City of GLEN EIRA

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CITY COUNCIL

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GLEN EIRA URBAN FOREST STRATEGY

Adopted by Council 29 June 2021

Acknowledgement of Country

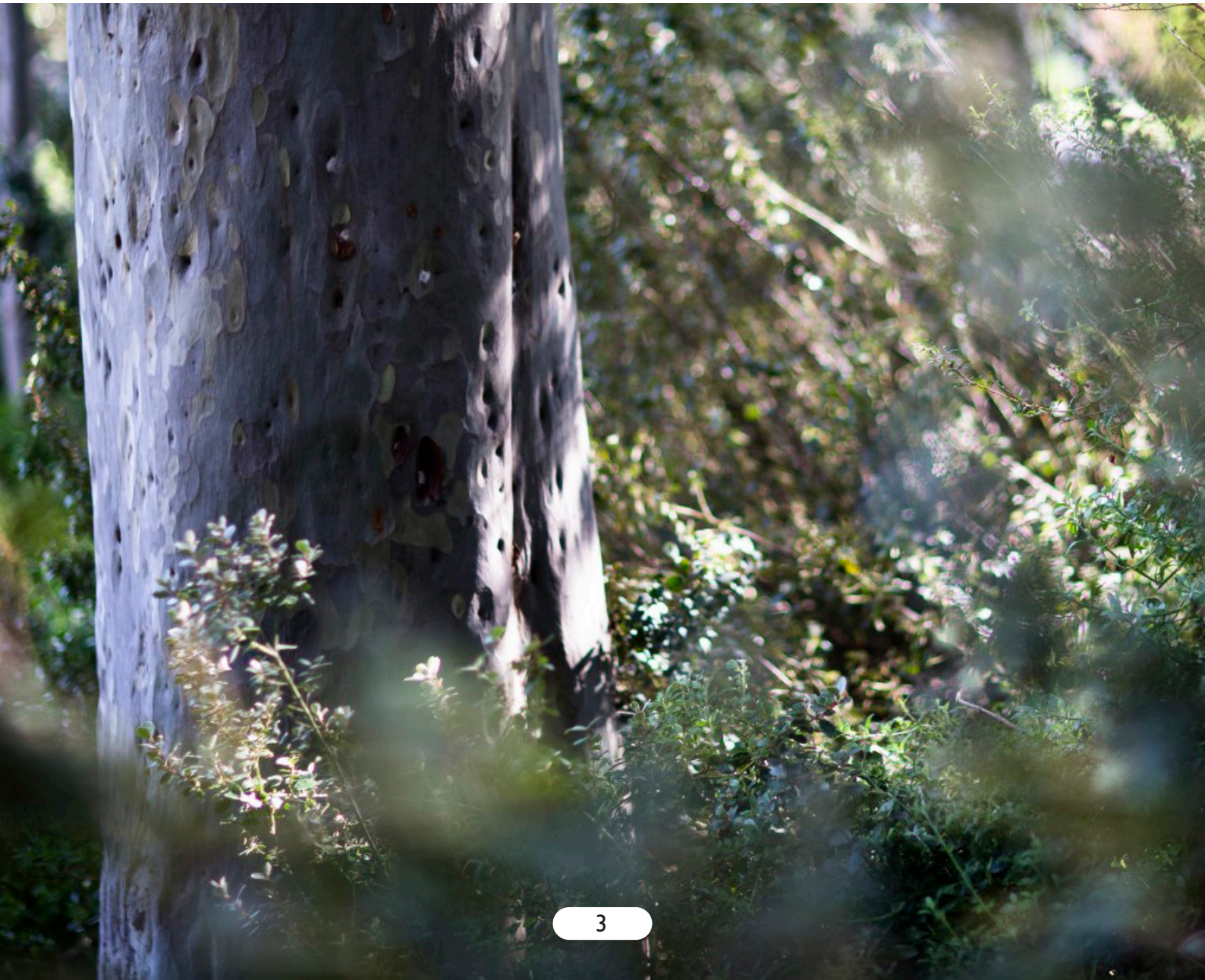
Glen Eira City Council respectfully acknowledges the Boon Wurrung people of the Kulin Nation as the Traditional Owners and Custodians of the land on which Glen Eira resides.

We pay our respects to their Elders past, present and emerging, and acknowledge and uphold their continuing relationship to this land.

Glen Eira is situated on the traditional estate of Yaluk-ut Weelam clan of the Boonwurrung language group.

At the time of endorsement of this document, Registered Aboriginal Party status through the Victorian Aboriginal Heritage Council, was contested by the Bunarong Aboriginal Land Council Association and the Wurundjeri Woiwurrung Land and Sea Council.

The Victorian Aboriginal Heritage Council recently granted Registered Aboriginal Party status to the Bunarong Aboriginal Land Council Association to take effect from Thursday 1 July 2021 which may impact the content of this *Strategy*.



Introduction

What is an urban forest?

Glen Eira's urban forest is the sum of all trees, understorey, shrubs and ground covers and grasses across the municipality — public and private. The urban forest is supported by soil, water and nutrients and provides a wealth of benefits ranging from shade provision; carbon storage; habitat for wildlife; reducing air pollution; neighbourhood amenity; stormwater capture; as well as assisting in the mitigation of the effects of climate change.

What's happening to our trees

Green leafy streets and tree filled parks are highly valued by our community and strongly contribute to the character and identity of our City. Glen Eira has relatively low levels of tree canopy cover compared to other Melbourne LGA's at only 12.52 per cent. This was 25 per cent in 2000, and 13.5 per cent in 2014.

Council removes approximately 600 to 800 trees per year for various reasons and plants around 2,000. Based on the canopy cover loss data, it is estimated a further 3,000 trees are removed on private land each year.

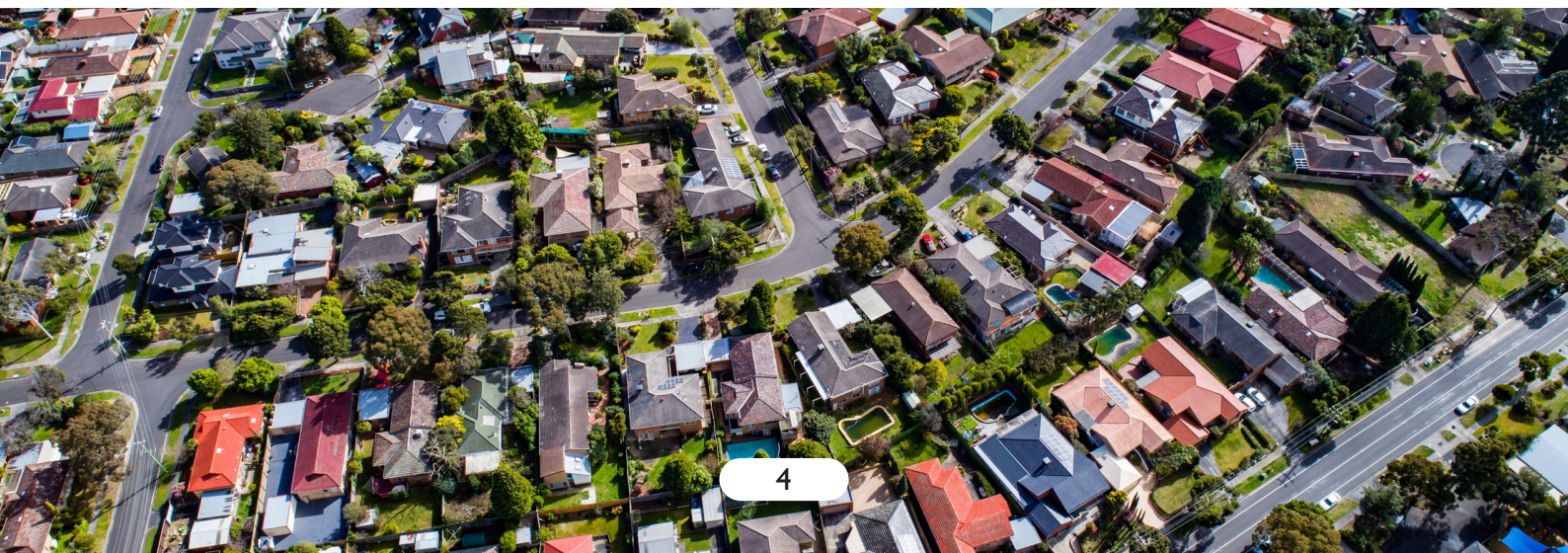
Further to this, our public street and park tree populations show a level of fragility in their diversity, opening them up to risks such as: climate change; pest and disease incursions; and large scale loss as trees of the same age all reach the end of their useful lives at the same time.

Privately owned land makes up 66 per cent of Glen Eira, and once private land vegetation has been removed, it is very difficult to replace. As density increases through increased urbanisation and medium density housing development, it leaves very little room for large canopy trees to grow.

Taking action

There is growing community understanding of the important role trees and open space play in not only environmental outcomes, but also the economic, cultural and health and wellbeing of our City. They is critical urban infrastructure — just as important to how a city functions as roads and drains.

The *Glen Eira Urban Forest Strategy* presents a clear and pragmatic implementation plan aimed at achieving a turnaround in the current trajectory of canopy loss. Moving forward together, our challenge is to reconcile our growing population and development with urban greening and canopy cover.



Our Urban Forest Vision

The City of Glen Eira's urban forest will be green, resilient and healthy creating a liveable and sustainable City for current and future generations where trees and vegetation are a core element.

Objectives

Guided by our Vision and supported by direction provided in *Living Melbourne: Our Metropolitan Urban Forest*[1], the *Urban Forest Strategy* sets out the following five action areas to enable and inspire our whole community to better protect and strengthen our natural assets:

1. **Maintain and protect** Glen Eira's public and private land urban forest.
2. **Grow the future urban forest** through designed solutions for trees and innovative green infrastructure on public and private land.
3. **Adapt to climate change** and reduce urban heat impacts through embedding leading practice urban forest management into Council's decision-making, investment and processes.
4. **Engage and collaborate** across sectors with the community, developers and other agencies.
5. **Monitor and evaluate** the progress of the urban forest, including progress towards targets.

Our goals

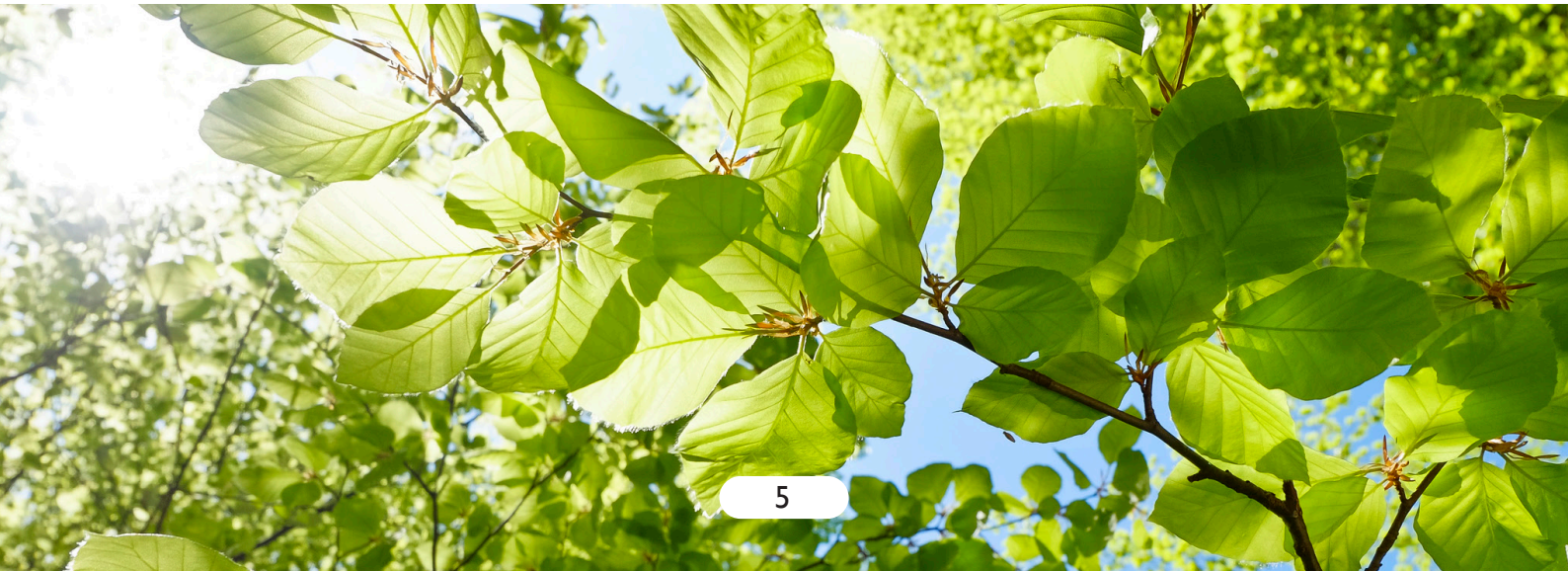
Achieving tangible increases in tree canopy cover will only be possible through the sum of all *Strategy* actions and the actions of the whole community. Each has unique challenges and opportunities.

On Council-managed land, we will aim to achieve the following by 2040:

- Tree canopy cover over roads and streets will increase from 15.6 per cent to 18 per cent.
- Tree canopy cover in parklands will increase from 14 per cent to 25 per cent.
- Tree canopy cover on Council owned car parks will be at least 25 per cent.
- No one species will represent more than 10 per cent of the public urban tree population.

Across the whole municipality successfully achieving a higher canopy target will be the collective responsibility of the community, Council, State Government and other agencies. The aim is to increase the municipal tree canopy cover from 12.5 per cent to 22 per cent by 2040.

[1]*The Nature Conservancy and Resilient Melbourne (2019) Living Melbourne: Our Metropolitan Urban Forest.* The Nature Conservancy and Resilient Melbourne, Melbourne.



Strategic drivers

Our *Urban Forest Strategy* has been developed following Council's formal commitment to *Living Melbourne: Our Metropolitan Urban Forest* in April 2019. *Living Melbourne* is a regional collaboration between 32 of Melbourne's metropolitan councils and other agencies to work towards regional cross-jurisdictional urban forest outcomes that create healthier people, abundant nature and more natural infrastructure.

Living Melbourne guides and influences the *Glen Eira Urban Forest Strategy* and provides direction and resources to assist in protecting and strengthening our natural assets.

In May 2020 Council declared a climate emergency and committed to zero net emissions for corporate emissions by 2025 and zero net community emissions by 2030. Protecting and enhancing our urban forest is important in sequestering carbon and adapting to the impacts of changing climate.

Council plans

The *Glen Eira Urban Forest Strategy* builds upon and complements a range of Council plans and policies. These include:

- *Council Plan 2017–2021* — striving for a liveable, well designed, clean and sustainable City.
- *Open Space Strategy Refresh 2020* — maximising opportunities to adapt to climate change, mitigate urban heat and provide equitable and accessible open space for the community.
- *Environmental Sustainability Strategy 2016–2021* — provision for a healthy environment that supports our community members to live healthy, happy lives into the future and protects the diversity of plants and animals.
- *Integrated Transport Strategy 2018–2021* — aiming to be a City of child-friendly neighbourhoods that are connected to a network of vibrant and well-designed walkable activity centres through the improvement of streets.
- *Health and Well Being Strategy 2017–2021* — promoting active lifestyles, improving mental health and community connection.
- *Biodiversity Implementation Plan* — protecting existing biodiversity and significant trees and encouraging other landholders, including the community to plant for wildlife.

The *Urban Forest Strategy* will provide guidance on the update and review of several tree and park plans and policies, including the *Tree Removal Policy*, *Tree Management Guidelines*, *Nature Strip Planting Guidelines* and *Street Design Guidelines*.

State policy

Plan Melbourne 2017–2050 is the State Government's metropolitan planning strategy that integrates long-term land use, infrastructure and transport planning, and defines the future shape of the metro Melbourne region over the next 35 years.

Plan Melbourne sets out seven outcomes for creating a competitive, liveable and sustainable city. Outcome six — Melbourne is a sustainable and resilient city — explains that the Melbourne of 2050 will need to be a low-carbon city designed to cope with the effects of climate change. Making Melbourne cooler and greener — is a key direction from this outcome that specifically relates to the urban forest by supporting a cooler Melbourne through the greening of urban areas, buildings, transport corridors and open spaces to create an urban forest.

What are the benefits?

Trees are valuable to everyone in the city. The benefits include:

Environmental benefits

- When coupled with passive stormwater retention systems, the urban forest is one of the most efficient and cost-effective mechanisms for adapting cities to climate change.
- Provides cooling through shade and evapotranspiration. Street trees can reduce daytime temperatures by between 5–20°C (Mullaney, Lucke and Trueman, 2015).
- Improves air quality by capturing particulate matter and other air pollutants with large trees absorbing 60 to 70 times more pollution compared with small trees (McPherson, Nowak and Rowntree, 1994; Mullaney et al., 2015).
- Reduces wind velocity in tree-lined streets.
- Reduces volume of stormwater and pollution in stormwater run-off through root uptake and canopy interception (Livesley, McPherson and Calfapietra, 2016; Mullaney et al., 2015).
- Sequesters carbon which slows or reduces atmospheric carbon dioxide pollution (Mullaney et al., 2015).
- Provides wildlife habitat, including for birds and insects.
- Provides green corridors, connecting biodiversity locations (Mullaney et al., 2015).

Economic benefits

- Increase retail activity with studies showing street trees can increase business income by 20 per cent, with consumers willing to spend more time, and up to nine per cent more on an item, in a green planted or vegetated retail area (Mullaney et al., 2015; Wolf, 2005).
- Street trees increase house prices (Mullaney et al., 2015; Plant, Rambaldi and Sipe, 2017).
- Reduce energy costs through reducing the need for heating and cooling with a 10 per cent increase in deciduous tree cover reducing energy costs by five to 10 per cent (McPherson et al., 1994). Well-placed trees can reduce air conditioning costs by 56 per cent (US Forest Service, nd).
- Shading assists in the prolonging of roadway life.

Social benefits

- Improves health and wellbeing by providing attractive urban landscapes, encouraging pedestrian and cycling activity, increasing community interaction and reducing stress (van Dillen et al., 2012).
- Improves human thermal comfort on the hottest days through shade, lowering air and surface temperatures and intercepting UV radiation (Langenheim et al., 2020).
- Reduces traffic noise (Mullaney et al., 2015).
- A number of studies have shown that urban areas with more street trees have lower crime rates and increased public safety (Mullaney et al., 2015).

Physical and mental health benefits

- Provides cleaner air (oxygen) through the take up of carbon dioxide, nitrous oxides, sulphur dioxide, carbon monoxide and ozone from the atmosphere.
- Proximity to green environments encourage physical activity that broadly reduces people's risk of developing chronic heart disease, diabetes, dementia and some cancers.
- Easily accessible green spaces and trees have positive effects on people's wellbeing, improving their mental health.

57,937 trees were valued	Worth **$222,000,000** in structural value*	Stores **24,270** tonnes of carbon	Sequesters **689** tonnes of carbon each year

Removes **1.07** tonnes of air pollution each year	Produces **1,840** tonnes of oxygen each year	Avoids **10,390** m3 of stormwater runoff each year	Returns **$292,000** in environmental benefits each year

*Ie. the cost to replace every single tree to its current status.

Our urban forest

Our 171 hectares of parks contain around 11,000 trees, while there are more than 50,000 street trees planted across 863 hectares. These public trees are worth approximately $222 million in structural asset value, and collectively return $292,000 in environmental benefits each year through stormwater interception, air pollution removed, and carbon sequestered.

Our street and park trees are only a relatively small portion of the entire urban forest given that more than 73 per cent of Glen Eira's land area is either privately owned or managed by other public agencies. Private land makes up 2,565 hectares and is home to most of our urban forest, and unlike public trees we have no data on the species and health outside of our *Significant Tree Register*.

Tree canopy cover

Tree canopy cover is a measure of all the substantial trees greater than three metres in height, across streets, arterial roads, public parks, private residential properties, commercial properties and other government land. Tree canopy cover is only one measure of our urban forest and as of 2018 Glen Eira had a tree canopy cover of 12.52 per cent.

Measuring canopy cover helps us quantify the many benefits urban forests provide, it also provides a long-term assessment on the success of Council actions and interventions. In Glen Eira, our canopy cover measurement was taken from data mapping provided by the Victorian State Government Department of Environment, Land, Water and Planning (DELWP).

Current tree management

Council staff include qualified arborists and we engage a range of professional tree contractors that are committed to the care of Council managed public trees. Collectively this team provides the following arboricultural services:

- Customer service requests and inspections.
- Street and park tree planning.
- Contract supervision and auditing.
- Planning referral advice in relation to tree matters.
- Consultancy to internal departments and external stakeholders.

Contractors are engaged to deliver the following tree maintenance services:

- Pruning and removals.
- Tree planting and establishment.
- Tree root and risk management.
- Pest and disease management.

More than $12 million of our annual operating budget is invested into the management and protection of parks and open space. Additional capital funds are allocated to build new parks and enhance existing open space. Our operational budget includes:

- **Tree planting and replacement in streets and parks — $1,330,000**

Each year, we plant around 1,800–2,000 street and park trees, with around 4,000 trees under an establishment and maintenance program. Species selection encompasses both native and exotic trees that are suitable for growing in Glen Eira.

Our capital works program, which includes road and footpath renewal, also provides opportunities to maximise space for additional tree planting.

- **Tree inspections, maintenance and protection — $1,730,000**

We manage a street tree pruning and inspection program of street trees, with focus on overhead powerlines wires. All streets are inspected on a two-year cycle. This ensures that risks and are documented and actively remediated.

Development planning applications are reviewed by an arborist to ensure protection of public trees. Tree protection zones are utilised extensively to around trees to protect them during development.

Tree reports and arboricultural management plans are produced for internal Council departments, as well as external bodies, where their activities may impact on Council-owned or managed trees.

We manage the *Classified Tree Register* (available online). Some trees, through age, size, and rarity of planting or association with historical events offer a greater level of benefit to the community than others on public and private land, and we are committed to acknowledging and documenting their existence. Our *Classified Tree Register* acknowledges and documents trees on Council and private land. The *Register* enables us to protect trees from indiscriminate damage and removal.

- **Tree risk management — $1,130,000** (Such as repairing tree damage to properties, root pruning, root barriers, tree removal and footpath reinstatement.)

As our trees grow, conflict between trees and infrastructure are common in some areas of the City. These conflicts require careful controls to minimise risk and provide a safe environment.

The increase in redevelopment, along with ageing infrastructure and the need to sustain and grow tree canopy offer increased pressure to resolve conflicts.

This is can be due to several reasons, such as past tree planning not considering future tree size or a poor understanding of local soil types, increasing urban development and continually ageing infrastructure with diverse construction practices, eg. drainage; footpaths; and adjacent fencing.

A range of approaches are considered to develop and protect our tree population, as well as the potential implications on adjacent infrastructure, such as: species selection and site assessment; root pruning; and barrier construction.

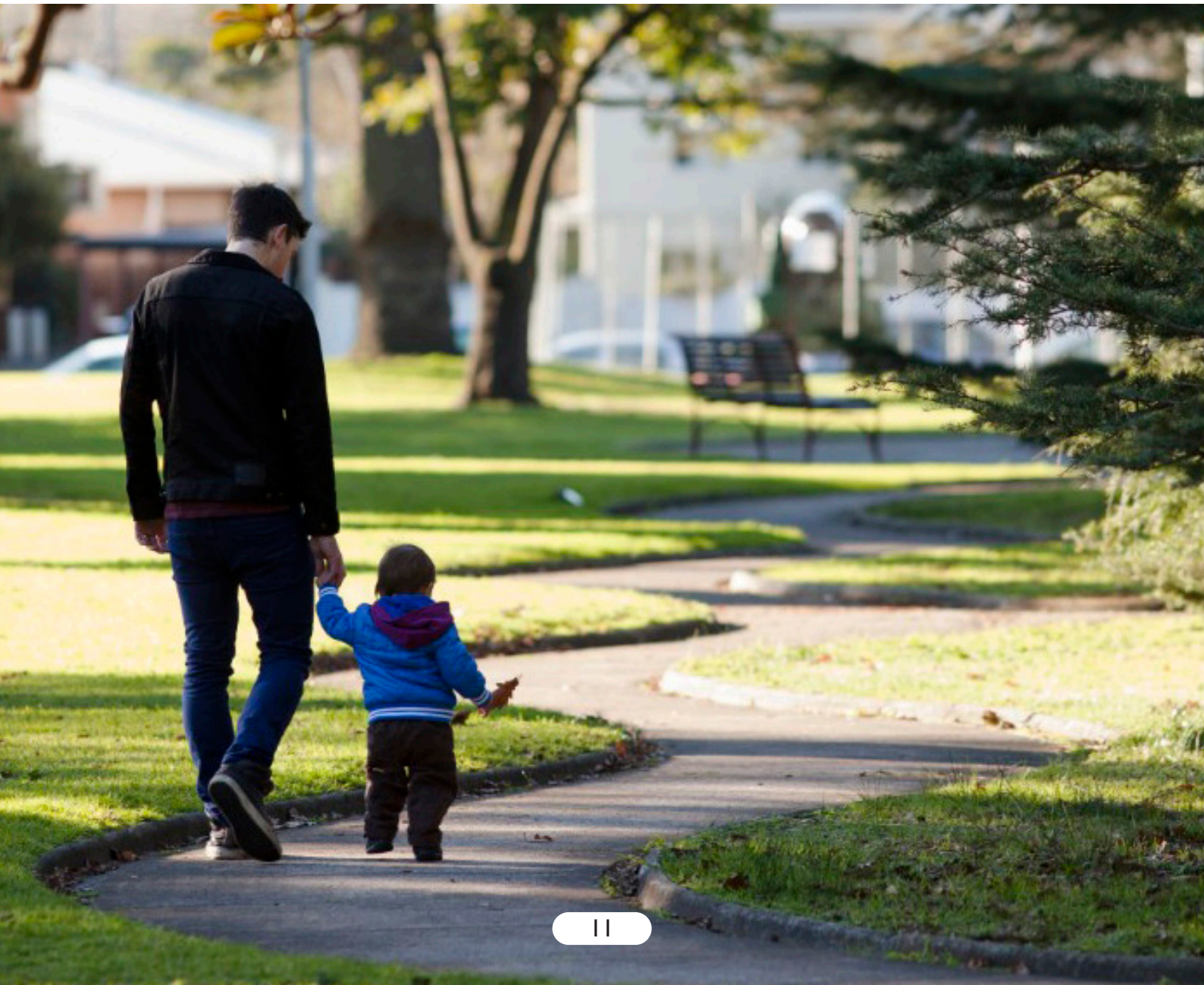


Image 1: Tree canopy cover per mesh block for the LGA of Glen Eira. Source: Vegetation_Cover_2018, Spatial Datamart, DELWP, 2020.

There are many areas across Glen Eira that record a tree canopy cover of 10 per cent or less (shown in lightest green colour). Bentleigh East and Bentleigh have the greatest proportions of land with low tree canopy cover. The dark green block in Elsternwick is the well-treed Rippon Lea Estate and the linear area of higher tree canopy cover in Murrumbeena is Boyd Park and the Outer Circle Linear Railway Park.

Image 2: Tree canopy cover percent change per mesh block for the LGA of Glen Eira. Source: Vegetation_Cover_2014_18_CHG, Spatial Datamart, DELWP, 2020.

In 2014 Glen Eira's tree canopy was 13.28 per cent. This means that over a four-year period, Glen Eira lost 0.76 per cent of its overall tree canopy. This equates to a considerable canopy loss of 308,836 square metres, or the equivalent of 17 MCG ovals.

Significant tree loss occurred during railway grade separation projects between Caulfield to Hughesdale and Ormond to Bentleigh. The largest loss in Glen Huntly was through the creation of Booran Reserve, although many new trees have been planted and will grow in time to provide much greater tree canopy cover.

Thermal heat mapping

Urban Heat Island Effect is the term used to describe the significantly warmer temperatures in metropolitan areas due to the modification of land, dense development, transport and hard surface which hold heat.

Glen Eira is predominantly eight to 12°C hotter than surrounding non-urban areas. Coupled with extremely low tree canopy cover and open space levels, Glen Eira is extremely susceptible to heatwave events, providing very little relief to residents.

Satellite thermal imagery shows areas across the municipality that absorb more urban heat than others, coloured dark orange and red. The red coloured areas are up to 12°C hotter than non-urban areas or the baseline figure.

This information can assist Council to identify and prioritise areas of higher heat vulnerability that require heat mitigation solutions with the focus on increased urban greening and sustainability.

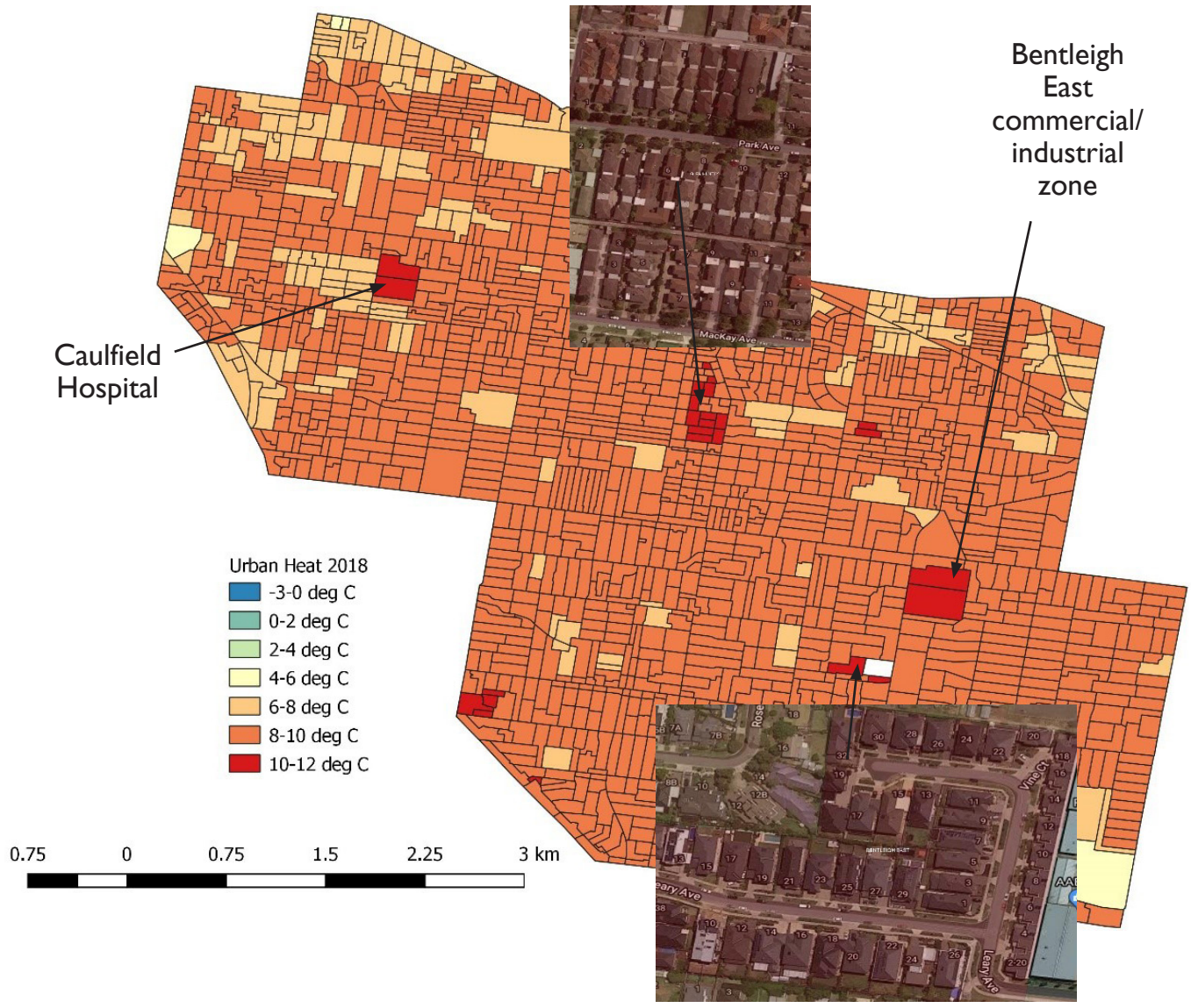


Image 3: Satellite thermal imagery detailing Average Land Surface Temperatures above or below non-urban baseline land surface temperatures. Areas in red are the hottest (up to 12°C hotter than non-urban areas). Source: DELWP, Heat_Urban_Heat_2018, Spatial Datamart, 2020.

Heat vulnerability

Increased urban heat is a demonstrated issue within Glen Eira. Thermal mapping images also align with mapping which show areas of social vulnerability to heat. These areas are shown in Image 4 and notably are where canopy cover is the lowest. These pockets should be prioritised for increased greening and cooling to mitigate the impacts of heat on these more vulnerable communities.

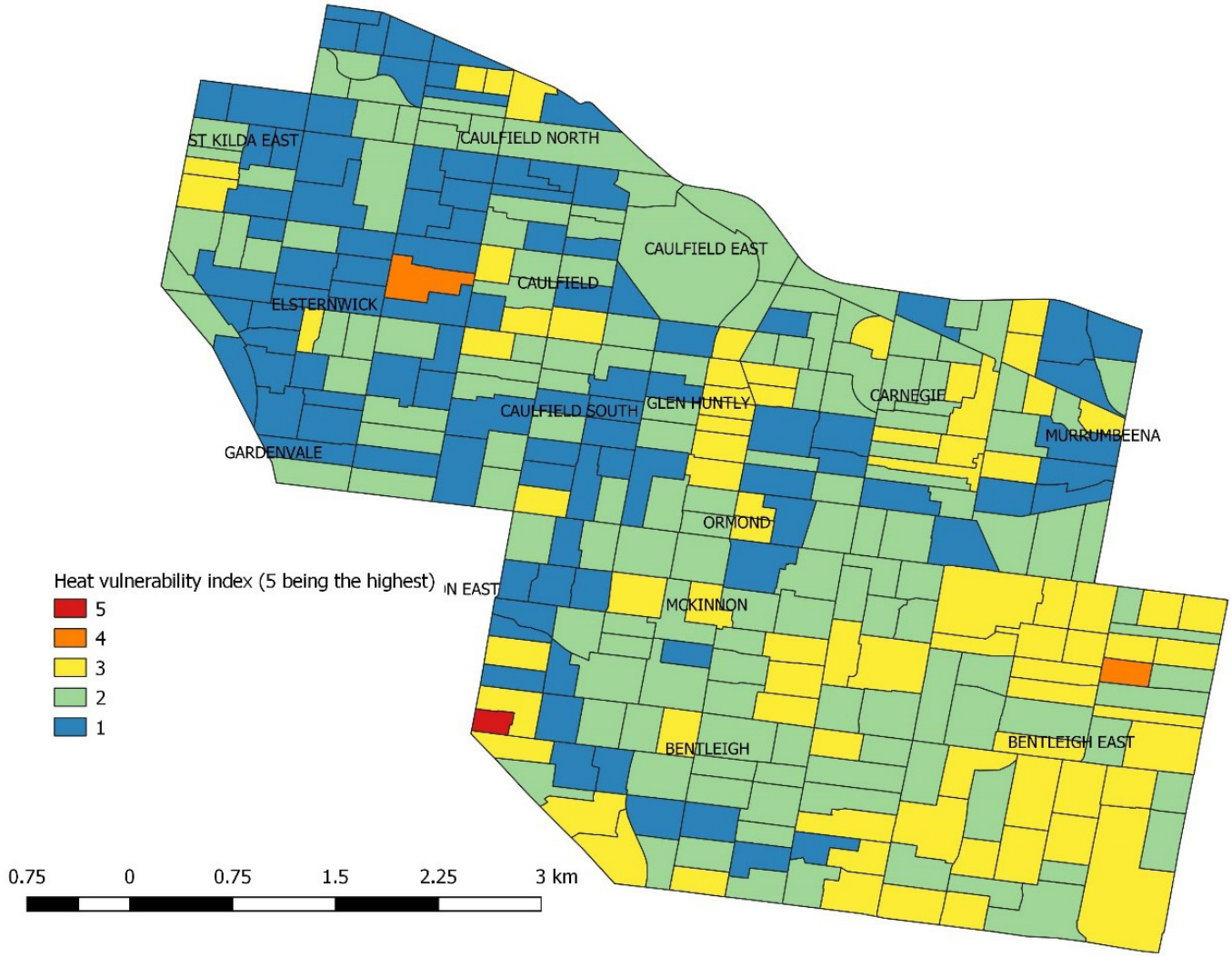


Image 4: Social vulnerability to heat at SA1 level. Source: HEAT_VULNERABILITY_INDEX_2018, Spatial Datamart.

Species diversity

Tree species respond differently to pests and pathogens, drought, flood, climatic variability and changes to the surrounding environment. A lack of species diversity in our urban forest increases vulnerability to risks such as disease and climate change.

Glen Eira's street tree population contains more than 300 different tree species, yet almost 60 per cent of the population consists of only 10 species. The 10 most dominant species are:

Species	Common name	Number	Per cent of population
Lophostemon confertus	Queensland brushbox	9,308	18.9%
Melaleuca linariifolia	Snow in summer	3,722	7.6%
Melia azederach	White cedar	3,219	6.5%
Tristaniopsis laurina	Water gum	2,405	4.9%
Pyrus calleryana	Ornamental pear	1,830	3.7%
Acer 'Crimson Sentry'	Crimson sentry maple	1,705	3.5%
Prunus cerasifera 'Nigra'	Black cherry plum	1,375	2.8%
Melaleuca styphelioides	Prickly leaved paperbark	1,363	2.8%
Syzygium smithii	Lilly pilly	1,333	2.7%
Ulmus parvifolia	Chinese elm	1,302	2.6%

Table 3: The 10 most common street tree species in Glen Eira's tree inventory.

Industry experts suggest no one species should represent more than five to 10 per cent of the population. At almost 19 per cent, the Queensland Brushbox's dominance causes significant concerns, particularly as this species has shown signs of poor performance in periods of extended low rainfall and heat.

Our park tree diversity profile is very different as there is a much greater diversity of species, with the top 20 species making up only 20 per cent of the park population. Our park trees show a clear trend towards Australian native species which reflects Council's intended character for its parks towards more native themes. This has the added benefit of providing much greater urban biodiversity benefits as well.

Species	Common Name	Number	Per cent of population
Eucalyptus camaldulensis	River red gum	404	3.8%
Corymbia maculata	Spotted gum	385	3.6%
Pyrus calleryana	Ornamental pear	347	3.2%
Fraxinus angustifolia	Desert ash	330	3.1%
Angophora costata	Smooth barked apple	301	2.8%
Eucalyptus mannifera	Red spotted gum	277	2.6%
Eucalyptus leucoxylon	Yellow gum	276	2.6%
Acacia melanoxylon	Australian blackwood	227	2.1%
Corymbia citriodora	Lemon-scented gum	227	2.1%
Acacia implexa	Lightwood	203	1.9%

Table 4: The 10 most common park tree species in Glen Eira's tree inventory.

Useful Life Expectancy

Assessment of Useful Life Expectancy (ULE) provides an indication of how long a tree is likely to remain in the landscape based on species, stage of lifecycle, health, structure, amenity, condition of adjacent environment and risk to the community. It is different to the biological life (age) of the tree.

ULE is subjective assessment based on the existing site conditions not being significantly altered over time. A tree's ULE can either increase or decrease depending on the prevailing climatic conditions, changes to the growing environment or maintenance interventions.

Within our urban landscape ULE also considers the point where the costs to maintain the tree outweigh the benefits the tree is providing, and this varies depending on the location. As an example, a tree located in a high use areas or park would present a higher risk if it were to drop limbs or fail, compared to a similar tree on a quiet road.

Ideally, a diverse and healthy urban forest would have an equal distribution of ULE across the population. This generally equates to around 10 per cent of a tree's population reaching the end of its useful life every 10 years or so.

Healthy trees grow quicker, better defend themselves against pest/disease incursions and provide the greatest ecosystem service benefits. Trees in poor health generally require a higher level of maintenance, are at a higher risk of mortality and present an increased hazard to the community.

Based on ULE assessments almost half of our street trees are likely to reach the end of their useful lives in the next 20 years. Thirteen per cent of street trees are likely to reach the end of their useful lives by 2030, however, more alarmingly, 41 per cent of street trees are likely to reach the end of their useful lives in the decade between 2030 and 2040.

Park trees have a similar ULE profile, with 37 per cent of park trees likely to reach the end of their useful lives in the next 20 years. Fourteen per cent are likely to require removal and replacement within a 10-year period.

While this appears less than ideal, it does not necessarily mean these trees need to be removed. A combination of proactive tree management actions could see many of these trees last much longer.

Age diversity

Like species and ULE diversity above, consideration needs to be given to the age distribution of the tree population. A resilient and healthy tree population requires a diverse range of age classes within it and the constant renewal and growth of trees also ensures the continuing ecosystem and amenity benefits.

An even age distribution is important for sustainability as it spreads out the timing of maintenance, removal and replacement. Tree populations with uniform age classes are more likely to decline and enter senescence concurrently. When a tree enters 'senescence' it outgrows the ability to self-maintain and it becomes more susceptible to diseases, pests and climate.

The actual age in years of a tree that is 'mature' is dependent on the species typical life cycle. For example, many Acacias naturally only live for a few decades, whilst some other trees, such as Eucalypts or Elms can live for a century or more.

Glen Eira's street trees are heavily skewed towards maturity. More than 45 per cent of the street tree population is mature. As these trees age and move towards senescence, they will require larger management inputs to minimise risk and enhance their critical benefits such as habitat or shade provision.

Almost 70 per cent of all park trees are mature or in senescence, with only 12 per cent of the population coming through as the next generation. The ageing of these trees should be considered from a strategic perspective so that tree decline will not happen at the same time.

Challenges for public trees

Public trees represent a small but important part of our urban forest. Our parks, gardens and streets are where our community plays, connects and socialises. The design of municipal infrastructure, including roads and utility services is important in being able to provide adequate space for planting substantial canopy trees as well as protecting existing trees and vegetation, on private land and in the adjoining road reserve.

Trajectory of canopy cover loss

Despite Council planting more trees than it removes each year, tree canopy cover continues to decrease. With loss seen across the public and private realms, if Council is to continue with business as usual, Glen Eira is likely to see further declines in its already sparse canopy cover, unless it can appropriately enforce the protection of its existing healthy, viable trees as well as ensure new trees are planted when older ones are removed.

Trees not realised as valuable assets

A commonly held view is that trees are not seen as valuable assets, rather a liability to be managed. This commonly leads to damage or removal of trees and therefore the loss of tree canopy cover and with it our defence against climate change.

Holistic streetscape design should integrate canopy trees within the design of projects rather than tree removal as the first option. Ensuring that trees are integrated early on in a project will provide adequate time to problem solve any issues that may arise.

Currently in Glen Eira the only disincentive for the removal of a tree is the charge for removal and replacement at contract prices. Even for a single house rebuild the charges are less than the cost of a concrete crossover. The cost to the community for the loss of a large canopy tree and its ecological value are never recouped.

Limited locations to plant street trees

Our roads are designed to facilitate movement of vehicles, trams and buses and pedestrians in a safe and efficient manner. This requires clear sight lines, space for pedestrian refuges, parking spaces, public transport stops that are *Disability Discrimination Act* compliant and ample clearances for vehicles.

Road design also needs to consider drainage, overland flows, utility easements, underground services and overhead lines. Tree plantings may also increase the long-term cost to maintain a road and footpath — so consideration is given this when designing.

Contested public open spaces

Accommodating for an increasing number of sporting teams needing to utilise the existing amount of open space is an ongoing challenge, with facilities developed to maximise usage. It is simply not feasible to plant trees on sports fields and tree placement around them needs to avoid impacting playing surfaces, shadowing turf and creating hazards.

Beyond organised sporting facilities, our parks accommodate a range of multi-purpose sporting opportunities such as tennis courts, lawn bowls, outdoor fitness equipment, golf birdie cages, climbing walls and a skate facility. These spaces provide informal play and social opportunities for a range of age groups and abilities, which assist in promoting physical activity and other health-affirming behaviours, improving the overall health and wellbeing of residents.

Incorporating green infrastructure into our City

In the past, infrastructure has not always been designed in a way to ensure that there would be enough space to maximise canopy tree growth. Research and evidence now point to the need for deep soil spaces within proposed developments to enable planting of significant vegetation, including canopy trees, that can grow to a mature size while providing permeable ground surface alternatives to paving or other hard surfaces. This allows for infiltration of surface water into the soil. Without proper planning, space above and below ground for trees can be constrained with little to no space for their root systems and foliage. The placement of utility services, the number and location of vehicular crossovers and driveways, and the design of basements and access ramps has often restricted the ability to plant canopy trees on private land and adjoining road reserves to allow for effective canopy tree growth.

Another critical aspect of infrastructure design is collaborating with other infrastructure stakeholders for any of their own projects (eg.: VicRoads; Melbourne Water; and Level Crossing Removal projects).

Trees don't last forever

While there can be yearly fluctuations in tree health, they invariably reach a point where they cannot sustain or maintain growth and renewal. At this point they may present a risk in public settings and need to be more actively managed or removed.

Further to this our public street and park tree populations show a level of fragility in their diversity, opening them up to risks such as climate change, pest and disease incursions and large scale loss as trees of the same age all reach the end of their useful lives at the same time.

Each year it is estimated that 3,896 trees are lost or removed in Glen Eira (or a canopy loss of 75,709 square metres divided by average canopy size). Council removes around 800 public trees, so it is estimated that Glen Eira loses around 3,000 trees private trees each year.

Climate change

The effects of climate change on Glen Eira's vegetation can already be seen. Some species of street trees are failing to thrive in drier and hotter conditions. These, along with more extreme weather events, such as storms and flooding need to be taken into account when selecting new trees for planting.

The increased risks of storms also mean that the existing drainage infrastructure is unlikely to be able to manage with the ensuing flooding issues. Given that urban vegetation, especially trees, are excellent mechanisms for slowing and filtering stormwater, the rollout of water sensitive urban design with trees and vegetation should be a high priority in streetscapes.

Biodiversity loss

Glen Eira's biodiversity includes a diverse range of organisms, from insects and small mammals to transient birds and majestic trees. There is a lack of natural ecosystems in Glen Eira and much of the municipality is covered with artificial environments such as buildings and gardens. In these environments the interrelationships between species are heavily influenced by human activity.

Tree canopy on private land

Increased development and urban consolidation in Glen Eira over the past 20 years has had a very high impact on the urban tree canopy in the City. Glen Eira's population has increased from 137,152 in 2011 to 148,583 in 2016 and is forecast to increase to 180,626 by 2036 (*Victoria in Future 2019*). As infill development continues to occur in order to accommodate population growth, the net loss of canopy trees and private gardens is likely to continue. These sites are generally redeveloped with higher site coverage and increased levels of impervious surfaces.

While Council will develop and improve our urban forest on the land it manages, it currently has limited control on private land such as residential and industrial areas. It is important to note that not all development requires a planning permit and not all tree and vegetation removal (indigenous, native or otherwise) requires a permit.

Once trees on development sites are removed it is very difficult to maintain the same levels of tree canopy cover, let alone seek to improve it through new development. On some sites there is complete removal of all vegetation known commonly as moonscaping, prior to any permit application, with the immediate loss of all existing canopy trees that is unable to be reversed through the redevelopment process.

Assessing tree canopy in our City as part of development approval processes crosses multiple jurisdictions and regulatory processes across both State and Local Government. Many of the planning controls in the *Glen Eira Planning Scheme* applicable to assessing applications for new development on private land are set by the State Government (Clauses 54, 55 and 56), with local policies in the *Planning Scheme* having only a limited impact on development outcomes. Understanding Council's role in the broader regulatory processes that applies to private land ensures that it can focus on strategies that are implementable within the regulatory system and will add the most value where Council can legitimately impact on urban forest initiatives at a local level.

Other options for considering vegetation impacts outside the *Planning Scheme* include the use of local laws which includes tree removal permits and classified tree registers and other Council approval processes such as crossover permits.

Planning policy framework

On private land, the primary regulatory tool for assessing and approving new development is the *Glen Eira Planning Scheme*. Planning permits are required to develop land for two or more dwellings, and all applications must be assessed against state and local policy and relevant zone, overlay and any other requirements that apply to each parcel of land.

Planning permits for tree removal are usually only required where a specific overlay control applies, such as a significant landscape or vegetation protection overlay. Even if no permit is required to remove vegetation, landscaping outcomes including trees being removed and new trees being planted are required to be considered in assessing new development applications.

It is important to note that where no planning permit is required for new development such as the construction or extension of a single dwelling on a lot, the requirements of the *Planning Scheme* do not apply. This applies to most of the development that occurs on residential land in Glen Eira.

Local planning policy

Through the *Planning Scheme*, Council is able to introduce local policy and requirements to support urban forest outcomes within planning processes. The role of local policy is to outline the specific local context for our municipality, and to identify how state policy is to be implemented in that local context. Local policy in the planning scheme must be aligned with the broader state policy, however, needs to further identify how Glen Eira seeks to enhance urban forest and tree canopy outcomes at the local level.

Current local policies in the *Planning Scheme* relevant to urban forest outcomes include:

- Section 21.04 Housing And Residential Development — this policy seeks to improve and protect the liveability, neighbourhood character and amenity of Glen Eira's residential areas.
- Section 22.08 Minimal Change Area Policy — this policy seeks to protect existing neighbourhood character types within residential areas, including the planting of street trees and the protection of existing trees on lots being redeveloped.

Overlay controls

Overlays are currently used to identify specific sites or precincts in Glen Eira where significant vegetation, landscapes or areas of significant existing or preferred neighbourhood character apply. In Glen Eira these overlays include:

- Section 42.03 Significant Landscape Overlay (SLO) — Schedule 1
- Section 42.02 Vegetation Protection Overlay (VPO1) — Schedule 1
- Section 43.05 Neighbourhood Character Overlay (NCO) — Schedule 6

The overlays have specific planning controls to protect and conserve significant vegetation and trees and enhance the character of these areas. New development must respect the existing attributes of the area that have been identified within the overlay.

It is important to note that having an overlay in place does not automatically guarantee all existing vegetation will be preserved. It simply means that a permit is required to remove vegetation, which must be assessed against specified criteria before Council can decide whether or not to issue a permit. There are some instances such as poor health of the tree or the likelihood of the tree causing damage, that will override any environmental or landscape significance the tree may have.

The application of overlays through the *Planning Scheme* must meet certain criteria, eg. vegetation must demonstrate specified biological or landscape values that can be verified by experts and cannot be applied to all vegetation generally. Currently there are only limited sites that have overlay protection across the City and they are not always the most effective tool to use where vegetation is sought to be protected across a broader area with no specific biological or landscape values able to be demonstrated.

Whilst there may be opportunities to expand the use of overlays to protect some additional vegetation with specified biological or landscape value on a limited number of sites, other mechanisms such as local laws or local tree registers may be more effective in addressing the issue of tree protection across a broader geographic area.

Challenges in the planning system

Allowing for population growth through redevelopment and ensuring there is substantial vegetation on these sites do not have to be mutually exclusive outcomes. When development is well planned and designed there are many beneficial outcomes that can be achieved to maximise tree canopy cover within the space available on redeveloped sites.

Council is already actively looking at ways that it can maintain and enhance the urban forest on private land within the existing regulatory and policy frameworks. Using the *Glen Eira Planning Scheme* is a legitimate tool, Council can use to advance some of its urban forest objectives, however it also presents challenges:

- The majority of private land is outside of Council's planning controls and not impacted by any *Planning Scheme* controls. Land containing a single dwelling generally does not require planning permits for vegetation removal or new buildings and works (unless a planning overlay applies, such as a heritage overlay). The only real option available to Council in these circumstances is education of landowners about the importance of retaining vegetation and maximising tree canopy cover on their land.
- In being required to accommodate new housing in areas identified for future growth, there are significant tensions and conflicts for Council to manage within the existing regulatory framework. This applies to retaining existing vegetation on development sites, ensuring existing vegetation is adequately protected during development, areas on redevelopment sites that can accommodate new plantings are maximised, and ensure replanting includes space for new canopy trees.
- Urban consolidation and redevelopment usually result in higher levels of building mass on the site, including new basements, which has resulted in increased site coverage and less space available for canopy tree planting and maintenance.
- The provision of deep soil areas within a site is required to support canopy tree growth. It is critical that early design consideration be given to all infrastructure, including the design and location of crossovers and driveways, utility services and basements to allow enough deep soil areas to remain on site.
- Glen Eira's urban forest, like all ecosystems, is impacted by climate change through changes in global temperatures, increased carbon emissions, and intense changes in rain patterns, storms, droughts, heatwaves etc. These impacts on the urban forest will vary between different areas but will be another issue that needs to be addressed when deciding what species of plants/canopy trees should be planted.

Council will continue to actively progress its actions through the *Planning Scheme* to improve urban forest outcomes on private land where it is able to influence development outcomes through local planning scheme provisions. However, overall levels of change in this area will be heavily influenced by State Government initiatives to be implemented into the state sections of the *Planning Scheme*.

Council will actively monitor projects occurring at a state level and will ensure the urban forest outcomes sought via this *Urban Forest Strategy* are used in advocacy to support and influence state-led projects wherever those opportunities are available.

Future planning initiatives

There are many planning initiatives currently underway or proposed at a state and local levels that will impact on planning approval processes and directly address the objectives of our *Urban Forest Strategy*.

State Government initiatives

There are a number of State Government projects currently underway that will directly impact the consideration of urban forest outcomes through the *Planning Scheme*. Council has provided input into these projects when opportunities for submissions have been available:

- *Plan Melbourne* — Action 91 is 'Whole-of-government approach to cooling and greening Melbourne'. This Action provides a number of detailed requirements to be able to promote urban forests through the metropolitan area. The State Government is progressing the development of policies and detailed strategies that will be introduced into the *Planning Scheme* and will be assessed by Council through planning permit approval process. This work is expected to include canopy cover targets for all new developments of two or more dwellings on a lot, as well as a range of other initiatives to promote the planting of canopy trees and address urban heat island effect.

  The *Planning Scheme* initiatives in response to *Plan Melbourne* — Action 91 are expected to be introduced during 2021.

- The State Government introduced its *Environmentally Sustainable Development (ESD) Roadmap* in January 2021 and has released stage one of a two-part roadmap on *ESD* for consultation purposes. Stage One seeks to strengthen the existing *ESD* policy in all Victorian planning schemes. Stage Two is expected to be released for consultation mid-2021 and will focus on new objectives and standards to give effect to the *ESD* policies to be introduced via Stage One. Retention of vegetation and planting of new canopy trees will form an integral part of a range of actions that will be required to be incorporated into the design of new development to promote a sustainable built environment.

  It is expected that the State Government's *ESD Roadmap* provisions will sit alongside local *ESD* policies, and will strengthen the *ESD* work that many councils, including Glen Eira, have already committed to.

Council initiatives

At a local level, we are currently pursuing a number of initiatives to advance the objectives of this *Urban Forest Strategy* through local planning processes.

We are currently undertaking structure planning for all of our major activity centres. As structure plans are developed, they will include detailed place-based strategies to improve liveability and sustainability outcomes through a range of measures including: urban greening; planting canopy trees; stormwater filtration; active transport; public realm and open space improvements; and the creation of activated pedestrian-friendly spaces in our activity centres.

In an effort to reduce the prevalence of excessive removal of vegetation prior to development applications, ie. moon-scaping, Council recognises that improving measures to support and educate private landowners and developers of the value and importance of canopy cover in the City will be required. Retention of existing trees and the planting of new canopy trees needs to form part

of the early design process for all new development, followed up with appropriate maintenance regimes and enforcement if required.

Council has recently undertaken a significant review of all its local policies in the *Glen Eira Planning Scheme* and is proposing to implement these into the *Planning Scheme* through Amendment C220. This amendment is proposed to be placed on exhibition for community consultation during 2021, subject to receiving Ministerial authorisation. There are two new policies proposed through Amendment C220 that will positively impact on Council's urban forest objectives, including:

1. New landscaping policy

A proposed new local policy seeks to improve landscape outcomes for all new development. It brings together all existing landscaping related policies in the *Planning Scheme* and is supported with new strategies derived from Council's *Open Space Strategy Refresh 2020*, the *Quality Design Guidelines* and the principles contained in *Living Melbourne* relating to mitigating urban heat island effect in urban areas. It will seek to:

- maximise retention of existing canopy trees and gardens;
- integrate landscaping, including canopy trees, into development design;
- ensure new landscaping responds to the landscape character of the surrounding area;
- avoid adverse impacts on vegetation on adjoining properties;
- support a range of landscaping opportunities, including more innovative ways to incorporate greenery into building design, such as green roofs and green walls; and
- introduce new policy guidelines to provide for a minimum of one canopy tree to be planted for every eight metres along the front and rear boundaries of sites being redeveloped. This will focus the emphasis for canopy tree planting in areas of the site that need to be provided for setback purposes, and where the canopy trees will be the most effective in contributing to the creation of garden corridors and high amenity streetscapes throughout our residential neighbourhoods.

2. New Environmentally Sustainable Development (ESD) Policy

The proposed *ESD Policy* has been developed through Council's membership of CASBE, which is under the auspices of the Municipal Association of Victoria (MAV). There are more than 30 member councils across Victoria and more than 20 that now have local policies addressing *ESD*. Glen Eira has been a member of CASBE since 2019 with huge support from Council and residents. The proposed new *ESD Policy* includes a number of sustainable design strategies that will require planning applications that meet specified criteria to submit a sustainable design assessment or sustainable management plan as part of the application process, depending on the size of the development. These requirements will assess how the development proposes to reduce the urban heat island effects through building design, landscape design, water sensitive urban design and the retention and provision of canopy and significant trees.

The proposed *ESD Policy* seeks to improve sustainable design outcomes for all new development and includes relevant strategies to support urban ecology including:

- protecting and enhancing biodiversity by incorporating natural habitats and planting indigenous vegetation;

- reducing urban heat island effects through building design, landscape design, water sensitive urban design and the retention and provision of canopy and significant trees; and
- supporting the provision of space for productive gardens, particularly in larger residential developments.

Future projects

A number of future initiatives not yet commenced, but are likely to commence within the next 12 months, will further contribute to Council's local urban forest objectives in the *Planning Scheme*:

Consideration of neighbourhood character forms an important part of the broader urban design assessments for planning applications for two or more dwellings on private land, through the *Glen Eira Planning Scheme*. Landscaping forms an integral component of this neighbourhood character assessment. The landscaping on private land combined with landscaping in public areas and streetscapes all contribute to the overall amenity and character of Glen Eira's residential neighbourhoods. All landscaping, but in particular canopy trees, contribute to the creation of liveable and healthy communities by improving visual amenity, providing a sense of human scale, softening the built form, mitigating urban heat island effect and providing opportunities to connect with nature and green spaces within our urban areas.

Having a better understanding of the role that landscaping plays in contributing to preferred neighbourhood character within Glen Eira will assist in improving consideration of tree canopy cover as part of the overall assessment of residential development applications within the planning approval process.

A review of neighbourhood character policies that will include a landscape character assessment is proposed to be undertaken during 2021 as part of a proposed *Housing Strategy* for the municipality. The principles and strategies within this *Urban Forest Strategy* will provide support and guidance for this further work to be undertaken on landscape character within Glen Eira's residential areas, where existing and proposed vegetation is a core consideration.

Council Alliance of Sustainable Built Environment (CASBE) — Elevating ESD Targets Planning Policy Amendment Project

This is a new collaborative project proposed by CASBE on behalf of participating Victorian councils, it is seeking to develop a revised set of ESD objectives and standards for inclusion in the *Planning Scheme* that can proactively transition towards zero carbon new buildings. CASBE considers that its project is likely to deliver ESD outcomes that improve the ability of its member councils to meet their strategic sustainability goals and climate emergency commitments.

The project is currently in its early stages and will involve preparation of an evidence base and implementation via a future *Planning Scheme* amendment, to be undertaken during 2021–22. Council is supporting this project moving forward as it is considered that it will further advance the role of Council's local *ESD Policies*, improve Glen Eira's ability to respond to its climate emergency commitments, and will improve the consideration of the role of canopy trees and urban greening in the planning approval process.

Trees managed by other agencies

In a 2018 *Biodiversity Report*, Rippon Lea Lake, Caulfield Racecourse Reserve and Yarra Golf Course were all identified as biodiversity hotspots. They contain important trees and are managed by other agencies. These include:

- Melbourne Water/South East Water
- VicRoads/Department of Transport
- Department of Environment, Land, Water and Planning
- Various private schools
- Departments of Health, Housing and Education
- Private hospitals and aged care facilities
- Yarra Golf Course
- Caulfield Racecourse Reserve

Council has an important role in collaborating with these other landholders to improve outcomes for the urban forest and improving the quality of the local environs and people's lives.

Parks

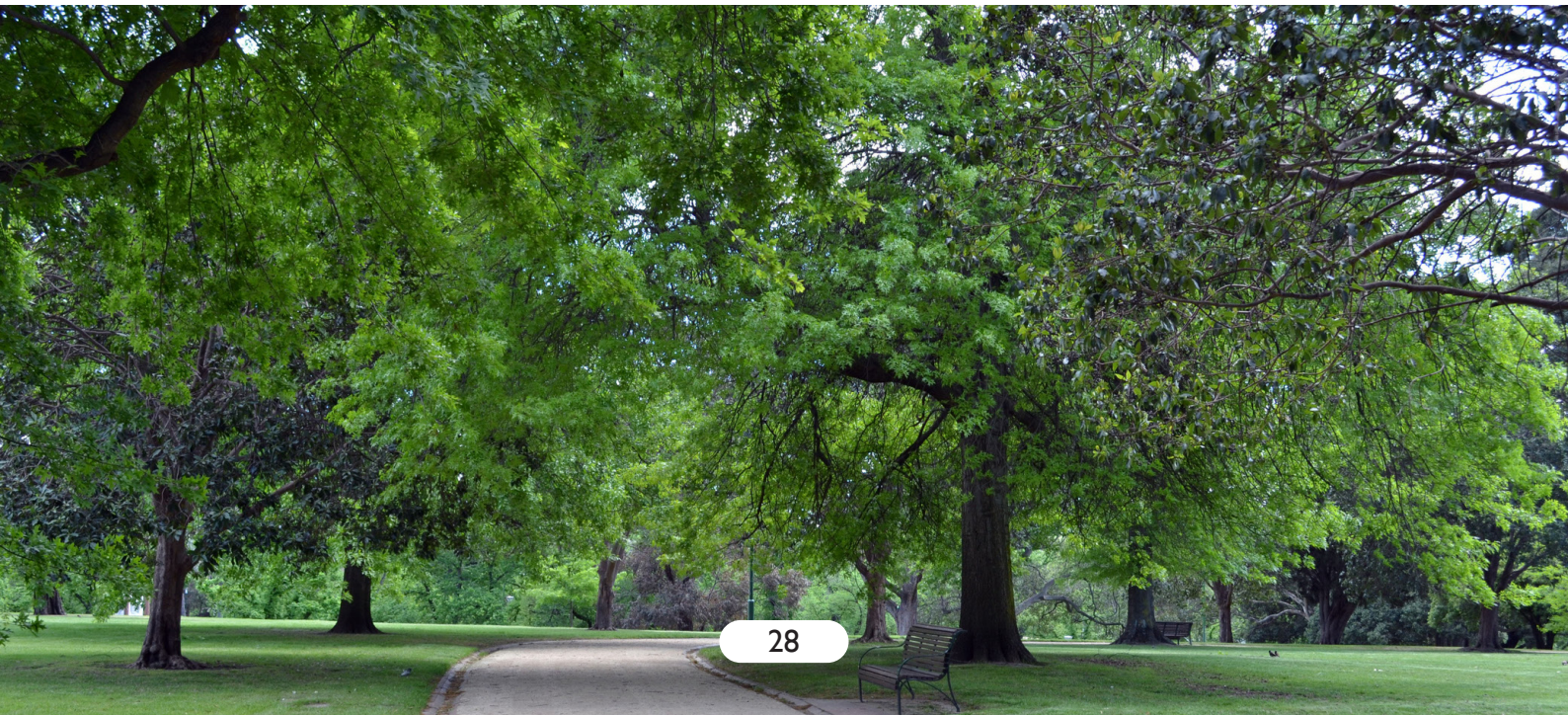
The *Urban Forest Strategy* is accompanied by an *Implementation Plan* (Appendix 1) which aligns with Council's vision, direction provided by *Living Melbourne: Our metropolitan* urban forest and best practice.

The following actions highlight the key strategies to achieve the tree canopy targets and align the *Urban Forest Strategy* objectives.

Key priority actions

Maintain and protect

Action	Time frame	Lead	Budget source
Review and update the *Street Tree Policy* utilising the *Urban Forest Strategy* as a reference document.	2021–22	Parks Services	New operational
Develop a suite of tree technical management guidelines for Glen Eira.	2021–22	Parks Services	New operational
Develop a proactive maintenance program to improve the health, structure and Useful Life Expectancy of park trees.	2021–ongoing	Parks Services	Existing operational
In future updates to neighbourhood character statements, reinforce the importance of vegetation as a core element of preferred neighbourhood character.	2021–ongoing	City Futures/ Urban Planning	New operational
Ensure the principles of the *Urban Forest Strategy* are embedded within local policies in the *Planning Scheme*.	2021–ongoing	City Futures	Existing operational



Grow the future urban forest

Action	Time frame	Lead	Budget source
Continue to expand on the identification of planting sites within Glen Eira to enable increased tree planting across the city (streets, parks, public space).	2021–ongoing	GIS/Parks Services	New operational
Include understory plantings in parks where possible to improve biodiversity and strengthen native vegetation patches through more plantings.	2021–onward	Parks Services/ Open Space/ Urban Design	New capital
Continue to investigate and trial the use of WSUD, such as raingardens and tree pits as a sustainable water source for trees and other vegetation.	2021–ongoing	Parks Services/ Open Space/ Climate and Sustainability/ Urban Design	Existing capital
Continue to include appropriate conditions on planning permits that ensure the protection of the existing retained trees from pre-construction and to ensure ongoing care to establish and maintain newly planted trees post-construction.	2021–ongoing	Urban Planning	Existing operational

Adapt to climate change

Action	Time frame	Lead	Budget source
Review Council's current *Street Tree Planting Palette* and recommend replacement plantings that are best suited to the local conditions whilst diversifying the palette to mitigate the effects of climate change.	2021–ongoing	Parks Services	Existing operational
Trial new species in streetscapes and monitor their ability to thrive in our soils and climate to help aid with diverse species selection.	2021–onward	Parks Services	New capital
Consider the creation of biodiversity corridors, using vegetation planted in streets and public space to link larger natural areas.	2021–ongoing	Climate and Sustainability/ Parks Services/ Open Space	New capital

Engage and collaborate

Action	Time frame	Lead	Budget source
Establish a community Urban Forestry/ Climate and Sustainability/Parks and Gardens advisory committee.	2021–ongoing	Parks Services/ Open Space/ Climate and Sustainability	Existing operational
Ensure urban planners have access to key information from the *Strategy* and guidelines to pass on to developers to show how they can contribute to reduced tree canopy loss on private land.	2021 onward	Urban Planning/ Parks Services/ Open Space/	Existing operational
As per the *Biodiversity in Glen Eira Report 2018*, and the *Neighbourhood Sustainable Gardening Program*, encourage landowners to plant native tree and vegetation species in their yards and on nature strips to improve local urban biodiversity.	2021–ongoing	Parks/ Climate and Sustainability	Existing operational
Partner and collaborate with other landholders to encourage tree protection and tree planting outcomes on their land, eg. Caulfield Racecourse, Rippon Lea Estate, Monash University etc.	2021–ongoing	All of Council	Existing operational

Monitor and evaluate

Action	Time frame	Lead	Budget source
Continue to engage independent condition surveys of Council street and park trees every two to three years.	2021–ongoing	Parks Services	Existing operational
Report each year through an annual *Urban Forest Audit Report*, which includes: • trees removed (public and private); • trees planted (public and private); • amount of understory planting in parks and kerb outstands; • species diversity; and • ULE diversity. Tree canopy cover data will be updated and reported against the baseline as it is made available through State Government.	2021 onward	Urban Planning/ Parks Services/ Open Space/	Existing operational
Measure progress towards canopy cover targets every five years	2021–ongoing	Parks Services/ Open Space/ Climate and Sustainability	Existing operational
Check progress against actions every five years: 2025; 2030; 2035; and 2040.	2021–ongoing	Parks Services/ Open Space/ Climate and Sustainability	Existing operational

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