value, endangered ecosystems and vegetation, existing vegetation corridors across the LGA to inform planning and prioritisation of further greening actions.
- 2.7. Investigate and undertake a small trial of a publicly available online tool, database or map of public place trees in Braidwood.

**Strategy 3: Coordinate tree and vegetation planting and management**

Council currently delivers a public tree planting program of 1,200 trees each year. Preparing a tree planting plan for public areas at the precinct scale will guide implementation of this Strategy and coordinate efforts to ensure planting occurs in areas of highest priority and need.

Planning at the precinct scale will also enable Council to determine the most appropriate tree species and recommend design principles based on proposed function and place-based conditions, enabling a fit-for-purpose tree planting and replacement program. Planting the right tree in the right place supports a healthy and responsive urban forest.

A program will also provide a central source of information to coordinate efforts across different levels of administration, planning and delivery and support collaboration between the various disciplines in Council.

Early planning is essential to support planting the right tree in the right place and coordinating green infrastructure with broader urban planning and design.

While not a direct action of this Strategy, it is recommended that Council pursue development of a comprehensive vegetation management plan that considers blue/green/grey infrastructure at the precinct scale and makes recommendations on linking, connecting and enhancing waterways, drainage assets, vegetation, bushland reserves and open space network for broader ecosystem, recreation and cooling benefits. An integrated precinct planning approach would direct planning, funding and resourcing across open space, tree planting, WSUD, active transport, biodiversity, vegetation and asset management.

**Actions**

- 3.1. Set urban forest targets to guide future planning and evaluation such as tree canopy cover, biodiversity, number of trees planted and tree health. Incorporate these targets into relevant planning documents and policies.
- 3.2. Finalise the recommended tree species list and set tree species diversity targets. Incorporate these into planning documents.
- 3.3. Develop, resource and implement a coordinated tree planting program and precinct plans that:
  - supports integration of tree planting with asset and infrastructure planning and capital works programs
  - identifies vacant tree sites and areas with low canopy cover
  - identifies priority areas for planting of new and existing spaces at the precinct scale
  - provides a tailored appropriate tree species lists for precincts based on character, tree function, habitat value, climate (current and future), soil conditions, lifecycle costs and diversity requirements
  - includes succession planting
  - considers heritage and bushfire issues
  - monitors and evaluates plantings
- 3.4. Develop technical guidelines for urban vegetation management (including, for example, bushfire management, infrastructure integration, pruning) that includes relevant policy documents, a summary of statutory tools, Council processes and standards for design, management, maintenance, compliance and reporting. Make this available to all staff and integrate its use in core business.

#### Strategy 4: Review planning policy and development controls

A review of Council's planning policy and development controls has identified several gaps and inconsistencies that should be resolved to support better management of the urban forest and support integration of green infrastructure in planning and development.

Consolidation of DCP requirements relating to tree planting and management will support consistent application of planning controls. This will support our staff and make planning requirements clear to community and developers. An updated DCP should reference current acts and planning instruments such as the Biodiversity Conservation Act 2016, Vegetation SEPP, and Australian Standards such as AS 4970 Protection of Trees on Development Sites (2009), AS 4373 Pruning of Amenity Trees (2007), AS 2303 Tree Stock for Landscape Use (2015).

Council's draft Significant Tree Policy sets out roles and responsibilities of Council, residents and landowners relating to the identification, nomination, registration and maintenance of Significant trees. A 'Significant Tree Register' will need to accompany the policy providing a list of significant trees within the municipality.

Council's Tree & Vegetation Vandalism Directive – draft outlines our strong opposition to public tree and vegetation vandalism and provides a framework for consistent management and response to acts of tree and vegetation vandalism.

Action 4.4 recommends development of a Tree Management Policy, in which the Significant Tree Policy and Tree & Vegetation Vandalism Directive could form chapters to protect trees including significant trees, and mature and remnant native trees. New chapters are also recommended covering tree protection, planting, pruning, removal, asset management, community consultation and engagement. The Queanbeyan Street Tree Management Directive 2016 would become redundant and any relevant information incorporated into the new Tree Management Policy.

#### Actions

- 4.1. Include urban forest principles and targets in urban renewal and new release area planning documents.
- 4.2. Develop a single Tree and Vegetation Management DCP that provides consistent controls across QPRC.
- 4.3. Review and refine planning instruments to:
  - Support multifunctionality of blue, grey and green infrastructure, particularly WSUD integration opportunities.
  - Provide tree requirements for public open space in new developments.
  - Ensure sufficient information is provided for tree retention, maintenance, planting and location in handover documents.
  - Promote urban design and development that encourages tree planting and urban cooling. Examples include increasing pervious areas, supporting green walls and roofs and reducing dark coloured materials.
  - Ensure protection of existing canopy cover.
- 4.4. Establish a Tree Management Policy incorporating and updating existing tree-related policies and development of a significant tree register, to provide a framework for consistent decision making, documentation and standardisation of processes of tree management and maintenance issues.
- 4.5. Investigate policy and planning controls that incentivises additional planting and retention, and regulates the loss and damage of trees and vegetation, including:
  - A tree trust for development on private and public land
  - Rate reductions for residents and businesses that retain large canopy trees
  - Incentives for planting in existing areas or new developments that provide green infrastructure beyond minimum requirements.
- 4.6. Develop/review design guidelines and standard engineering details to support and enhance tree growth and health in public and private spaces including passive watering, setbacks, deep soils and pervious paving.
- 4.7. Update the Street Verge Maintenance Policy to include standard setbacks to street trees for the construction of driveway and kerb crossings based on AS 4970 Protection of Trees on Development Sites (2009) and opportunities to improve integrated street tree outcomes.



**Strategy 5: Increase Council capacity in urban forest management**

Sustainable urban forestry is supported by institutional capacity and embedding evidence-based decision-making and collaboration in Council practices (Ordóñez 2020).

One important way of achieving this is providing appropriate training to build staff skills and knowledge related to urban greening and cooling. It is also important to encourage and normalise collaboration and working across disciplines to integrate green infrastructure planning with broader urban planning processes.

Council should encourage greening and cooling champions at all levels within its organisation. This gives a voice to Councillors and staff and supports advocacy and action at the project level while also establishing representatives in senior and executive management positions that have the authority and responsibility to institutionalise new practice and push an urban greening and cooling agenda at the whole-of-Council level.

Engaging with the community on urban greening and cooling and demonstrating on-ground outcomes through trial and demonstration projects builds trust and confidence in Council's capacity to deliver. This strategy can be supported through Council's continued achievement of sustainability certifications for community assets and projects, which include measures relating to urban greening and cooling.

**Actions**

- 5.1. Establish a cross-departmental working group to take ownership of this Strategy, promote and coordinate action across Council as well as ensure alignment with the Climate Change Action Plans, Resilience Plan, asset management and maintenance plans and other relevant policy and strategies.
- 5.2. Include relevant urban forest actions and objectives for all relevant Council teams in the Delivery Program and Operational Plans.
- 5.3. Improve Council capacity and capability through filling skill gaps including:
  - Biodiversity officer for DA assessment and compliance integration and knowledge proliferation.
  - Tree management/compliance officer.
  - Increasing resourcing of staff to allow for increased tree inspections and monitoring.
- 5.4. Educate and provide tools to ensure good pruning practices across QPRC works to promote healthy growth, pride in landscape appearance, prolong life of trees and demonstrate good maintenance practices to the community.
- 5.5. Provide training for relevant staff on benefits of green infrastructure, integrating blue/green/grey infrastructure and managing trees to support the urban forest and minimise perceived and actual conflicts with development.
- 5.6. Include urban forest impacts as an item in Council reporting/decision-making templates and tools.
- 5.7. Set up internal referral and coordination protocols to ensure collaboration and integration of infrastructure needs prior to planning approval.
- 5.8. Consider establishing a panel of arborists who can provide advice to Council and the community about trees and who can undertake pruning and removal works as required-take into consideration private and public land.

## 8 Implementation

Opportunities for greening and cooling can be divided into low cost, 'quick-win' actions that can be implemented within current budgets and work programs, and those where more significant funding will be required for implementation over a longer period of time. The plan on the following pages breaks the actions into short-, medium- and longer-term actions and identifies responsibilities and alignment with the Strategy goals.

Resourcing and implementation of this Strategy will need to be considered as part of Council's Integrated Planning and Reporting program. The vision, goals and strategies in this Strategy need to be considered in the next review of the Community Strategic Plan. Actions listed for each of the strategies should be considered and included in the development of the next four-year Delivery Program planning process and the annual Operational Plan.

### 8.1 Priority actions

The following priority actions must be accomplished initially to provide the necessary framework and information to enable Council to move towards best practice management of the urban forest.

- Identify and leverage funding opportunities to implement actions
- Incorporate the recent Braidwood tree inventory into Council's existing asset management system and pilot use for monitoring and maintaining the urban forest.
- Establish a cross-departmental working group to champion and implement the Urban Forest Cooling Strategy

## 8.2 Action plan

Table 1 Immediate actions (quick wins)

Ref	Action	Responsibility
1.1	Continue to manage and promote existing Council-led programs (National Tree Day, Environment Week) and support community-led activities and programs, where appropriate.	Natural Landscapes and Health
1.2	Regularly demonstrate and communicate successes in urban greening and cooling to the community.	Communications and Engagement
1.3	Include the community to be directly involved in future landscape and planning projects.	Organisational
1.6	Actively partner with existing conservation groups, Local Aboriginal Land Councils, local Landcare, Friends of Groups and other organisations to deliver urban greening and cooling education and outreach programs and events.	Organisational
1.8	Work with developers and business owners to deliver greening particularly in industrial areas, new release areas and as part of urban renewal projects.	Urban Landscapes, Development, Contracts and Projects, Land-use Planning
2.1.	Incorporate the Braidwood tree inventory into Council's existing asset management system to enable recording of details (date, what was done and why) of all future and ongoing maintenance and inspection operations.	Urban Landscapes
2.3	Review/develop tree inspection and risk assessment protocols to: <ul style="list-style-type: none"> <li>record the purpose and form of inspection (e.g. walk-by, any technological aids)</li> <li>record whether inspection is ground-based or from above.</li> <li>record date of inspection and indication of timelines for next inspection</li> <li>record whether any additional aboricultural works are recommended, when they should be undertaken and the reason for recommending the works</li> <li>ensure the use of relevant criteria to assess the trunk and canopy components at the time of inspection</li> <li>include mechanisms to ensure recommended works are completed</li> </ul>	Urban Landscapes
2.4	Improve record keeping of tree complaints and referrals and link to asset management.	Urban Landscapes
3.1	Set urban forest targets to guide future planning and evaluation such as tree canopy cover, biodiversity, number of trees planted and tree health. Incorporate these targets into relevant planning documents and policies.	Urban Landscapes

3.2	Finalise the recommended tree species list and set tree species diversity targets. Incorporate these into planning documents.	Natural Landscapes and Health, Urban Landscapes
4.7	Update the Street Verge Maintenance Policy to include standard setbacks to street trees for the construction of driveway and kerb crossings based on AS 4970 Protection of Trees on Development Sites (2009) and opportunities to improve integrated street tree outcomes.	Urban Landscapes
5.1	Establish a cross-departmental working group to take ownership of this Strategy, promote and coordinate action across Council as well as ensure alignment with the Climate Change Action Plans, Resilience Plan, asset management and maintenance plans and other relevant policy and strategies	Natural Landscapes and Health
5.6	Include urban forest impacts as an item in Council reporting/decision-making templates and tools.	Finance, Executive
5.7	Set up internal referral and coordination protocols to ensure collaboration and integration of infrastructure needs prior to planning approval.	Development

**Table 2 Medium-term actions (2-5 years)**

Ref	Action	Responsibility
1.4	<p>Prepare and deliver a coordinated, ongoing community education and communication campaign across the LGA. This may include:</p> <ul style="list-style-type: none"> <li>• Signage and interpretation information.</li> <li>• A community champions program.</li> <li>• A coordinated, well-resourced and promoted program of events including competitions and giveaways.</li> <li>• Community input on tree planting program and high-value areas.</li> <li>• Education resources (online and in-person) on greening and cooling in private spaces including building design, tree planting, maintenance and selection methods.</li> <li>• An interactive, informative, and fun Council webpage on tree education</li> </ul>	Communications and Engagement
1.5	Establish an Urban Greening Volunteer Program to coordinate community and Council efforts for tree planting and support more impactful initiatives. Investigate the potential for the program to be run by a community consultation committee representing a range of community organisations and interests	Recreation and Culture, Urban Landscapes

1.7	Develop partnerships with universities, research institutes and other regional organisations to support knowledge sharing and understanding of best-practice management and explore innovative methods of maintaining the urban forest.	Urban Landscapes
2.2	Expand the tree inventory to all urban areas and integrate with asset management. At a minimum this inventory must identify tree species and location but will ideally include age and height and other characteristics to support risk management and forward planning.	Urban Landscapes
2.5	Undertake an audit of overall tree canopy loss and gains every two years, to determine impact of urban greening and cooling actions to support business cases for continued urban forest management funding and inclusion in operational plans.	Natural Landscapes and Health
2.6	Investigate and map dieback, areas of high biodiversity value, endangered ecosystems and vegetation, existing vegetation corridors across the LGA to inform planning and prioritisation of further greening actions	Natural Landscapes and Health
2.7	Investigate and undertake a small trial of a publicly available online tool, database or map of public place trees in Braidwood.	Urban Landscapes
3.3	Develop, resource and implement a coordinated tree planting program and precinct plans that: <ul style="list-style-type: none"> <li>• supports integration of tree planting with asset and infrastructure planning and capital works programs</li> <li>• identifies vacant tree sites and areas with low canopy cover</li> <li>• identifies priority areas for planting of new and existing spaces at the precinct scale</li> <li>• provides a tailored appropriate tree species lists for precincts based on character, tree function, habitat value, climate (current and future), soil conditions, lifecycle costs and diversity requirements</li> <li>• includes succession planting</li> <li>• considers heritage and bushfire issues</li> <li>• monitors and evaluates plantings</li> </ul>	Urban Landscapes, Natural Landscapes and Health
3.4	Develop technical guidelines for urban vegetation management (including, for example, bushfire management, infrastructure integration, pruning) that includes relevant policy documents, a summary of statutory tools, Council processes and standards for design, management, maintenance, compliance and reporting. Make this available to all staff and integrate its use in core business.	Urban Landscapes
4.1	Include urban forest principles and targets in urban renewal and new release area planning documents.	Land-Use Planning, Development

4.2	Develop a single Tree and Vegetation Management DCP that provides consistent controls across QPRC.	Land-Use Planning
4.3	<p>Review and refine planning instruments to:</p> <ul style="list-style-type: none"> <li>• Support multifunctionality of blue, grey and green infrastructure, particularly WSUD integration opportunities.</li> <li>• Provide tree requirements for public open space in new developments.</li> <li>• Ensure sufficient information is provided for tree retention, maintenance, planting and location in handover documents.</li> <li>• Promote urban design and development that encourages tree planting and urban cooling. Examples include increasing impervious areas, supporting green walls and roofs and reducing dark coloured materials.</li> <li>• Ensure protection of existing canopy cover.</li> </ul>	Land-Use Planning, Development
4.4	Establish a Tree Management Policy incorporating and updating existing tree-related policies and development of a significant tree register, to provide a framework for consistent decision making, documentation and standardisation of processes of tree management and maintenance issues	Urban Landscapes
4.6	Develop/review design guidelines and standard engineering details to better support and enhance tree growth and health in public and private spaces including passive watering, setbacks, deep soils and pervious paving	Development, Contracts and Projects, Urban Landscapes
5.2	Include relevant urban forest actions and objectives for all relevant Council teams in the Delivery Program and Operational Plans. <i>(repeated in longer-term actions for Delivery Program planning)</i>	Organisational
5.3	<p>Improve Council capacity and capability through filling skill gaps including:</p> <ul style="list-style-type: none"> <li>• Biodiversity officer for DA assessment and compliance integration and knowledge proliferation</li> <li>• Tree management/compliance officer</li> <li>• Increasing resourcing off staff to allow for increased tree inspections and monitoring</li> </ul>	Executive
5.4	Educate and provide tools to ensure good pruning practices across QPRC works to promote healthy growth, pride in landscape appearance, prolong life of trees and demonstrate good maintenance practices to the community	Urban Landscapes
5.5	Provide training for relevant staff on benefits of green infrastructure, integrating blue/green/grey infrastructure and managing trees to support the urban forest and minimise perceived and actual conflicts with development.	Natural Landscapes and Health



Table 3 Longer-term actions (5+ years)

Ref	Action	Responsibility
4.5	Investigate policy and planning controls that incentivises additional planting and retention, and regulates the loss and damage of trees and vegetation, including: <ul style="list-style-type: none"><li>• A tree trust for development on private and public land</li><li>• Rate reductions for residents and businesses that retain large canopy trees</li><li>• Incentives for planting in existing areas or new developments that provide green infrastructure beyond the minimum requirement.</li></ul>	Land-Use Planning, Urban Landscapes, Finance, Development
5.2	Include relevant urban forest actions and objectives for all relevant Council teams in the Delivery Program and Operational Plans. <i>(repeated in medium term actions for Operational Plans)</i>	Organisational
5.8	Consider establishing a panel of arborists who can provide advice to Council and the community about trees and who can undertake pruning and removal works as required-take into consideration private and public land.	Urban Landscapes

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