

DRAFT URBAN TREE CANOPY STRATEGY

2024 – 2040

Acknowledgement of Country

Nillumbik Shire Council respectfully acknowledges the Wurundjeri Woi-wurrung people as the Traditional Owners and Custodians of the Country on which Nillumbik is located. We pay respect to Elders past, present and emerging and extend that respect to all First Nations People. We respect the enduring strength of the Wurundjeri Woi-wurrung and acknowledge that sovereignty was never ceded.

Wurundjeri Woi-wurrung people hold a deep and ongoing connection to this place. We value the contribution their Care for Country makes to the lands, waterways, plants, wildlife and people of the Shire of Nillumbik; acknowledge their beliefs, customs and values; and are committed to collaborating around how we think, work and act in relation to climate change and caring for our environment.

Nillumbik Youth Council's vision for Nillumbik's urban tree canopy

"Nillumbik's young people envision a healthy and resilient urban tree canopy in our suburbs and townships. Our urban canopy with its many indigenous species, is a link to the land's traditional owners and our cultural heritage.

In this vision, our trees become integral to the fabric of our neighbourhoods, providing shade, enhancing community wellbeing, enriching biodiversity, and improving air quality.

We aspire to protect and maintain vibrant and interconnected green spaces that foster a sense of community pride and engagement, where residents actively participate in the nurturing and preservation of our urban tree canopy.

Our vision embraces the notion that a resilient urban tree canopy is essential for adapting to the challenges of a changing climate. Ensuring that Nillumbik's urban forests will continue to provide safe habitats for wildlife, provide benefits to community health and connectedness, and contribute to counteracting the effects of a changing climate."

1. Introduction

Why Council has an Urban Tree Canopy Strategy

Located on Wurundjeri Woi-wurrung land and renowned as “the Green Wedge Shire”, Nillumbik is home to a collection of suburbs and townships along the north-eastern edge of Melbourne’s Urban Growth Boundary.

These are our urban areas. They comprise only nine percent of our Shire (3,888 hectares), yet they are home to 75 percent of our population (47,365 people)¹ and approximately seven percent of our shire-wide canopy². Facing challenges and opportunities that are unique to peri-urban and urban localities, specific action is required to care for the canopy of these areas.

We are very fortunate that the extent of canopy in our suburbs and townships is generally high. With an average of 39 percent urban canopy coverage³, Nillumbik’s urban canopy cover is the second highest in all of Melbourne - and we want to maintain this. This canopy contributes greatly to the green, leafy neighbourhood character that our residents, visitors and wildlife enjoy and provides a wide range of environmental, health, cultural and economic benefits.

It is important that we all do what we can to protect - and enhance - the extent, health and resilience of canopy across Nillumbik’s urban areas. Local government has important and varied roles to play in helping to achieve this – on our own land and on land owned by our residents and businesses.

What this Urban Tree Canopy Strategy will focus on achieving

This strategy provides context on the importance of urban canopy, the wide-range of challenges and considerations that need to be taken into account, and provides a fifteen-year framework for strategic action that will help us achieve our vision.

It has three overarching goals:

- **Goal 1 - That Nillumbik’s urban canopy is protected and enhanced**
Target: No overall net loss of Nillumbik’s urban canopy
(Overall target: 39 percent canopy cover in 2040)
- **Goal 2 - That the Nillumbik community value and care for our urban canopy**
Target: An increase in planting of trees across all land tenures
- **Goal 3 - That a healthy urban canopy supports the wellbeing of the Nillumbik community**
Target: An increase in canopy in areas experiencing higher urban heat island effects
(Minimum urban canopy cover target of 25 percent by 2040 in every suburb and township).

The strategy’s scope:

- Defines urban canopy as being any woody vegetation that is over two metres in height. This includes trees and other tall plants/shrubs, including those that are indigenous to Nillumbik, native to Australia and exotic species. (Two meters+ is the height that data is most readily available for).

¹ Nillumbik 2022-2023 Annual Report

² Nearmap, 2021

³ Nearmap, 2021

- Focuses specifically on the needs of our urban canopy – Council has other strategies such as our draft Biodiversity Strategy and Green Wedge Management Plan that plan for the extent and health of our broader natural environment.
- Encompasses all private and public land that is within the Urban Growth Boundary (UGB) of Nillumbik. This UGB is a state-government defined boundary which indicates the long-term limits of Melbourne’s urban development. Within Nillumbik, this includes parts of Diamond Creek, Eltham, Eltham north, Greensborough, Hurstbridge, North Warrandyte, Panton Hill, Plenty, Research, St Andrews and Wattle Glen.

The steps taken to develop the Urban Tree Canopy Strategy

This is Council’s first Urban Canopy Strategy. Research was undertaken into relevant legislative requirements, policy, data, science and best practice to inform its development. Consultation was undertaken with Councillors and Council Advisory Committees on strategic priorities, and community feedback on urban canopy that has been received to date has been considered.

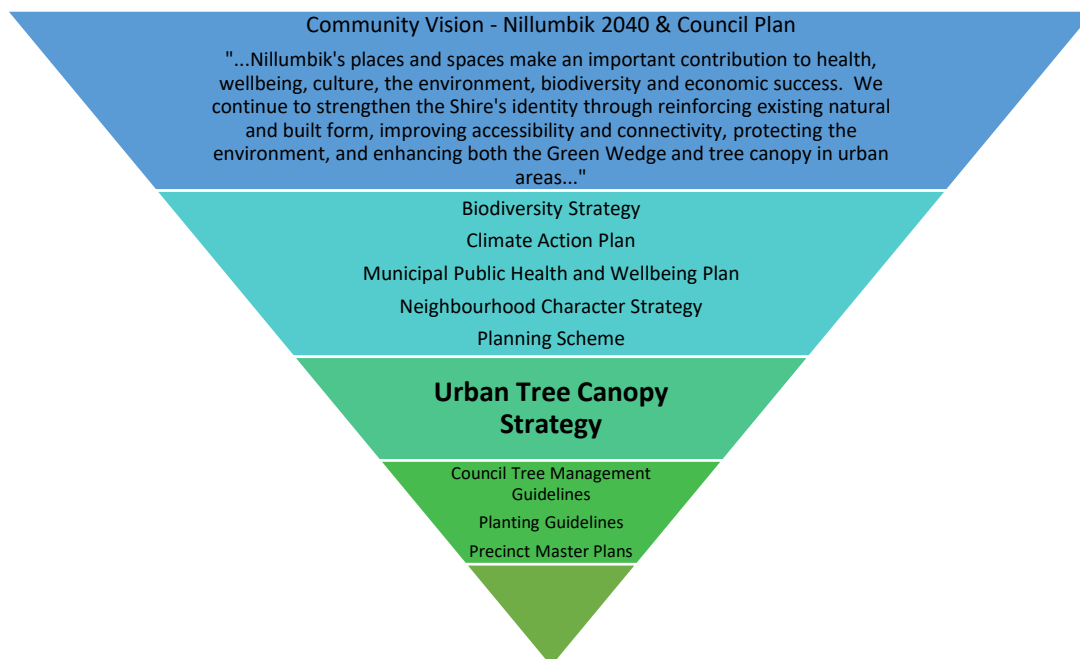
This draft version of the strategy is now on public exhibition so that the community can provide specific feedback on it.

Strategic Context

This strategy seeks to meet its goals and targets which simultaneously:

- Support Council to achieve the tree/canopy-related community wellbeing, amenity and environmental direction of various higher order Council strategies and our planning scheme; and
- Provide strategic context for the implementation of our Tree Management Guidelines which specify how we manage trees on Council land; and planned Planting Guidelines (as a recommendation of Council’s adopted Neighbourhood Character Strategy) which provide tree planting guidance to support the community to fulfil (proposed) planning permit tree planting requirements, where a planning permit is required.

Table 1 Strategic context for Nillumbik’s Urban Tree Canopy Strategy



2. Nillumbik's urban canopy cover

Historical context – the species that make up our canopy cover are diverse

Prior to European settlement, Nillumbik's natural vegetation largely consisted of dry forests. These forests generally comprised low growing trees up to 20m, over a rich understorey of grasses, herbs, orchids and small shrubs. Through subsequent land uses such as agriculture, horticulture, gold mining and timber collection, much of this original vegetation has gone through significant change; though fortunately, even with urbanisation, significant original/remnant tree canopy persists in Nillumbik's urban areas.

To this day, there are a diverse range of indigenous canopy species across our urban areas. Manna Gums dominate stretches along our larger waterways such as the Yarra River, while Swamp Gums occupy smaller gullies and floodplains. On the slopes and hilltops, trees such as Yellow Box, Red Box, Yellow Gum and Long-leaved Box are the most common species.

Many urban areas of Nillumbik also show significant character from the different canopy plantings of various eras. Orchard trees and hedge rows persist from early European settlers in some areas; larger trees from traditional gardens including deciduous northern hemisphere species are still present from early 20th century homesteads and gardens; and Radiata Pine and Sugar Gum plantations are still present along aqueducts and roads. Then over time, considerable planting using Australian natives has also occurred.

As a result, our urban canopy cover is comprised of a wide variety of species.

How we measure canopy cover

Canopy cover is the measure of the area of all vegetation that has reached a certain height, which for the purpose of this strategy is two meters and higher. This can include leaves, branches, trunks and other features of trees and shrubs, and is the amount of tree or shrub that is visible from directly above.

With improving technology, such as AI recognition of canopy from high resolution aerial photos of the Shire, the accuracy of measuring canopy cover is continuously improving. However, measuring cover and its change over time can still be influenced by factors such as photo resolution, seasonal changes e.g. winter vs summer, rainfall and growth, drought impacts, shadowing and time of day.

Analysis of Nillumbik's urban canopy for the purposes of this strategy has used a Nearmap AI generated vegetation layer, which considers all vegetation greater than two metres in height.

Our urban canopy cover today

Nillumbik's overall urban canopy cover is considered to be high (39 percent in 2021 – which equates to approximately 1,400 hectares of canopy), and is the second highest in all of urban Melbourne. As a comparison, at the lowest end of the spectrum some municipalities such as Wyndham and Melton have an urban canopy cover of around only five percent.

There are many competing needs that space for trees and urban canopy competes with. Within urban Nillumbik, urban canopy covers approximately⁴:

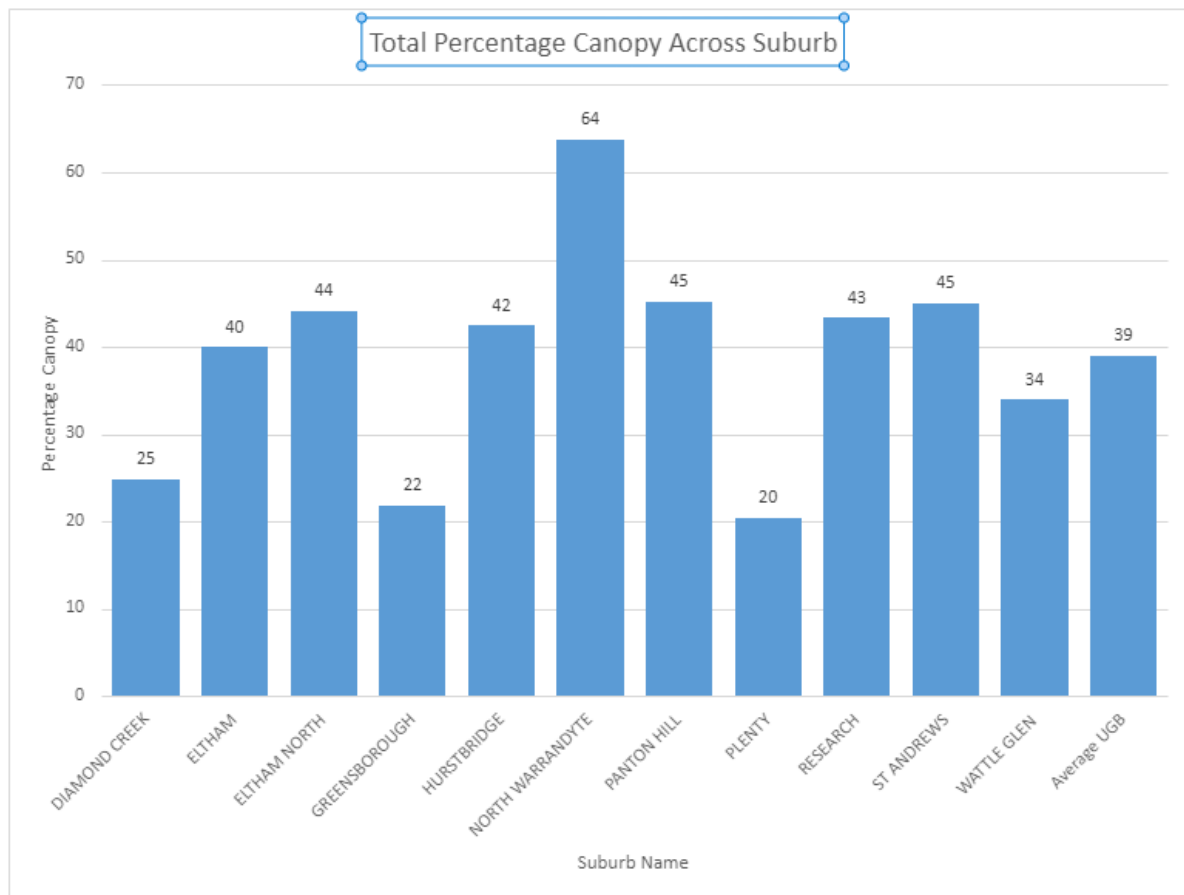
- 36 percent of private land
- 45 percent of public land (i.e. land owned/managed by Council, Crown and State government agencies)

⁴ Nearmap, 2021 – approximate figures based on analysis of aerial images, February 2024.

Differing levels of canopy cover across our various urban areas

While generally high, our tree canopy cover is not equal across all urban areas of the shire, as shown in Table 2. Additional canopy would be particularly beneficial in Greensborough (22 percent) and Plenty (20 percent). Conversely, North Warrandyte’s urban canopy cover (64 percent) is very high.

Table 2 – Urban Canopy Cover for Nillumbik

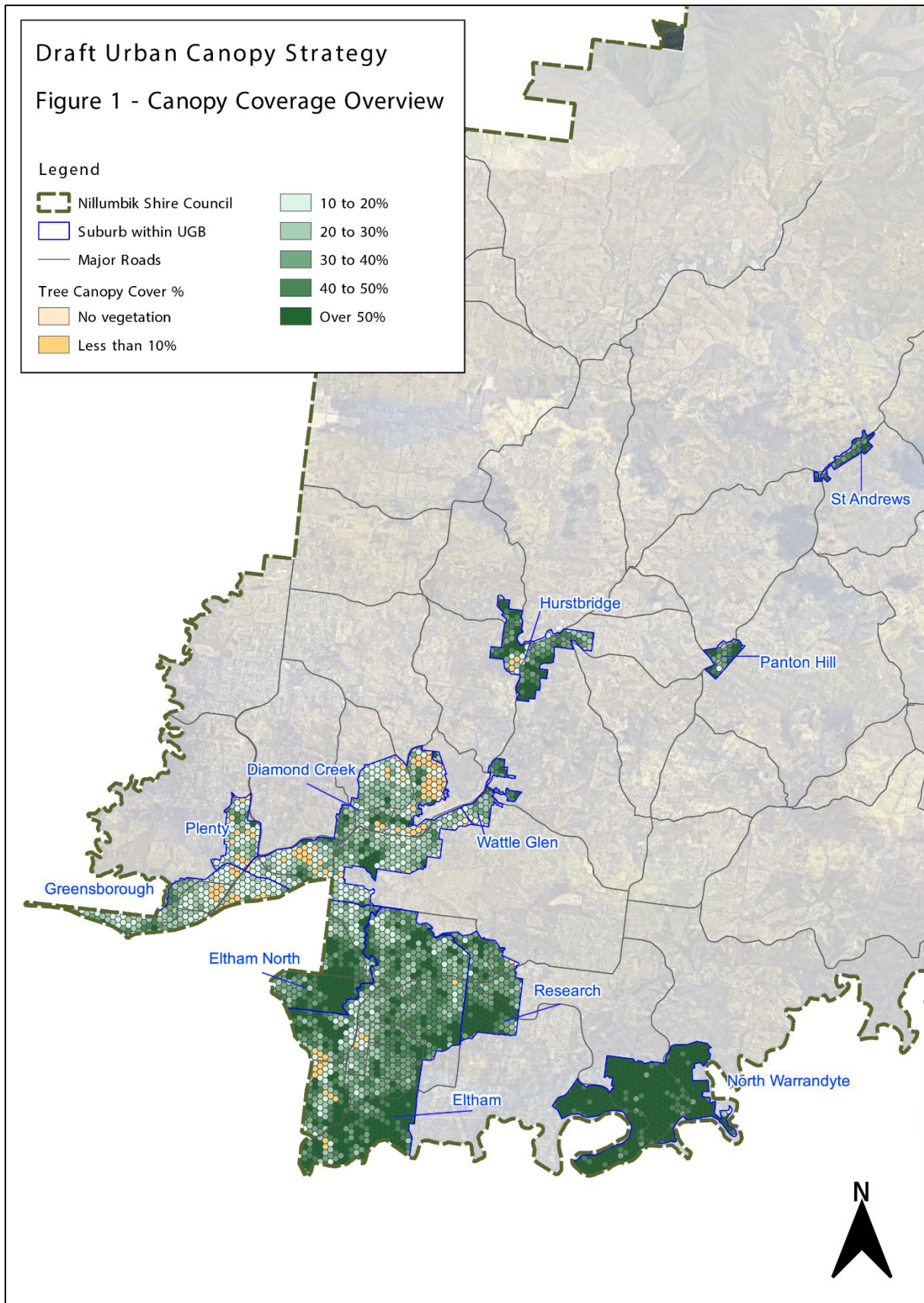


Source: Nearmap, 2021

Furthermore, it’s possible to identify the locations within each of our 11 suburbs and townships that have more or less canopy, as shown in the map in Figure 1. Locations with higher amounts of canopy are green, and locations with less canopy are orange.

This strategy seeks to help protect and maintain the canopy that already exists; and identify opportunities to support more canopy in areas where there is less canopy, in particular where higher urban heat island effects may be present.

Figure 1 – Canopy Cover of Nillumbik's UGB



3. Benefits of having Urban Canopy

Benefits of an Urban Canopy

Urban trees and shrubs play a significant role in creating liveable neighbourhoods and increasing the health and wellbeing of communities and our environment. For example, they provide shade and shelter, improve air quality, absorb carbon and rainfall, cool local environments and support wildlife. They also enhance local amenity and neighbourhood character; and encourage walking and physical activity through more shade covering streets, paths and open spaces.

One of the largest risks to communities and the environment is the impact of climate change, including phenomena such as the urban heat island effect, and other climate related events such as increased flood risks and heat waves. Urban canopy helps to reduce the occurrence and manage the impacts of climate change. This includes its role in sequestering and storing carbon, naturally cooling homes and the urban environment, wind abatement and flood mitigation.

A broad range of the many benefits of urban canopy are listed below.

Table 2 – Benefits of Urban Canopy

Environmental	Ecological	Community	Health and Wellbeing	Economic
Cooling and shading	Increased biodiversity	Sense of place	Reduced effects of Urban Heat Island	Property values
Clean air	Ecosystem services	Neighbourhood character	Improved mental wellbeing	Energy Savings
Stormwater treatment	Water cycling	Cultural heritage	Increased productivity	Tourism
Flood mitigation	Nutrient cycling	Social connections	Increased outdoor activity	Carbon sequestration
Wind abatement	Fauna habitat	Connection to nature	Shade and comfort	Reduce health costs
Carbon storage		Pollution removal & noise reduction		Reduce UV damage to infrastructure

Canopy reduces the urban heat island effect

Climate change is increasing average temperatures across our shire and across Australia. In built up urban areas, temperatures tend to be higher than in rural areas. This difference in temperature is referred to as the Urban Heat Island effect. These higher temperatures are caused by the materials covering land surfaces, such as in buildings and infrastructure, which absorb more heat compared with natural environments and areas with canopy cover.

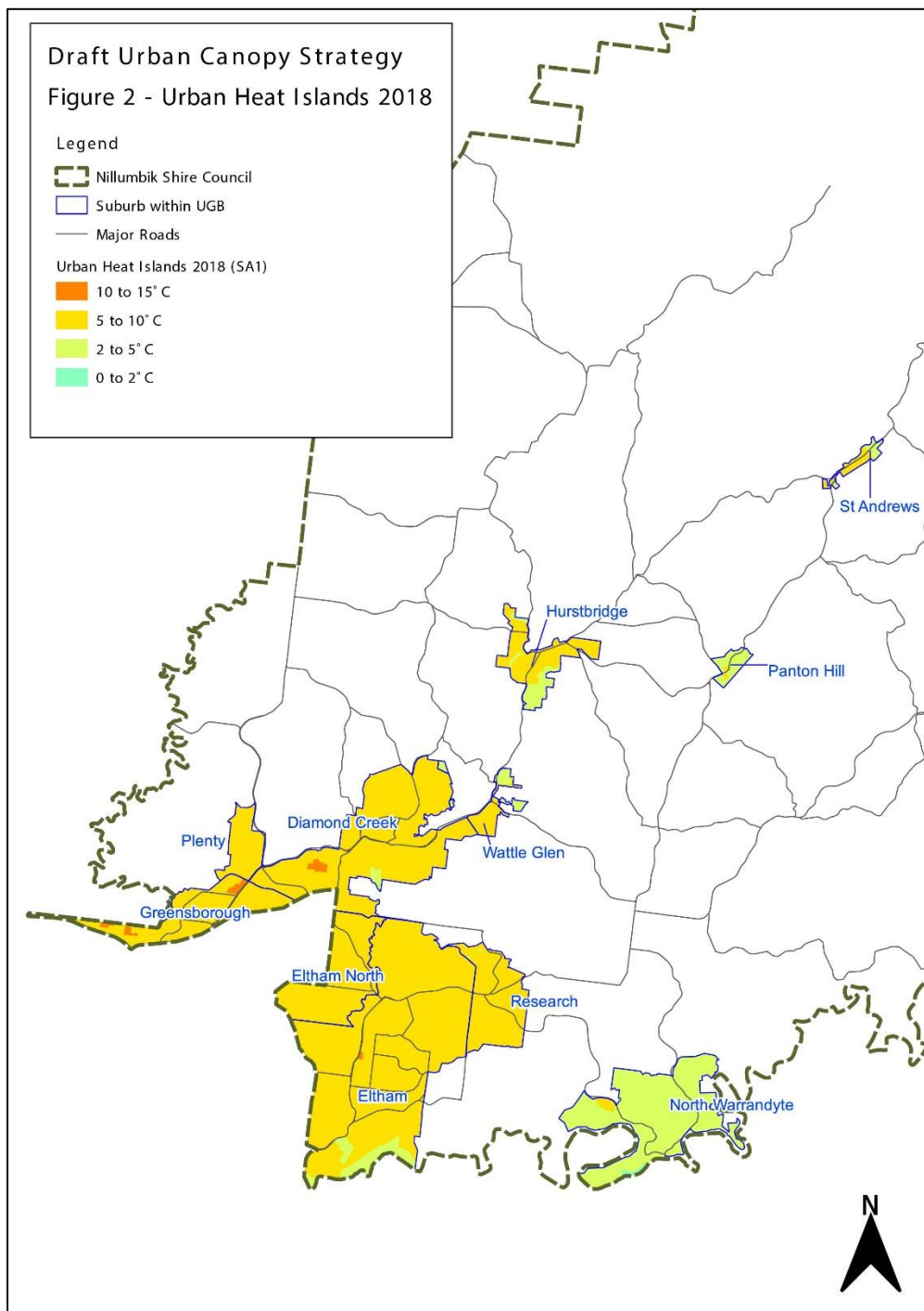
The extra heat from the urban heat island effect can prolong heat waves and increase maximum temperatures during extreme hot weather events. This is further exacerbated by the built surfaces absorbing heat during the day and releasing it during the night, with resultant higher night time temperatures proving less heat stress respite. This can have a significant health impact, particularly on vulnerable members of our community, including young children, the elderly and those with medical conditions.

Canopy trees in urban areas help to reduce this urban heat island effect by shading built surfaces that absorb heat and by releasing cooling water vapour.

Nillumbik’s high urban canopy coverage and lower development intensity means that we currently experience relatively minor urban heat island impacts, especially when compared to most of metropolitan Melbourne. Only small areas of the Shire are classified as being significantly urban heat island impacted, as shown in Figure 2 below (with more detailed maps in Appendix A). These are small, isolated locations, generally associated with shopping strips, with larger roof surfaces, carparks or where vegetation is not present.

The challenge long term will be to ensure that canopy cover continues to provide sufficient coverage and shade to enable this generally positive position to endure.

Figure 2 – Urban Heat Island Effect locations within UGB areas of Nillumbik



4. Threats to Nillumbik's Urban Canopy

Numerous threats and associated challenges exist in terms of protecting and maintaining our urban canopy. These include extreme weather such as major wind events, prolonged heat waves, changing rainfall regimes, bushfires and changing average temperatures; ageing tree stock and disease; urban development and associated public infrastructure and utilities; and a certain lack of community awareness of the benefits of trees and regulations and values around their protection.

We need to recognise these challenges and respond to them where possible, through thoughtful urban planning, climate action, tree selection and tree maintenance.

Challenge: Climate Change - Extreme weather

Extreme weather such as wind events, prolonged heat waves, changing rainfall regimes, and changing average temperatures affects the health of trees and the condition of urban canopy. Such events are happening more frequently, and they result in canopy loss:

- Immediately - for example as a result of strong winds upending trees
- Soon after the event – for example in the aftermath of a storm or flood, either naturally or where a danger exists they may need to be pruned or removed
- Over time – for example with life expectancy reduced as a consequence of insufficient water.

Healthy trees are more likely to be resilient to such events.

Challenge: Bushfire threat

The peri-urban characteristics that make Nillumbik so liveable also contribute to it being one of the most bushfire prone areas in the world. Fire has been part of the landscape for millennia and is a complex issue that is exacerbated by climate change.

Most of Nillumbik, including much of our suburbs and townships, is recognised by the state government through its planning controls as being in a defined Bushfire Prone Area (BPA). A map is provided in Appendix B - focusing on Nillumbik's urban areas.

The challenge to Nillumbik's urban canopy is multifaceted:

- Intense fire is a threat to human life and property, and destroys canopy trees
- Planning scheme exemptions are in place in all Victorian planning schemes to reduce the threat of fire to human life and property; and they include the right to remove native vegetation, including trees in specified bushfire prone and bushfire management locations for bushfire preparedness purposes.

These are unique and significant threats to canopy that present complex challenges when planning for tree canopy outcomes that most Metropolitan Melbourne government areas do not face.

The need to balance protection of life from bushfire with maintaining our urban canopy is recognised at Council. There is an acknowledged tension between protecting and enhancing urban tree canopy, and the challenges of Nillumbik's high bushfire risk environs. Actions such as strategic new plantings which won't increase fire risk, and maintaining trees on Council land to reduce fire risk from utilities and hazard reductions in parks and reserves are some of the key ways that Council responds to this challenge.

Challenge: Age and diversity of our tree population

Trees age, and eventually reach the end of their life. Different tree species have different anticipated life spans - and local climate conditions, human impacts and pest/disease occurrences can all influence anticipated life spans.

Therefore it is important to encourage and plant a diverse range of species, as some can be more or less effected by such events than others; and it is important to plan ahead so that replacement plantings are scheduled to supplement trees as they near the end of their life – or beforehand so that such occurrences are staggered.

Appropriate maintenance of trees also needs to be prioritised to help extend the lifespan of trees and protect our mature canopy, and reduce the need for renewal. This is critically important.

Challenge: Urban development / housing

Nillumbik's population is expected to grow by 6.3 percent to 67,420 people by 2036⁵. It is also expected that the majority of these people will live in and around our urban areas. Development associated with this (although modest) population increase puts pressure on canopy trees, as buildings and associated hard surfaces are built to house and provide services for our growing population. Often when private land is developed, existing trees are removed and replacement trees often don't provide the same canopy coverage as there was before, and it takes time for the planted trees to grow. Critically, the larger and deeper soil areas required for canopy trees have often been non-existent in new developments.

To manage this, the Nillumbik Planning Scheme sets out objectives, policies and provisions that regulate development, including vegetation protection which includes canopy trees. The Planning Scheme specifies when a planning permit is required to develop or to remove vegetation, native vegetation offset requirements, minimum garden area requirements (which includes space for vegetation, pools and paved areas), neighbourhood character objectives, and built form requirements; and also includes specific bushfire threat permit exemptions for removing vegetation. Work is continuing in developing the Shire's Residential Framework Plan, where development of Council's Housing Strategy will also support neighbourhood character objectives as identified in the Neighbourhood Character Strategy 2023 to embed robust policy and planning scheme requirements to protect and enhance urban tree canopy in the Shire's residential areas.

Detail on how canopy trees are managed through the planning scheme is provided in Appendix C.

Challenge: Public infrastructure and utilities

Public infrastructure such as footpaths, street furniture, roads and parking, along with above and below ground utilities such as water, sewerage, storm-water, internet, gas and electricity, all compete for space with vegetation and in particular canopy trees.

The challenge to Nillumbik's urban canopy is multifaceted:

- Planning scheme exemptions are in place which allow utility and infrastructure managers to remove trees and other vegetation without a planning permit when required to undertake essential maintenance of assets or construct major public infrastructure.

⁵ Victoria in Future (VIF) 2023

- When identifying locations to plant new trees, consideration of the infrastructure and utility clearance requirements is required, which can significantly limit the suitable locations for new planting and/or the maximum size of the tree to be planted.

Challenge: Community perceptions about trees

Some residents may wish to remove (or not plant) a tree for a variety of reasons. In some circumstances, it may actually be a better outcome if the tree is retained or planted.

Provision of information / education on the benefits of trees and ways in which risks may be mitigated is important in order to encourage and empower our community to contribute to the protection and growth of our urban canopy.

5. Managing Nillumbik's Urban Tree Canopy

Council's sphere of influence in terms of protecting and maintaining Nillumbik's urban canopy is multi-faceted. Although our canopy is exposed to many threats and associated challenges, a lot of work is implemented to support positive canopy outcomes across Council land and private land.

Trees on Council land

Planning and planting for the future

Within urban areas of the shire, Council is directly responsible for vast numbers of trees within a varied landscape context.

There are many different tree species that are planted and maintained in our urban, council-managed:

- sporting reserves
- parks and open spaces
- bushland and wetland reserves
- activity centres /shopping strips
- streets (along nature strips – both infill and whole-street planting, subject to strategic benefit and funding; and in roundabouts and median strips).

Our most common tree species vary across our different reserves and suburbs. They include:

- Remnant Yellow Gum, Yellow Box, Red Box and Manna Gums, particularly in bushland and waterway reserves, and they remain in roadsides and parklands as scattered trees as well.
- Sugar Gums and Radiata Pine, particularly along trails and in parklands.
- Native Eucalypts.
- Flowering Gums and Yellow Gum cultivars along streets.

We continue to pursue diversity by planting a range of species every year. This is particularly important given the variety of pests and diseases and the impacts of climate change that are likely to affect our trees in the future.

We seek to have an urban tree canopy (outside of our bushland reserves) that meets the commonly accepted tree diversity target for Metropolitan Melbourne councils:

- No more than 30 percent of any one family
- No more than 20 percent of any one genus
- No more than 10 percent of any one species

Furthermore, areas that have a balanced mix of tree age ranges provide a more stable canopy base. While the most mature trees provide the greatest benefits to our community, having an adequate number of young trees in the population is important, as they will make up the replacement stock.

Identifying where new planting can be undertaken

Work is undertaken to ascertain the locations across our urban areas (in activity centres / shopping strips, streets, and parks and open space) that have the capacity for more trees to be planted, or where replacement trees are likely to be required due to tree health issues.

Capacity considerations can be quite complex. Suitable locations for new plantings, as specified in our Tree Planting Guidelines, need to be, for example:

- Minimum of 20m from intersections with signals or from school crossings, or from streets intersecting a main road
- Minimum of 15m from an intersection in residential streets and further in streets where visibility may be a problem
- Minimum of 10m from a stop or give way sign
- Minimum of 3m from electricity poles
- Minimum of 2.5m from laneways, bus stops/shelters
- Minimum of 2m from vehicle crossings/driveways, hydrants or drainage pits
- Minimum of 4m spaces between trees in reserves to enable mower access and a fuller canopy structure at maturity (closer spacing may occur in mulched garden beds)
- Minimum of 2m beneath service wires
- Not above house connections to gas or water services
- If there is no existing footpath, provide allowance for pedestrian access and a potential future footpath
- Not where nearby trees will significantly reduce the tree's health, vigour or shape
- Not where the planting site is less than 1m wide
- Not where the mature tree may block street, car park or reserve lighting
- Not within roadsides with remnant vegetation (outside of the scope of our street tree planting program).

Matters to be considered before planting will then include selecting species that are climate ready, suitable for the site, that provide a diverse tree diversity population, and that consider the benefit for urban ecology – **Right tree, Right place.**

Tree Maintenance

Council periodically updates its *Nillumbik Tree Management Guidelines*, which specify tree maintenance standards for planted or naturally grown trees on Council managed land, and which also outline Council's responsibility for managing trees around assets such roads and electricity or telecommunication lines (and applicable permit requirements).

Tree maintenance needs are identified through proactive inspections and reactive inspection requests from the community. Pruning or removal may need to be undertaken for the following reasons:

- Trees with structural defects and/or poor health
- Stumps which are a hazard to road users and pedestrians
- Tree roots damaging property
- Trees interfering with electric or telecommunication lines
- Trees encroaching into the road clearance space
- Regrowth of trees that will encroach into the road clearance space in the future

Council may also do other works to maintain tree health, particularly for significant trees, such as formative pruning, applying mulch, managing pests and diseases, and creating additional habitat for fauna through artificial hollows or nest boxes.

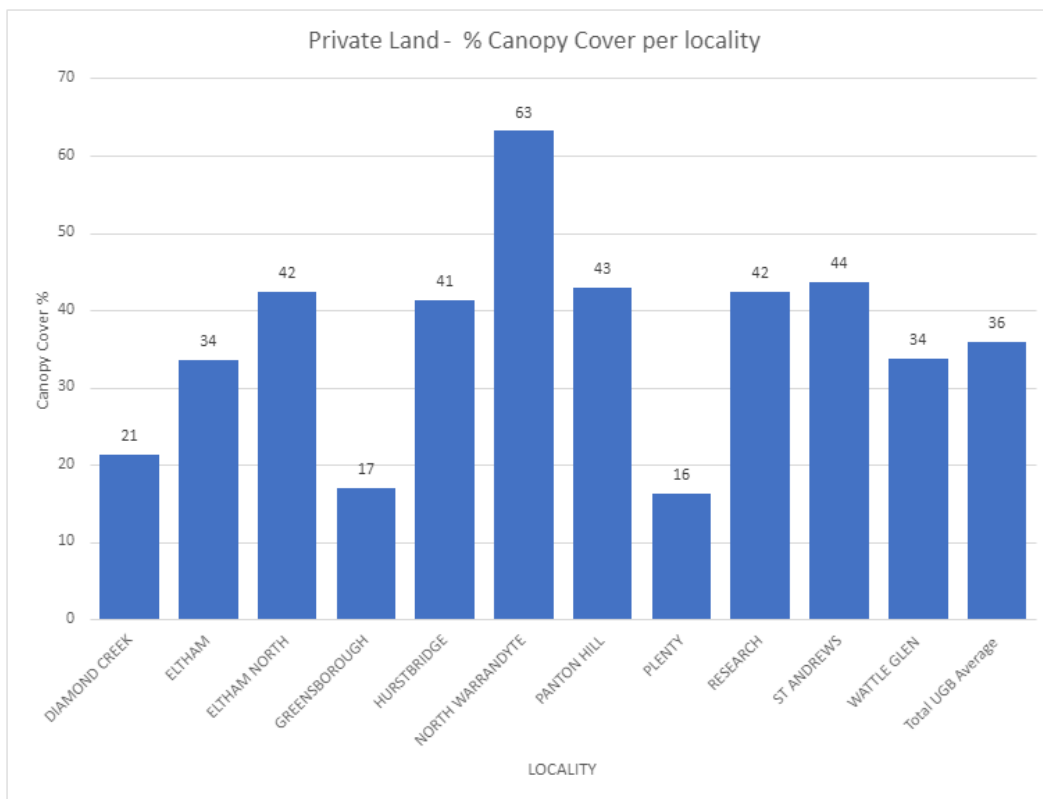
Such works are very important, in order to extend the life of our trees and the benefits that mature canopy provide.

Trees on private land

Trees on private land - in people’s front and back gardens and on larger properties - comprise the majority of Nillumbik’s urban tree canopy (around 70 percent). Therefore, residents have a major role in providing for our long-term urban tree canopy cover, by planting and looking after trees on their properties.

Around a third of our privately owned land (36 percent) is covered by trees and their canopy (with considerable variances between different suburbs and townships as depicted in Table 3).

Table 3 – Total percentage of private land that has canopy cover in each suburb / township in Nillumbik UGB



There are various Council levers that seek to help protect this existing canopy on private land, and also to grow its extent:

1. Advice, education and support to grow and care for our urban canopy
2. Regulatory protections for trees

Advice and Support to support landholders to care for trees and urban canopy

We provide a wide variety of information, programs and advice:

- Advice on what to plant, where, is available via the Edendale Indigenous Nursery, Council's environment staff, volunteer programs such as Nillumbik Gardens for Wildlife, and various Council publications such as the useful guide 'Live Local, Plant Local'.
- We run regular activities and events which promote, for example, the planting of indigenous plants in the right locations, maintaining habitat on private property, and how to manage threats.
- Information is available on Council's website to help people understand our Planning Scheme and the extent of landholder responsibilities that apply in the context of vegetation and tree canopy protection.

Regulatory protections for trees

Planning controls (in the planning scheme) and local laws operate in Nillumbik which provide a high level of protection for our urban canopy. However these protections do not include areas which are subject to the Bushfire Management Overlay (BMO) or located in the Bushfire Prone Area mapping (BPA), as vegetation clearance exemptions exist in all Victorian Planning Schemes in these high-risk bushfire areas which prioritise protection of life and property from bushfire – specifically in the vicinity of buildings and boundary fence lines. A map depicting these areas is in Appendix B.

Examples of urban canopy protections that enable Council to seek optimised canopy outcomes include:

- Council's Municipal Planning Strategy - It identifies strategic objectives for protection of trees and vegetation for biodiversity, neighbourhood character and amenity purposes. It supports specific Local Planning Policy in the Nillumbik Planning Scheme with regard to protection and enhancement of the Shire's urban canopy.
- Council's Neighbourhood Character Strategy 2023 – it identifies objectives and design guidelines to enhance and protect canopy trees, aligned to specific neighbourhood character profiles (and therefor intents) for different parts of the Shire's residential areas. At the time of writing this strategy, a planning scheme amendment is proposed to embed the objectives and the design guidelines of the adopted 2023 Neighbourhood Character Strategy into the Nillumbik Planning Scheme. Once introduced, additional requirements for canopy tree planting will be required as part of planning permit applications, with associated requirements for sufficient plantable areas to accommodate canopy trees will also be required which will result in urban canopy gains.
- Council's General Local Law Clause 52 requires a local law permit to remove, destroy or kill, damage or interfere with (including lopping and pruning) any substantial tree on private land inside the Urban Growth Boundary. Note Clause 52 does not apply to areas located in the BPA mapping or where the BMO applies.

However, there are also additional State-led provisions within all Victorian Planning Schemes that were introduced in late 2023 by the Victorian State Government, including the Future Homes initiative as part of the Housing Statement, which seek to facilitate higher density development in some areas of Melbourne, including urban Nillumbik. Unfortunately some of these provisions require a 'one size fits all approach – Metro Melbourne' to provision of housing, and as a result the requirements for provision of tree canopy in these provisions is not necessarily consistent with the policy objectives for tree canopy in the Nillumbik Planning Scheme and in our adopted

strategies such as the Neighbourhood Character Strategy. With regard to these types of developments, Council will continue to advocate for tree canopy outcomes that are consistent with the unique settings in Nillumbik (e.g. the height and species of a tree that may be appropriate for a proposed development in the inner metropolitan suburbs of Melbourne is not suitable or preferred in the provision of urban canopy in Nillumbik).

Right tree, right place

In all areas localised heat effects occur which can benefit from thoughtful placement of canopy planting. For example, individual houses can benefit from trees around houses, particularly in strategic locations shading north and west areas of the dwelling; while on public land such as streets and parks, shaded footpaths and shopping precincts can benefit pedestrians and users of facilities during hot weather, encouraging walking and use of these areas.

6. What we want to achieve

Nillumbik Urban Tree Canopy Goals and Targets

To achieve the maximum benefits of a healthy Urban Canopy within the urban areas of Nillumbik the following goals with associated targets are proposed.

Goal 1 – That Nillumbik’s Urban Canopy is protected and enhanced

Target – No overall net loss of Nillumbik’s urban canopy. (Baseline - 39 percent urban canopy cover)

That through Council leadership, advocacy, use of planning regulations, improved data, a focus on proactive tree maintenance and other strategic canopy works, our urban canopy is supported. The objective is to maintain canopy cover at 39 percent (2021 baseline), noting that this may decrease significantly in locations where loss can occur as a result of bushfire mitigation action or natural disasters and that it is a priority that it increase in locations where there is less than 25 percent canopy cover.

Goal 2 – That Nillumbik’s community values and cares for the Urban Canopy

Target – An increase in the planting of trees across all land tenures

That through education, planning regulations and support, that partner agencies, community and residents will increase the number of trees cared for, being planted and thriving. This includes Council providing support to volunteers, identifying new partners and encouraging all community members to be tree stewards.

Goal 3 – That a healthy Urban Canopy supports the wellbeing of Nillumbik’s Community

Target – An overall increase in canopy in areas with higher Urban Heat Island Effect (Minimum urban canopy cover of 25 percent in every suburb and township).

That through the strategic targeting of areas to renew and increase canopy and reduce urban heat island impacts, along with management of canopy across the whole of urban areas, that human health will be protected.

Each of these goals is considered within our three focus areas in the following pages, supported by objectives and examples of what Council will do over the coming 15 years in the:

- Short term: 0 – 4 years (2024 – 2028)
- Medium term: 5 – 8 years (2029 – 2032)
- Long term: 9 – 15 years (2033 – 2040)
- Ongoing: regular, repeated activity

The focus areas for urban canopy action are:

- Focus Area 1 - Leadership
- Focus Area 2 - Grow Nillumbik’s urban canopy on Council land
- Focus Area 3 - Grow Nillumbik’s urban canopy on private land

7. Key Focus Areas for action

The actions below are aspirational and are currently not funded and their implementation will be dependent on future funding being available.

Focus Area 1: Leadership

#	Objective	Council will:	
1.1	Consider urban canopy impacts and opportunities in conducting Council business	a. Provide information for Council staff on Nillumbik's Urban Tree Canopy Strategy and Tree Management Policy –and what they mean for their work.	Short term
		b. Integrate urban canopy consideration into relevant new Council policies, infrastructure works, structure and township plans, and master plans etc.	Ongoing
		c. Implement Council's Tree Management Policy and Guidelines, prioritising action that enhances urban canopy resilience and minimises health and safety risks.	Ongoing
		d. Consider the resourcing needs of the strategy in Council's annual budget process.	Short - long term
1.2	Foster partnerships to achieve landscape scale urban canopy outcomes	a. Connect and collaborate with private landholders, businesses, community groups, Traditional Owners, researchers and organisations such as Parks Victoria and Melbourne Water, seeking opportunities to enhance Nillumbik's urban canopy.	Ongoing
		b. Support and help to further build the capacity of Nillumbik volunteer and community groups such as Friends of Groups and others who can help achieve the goals of this strategy; and celebrate these volunteers.	Ongoing
		c. Develop and promote citizen science projects which can involve the community in the collection of data that can be incorporated into Urban Canopy programs.	Short term
1.3	Advocate for action by state government that will facilitate positive urban canopy outcomes	a. Advocate for the state government to regularly provide local government with high quality tree canopy data and analysis for urban areas.	Short term
		b. Advocate for the state government to apply increased penalties for the un-permitted damage or removal of vegetation, as per the Planning and Environment Act regulations.	Short term
		c. Advocate for the state government to proactively retain urban canopy assets when designing and constructing infrastructure; and to plant and fund long-term maintenance of new trees in all infrastructure projects.	Ongoing
1.4	Help to adapt Nillumbik's Urban Canopy to a changing climate	a. Cultivate and provide/sell a diversity of indigenous plant stock, including local provenance canopy species that are suitable for local conditions, through Council's indigenous nursery at the Edendale Community Environment Farm.	Ongoing

#	Objective	Council will:	
		b. Identify opportunities to investigate “climate-ready” revegetation options for urban Nillumbik.	Short – medium term
		c. Apply latest research and climate change projections to help guide Council’s urban canopy actions.	Medium - long term
1.5	Encourage the community to help protect and grow Nillumbik's Urban Canopy.	a. Promote opportunities for community members to report and nominate culturally significant trees with The National Trust and with First Peoples - State Relations.	Ongoing
		b. Develop and update existing brochures /education materials on the benefits of urban canopy and how the community can protect and grow trees.	Short term
		c. Promote Council resources on how planning controls protect and enhance Urban Canopy on private property.	Short term

Focus Area 2: Grow Nillumbik's Urban Canopy on Council land

#	Objective	Council will:	Timing
2.1	Collect data that will enable Council to strategically plan and optimise its annual tree planting and maintenance works	a. In a staged priority-based manner, develop a Nillumbik Tree Inventory that covers: <ul style="list-style-type: none"> • Activity centres/ shopping precincts • Other high-use sites including around facilities and sporting grounds • all new trees planted in urban areas • Council street trees (location and species) • Parks and open space (location and species) <p><i>This inventory will aim to ultimately encompass all urban trees on Council land excluding trees in bushland/wetland reserves and native vegetation roadsides.</i></p> <p><i>For high-use sites it will include information on tree species, health, age, likely life expectancy and any risks identified at the time of inspection.</i></p>	Short -medium term <i>(currently no allocated budget)</i>
		b. Investigate incorporating Tree Inventory data into Council's assets database or similar, and update the database on an ongoing basis.	Short - medium term <i>(currently no allocated budget)</i>
		c. In a staged and priority-based manner, undertake a plantable area/vacant site assessment of high use sites, parks and open space areas, and street nature strips. <p><i>This will help to inform locations that have the capacity for new tree plantings.</i></p>	Short - medium term <i>(currently no allocated budget)</i>
		d. Create an inventory of large hollow-bearing habitat trees that are located in Council's urban bushland reserves	Short term <i>(currently no allocated budget)</i>
		e. Report annually, via the Annual Council Report, on new street tree, activity centre and park plantings.	Ongoing
2.2	Have a multi-year horizon when planning tree maintenance, planting and renewal works to care for and grow Nillumbik's urban canopy	a. Develop an 'Urban Tree Maintenance, Planting and Renewal Plan'. <p><i>It will seek to specify priority:</i></p> <p>a) <i>Pro-active maintenance works to care for trees and prolong their lifespan.</i></p> <p>b) <i>Planting locations, species palettes (that are climate-change responsive and which will help to provide a suitable diversity of species), and planting timeframes.</i></p> <p><i>Priority locations are likely to include sites that:</i></p> <ul style="list-style-type: none"> • <i>Have high pedestrian use and will provide maximum benefits to the community in counter-acting the urban heat island effect.</i> 	Short - medium term <i>(currently no allocated budget)</i>

#	Objective	Council will:	Timing
		<ul style="list-style-type: none"> • Are facing foreseeable canopy-loss due to tree age or health • Are in suburbs or areas which have less canopy than the average canopy across urban Nillumbik <p><i>This Plan will be data driven, building on the findings of the actions in Objective 2.1</i></p>	
		<p>b. Implement Council’s Tree Management Policy and Guidelines, and review every five years or as required.</p> <p><i>These documents should guide a ‘right tree, right place’ tree planting and tree maintenance decision-making process; and provide a framework for managing risks such as pests/disease, drought conditions etc that could affect the health of Council trees.</i></p>	Short - long term
2.3	Maximise opportunities for tree planting and supportive action on Council land	<p>a. Embed tree planting and tree canopy objectives into the plan and design of Council infrastructure and capital works projects, as appropriate.</p>	Ongoing
		<p>b. Investigate opportunities to incorporate water sensitive urban design (WSUD) principles into projects that would support positive urban canopy outcomes.</p>	Ongoing
		<p>c. Promote how residents can apply for a permit that allows them to plant on their nature strip, and the associated guidelines.</p>	Short term
2.4	Minimise loss of trees on Council land that is caused by private and public sector development / maintenance works.	<p>a. Investigate developing a Tree Valuation Policy for trees on Council land, including for amenity and ecological value.</p> <p><i>This could help to incentivise developers/others to prioritise public tree retention and more appropriately compensate for their removal.</i></p>	Short term <i>(currently no allocated budget)</i>
		<p>b. Liaise with service authorities (water, electricity distribution, etc.) to maximise tree and canopy retention when asset works are being planned.</p>	Short - long term
2.5	Reduce and eliminate non-permitted clearing / removal of trees from Council land	<p>a. Promote Council resources on how planning controls protect and enhance Urban Canopy; and on how the community can report suspected vegetation removal that is in contravention of the planning scheme.</p>	Short term
		<p>b. Continue to enforce the Planning and Environment Act with regard to illegal vegetation clearing.</p>	Ongoing
2.6	Support the community to value and care for trees on Council land	<p>a. Provide education to the community about the value of, and how to care for, street trees.</p>	Short - long term
		<p>b. Celebrate and support Friends Groups and other volunteers who undertake tree planting in bushland reserves and sites.</p>	Short - long term

Focus Area 3: Grow Nillumbik's Urban Canopy on private land

#	Objective	Council will:	
3.1	Apply planning controls and other regulatory tools to help protect and enhance Nillumbik's urban canopy	a. Implement the neighbourhood character tree canopy requirements, and other relevant provisions and overlays (e.g. Environment Significance Overlay, Significant Landscape Overlay and Native Vegetation Offsets) of the Nillumbik Planning Scheme.	Ongoing <i>(subject to 2024/25 draft budget allocation)</i>
		b. Implement Nillumbik Local Law clause 52 (amenity tree regulations) which regulates the removal, destruction or damage to any substantial tree on private land inside the Urban Growth Boundary by requiring a permit (certain exemptions apply).	Ongoing
		c. Develop Tree Planting Guidelines that optimise urban canopy establishment and retention in Nillumbik's urban areas; and implement them through the planning permit process.	Short term
		d. Investigate establishing Tree Bonds, as an incentive for developers to protect trees on development sites. (Subject to the outcomes of Objective 2.4a – Tree Valuation Policy)	Long term <i>(currently no allocated budget)</i>
3.2	Increase landholder action in maintaining and growing urban canopy on private land	a. Provide the community with information and programs that support landholders to plant the right tree(s) in the right place, and to protect and enhance Urban Canopy assets more generally.	Short term

8. Implementation and Evaluation

Implementation of the Strategy

Achieving the 'no net canopy loss' target of this strategy is going to be challenging - as so many of the factors that can contribute to widespread urban canopy loss are largely outside of our control, and are very real risks in Nillumbik.

However, as demonstrated in our three Focus Areas for Action, there is a lot to be done to optimise how we allocate our resources to help achieve positive canopy and urban heat island outcomes.

Many of the actions of this strategy are ongoing actions which are embedded within Council operations. Others are initiatives that need to be delivered in a staggered approach over three council terms over a fifteen year timeframe, including several which will need to be delivered to pave the way for other work to be done. These initiatives will require funding and this will be considered, as required, in Council's annual budget processes.

How we'll review and report on progress

Evaluation will enable Council to measure its effectiveness in supporting positive urban canopy outcomes.

Outcome evaluation – Are the goals of the strategy being achieved? We'll consider our targets, indicators and specific initiative outcomes. Measuring tree canopy extent is our primary indicator, which enables us to identify areas of loss and gain over time, and to prioritise areas of focus.

Progress evaluation – Have we done what we said we would?

An annual update will be provided to Councillors and a summary will be placed on our website and in Council's Annual Report.

Continuous Improvement

This cycle of regular tracking will enable us to:

- Reflect on challenges and progress
- Consider emerging climate change and other factors, innovation, collaboration and opportunities
- Consider resourcing requirements to program timely action

9. References

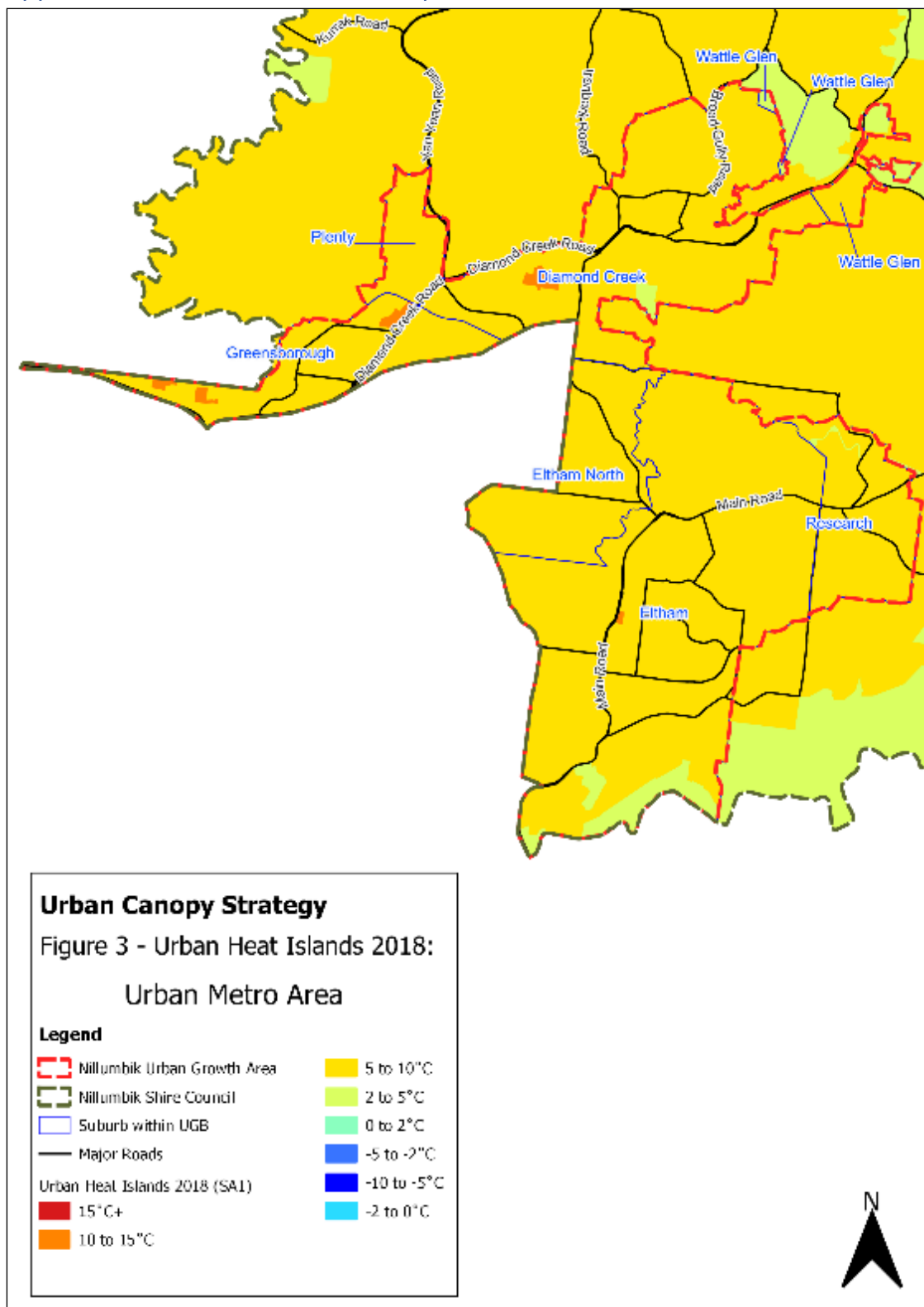
Hurley J, Saunders A, Both A, Sun C, Boruff B, Duncan J, Amati M, Caccetta P and Chia J (2019) Urban Vegetation Cover Change in Melbourne 2014 - 2018 [online document], Centre for Urban Research, RMIT University, Melbourne, accessed 1 January 2024

Sun C, Hurley J, Amati M, Arundel J, Saunders A, Boruff B and Caccetta P (2019) Urban Vegetation, Urban Heat Islands and Heat Vulnerability Assessment in Melbourne, 2018 [online document], Clean Air and Urban Landscapes Hub, accessed 1 January 2024

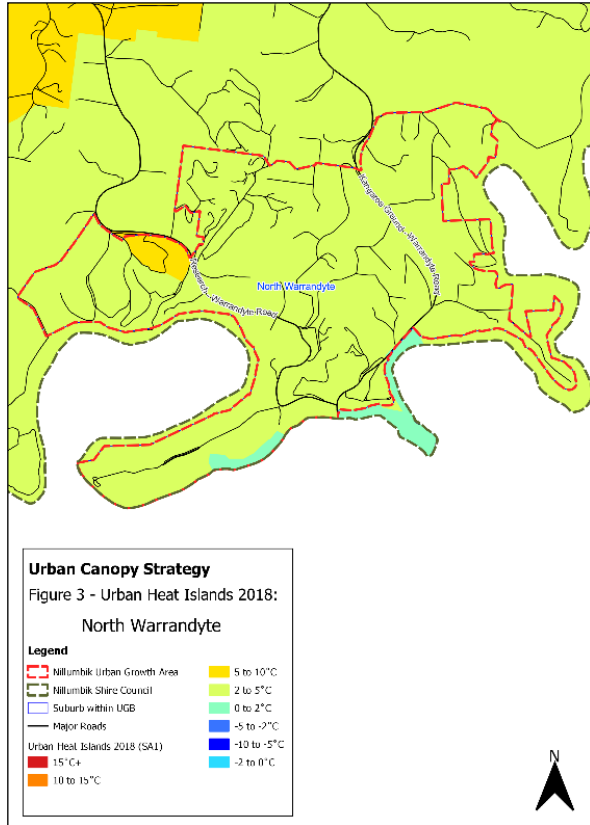
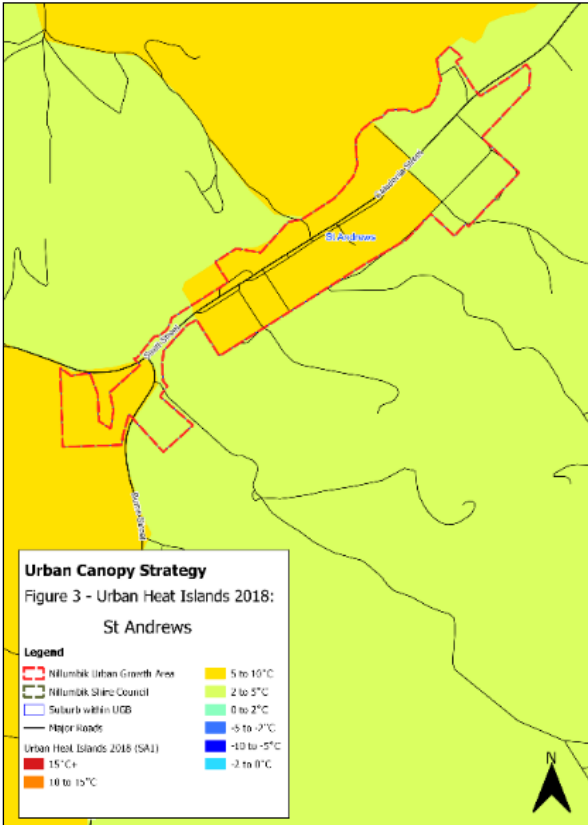
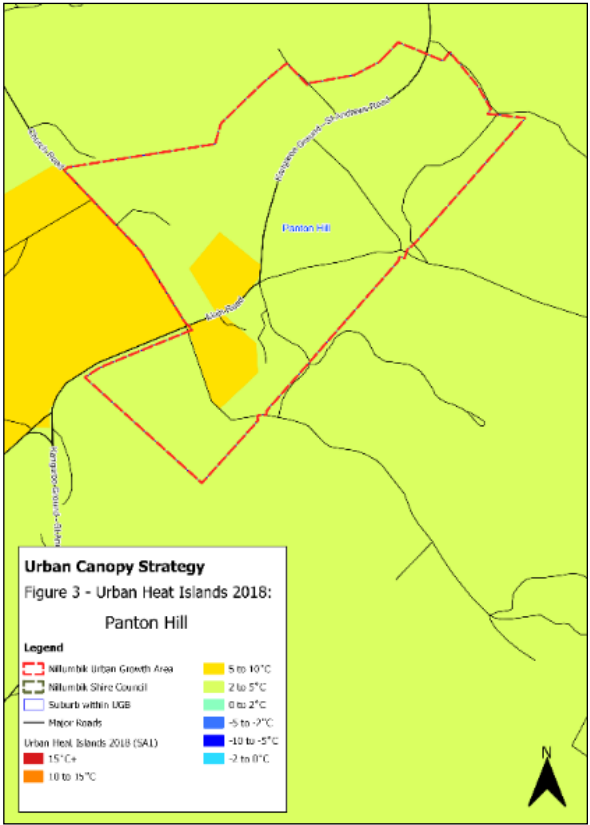
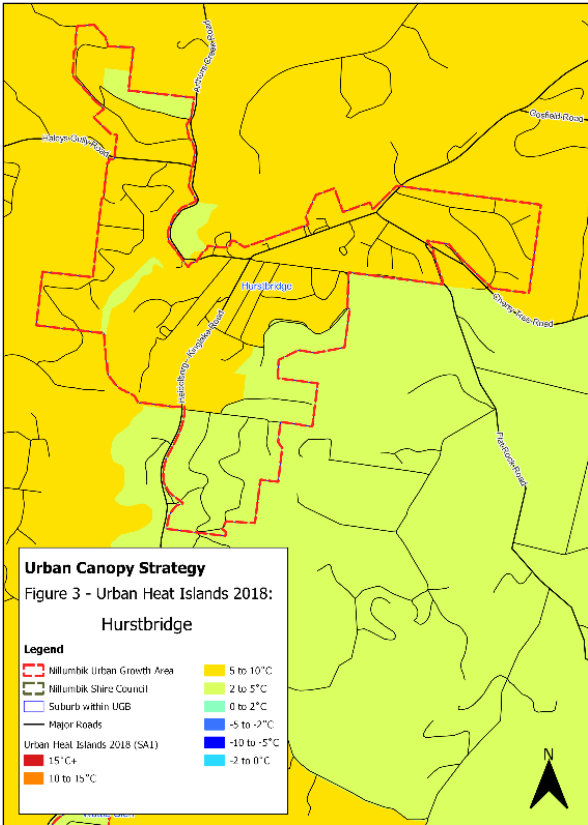
Ziter CD, Pedersen DJ, Kucharik CJ, Turner MG (2019) Data from: "Scale-dependent interactions between tree canopy cover and impervious surfaces reduce daytime urban heat during summer." Environmental Data Initiative. Available at scale-dependent interactions between tree canopy cover and impervious surfaces reduce daytime urban heat during summer (carlyziter.com)

10. Appendices

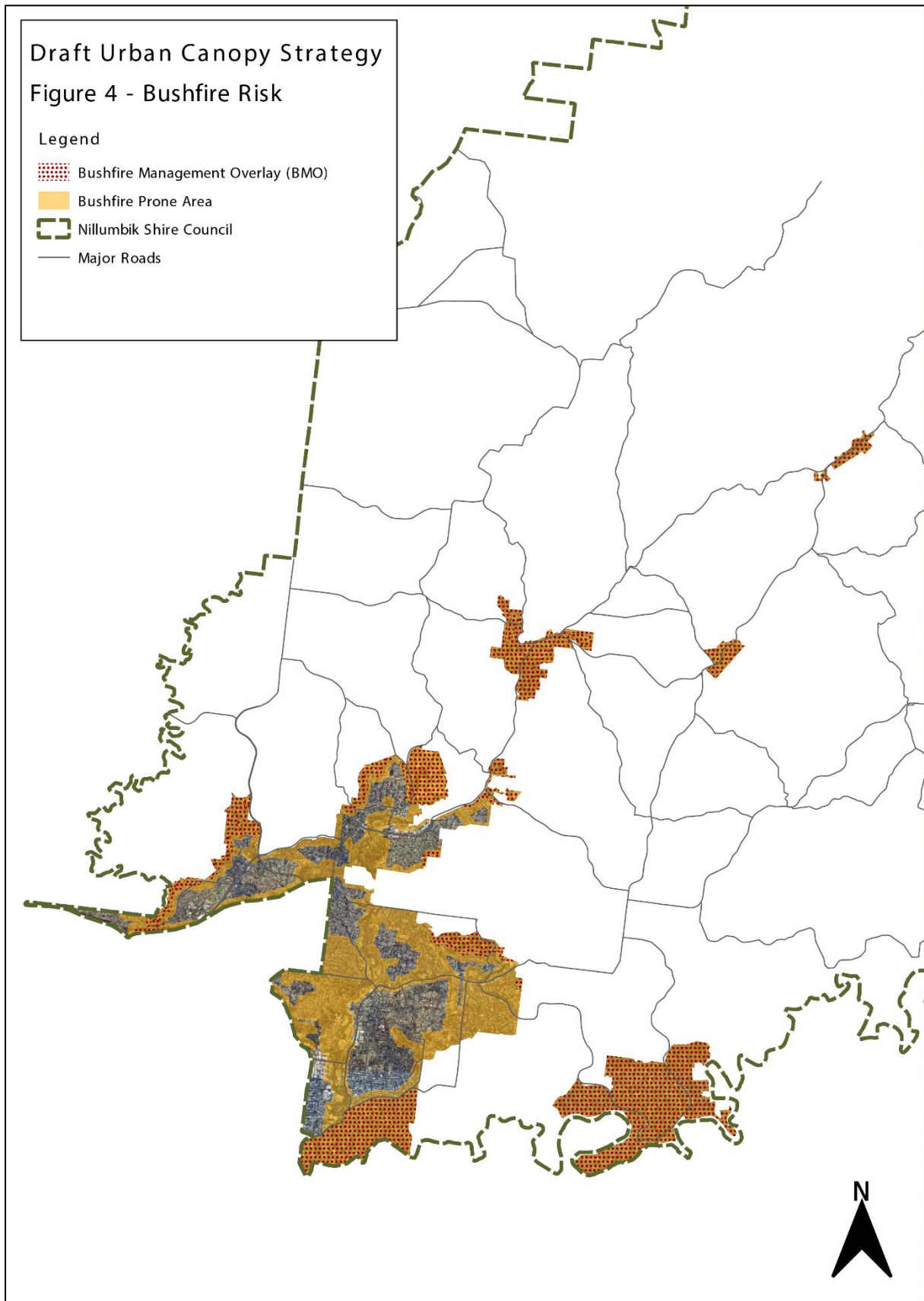
Appendix A - Urban Heat Island impact locations⁶



⁶ Source: Sun C, Hurley J, Amati M, Arundel J, Saunders A, Boruff B and Caccetta P (2019) Urban Vegetation, Urban Heat Islands and Heat Vulnerability Assessment in Melbourne, 2018 [online document], Clean Air and Urban Landscapes Hub, accessed 1 January 2024



Appendix B – Bushfire management planning zones in Nillumbik’s urban areas⁷



⁷ Nillumbik Planning Scheme

Appendix C – Planning Context – How canopy trees are protected through the planning scheme

State planning policy

All planning schemes in Victoria contain State policy, of which particular sections support our Urban Tree Canopy among other things. Planning should help protect the health of ecological systems and the biodiversity they support, and conserve areas with identified environmental landscape values.

The following policy sections are of particular note as they play an important role in protecting vegetation and biodiversity, compensating for native vegetation loss and also protecting human life from bushfire. These policies all have a significant effect on our Urban Tree Canopy:

Protection of Biodiversity:

- Support land use and development that contributes to protecting and enhancing habitat for indigenous plants and animals in urban areas.

Native Vegetation Management:

- Ensures that decisions associated with the removal, destruction or lopping of vegetation aims to avoid, minimise and provide offsets to compensate the biodiversity impacts.

River and riparian corridors, waterways, lakes, wetlands and billabongs:

- Retaining, enhancing and re-establishing indigenous riparian vegetation along waterway systems, ensuring it responds to the bushfire risk of a location.

Landscapes:

- Ensure important natural features are protected and enhanced.

Natural Hazards and Climate Change:

- Develop adaptation response strategies for existing settlements in risk areas to accommodate change over time.
- Ensure planning controls allow for risk mitigation and climate change adaptation strategies to be implemented.
- Site and design development to minimise risk to life, health, property, the natural environment and community infrastructure from natural hazards.

Bushfire Planning:

- To strengthen the resilience of settlements and communities to bushfire through risk based planning that prioritises the protection of human life.
- Protect human life by:
 - Prioritising the protection of human life over all other policy considerations.
 - Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.
 - Reducing the vulnerability of communities to bushfire through the consideration of bushfire risk in decision making at all stages of the planning process.
- Ensure settlement growth and development approvals can implement bushfire protection measures without unacceptable biodiversity impacts by discouraging settlement growth and development in bushfire affected areas that are important areas of biodiversity.

Building Design:

- Encourage development to retain existing vegetation.
- Ensure development provides landscaping that responds to its site context, enhances the built form, creates safe and attractive spaces and supports cooling and greening of urban areas.

Subdivision Design:

- Creating landscaped streets and a network of open spaces to meet a variety of needs with links to regional parks where possible.
Protecting and enhancing habitat for native flora and fauna, and providing opportunities for people to experience nature in urban areas.

Strategic Context

Neighbourhood character

Nillumbik's Neighbourhood Character Strategy accurately reflects the valued and existing characteristics and establishes the preferred character of our residential areas. Canopy trees play a huge part in our varied neighbourhood character areas, both in the public and private realms. Incorporated into the Nillumbik Shire Planning Scheme, there are a number of overlays that guide and protect the neighbourhood character of our unique urban settings.

Major Activity Centre's

Eltham and Diamond Creek are Nillumbik's major activity centres. They are also the areas in and around which the majority of the shire's population live, work and shop. Guided by a number of planning zones and overlays, including the Eltham Major Activity Centre Structure Plan (2020) and Diamond Creek Major Activity Centre Structure Plan (2020), canopy trees are protected, maintained and promoted to preserve the leafy neighbourhood character, create quality shade to mitigate the heat-island effect and enhance the environment. Development is also carefully guided in these areas to prevent canopy tree loss and to provide deep planting areas for new canopy trees.

Planning scheme overlays

Overlays are one of the primary ways Canopy Trees are protected in the Shire. Both Environmental Significance and Significant Landscape Overlays have triggers for the removal, destruction and lopping of trees with objectives specific to those overlays that seek to protect and enhance regional and strategic habitat links, vistas and views, riparian environments and ecological resources. These overlays are strategically evidenced and justified through a rigorous planning scheme amendment process, and embedded within the Nillumbik Planning Scheme. They allow Council to consider how new developments will affect our natural resources including our canopy tree cover.

Municipal Planning Strategy & Local planning policy

The Nillumbik planning scheme has the Municipal Planning Statement and local policy that preserve and protect the environment and biodiversity of our Shire. Policy that supports the protection and enhancement of our urban tree canopy includes strategies encouraging the planting of indigenous vegetation on roadsides reserves and sites of environmental significance.

Appendix D - Glossary and definitions

Term	Definition
Activity Centres	Retail, service and employment hubs that are usually well serviced by public transport. They range in size from local neighbourhood strip shops to major regional shopping malls and centres.
Amenity	High-quality landscapes are likely to be prioritised in key civic and commercial activity areas and in key city entrances and movement corridors. Adding to the network of tree-lined streets also contributes to the character and legacy of Melbourne.
Canopy Cover	The foliage / leaf cover provided by trees
Canopy Tree	For the purpose of this strategy, a canopy tree is defined any tree that is, or will reach, a height of over two metres.
Climate Change	A change in the pattern of weather (e.g. temperature, wind and rainfall), and the related changes on land and in oceans, occurring over time. These changes in weather patterns increase the occurrence, severity and distribution of events such as drought, flooding, heatwaves, bushfire and rising sea levels.
Heat Wave	Heat Wave defined as three or more days of high maximum and minimum temperatures that are unusual for that location (Bureau of Meteorology, 2020).
Indigenous species	The original flora or fauna that occur naturally in a given location, which for the purpose of this strategy is Nillumbik.
Native Vegetation	Native vegetation is plants that are indigenous to Australia, including trees, shrubs, herbs and grasses.
Neighbourhood Character	The interplay between development, vegetation and topography in the public and private domains that distinguishes one residential area from another.
Overlays	Planning scheme controls that apply to specific areas to address a particular issue such as environmental, landscape, heritage and flooding. These requirements operate in addition to those provided by the land's zoning.
Resilience	The ability of trees to adapt, survive and thrive in a changing climate.
Urban canopy	For the purpose of this strategy, urban canopy is any woody vegetation that is over two metres in height, including indigenous, native and exotic species.
Urban Growth Boundary (UGB)	A state-government defined boundary which indicates the long-term geographic limits of Melbourne's urban development. Within Nillumbik, this includes parts of Diamond Creek, Eltham, Eltham north, Greensborough, Hurstbridge, North Warrandyte, Panton Hill, Plenty, Research, St Andrews and Wattle Glen.
Urban heat island effect	The phenomenon of dense urban areas having significantly warmer air and land surface temperatures than surrounding rural areas.
Water sensitive urban design	Integrated design of the water cycle, incorporating water supply, wastewater, stormwater and design groundwater management, urban design and environmental protection. It sees all water as a resource to be managed to improve the environment, the economy, and liveability.
Tree canopy	The cover of leaves or branches that hangs over a tree trunk.