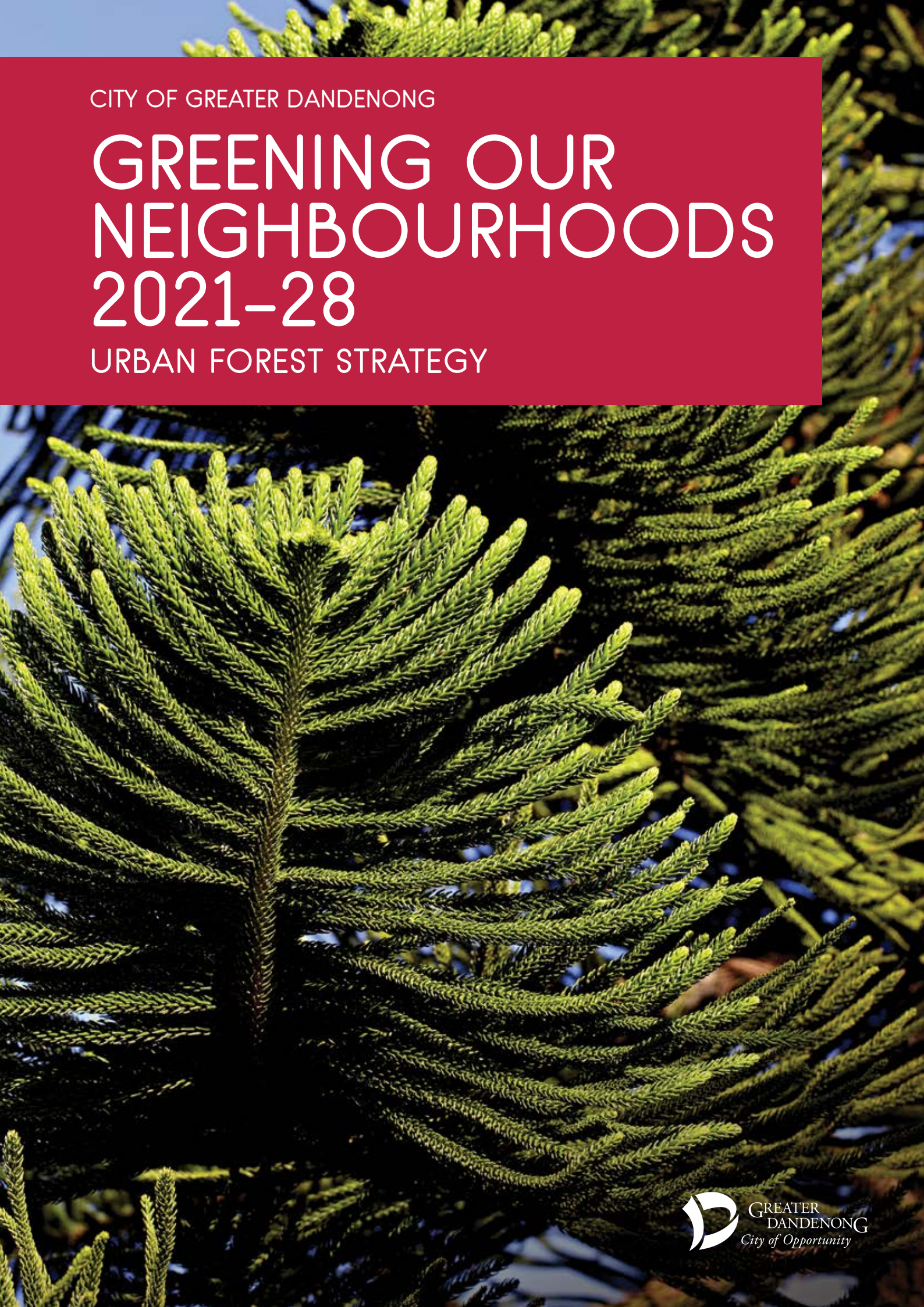
CITY OF GREATER DANDENONG

GREENING OUR NEIGHBOURHOODS 2021–28

URBAN FOREST STRATEGY



GREATER DANDENONG
City of Opportunity

The City of Greater Dandenong respectfully acknowledges Aboriginal and Torres Strait Islander Peoples as the Traditional Custodians of the land. We recognise and respect their continuing connections to climate, culture and Country.

CONTENTS

GREATER DANDENONG IS THE

7TH

HOTTEST MUNICIPALITY IN METROPOLITAN MELBOURNE

9%

IS THE OVERALL TREE CANOPY COVER FOR THE MUNICIPALITY

15%

CANOPY COVER TARGET BY 2028

EXECUTIVE SUMMARY

Greening Our Neighbourhoods 2021–28 forms one part of the City of Greater Dandenong's overarching *Urban Forest Strategy 2021–28* and should be read in conjunction with this and *Greening our City: Urban Tree Strategy 2018–28.*

Greening Our Neighbourhoods strives for a proactive and collaborative response by the City of Greater Dandenong and the community in managing vegetation and canopy cover on privately-owned land. The strategy aims to demonstrate the value of trees and vegetation in shading our urban environment to reduce the urban heat island, respond to climate change, improve the amenity of our streets and the health of our community.

The City of Greater Dandenong on 28 January 2020 declared a 'Climate and Ecological Emergency' committing Council to emergency action on climate change. The urban forest, which is the sum of all vegetation and trees on private and public land, plays a significant role in mitigating against climate change for the benefit of our local community and environment. Greater Dandenong has an overall canopy cover of 9 per cent which is the lowest canopy cover on the eastern side of Melbourne. This is a significant contributor to Greater Dandenong being the 7th hottest municipality in metropolitan Melbourne. Urban heat islands intensify extreme heat events and have detrimental impacts on the health and wellbeing of communities.

Greater Dandenong is the most disadvantaged municipality in metropolitan Melbourne. Vulnerable people, such as the elderly, children, people living with a disability and those from lower socio-economic backgrounds are at an even greater risk to extreme heat events and a changing climate. This combined with Greater Dandenong having a very low canopy cover and higher temperatures than most other metropolitan Melbourne municipalities has resulted in large areas of Greater Dandenong's suburban population having been assessed as being of High Vulnerability. The population in these areas of Greater Dandenong are considered to be 'highly vulnerable to urban heat due to high heat exposure (lack of shade), sensitivity to heat and low adaptive capability (low socio-economic demographic, people living with a disability, the elderly and children)'. It is therefore vital, we, as a Council and community, work to respond to the impacts of climate change, to green and cool our neighbourhoods and make our community more resilient.

Greening Our Neighbourhoods has a shared vision with the *Urban Forest Strategy* for:

A healthy, green and resilient urban forest that is well managed, protected and provides benefits to the community.

The key objective of this strategy is to cool, through greening our neighbourhood.

The strategy advocates for a more resilient and greener urban environment through higher quality landscaping and an enhanced urban forest. A particular focus is an increase in canopy trees on privately-owned land that will contribute to increasing Greater Dandenong's canopy cover to 15 per cent by 2028.

INTRODUCTION

Greening Our Neighbourhoods should be read in conjunction with the City of Greater Dandenong's Urban Forest Strategy 2021–28 and Greening Our City: Urban Tree Strategy 2018–28.

Greening Our Neighbourhoods advocates for a more resilient and greener urban environment through higher quality landscaping and canopy trees on private land that contribute to increasing the City of Greater Dandenong's canopy cover to 15 per cent by 2028.

BACKGROUND

Greening our Neighbourhoods has been prepared in response to the 'Future Considerations' section of *Greening our City: Urban Tree Strategy 2018–28* and community feedback for stronger guidance on managing and enhancing canopy cover on privately-owned land. Together with the *Urban Forest Strategy* (the parent document), *Greening Our City* and *Greening Our Neighbourhoods* provide a holistic approach to managing and enhancing the urban forest, and work together to deliver a healthy, green and resilient urban forest.

The term urban forest includes all vegetation, big and small, native and non-native growing on private and public land and buildings. While all vegetation contributes to the urban forest, canopy trees on privately-owned land make an immense contribution to the urban forest and deliver personal benefits to residents, neighbours and the wider community.

Figure 1 demonstrates the relationship between the *Urban Forest Strategy*, *Greening Our City* and *Greening Our Neighbourhoods*.

Figure 1 Structure of Urban Forest suite of strategies

Private property or privately-owned land is land owned by a private entity or individual (includes land owned by private and government agencies i.e. Melbourne Water, Department of Education or Department of Human and Health Services). This does not include Crown land or land owned by Council. Private land includes land broadly zoned for residential, commercial, industrial and rural purposes (i.e. Green Wedge).

PURPOSE

This strategy will:

- Consider the current challenges to protecting and enhancing canopy cover on privately-owned land
- Identify ways Council and the community can enhance tree canopy on privately-owned land
- Build the knowledge of our community, including developers, on the most appropriate species and maintenance regimes for privately-owned land
- Advocate and encourage landowners, businesses and developers to retain green infrastructure including canopy trees and incorporate green walls and green roofs into landscape designs.

Greening Our Neighbourhoods strives for a proactive and collaborative response by the City of Greater Dandenong and community in managing and enhancing vegetation and canopy cover on privately-owned land. The strategy aims to demonstrate the value of trees in shading our urban environment to reduce the urban heat island, adapt to climate change, improve the amenity of our streets and the health of our community.

URBAN FOREST AND CLIMATE CHANGE

Climate change is already affecting our environment, our society and our economy. As individuals, it can cause drastic impacts on our physical and mental health and on our financial health. The City of Greater Dandenong declared a 'Climate and Ecological Emergency' on 28 January 2020, and on 24 August 2020 adopted the *Climate Emergency Strategy 2020-30* committing Council to emergency action on climate change.

The City of Greater Dandenong is the most disadvantaged municipality in metropolitan Melbourne. Vulnerable people, such as the elderly, children, people living with a disability and those from low socio-economic backgrounds are at an even greater risk to extreme heat events and a changing climate. This combined with the City of Greater Dandenong having a very low canopy cover and higher temperatures than most other metropolitan Melbourne municipalities has resulted in large areas of the City of Greater Dandenong's suburban population having been assessed as being of High Vulnerability. The population in these areas are considered to be 'highly vulnerable to urban heat due to high heat exposure (lack of shade), sensitivity to heat and low adaptive capability (low socio-economic demographic, people living with a disability, the elderly and children)'.

A recent study on urban heat islands found the City of Greater Dandenong was the 7th hottest municipality in metropolitan Melbourne. Urban heat islands have detrimental impacts on the health and wellbeing of our community and the comfort levels of our homes and workplaces.

Shade trees, while being part of our efforts to store carbon to reduce impacts of climate change, just as importantly can help cool neighbourhoods and minimise these risks. For the City of Greater Dandenong, the urban forest is as much about greening our streets, car parks and industrial precincts as it is about greening our gardens and our homes.

It is therefore vital, we, as a Council and community, work to respond to the impacts of climate change, to cool and green our neighbourhoods and make our community more resilient.

BENEFITS TO GREENING

ENVIRONMENTAL

- Canopy trees help cool urban environments and can reduce daytime surface temperatures by between 5–20°C depending on the size of the canopy
- Trees support a healthy and diverse ecosystem by providing habitat and wildlife corridors for local and migratory wildlife
- Trees can help regulate stormwater runoff, reducing demand on drainage infrastructure, reducing intensity of localised flooding and assisting in the improvement of water quality.
- Trees act as wind buffers on agricultural land minimising the loss of topsoil and provide shelter to grazing animals.

ECONOMIC

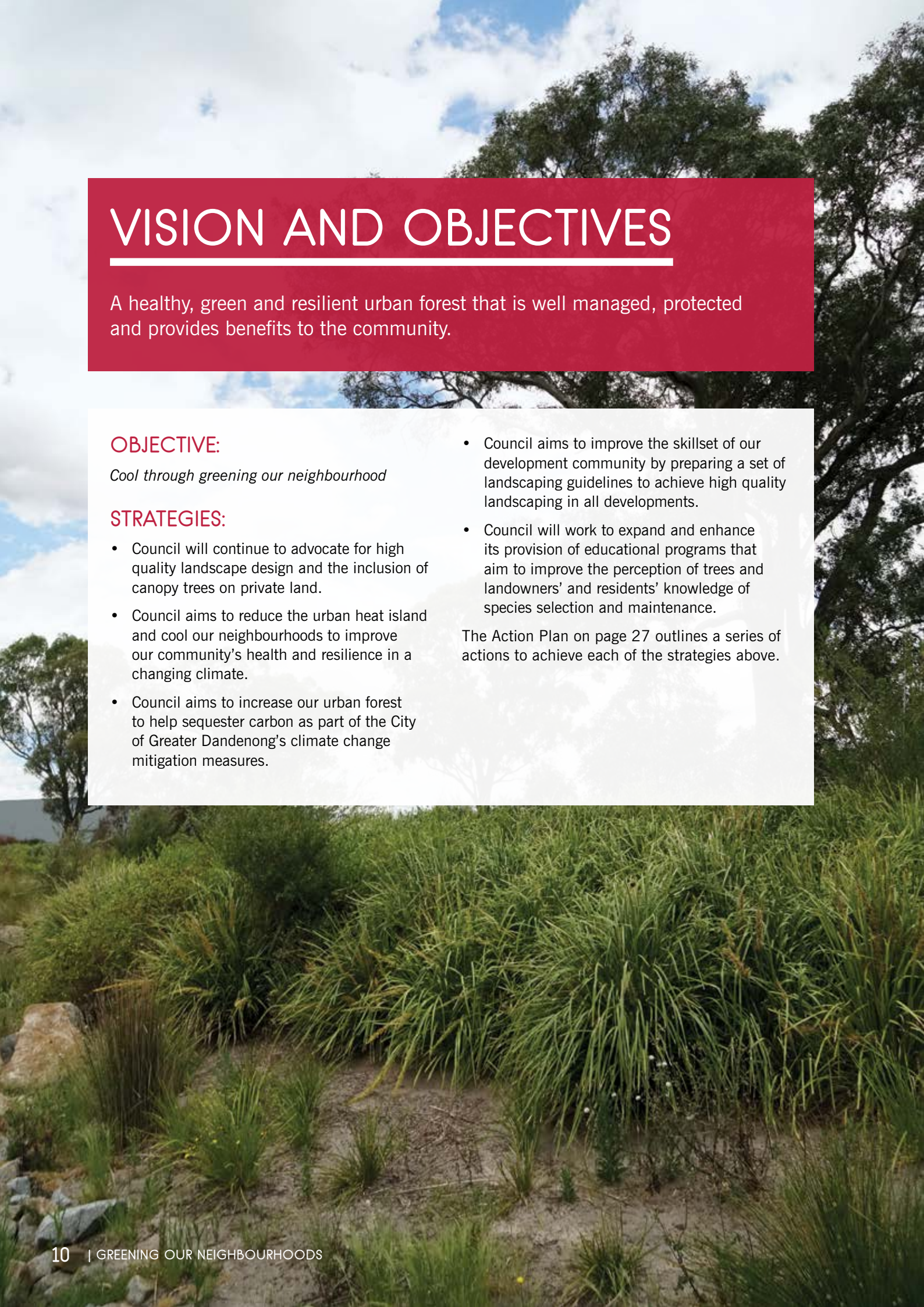
- Tree-lined streets attract more foot traffic and can lead to increased spending and investment
- Residential land values can increase in streets with street trees, compared to nearby streets with no street trees
- Appropriately placed trees can realise financial savings up to 50 per cent on daytime air conditioning for businesses and 12-15% for residential properties
- The presence of nature, access to clean air and cooler environments improves human health by reducing stress and blood pressure thus reducing demand on health systems
- Vegetation, such as fruit trees or vines and vegetable gardens, contribute to local food production which can lead to reduced grocery costs and healthier communities

SOCIAL

- Treed landscapes foster active and passive recreation whilst improving physical and mental health by increasing energy levels, reducing stress and decreasing blood pressure
- Reduced heat mortality rates for elderly and vulnerable people, including reduced heat-related illnesses such as heat exhaustion, damage to medications and stress
- Leafy areas can provide a comfortable outdoor place to gather with loved ones and build community networks and strengthen communities by promoting contact, encouraging physical activity, reducing stress and stimulating social cohesion
- Trees and shade assist in providing protection against skin cancer by reducing UV-B exposure (the most damaging type of solar radiation) by approximately 50%
- Greener play areas provide children with a natural and calming space to enjoy. Spending time in these spaces can lead to improved mood, wellbeing, enhance learning experiences and reduce attention deficit symptoms.
- Contribute to a safer neighbourhood through appropriate design responses

AMENITY

- Trees enhance our neighbourhoods and are considered the most important indicator of a suburb's attractiveness in a community
- Trees contribute to the character of a neighbourhood by framing and screening views, softening the built environment and absorbing sound waves reducing urban noise
- Trees provide natural barriers to wind



VISION AND OBJECTIVES

A healthy, green and resilient urban forest that is well managed, protected and provides benefits to the community.

OBJECTIVE:

Cool through greening our neighbourhood

STRATEGIES:

- Council will continue to advocate for high quality landscape design and the inclusion of canopy trees on private land.
- Council aims to reduce the urban heat island and cool our neighbourhoods to improve our community's health and resilience in a changing climate.
- Council aims to increase our urban forest to help sequester carbon as part of the City of Greater Dandenong's climate change mitigation measures.
- Council aims to improve the skillset of our development community by preparing a set of landscaping guidelines to achieve high quality landscaping in all developments.
- Council will work to expand and enhance its provision of educational programs that aim to improve the perception of trees and landowners' and residents' knowledge of species selection and maintenance.

The Action Plan on page 27 outlines a series of actions to achieve each of the strategies above.

WHAT IS AN URBAN HEAT ISLAND?

The term “urban heat island” refers to the temperature difference between built up (urban) areas compared to the rural surrounds (Figure 2). This temperature difference occurs due to the increased hard and dark surfaces in built up areas that absorb and radiate heat and is worsened by a lack of shade provided by vegetation and canopy trees.

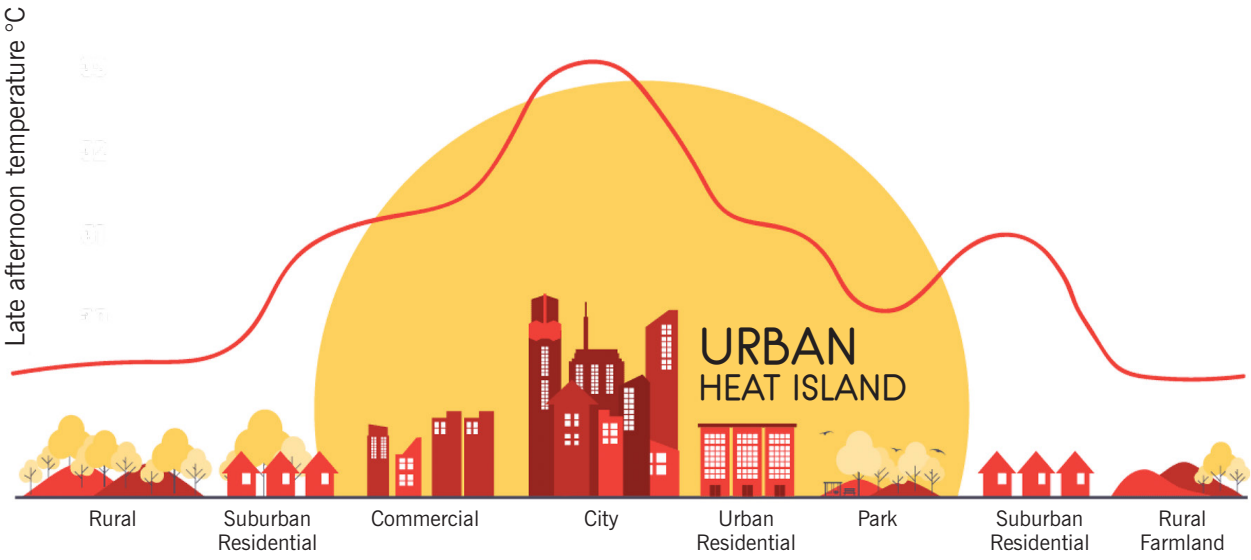


Figure 2 Urban Heat Island Effect

The *Urban Forest Strategy* established that the City of Greater Dandenong is already experiencing these effects, with our municipality measured as the 7th hottest in the metropolitan area (9.26°C hotter than non urban surrounds).

The urban heat island (UHI) effect can have detrimental impacts on the health and wellbeing of our community and the comfort levels of our homes and workplaces.

These impacts are clearly seen in heat waves, during which our homes absorb significant amounts of heat and are unable to cool down. This results in a greater reliance on air conditioning to artificially cool our homes to a comfortable temperature. Heat waves cause severe health impacts and can have significant financial strain on many families and individuals.

Research has shown greening private backyards can significantly reduce urban heat, with canopy trees reducing daytime surface temperatures by between 5–20°C which in turn reduces the ambient air temperature. This occurs through canopy trees shading hard and dark surfaces and through the process of evapotranspiration.

Evapotranspiration is the combination of two processes: evaporation and transpiration. These processes cause water to evaporate from plant leaves, releasing moisture into the air and cooling down the plant and the surrounding environment.

As identified in the *Urban Forest Strategy 2021–28*, many suburbs in the City of Greater Dandenong have been identified as having 'High Vulnerability' to urban heat.

Decreases in the ambient air temperature of between 1 and 2°C significantly reduce heat mortality rates for frail, elderly and vulnerable people. Canopy trees provide maximum cooling benefits when and where it is most needed – during extreme heat events and close to individuals and families, and the communities in which we live.

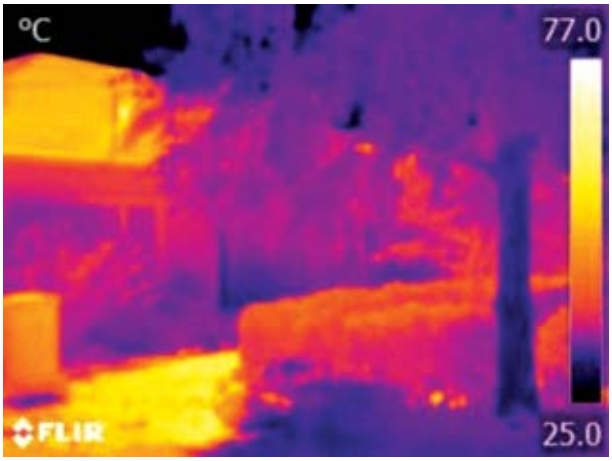


Figure 3 Image taken using thermal image camera on a 33°C day, 14 December 2020 at 2pm (Dandenong West).

The maximum daytime surface temperature recorded was 77°C on the roof. Yellow and orange colours indicate hotter temperatures, and purple shades indicate cooler temperatures with a minimum of 25°C recorded under the shade of the tree.

URBAN HEAT INDEX 2018

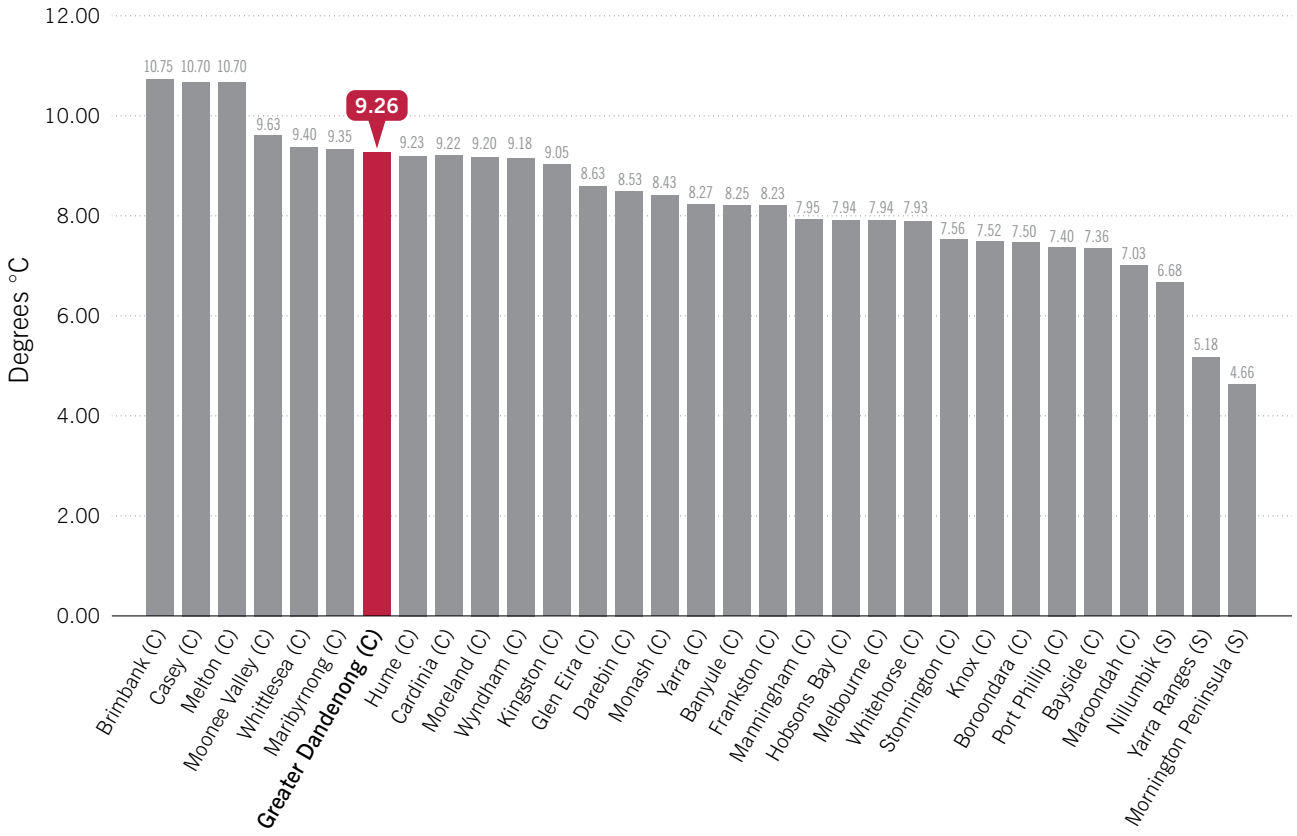


Figure 4 Average difference in land surface temperature to rural Victorian baseline temperature between Melbourne metropolitan Councils.

WALKER STREET, DANDENONG ACTIVITY CENTRE

Figure 4 Image taken using a thermal image camera on a 36°C day, 25 January 2018 at 4pm (Walker Street, Dandenong) demonstrating the role of canopy trees in reducing daytime surface temperatures.

The temperature recorded in the centre of the photo is shown on the top left corner, in this image the temperature at the centre point was 39.2°C.

Yellow and orange colours indicate hotter temperatures, and purple shades indicate cooler temperatures with a minimum of 24.3°C recorded under the shade of the tree. Red arrows demonstrate where thermal image was taken from.

HALPIN WAY, DANDENONG ACTIVITY CENTRE

Figure 5 Image taken using a thermal image camera on a 36°C day, 25 January 2018 at 4pm (Halpin Way, Dandenong) demonstrating the role of canopy trees in reducing daytime surface temperatures.

The temperature recorded in the centre of the photo is shown on the top left corner, in this image the temperature at the centre point was 57.4°C.

Yellow and orange colours indicate hotter temperatures, and purple shades indicate cooler temperatures with a minimum of 27.6°C recorded under the shade of the tree. Red arrows demonstrate where thermal image was taken from.

CANOPY COVER ON PRIVATELY-OWNED LAND IN GREATER DANDENONG

In the City of Greater Dandenong, 73 per cent of land is privately-owned. Privately-owned land includes land owned by private residents and businesses broadly zoned for residential, commercial, industrial and rural purposes (i.e. the Green Wedge). The remainder is publicly owned and includes parks, footpaths, road and infrastructure reserves and Council buildings. The large proportion of private land is not unique to the City of Greater Dandenong and presents a significant challenge, shared amongst other councils, in managing the urban forest.

Council has direct control over the land it owns and can strongly influence the number of trees planted in the public realm. Unfortunately, Council has limited ability, beyond a decision-making and advocacy role, to increase canopy cover on privately-owned land.

Urban canopy cover for the Greater Dandenong municipality was 9.9 per cent in 2016, and 9 per cent in 2021. This is the lowest canopy cover across the municipalities located on the eastern side of Melbourne. The loss of canopy is immensely disappointing and further demonstrates the need to manage the urban forest holistically, with a focus on public as well as private land.

The following figures (Figures 6 and 7) show most of the land within the City of Greater Dandenong is privately-owned, including the Green Wedge, and has less than 10 per cent canopy overall. Privately-owned land in the City of Greater Dandenong has a canopy cover of 7 per cent, this is under half that of canopy coverage on public land, being 16 per cent.

Research conducted by the Centre for Urban Research at RMIT University, in partnership with the Department of Environment, Land, Water and Planning (DELWP) and the Clean Air and Urban Landscapes Hub identified that residential land provides the largest contribution to tree canopy cover across metropolitan Melbourne. However, due to a combination of urban re-development, landowner land-management practices and climatic effects, vegetation cover on residential land is decreasing across metropolitan Melbourne.

Recent canopy mapping completed by the City of Greater Dandenong identified that between 2016 and 2021 the City of Greater Dandenong experienced a canopy cover loss 0.9 per cent. The majority of this loss in canopy cover can be attributed to the upgrading of the Cranbourne/ Pakenham railway line, however this figure is a result of the cumulative loss of canopy trees across the municipality. Whilst this appears to be a small amount, it is lost from an already small baseline and therefore any loss of canopy cover is concerning and must be addressed to mitigate the severe health and wellbeing consequences of urban heat.

Table 1 Based on mapping completed in 2021 by City of Greater Dandenong

	Percentage of tree cover
Residential Land	13
Commercial Land	7.7
Industrial Land	5.0
Rural Land (Green Wedge)	7.0
Other	17

	Percentage of tree cover
Publicly owned land	16
Privately owned land	7.0

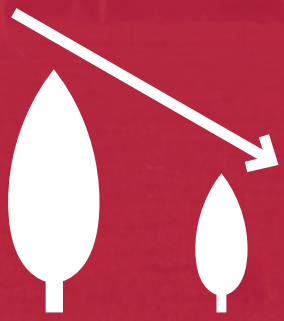
73%

OF LAND
PRIVATELY OWNED

CITY OF GREATER DANDENONG HAS LESS THAN

10%

CANOPY OVERALL



DECREASING VEGETATION COVER DUE TO A COMBINATION OF URBAN RE-DEVELOPMENT, LANDOWNER LAND-MANAGEMENT PRACTICES AND CLIMATIC EFFECTS.

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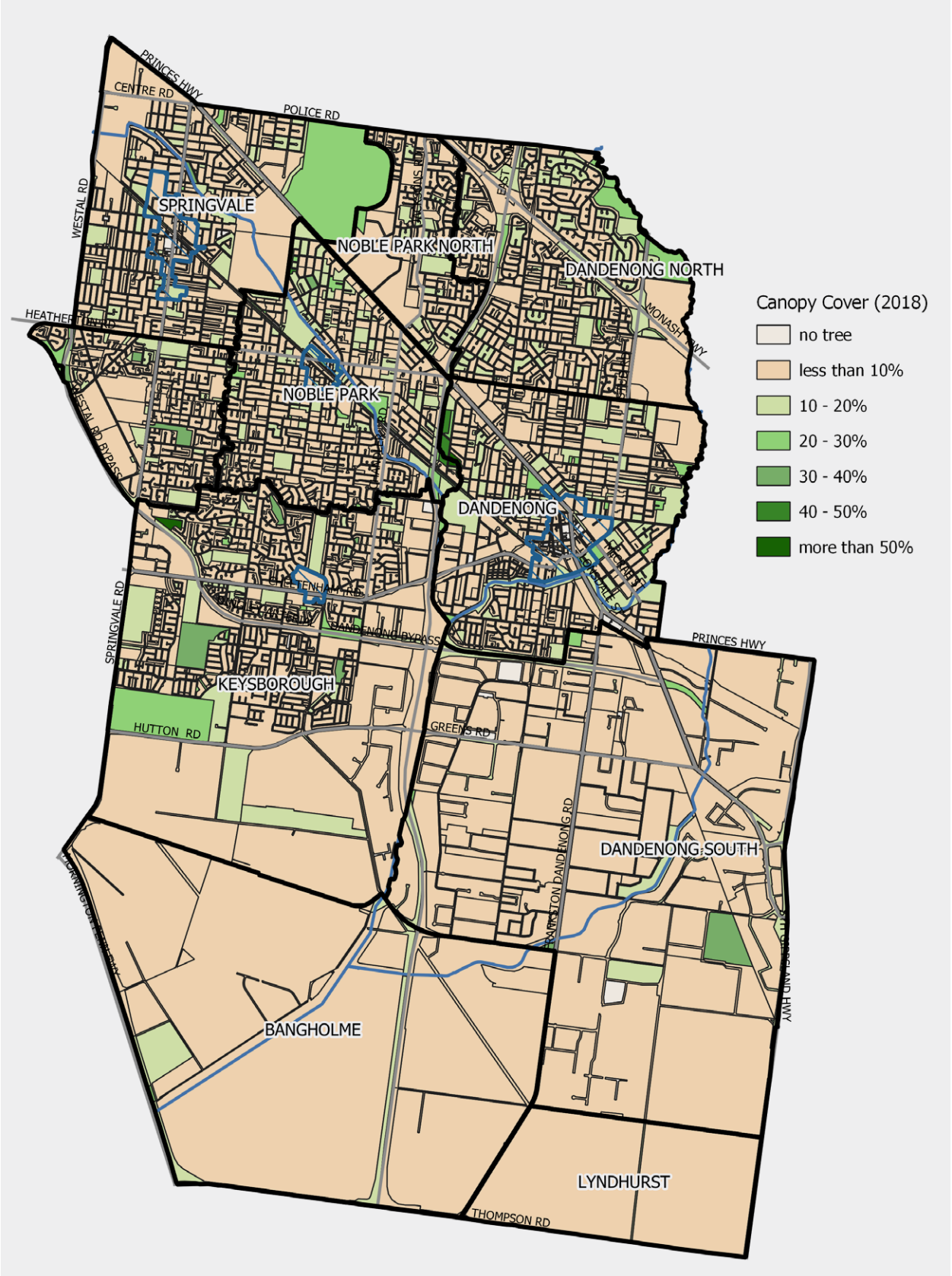


Figure 6 Map of the City of Greater Dandenong municipality tree cover 2018
(Clean Air and Urban Landscapes Hub, 2018)

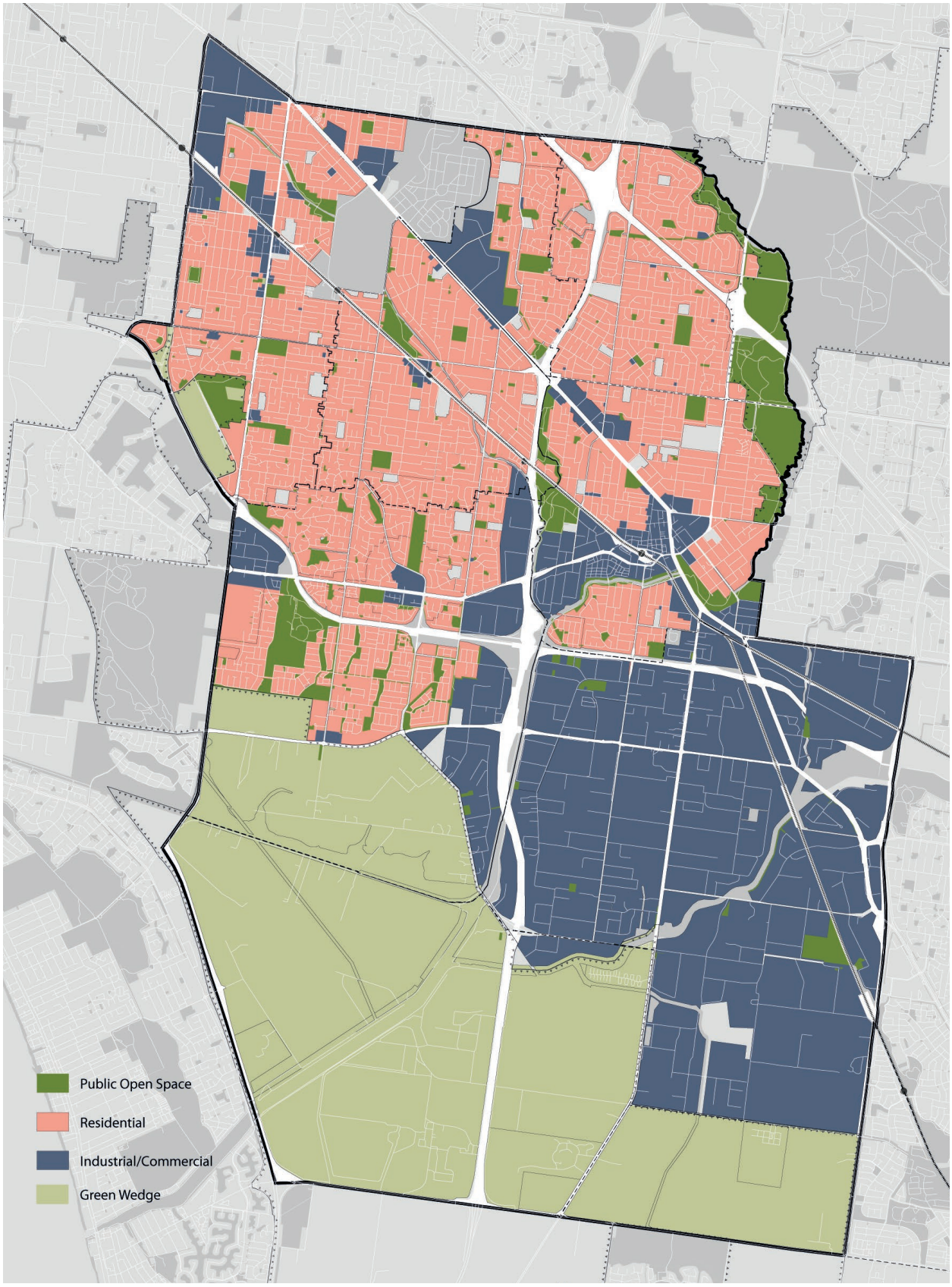


Figure 7 Map of the City of Greater Dandenong showing basic land use zones

COUNCIL'S ABILITY TO PROTECT AND ENHANCE TREES

Council's ability to protect and enhance canopy cover on privately-owned land is limited to a decision-making and advocacy role. This includes administering the *Greater Dandenong Planning Scheme* (the Planning Scheme).

The Planning Scheme contains multiple state and local policies and provisions which address tree protection and can require the planting of new canopy trees. At a state level, the Planning Scheme provides guidance and policy for environmental and landscape values including biodiversity, native vegetation and significant landscapes. In addition, provisions at a state level exist to protect and manage vegetation, including bushfire management, requirements for canopy trees in urban development and protecting trees from being removed where they are deemed of environmental or historical significance. These are relevant to *Greening Our Neighbourhoods* as they consider the protection and enhancement of canopy cover on privately-owned land.

More specifically in the City of Greater Dandenong the existing local policies and provisions in place include, but are not limited to:

- Clause 21.06 Open Space and Environment
- Clause 22.02 Green Wedge Local Policy
- Clause 22.03 Urban Design in Commercial and Industrial Areas
- Clause 22.04 Urban Design in Activity and Neighbourhood Centres
- Clause 22.06 Environmentally Sustainable Development
- Clause 22.09 Residential Development and Neighbourhood Character Policy
- Clause 32.07 Residential Growth Zone Schedule 1 and 2
- Clause 32.08 General Residential Zone Schedules 1, 2 and 3
- Clause 32.09 Neighbourhood Residential Zone Schedule 1
- Vegetation Protection Overlay Schedule 1 – Native vegetation in the main portion of the Green Wedge
- Environment Significance Overlay Schedule 1 – Greens Road Plains Grassland Area
- Environmental Significance Overlay Schedule 2 – Abbotts Road Vegetation Protection Area
- Environmental Significance Overlay Schedule 3 – Eastern Treatment Plant Buffer Area
- Clause 43.01 Heritage Overlay
- Clause 53.18 Stormwater Management in Urban Development

Whilst these policies and provisions provide Council with the ability to protect and enhance canopy cover in the municipality, Council needs the help of the community to plant trees on privately-owned land in order to reach the 15% canopy target by 2028.

OPPORTUNITIES AND ISSUES FOR PRIVATELY-OWNED LAND

URBAN DEVELOPMENT AND INFRASTRUCTURE

Issues for urban development and infrastructure

The City of Greater Dandenong's low canopy cover can be partly attributed to past land clearing for agricultural purposes and more recently the effects of urban development. Evidence demonstrates canopy cover on privately-owned land continues to be lost across metropolitan Melbourne. This continued loss is further exacerbating the City of Greater Dandenong's low canopy cover and increases in urban temperatures.

Landscaping in new developments, particularly large canopy trees, whilst promoted by Council are often seen as a hindrance to development due to the conflicts between roots and infrastructure, provision of adequate space and fears regarding tree safety. In addition, canopy trees are increasingly competing for space with other essential services such as underground drainage systems, telecommunication and electricity cables and insufficient soil quantities which do not allow trees to develop a stable root system or the ability to access the water table. Additionally, above ground, trees compete with overhead wires, roofs or eaves, business signage, paving, driveways and car parking which can impact canopy growth and water absorption. These challenges often mean their growth is limited, leading to the decline or death of the tree and eventual removal.

Urban residential

As our population continues to grow, the demand for housing increases, and so too does the demand for affordable and alternative housing styles such as townhouses and apartments. Furthermore, many people are leading busier lifestyles with less time to invest in gardens and are opting for lower maintenance options (lawn or paving). To provide enough appropriate housing and respond to these trends, dedicated space for landscaping and canopy trees is being lost. This is a significant driver of canopy loss on privately-owned land.

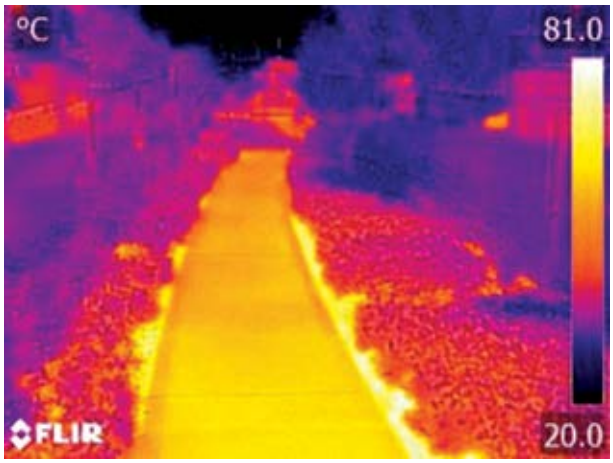


Figure 8 Image taken using thermal image camera on a 33°C day, 14 December 2020 at 330pm (Springvale).

The maximum temperature recorded was 81°C on the footpath. Yellow indicates hotter temperatures, and purple indicates cooler temperatures with a minimum of 20°C recorded under the shade.

Additional drivers which hinder the ability of the City of Greater Dandenong in achieving a 'leafy' neighbourhood character include:

- Preference by occupants and/or landowner for hard surfaces over vegetation or canopy trees
- Increasing amounts of hard and impermeable surfaces (driveways, car parks etc)
- Conflicts with infrastructure (solar panels, swimming pools, driveway, overhead powerlines and underground services)
- Inappropriate species selection (for the micro-climate, preferred function and available space)
- Inadequate planting techniques
- Reduction of available space and good quality soil that limits the plant's growth
- Lack of ongoing maintenance.

Residential land in the City of Greater Dandenong has a very low canopy cover of 13 per cent and research shows this is decreasing as our population and urban areas continue to grow. The City of Greater Dandenong community is highly vulnerable to urban heat and is already experiencing the serious effects of the urban heat island. Without increasing canopy cover, these impacts will increase, and our community will continue to suffer greatly from extreme urban heat events and climate change. Many of these challenges likely relate to a lack of knowledge or understanding and may be resolved through active community engagement and education.

Canopy trees deliver significant benefits through shading and cooling to reduce urban heat, and contribute to the character of a street, and suburb. Canopy trees on private land combined with street trees can help create a sense of enclosure and comfort on the street and protect urban amenity by providing a visual break from built form and dampening urban noise (such as passing cars and noise from neighbours). Canopy trees in front and back gardens help deliver a 'leafy' neighbourhood character which is cooler and more visually appealing than streets dominated by built form and hardstand car parking areas.

Clause 22.09 Residential Development and Neighbourhood Character Policy of the Planning Scheme applies to all residential land in the City of Greater Dandenong and aims *'to facilitate high quality, well designed residential development and on-site landscaping'* and states that residential development *'should include the planting of at least one substantial canopy tree to each front setback and ground level secluded private open space area'.* It also encourages landscaping to soften building bulk and the use of native and drought tolerant species that contribute positively to neighbourhood character and climate change action. Clause 22.09 is supported by the ResCode variations in the Planning Scheme which require a minimum amount of landscaping to front, side and rear setbacks and the inclusion of canopy trees.

Clause 58.03-5 which applies to apartment developments promotes climate responsive landscape design and water management that supports thermal comfort and reduces the urban heat island effect. This clause also requires consideration be given to opportunities to reduce heat absorption through green walls, green roofs and roof top gardens and the improvement of on-site stormwater infiltration. The clause also states that development should provide for the retention or planting of trees and should maximise deep soil planting for canopy trees. Ensuring enough space above and below ground is provided to canopy trees contributes to more optimal growing conditions and is more likely to deliver greening and cooling benefits.

Additionally, a number of planning scheme overlays exist (Environmental Significance Overlay, Vegetation Protection Overlay and Heritage Overlay) to protect some of the City of Greater Dandenong's most significant trees. This includes the Heritage Overlay which protects historically significant trees on private property and the Vegetation Protection Overlay Schedule 1 which protects the remnant river red gums scattered across the main portion of the Green Wedge.

Activity centres and retail

Activity centres in the City of Greater Dandenong include three major centres (Dandenong, Springvale and Noble Park) and 45 local shopping areas which vary in their size and function, including smaller neighbourhood centres, large shopping centres and 'bulky goods' retail centres (furniture, hardware, sporting or camping goods stores). *Greening Our City* identified the Major Activity Centres in the City of Greater Dandenong as urban hot spots needing immediate attention to combat the urban heat island effects. Due to the nature of land configuration in the commercial core of Major Activity Centres there is often no outdoor space on privately-owned land, leading to a greater reliance on public land to cool and green the urban environment. To address this, Council has installed established trees in planter boxes in Palm Plaza and a Noble Park laneway to contribute to tree cover in the activity centres and cool our urban centres. Furthermore, Council is developing a 10-year tree planting plan for the Dandenong, Springvale and Noble Park Activity Centres to increase canopy cover and improve streetscapes to be nice, cool places to visit.

The *Neighbourhood Activity Centre (NAC) Framework 2016* assessed all neighbourhood centres in the City of Greater Dandenong and found centres that perform better generally attract more investment and have a higher amenity rating.

The NAC Framework amenity rating measured the visual appeal of the centres including 'landscape quality'. The criteria for landscape quality was *'more substantial landscape and more considered landscape design softens and visually unifies a neighbourhood centre's public realm and further contributes to climatic comfort'*. Of the 45 centres assessed, 20 scored 0 ('no landscape') for landscape quality and the opportunity for landscape improvement was identified for 27 of the 45 centres.

Whilst Council can directly recommend and facilitate revitalisation to land in public ownership such as streets and laneways, land in private ownership will only see the benefits of higher amenity if it receives investment through the actions of the owner. Council encourages landowners and businesses to consider roof top gardens, landscaped setbacks and water sensitive urban design in any new and retrofitted development to help cool our urban centres, improve the visual amenity of our local and major shopping areas and deliver the immense benefits of greening.

Large areas of car parking

A key driver of urban heat is carparks associated with privately-owned large retail stores and shopping centres as they absorb and radiate heat throughout the day. With no or limited trees, this can make the carpark, building and surrounding area very unpleasant and hot places to visit. Challenges which exist for greening car parks include:

- Lack of ongoing maintenance
- Inappropriate species selection
- Large amounts of hard surface limit the ability for tree roots to access water and spread.

Clause 22.04 Urban Design in Activity and Neighbourhood Centres Policy of the Planning Scheme, applies to all retail and commercial activity centres, including neighbourhood centres in the City of Greater Dandenong. The clause aims to incorporate landscaping to soften built form and improve the appearance and amenity of each centre. To address the heat island caused by car parking, the policy states that larger canopy trees should be incorporated into car parks at a ratio of at least one tree to each 10 car spaces. Council recognises these spaces provide an immense opportunity for increasing tree canopy and delivering cooling benefits across the municipality.

Creating a space which is aesthetically pleasing and cool to move around also encourages people to visit and stay in a place longer, often leading to increased spending and investment.

Industrial

A significant portion (20 per cent) of land in the City of Greater Dandenong is zoned for industrial use which provides significant economic support and employment to the municipality and to metropolitan Melbourne. This includes land zoned Industrial 1, 2 and 3 Zone. The City of Greater Dandenong's industrial land has a very low canopy cover of 5 per cent which is greatly contributing to the urban heat island for our city.

Industrial sites are often characterised by large amounts of hard, impermeable and dark surfaces such as roads, driveways, warehouses and bare roofs which exacerbate the urban heat island. Given the significant roof space, high volume of vehicle movements and large car parks canopy trees are generally not desirable on large portions of the site given the perceived and possible damage to infrastructure during daily business operations.

These competing interests often result in minimal tree planting to the perimeter of the site and a reliance on public land to deliver green benefits.

Whilst it is acknowledged there is a need for large roads and carparks to cater for trucks and high volumes of vehicle movements, there is an immediate need to increase canopy and green cover in our industrial precincts.

Clause 22.03 Urban Design in Commercial and Industrial Areas Policy of the Planning Scheme applies to land in an Industrial Zone or Commercial 2 Zone and focuses on urban design and landscaping to improve the appearance of commercial and industrial areas. The policy requires that landscaping is designed as an integral part of any development to create a unified appearance and improve the environmental quality of the area. It also encourages the use of large canopy trees and substantial landscaping around the borders of sites to soften the built form and contribute positively to the appearance of the area.

Increasing canopy in our industrial precincts can deliver strong economic benefits through savings on air conditioning for office and warehouse space, and infrastructure maintenance and is a way to boost investment in the precinct and entice customers through the visual appeal of the precinct.

Opportunities for urban development and infrastructure

The very low canopy cover on privately-owned land is one of the most significant factors contributing to the urban heat island (UHI) in the City of Greater Dandenong. As previously identified:

Table 2 Based on mapping completed in 2021 by City of Greater Dandenong

	Percentage of tree cover
Residential Land	13
Commercial Land	7.7
Industrial Land	5.0
Rural Land (Green Wedge)	7.0
Other	17

	Percentage of tree cover
Publicly owned land	16
Privately owned land	7.0

Climate change is expected to intensify the UHI which presents substantial challenges to all facets of our lives at a social, environmental and economic level. Research has shown that canopy trees can reduce daytime surface temperatures by between 5–20°C and are an effective way to reduce UHI effects by removing carbon dioxide from the air, and cooling through evapotranspiration and shading hard or dark surfaces. Without planting more shade trees on privately-owned land and rethinking the way we integrate landscaping into all stages of property development, we will continue to see a rise in urban heat and in turn our vulnerability to climate change.

The *Greening Our Neighbourhoods Strategy* provides direction on how canopy cover on privately-owned land can be addressed through identified opportunities and the associated Action Plan.

Opportunities for residential, industrial and commercial land:

- Develop landscaping guidelines to ensure appropriate growing conditions are created for new vegetation and trees, so that the right tree is planted in the right place.
- Ensure protection mechanisms are in place for all neighbouring trees to prevent damage or removal during development and encourage innovative green designs.
- Strengthen planning scheme requirements and decision guidelines to ensure landscaping is considered early in the planning process and guidance is taken from the landscaping guidelines.
- Continue delivering educational programs with a focus on furthering the knowledge and skills of our community in species selection, maintenance and the important role trees play in reducing our vulnerability to heat.
- Review local policy relating to industrial and commercial sites to strengthen advocacy for Integrated Water Management (IWM), large canopy trees in front setbacks and high-quality landscaping.
- Review planning scheme requirements for large commercial and industrial carparks
- Advocate for support for green infrastructure in accordance with *Plan Melbourne's* Cooling and Greening policies and plans.
- Continue to encourage business innovation through the annual Sustainability Awards

GREEN WEDGE

The City of Greater Dandenong Green Wedge which for the purposes of this strategy includes only land zoned Green Wedge, Green Wedge A and the Farming Zone accounts for approximately 18 per cent of land in the municipality and consists of two areas (Figure 9):

- a large area at the southern end of the municipality (the main portion)
- a small area in the north of the municipality (the 'Clarke Road Precinct').

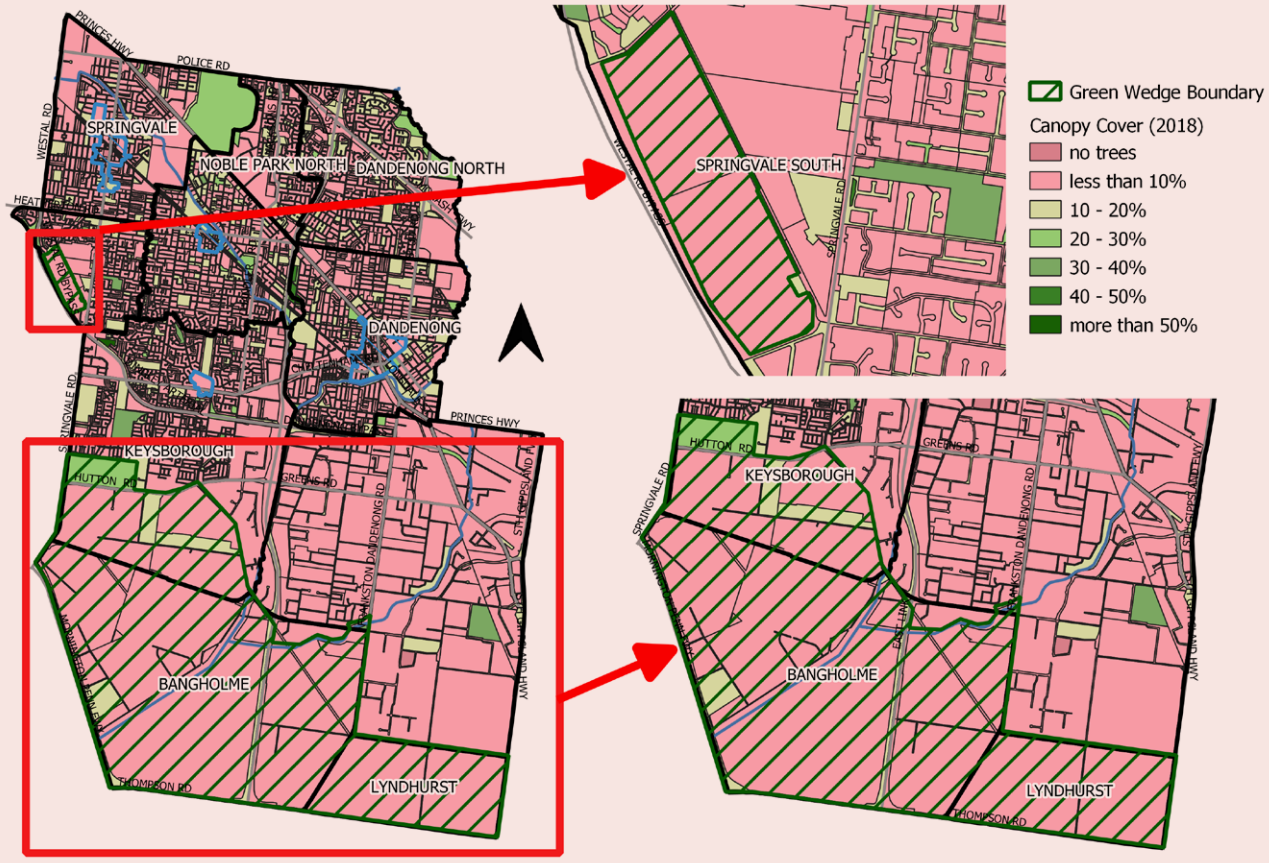


Figure 9 Tree canopy cover in the City of Greater Dandenong's Green Wedge areas (marked by green hatching). (Clean Air and Urban Landscapes Hub, 2018)

*Figures will be graphically designed

Figure 10 The percentage of tree canopy measured differs between property size and purpose in the Green Wedge. (Clean Air and Urban Landscapes Hub, 2018)

The Green Wedge has 7 per cent canopy cover and is characterised by large agricultural parcels of land, grassy plains, scattered remnant native River Red Gums and open, landscape-dominated vistas. The Green Wedge has a strong history of agricultural uses including land clearing and logging, which has likely contributed to the low canopy cover.

Property size and land use are additional barriers to achieving significant canopy cover on lots in the Green Wedge (refer to Figure 10). Smaller lots (of approximately 20-40ha) which generally function as a rural lifestyle or horse rearing property often achieve greater canopy outcomes (i.e. higher canopy cover percentage) than larger lots (approximately 200ha). This is due to larger lots often being used for grazing and growing produce which requires large areas of clearing for grass and crops. Whilst this limitation for larger properties is acknowledged, there remains room for improvement along property and paddock boundaries for greater canopy planting. The technique of boundary planting can also aid in protecting topsoil and grazing animals from strong winds and stormwater runoff.

The City of Greater Dandenong's Green Wedge Management Plan (GWMP) provides a 20-year vision for the management of the Green Wedge and identifies five priority objectives including to *'protect existing ecological values'* and to *'maintain open, landscape-dominated vistas throughout the Greater Dandenong Green Wedge'.*

Council recognises the Green Wedge offers significant opportunities for habitat links and corridors for migratory and local fauna. For example, remnant River Red Gums are a defining feature of the Green Wedge and are protected for their ecological significance to the area (Clause 42.02 Vegetation Protection Overlay, Schedule 1 of the Greater Dandenong Planning Scheme).

Council also recognises remnant native vegetation and grassland species, in addition to River Red Gums on privately-owned land in the Green Wedge, as important assets to the municipality. As part of Council's annual tree planting program, seeds of significant Council trees are harvested to be grown in local nurseries. This process has helped support local business involved in seed collection and growth, helped retain genetic material of significant local species and enhance local biodiversity.

As Council is not the primary landowner in the Green Wedge, its ability to affect change in the area is restricted to a decision-making and advocacy role, much like in urban areas.

It is important that the benefits of an increased canopy cover are communicated to landowners in the Green Wedge, as a lack of canopy can:

- place residents at a heightened risk of heat related illnesses
- reduce land productivity
- reduce topsoil retention and health
- reduce water retention in soils
- reduce habitat and food for local and migratory fauna.

Given the large areas and agricultural benefits (such as shelter for grazing animals, wind buffers to mitigate soil erosion and improved water table) there is an opportunity for Council to advocate for and engage with community stakeholders to protect native vegetation and plant more trees inside property boundaries and the streetscapes.

Opportunities for the Green Wedge:

- Continue to implement the GWMP to support and protect ecological values and the agricultural role of the green wedge
- Continue to implement the GWMP to support carbon sequestration and storage
- Investigate opportunities to support Green Wedge landowners to collect seeds from remnant native vegetation to contribute to Greater Dandenong's tree planting stock
- Continue to engage community members through educational programs and encourage volunteering for revegetation.

INTEGRATED WATER MANAGEMENT

Rainfall is a critical component to a healthy urban landscape and ecosystem. Climate modelling for Greater Melbourne (released in 2019) suggests average annual rainfall is likely to reduce with increased frequency and intensity of drought. Without adequate water supplies (either natural, rainfall or supplemented through irrigation), landscapes and certain tree species on both public and privately-owned land become vulnerable and are not able to maximise their environmental, social and economic benefits.

Plan Melbourne supports cooling and greening Melbourne through integrating urban development and water cycle management to support a resilient and liveable city. *Plan Melbourne* also recognises the need to consider the whole water cycle early in the planning and design of new urban areas and developments to improve water performance of new buildings and precincts.

To address water management on public land, Council will implement the *Greening Our City Strategy* actions on water sensitive urban design (WSUD) and stormwater management for all streets and public open spaces.

Water management is particularly important in urban areas, where the ability for trees to achieve their full potential is limited by the characteristics of urban environments. For example, there is often limited space for both root systems and canopy, making trees more vulnerable during periods of low rainfall or high temperatures. These vulnerabilities can then affect the tree's amenity value and ability to help reduce urban heat island effects.

Water management is also important for agricultural land in the Green Wedge where canopy trees with large root systems help stabilise water tables and maintain soil nutrients and structure.

For private landowners, improved integrated water management outcomes, such as effectively managing stormwater runoff on privately-owned land, will contribute to the overall health and diversity of the City of Greater Dandenong's urban forest. Furthermore, implementing IWM practices can aid in garden maintenance and health, reduce likelihood and effects of localised flooding events, help maintain the local water table and help keep waterways clean.

The Planning Scheme provides Council with tools to ensure that all planning applications effectively manage stormwater on-site through the consideration of water retention, water quality, IWM and landscaping. For example, Clause 53.18 Stormwater Management in Urban Development ensures stormwater retention and reuse *'is managed to mitigate the impacts of stormwater on the environment, property and public safety, and to provide cooling, local habitat and amenity benefits.'* This clause, in use with other planning scheme mechanisms works to ensure on-site landscaping and stormwater management are complimentary to each other.

It is vital that Council and the community work to effectively manage stormwater on public and privately-owned land. This can be achieved through IWM which incorporates permeable surfaces, drought resistant species and adequate space for canopy trees to develop a healthy and stable root system.

Opportunities for water management:

- Continue to engage community members through educational programs on IWM, including water sensitive urban design
- Advocate to State Government to facilitate local green infrastructure in accordance with *Plan Melbourne's* Cooling and Green policies and plans
- Improve access and awareness of Council information sheets for developers, businesses and residents.

COMMUNITY PERCEPTION OF TREES

The City of Greater Dandenong community values the role that urban trees play in delivering a healthy, cool and liveable urban environment. However, the real and perceived fear of trees, including unsafe limbs, leaf litter and damage to infrastructure remain for some in our community.

Choosing the right species is important to alleviate these fears and ensure the tree grows to maturity and delivers the benefits explained in Section 2. Appropriate species selection ensures consideration is given to:

- landowner and occupier need and expectations
- purpose and function of the space available
- drought resistance
- bushfire risk
- choice of native or exotic species
- climatic conditions
- appropriate size at planting and at maturity
- cooling benefits through shading
- contribution to landscape character

It is vital Council engages with the community to alleviate these fears, to green our neighbourhoods, improve the aesthetics of our streetscapes and drastically improve our resilience to climate change. Without increased planting on private land, Greater Dandenong will struggle to see the benefits of a healthy and abundant urban forest and will continue to suffer from the impacts of the urban heat island.

Opportunities to improve community perception of trees:

- Partner with stakeholders to benchmark community attitudes to trees and develop and test public participation activities which engage residents
- Continue working with the community to alleviate fears and develop an understanding of the importance of a healthy tree population and the benefits to individuals and families
- Investigate opportunities to incentivise tree planting on privately-owned properties.

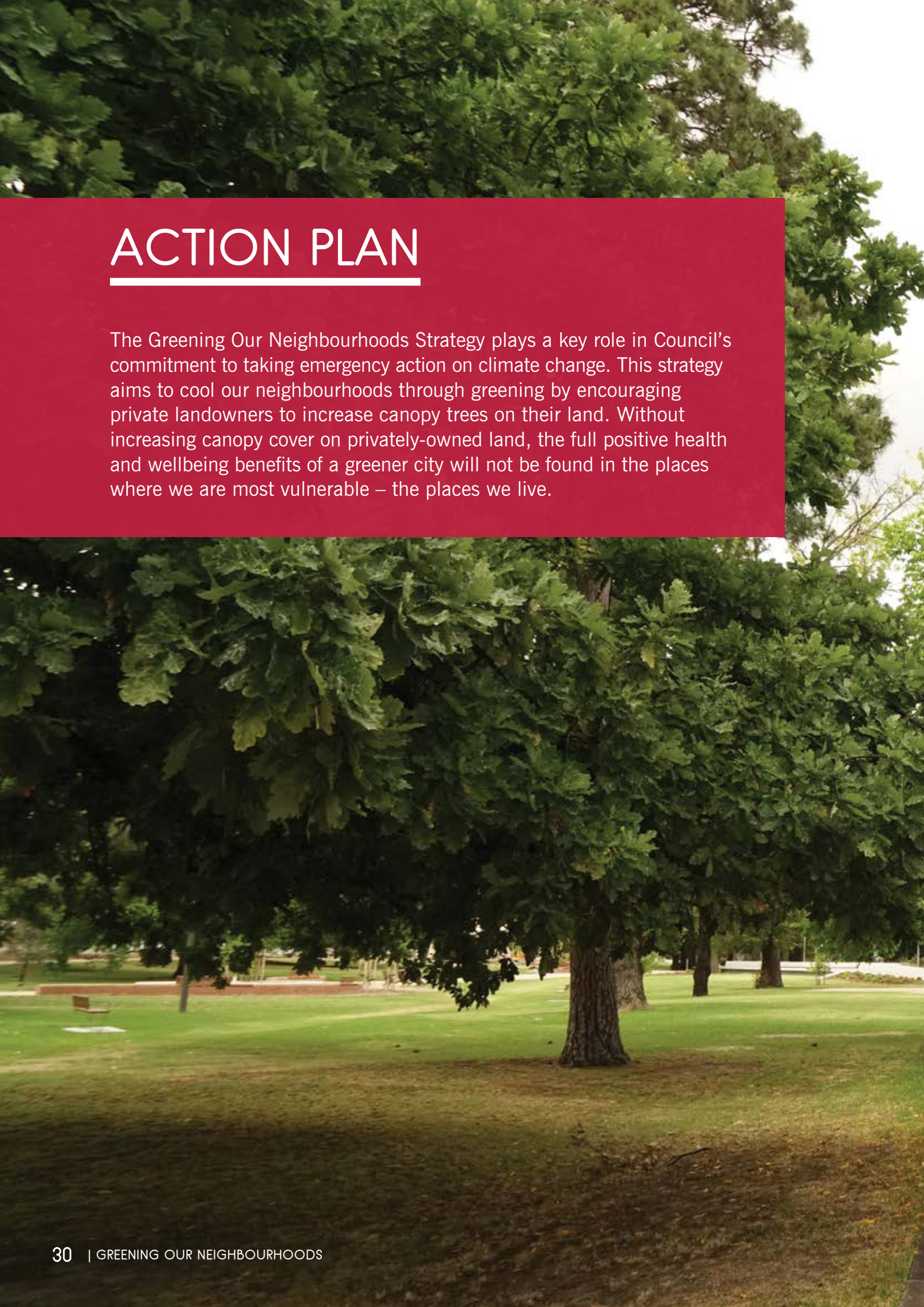
URBAN TREES CONTRIBUTE TO A HEALTHY, COOL AND LIVEABLE URBAN ENVIRONMENT

COOLING BENEFITS THROUGH SHADING

CONTRIBUTES TO NEIGHBOURHOOD CHARACTER

ACTION PLAN

The Greening Our Neighbourhoods Strategy plays a key role in Council's commitment to taking emergency action on climate change. This strategy aims to cool our neighbourhoods through greening by encouraging private landowners to increase canopy trees on their land. Without increasing canopy cover on privately-owned land, the full positive health and wellbeing benefits of a greener city will not be found in the places where we are most vulnerable – the places we live.



The *Greening Our City: Urban Tree Strategy 2018–28* recognised Council's role in greening public land and committed Council to implementing a 15-year planting plan to ensure trees are planted in locations of greatest need and to reduce vacant street tree sites down to zero by 2033.

Council recognises the importance of a combined effort to green the public and private realm to decrease urban heat across Greater Dandenong and make the municipality a pleasant and cool place to live, work and visit. The Action Plans for *Greening Our City* and *Greening Our Neighbourhoods* contribute to the success of each other in delivering a healthy, green and resilient urban forest.

The following Action Plan focuses on how Council and the community can help increase canopy cover on privately-owned land and contribute to the targeted 15 per cent canopy cover across the municipality by 2028.

While the actions detailed in the following Action Plan are currently considered within Council's sphere of influence, the Action Plan does not indicate that resources are currently or will be available in the future for any specific action.

Council's resources are determined annually by Council and other stakeholders.

When resources are available, actions will generally be resourced according to their stated priority and timeline as recommended in the Action Plan.

The Action Plan recommends a staged timeline for implementation. The timelines nominated have taken in to account the complexity and nature of each action and whether further collaboration with other parties is required.

The relevance of some actions, or their timing, may change due to the availability of resources.

Objective:

Cool through greening our neighbourhoods

Target:

Increase canopy on private land to achieve 15 per cent canopy cover for Greater Dandenong.

Measure:

Canopy cover across Greater Dandenong

Baseline:

9 per cent (2021)

Strategies:

1. Council will continue to advocate for high quality landscape design and the inclusion of canopy trees on private land.
2. Council aims to reduce the urban heat island and cool our neighbourhoods to improve our community's health and resilience in a changing climate.
3. Council aims to increase our urban forest to help sequester carbon as part of the City of Greater Dandenong's climate change mitigation measures.
4. Council aims to improve the skillset of our development community by preparing a set of landscaping guidelines to achieve high quality landscaping in all developments.
5. Council will work to expand and enhance its provision of educational programs that aim to improve the perception of trees and landowners' and residents' knowledge on species selection and maintenance.

	ACTION	TIMEFRAME
1	**Corporate**	
A	Collaborate with key stakeholders and partners to: • Source access to the most accurate and up to date tree canopy and urban heat island data for Greater Dandenong • Identify and implement actions to increase canopy cover and reduce impacts of urban heat island effect.	Ongoing
B	Ensure recognition of the *Urban Forest Strategy* in key strategic and policy documents including: • Council Plan • Sustainability Strategy • Health and Wellbeing Strategy • Capital Improvement Projects Bid process • Other internal processes.	Ongoing
C	Develop Landscaping Guidelines which ensures: • sufficient space is maintained for existing trees and for new tree planting • the right tree is planted in the right place • the retention of trees on private land is considered during the planning application process	Year 1 (30/06/2022)
D	Review the Greater Dandenong planning scheme to include the new Landscaping Guidelines as a reference document and an application requirement where appropriate.	Year 2 (30/06/2023)
E	Greater Dandenong Planning Scheme updated to include recognition of the importance of canopy trees in cooling the urban environment and enhancing the neighbourhood character.	Year 2 (30/06/2023)
F	Review and update Clause 22.03 Urban Design in Commercial and Industrial Areas in the Greater Dandenong Planning Scheme to include reference to best practice water sensitive urban design and tree ratios for car parks.	Year 2 (30/06/2023) Subject to DELWP Planning Scheme Review process.
G	Undertake an audit of the Native Vegetation Precinct Plan to determine status of identified trees.	Year 2 (30/06/2023)
H	Continue to facilitate inclusion of key environmental performance considerations through Environmentally Sustainable Design (ESD) into the planning permit approvals process in order to achieve long term sustainable outcomes for new residential, commercial and industrial buildings.	Ongoing
I	Raise staff awareness of the need to plant and protect trees on private land.	Ongoing
J	Council's internal Urban Forest Working Group to provide leadership, policy direction, and technical support to facilitate implementation of the *Greening Our Neighbourhoods* Action Plan.	Ongoing
K	Advocate to private landowners and developers of major and neighbourhood shopping centres and other development proposals the benefits of increasing canopy cover.	Ongoing

RESPONSIBILITY	INDICATOR	RESOURCES
Planning & Design Asset Management Parks Unit	Access to regularly updated detailed Tree Canopy and urban heat island data for Greater Dandenong	Within anticipated operational budgets
Planning & Design Parks Unit Media & Communications Corporate Planning Asset Planners	All relevant Council documents to reference Urban Forest Strategy visions and objectives	Within anticipated operational budgets
Planning & Design Parks Unit	Guidelines completed and in operation	Within anticipated operational budgets
Planning & Design	Planning Scheme Amendment authorised	Within anticipated operational budgets
Planning & Design	Planning Scheme Amendment authorised	Within anticipated operational budgets
Planning & Design	Planning Scheme Amendment authorised	Within anticipated operational budgets
Planning & Design	Audit complete	Within anticipated operational budgets
Planning & Design	All applicable planning applications subject to Sustainability Assessments	Within anticipated operational budgets
Council's Internal Urban Forest Working Group Planning & Design Parks Unit Business and Revitalisation	Develop an annual program of staff training activities to be delivered as part of the Climate Emergency Strategy 2020–2030 Landscaping Guidelines in operation	Within anticipated operational budgets
Council's Internal Urban Forest Working Group	Implementation of Urban Forest Working Group's actions	Within anticipated operational budgets
Business and Revitalisation Planning & Design	Landscape Guidelines implemented and information promoted through Council's Business & Revitalisation unit	Within anticipated operational budgets

	ACTION	TIMEFRAME
2	**Collaboration and Partnerships**	
A	Work in collaboration with partners to facilitate implementation of the Living Melbourne Urban Forest Project.	Ongoing
B	Continue to work collaboratively with our partners and key stakeholders to find effective ways to inform and engage the community to build their adaptive capacity and resilience to the climate emergency. This is to include actions such as: • Continue working with partners (including ENLIVEN, The Lord Mayor's Charitable Foundation and the Southern Migrant Resource Centre) to implement Stage 2 of the Hot Spots project, through health promotion activities focused on community members who are vulnerable on days of extreme heat, including newly arrived migrants, older people and parents with babies and young children. • Continue collaborating with the Greater Dandenong Sustainability Advisory Group to facilitate engagement and provide feedback on relevant projects.	Ongoing
C	Collaborate with CASBE to investigate the role and effectiveness of the 'Green Factor Tool' developed for City of Melbourne.	Year 1 (30/06/2022)
D	Advocate to key partners and stakeholders for support and help to facilitate regional and local responses that manage and, where possible, enhance canopy cover. For example: • Melbourne Water (i.e. increasing canopy cover along Dandenong Creek corridor in line with Council works) • Vic Track / Metro • Southern Metropolitan Cemeteries Trust (Springvale BC)	Ongoing
E	Work with partners to identify opportunities to enhance Environmentally Sustainable Design (ESD), particularly urban ecology and integrated water management outcomes through the planning process to mitigate the impact of the urban heat island effect.	Year 1 (30/06/2022)
F	Continue to support the innovation of business and developers in urban greening through the annual Sustainability Awards, and similar programs.	Ongoing
G	Advocate for the State Government to facilitate local green infrastructure in accordance with *Plan Melbourne's Cooling and Greening* policies and plans.	Ongoing
H	Advocate to the Victorian government and key stakeholders of Council's and our community's local priorities through participation in regional forums focussed on integrated water management outcomes.	Ongoing

RESPONSIBILITY	INDICATOR	RESOURCES
Planning & Design Parks Unit Living Melbourne	Ongoing participation as a partner in the Living Melbourne Urban Forest Project	Funding subject to annual operational budgets being approved as part of Council's annual budget
Community Services Planning & Design ENLIVEN Sustainability Advisory Group	Programs and activities undertaken with partners Information promoted through Council's website, social media platforms and other publications	Funding subject to annual operational budgets being approved as part of Council's annual budget
Planning & Design CASBE	Determine appropriateness of the Green Factor Tool for City of Greater Dandenong Meetings attended, noted and documented	Funding subject to annual operational budgets being approved as part of Council's annual budget
Parks Unit Planning & Design	Advocacy actions undertaken with key stakeholders	Within anticipated operational budgets
Planning & Design	Work with Moreland Council to establish options for a potential ESDv2.0 in 2021 Planning Scheme Amendment authorised	$15,000 Funded through 2019/20 Budget. Future funding subject to annual operational budgets being approved as part of Council's annual budget. Approximately $40,000 required to be allocated for planning amendment
Planning & Design Business and Revitalisation	Annual Sustainability Awards completed	Within anticipated operational budget
Parks Planning & Design	Advocacy activities undertaken with key stakeholders	Within anticipated operational budget
Parks Planning & Design	Advocacy activities undertaken through the Dandenong IWM Forum and National Employment and Innovation Clusters (Monash and Dandenong)	Within anticipated operational budget

	ACTION	TIMEFRAME
3	**Green Wedge**	
A	Continue to implement the GWMP to support and protect ecological values and the agricultural role of the green wedge.	Ongoing
B	Investigate partnership opportunities to support private landowners to conduct seed collection from remnant native vegetation to add to municipality's tree planting stock.	Year 2 (30/06/2023) – Ongoing
C	Increase community awareness through education and involvement in ecological improvements in accordance with the Greater Dandenong Green Wedge Action Plan.	Ongoing
D	Investigate and communicate opportunities for grants and support available to private landowners which support greening the Green Wedge (i.e. Land Care grants, Melbourne Water grants, local revegetation grants).	Year 2 (30/06/2023) – Ongoing
E	Provide information that supports protection and enhancement of the Greater Dandenong Green Wedge's biodiversity values.	Ongoing
F	Continue to implement Clause 42.02 Vegetation Protection Overlay Schedule 1 in the Greater Dandenong Planning Scheme to protect and enhance the existing ecological values.	Ongoing
4	**Community Advocacy and Education**	
A	In partnership with RMIT and other stakeholders, seek external funding to undertake a 3-year project to: • benchmark community attitudes to trees in Greater Dandenong in comparison with other local government areas. • develop and test public participation activities which engage residents with understanding the value of tree planting and urban canopy. • develop and test messaging to engage residents with understanding the value of tree planting and urban canopy.	Year 1 (30/06/2022)
B	Assess current activities and new opportunities to inform and work with the community to increase awareness of climate change impacts to health and wellbeing and opportunities to reduce these risks in response to the climate and ecological emergency. This includes opportunities to encourage and support: • community understanding by providing solution-based engagement and education activities • preparation for the increased severity and frequency of climate related emergencies • its diverse multicultural communities' actions to reduce emissions and build resilience	Year 3 (30/06/2024)

RESPONSIBILITY	INDICATOR	RESOURCES
Business and Revitalisation Planning & Design	Implementation of Green Wedge Action Plan	Funding subject to annual operational budgets being approved as part of Council's annual budget
Parks Unit	Partnership opportunities investigated	Funding subject to annual operational budgets being approved as part of Council's annual budget
Parks Unit Planning & Design	Implementation of Green Wedge Action Plan	Funding subject to annual operational budgets being approved as part of Council's annual budget
Parks Unit Community Services	Information on Council's website and in newsletter updates to Green Wedge landowners and occupiers	Within anticipated operational budget
Parks Unit Planning & Design	Information on Council's website and in annual newsletter update to Green Wedge owners and occupiers	Within anticipated operational budget
Planning & Design	No. of Permits issued / refused for native vegetation removal	Within anticipated operational budget
Parks Unit Planning & Design Media and Communications	Grant funding secured for this 3-year project	Funding for future years is subject to access to grant funds and operational budgets being approved as part of Council's annual process
Planning and Design	Development of *Climate Change Community Engagement and Mobilisation Plan in 2020–21*	Within anticipated operational budgets

	ACTION	TIMEFRAME
C	Continue delivering and expand Environmental Education programs and activities, including planting days and Adopt-a-Park program which encourage community action and builds awareness and skills in: • value of trees in reducing our vulnerability to the urban heat island • species selection and maintenance • planting techniques and preparation • water sensitive urban design • urban food production	Ongoing
D	Investigate opportunities to collaborate with residents to establish an affiliate Gardens for Wildlife program in Greater Dandenong.	Year 1 (30/06/2022)
E	Continue to actively encourage participation in educational/volunteer programs to build awareness and plant trees. Including support for groups such as: • Friends of Fotheringham Reserve • Community Garden Groups	Ongoing
F	Continue Council's membership of Living Links, to support a regional approach to increase biodiversity and connection of green spaces across the Dandenong Creek catchment.	Ongoing
G	Continue to provide support through Council's Community Grants Programs for community events, capacity building activities or programs focused on environmental sustainability outcomes that: • contribute to Council's vision and strategic priorities • enhance community capacity in responding to local needs • increase community collaboration, partnerships and intercultural connections • contribute to improvement of community safety, health and wellbeing • have the best sustainable outcomes for the local community.	Ongoing
H	Promote and advocate to local developers and building owners the rationale and relevant cost benefits associated with increased canopy cover and greening.	Ongoing
I	Update the information content of Council's webpage for trees to reflect updated knowledge and practices adopted within this Strategy and the guidelines	Year 1 – ongoing annually (30/06/2022 – 30/06/2028)
J	Collaborate with key stakeholders and partners to ensure education material and resources are more accessible to Culturally and Linguistically Diverse communities to increase awareness of the importance of trees in cooling our urban environment.	Year 3 – ongoing annually (30/06/2024 – 30/06/2028)
K	Investigate opportunities for tree giveaways and incentives for landowners such as: • tree giveaways at environmentally focused events (Forever Fest, Dandenong Show and Australia Day Citizenship Ceremony) • tree giveaways at environmental education programs • tree giveaways as part of Greening for Wildlife program	Year 2 – ongoing (annually) (30/06/2028)

RESPONSIBILITY	INDICATOR	RESOURCES
Parks Unit Media & Communications	Run 6 annual planting days within reserves each year Increased number of environmental programs running each year Vegetable gardens displays and tours at Council's reserves and events Run 5 indigenous planting days in schools each year Run 6 "adopt a park" programs with local schools each year	Funding for future years is subject to the approval of CIP bids and operational budgets being approved as part of Council's annual budget
Parks Unit	Opportunities to facilitate establishment of Gardens for Wildlife program in Greater Dandenong investigated by 2022	Funding subject to annual CIP and operational budgets being approved as part of Council's annual budget
Parks Unit	Increased number of participants	Within anticipated operational budgets
Parks Unit	Annual Living Links membership Grant funding Habitat connectivity improvements achieved	2020/21 budget $7,500 for annual membership of Living Links
Community Services	No. and value of grants provided through the Community Grants Programs that include a focus on environmental sustainability outcomes	Within anticipated operational budgets
Planning & Design Business and Revitalisation	All applicable planning applications subject to Sustainability Assessments and access to relevant information on Council's website	Within anticipated operational budgets
Parks Unit Planning & Design Media & Communications	Website to contain Urban Forest Strategy and Greening Our Neighbourhoods strategies and access to guidelines	Within anticipated operational budgets
Planning & Design Parks Unit Media & Communications Community Services	Translate existing tree and greening education materials into other commonly spoken community languages	Funding subject to annual CIP and operational budgets being approved as part of Council's annual budget
Parks Unit Planning & Design	Opportunities investigated and appropriate option implemented	Funding subject to annual CIP and operational budgets being approved as part of Council's annual budget

MONITORING AND REVIEW

This strategy has a timeframe of seven years to align with the Urban Forest Strategy and Greening Our City. The strategy will be fully reviewed in 2028.

Regular desktop reviews will be required to monitor our urban forest and to ensure Greening Our Neighbourhoods is guided by up to date urban forest and climate data research, resource allocations and community expectations.

Every two years:	Measure Greater Dandenong's canopy cover as a percentage across the municipality to inform Council's progress towards the targeted 15 per cent canopy cover by 2028. Desktop review of Greening Our Neighbourhoods strategy actions, progress towards targets and technical guidelines.
In seven years (2028):	The Strategies (UFS encompassing Greening Our City and Greening Our Neighbourhoods) will be reviewed and proposed to be combined into one document. At this seven-year milestone Council will also review the canopy cover and measure the achievement of its targets in readiness for an updated Strategy.

GLOSSARY

Canopy cover: the measure of the area of tree canopy when viewed from above and is recorded as a percentage of total land area.

Canopy Tree: is defined as any tree above 3m

Canopy Cover by Land Zone: For the purposes of the mapping analysis conducted to inform Greening Our Neighbourhoods, land types have been classified according to the overarching purpose in the Greater Dandenong Planning Scheme. It is acknowledged some zones may not be appropriately classified due to their location in the planning scheme (i.e. Comprehensive Development Zone which applies mainly to Central Dandenong has been classified as 'Other' as per its location in the planning scheme and is not captured by the 'Commercial land' description).

	Zones included	Percentage of tree coverage
Residential Land	Neighbourhood, General and Residential Growth Zone; Mixed Use Zone	13
Commercial Land	Commercial 1 Zone; Commercial 2 Zone	7.7
Industrial Land	Industrial 1, 2 and 3 Zones	5.0
Rural Land	Green Wedge Zone; Green Wedge A Zone; Farming Zone	7.0
Other	Comprehensive Development Zone; Special Use Zone; Urban Floodway Zone; Public Use Zone; Public Park and Recreation Zone; Public Conservation and Recreation Zone; Road Zone	17.0

CAULH: Clear Air and Urban Landscapes Hub (part of the National Environmental Science Program by the Australian Government).

DELWP: Department of Environment, Land, Water and Planning

Evapotranspiration: the release of water from the leaves of vegetation to the surrounding air by the process of evaporation and transpiration. This cools the plant whilst also cooling the air around the plant.

Heat Vulnerability Index (HVI): The HVI identifies which populations are most vulnerable to heat. It consists of three indicators: heat exposure, sensitivity to heat, and adaptive capability. Vulnerability ratings are determined by the sum of the aggregated indicators and are scaled from 1 to 5 (1 = low vulnerability, 5 = high vulnerability).

Heat Waves: defined as three or more days of high maximum and minimum temperatures that are unusual for that location (Bureau of Meteorology, 2020).

Land Use: a term describing a use or activity in relation to land (i.e. residential, commercial, industrial).

Private property or privately-owned land: Property owned by a private entity or individual (includes land owned by private and government agencies i.e. Melbourne Water, Department of Education or Department of Human and Health Services). This does not include Crown land or land owned by Council.

RMIT University: Royal Melbourne Institute of Technology University

Urban heat island: when urban areas are warmer than surrounding rural areas due to heat retention in hard surfaces. These occur due to the increased hard surfaces that absorb and radiate heat, limited vegetation to shade and cool, heat production from machines and activities and air pollution creating local greenhouse effects. The analysis has demonstrated Greater Dandenong is already experiencing these effects with the most serious effects being experienced in major activity centres such as Dandenong, Springvale or Noble Park. The most cost effective and efficient mitigation tool is an increase in tree canopy cover.

Integrated Water Management (IWM): A collaborative approach to planning that brings together all elements of the water cycle including sewage management, water supply, stormwater management and water treatment, considering environmental, economic and social benefits. It is the integration of the water cycle into urban planning and design by recognising all water streams in the urban environment as a potential resource e.g. rainwater, stormwater, grey water and blackwater.

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GREATER DANDENONG
City of Opportunity

Phone 8571 1000
Fax 8571 5196
council@cgd.vic.gov.au

TTY: 133 677
Speak and listen: 1300 555 727
Online: relayservice.gov.au
TIS: 13 14 50

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