



# **DRAFT Brighton Urban Forest Precinct Plan 2023**





**Cover page:** Brighton Beach Gardens

**Inside Cover Page:** Brighton Beach Gardens –  
Green Point



## **Acknowledgement of Traditional Owners**

Bayside City Council acknowledges the Bunurong people of the Kulin Nation as the traditional custodians of the lands and waterways in the area now known as Bayside, and pays respect to their elders past, present, and emerging, as well as to all First Nations' communities who significantly contribute to the life of the area.

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# Introduction to the Precinct Plans

In December 2019, Bayside City Council declared a climate emergency and has since prepared a *Climate Emergency Action Plan 2020 – 2025*. Climate change is real and without respecting our environment or changing the way we behave as a society, there will be even greater impacts than those already experienced. Expanding Bayside’s urban forest is one way that we can help cool the urban environment in which our residents live.

As an action listed in the *Climate Emergency Action Plan*, the development of the *Bayside Urban Forest Strategy* was undertaken and ultimately adopted at its February 2022 Council Meeting. In addition, Bayside City Council has endorsed *Living Melbourne: Our Metropolitan Urban Forest* in 2019, which sets out regional targets for tree and vegetation canopy cover to be reached by 2030, 2040 and 2050.

The Vision of the *Bayside Urban Forest Strategy* is:

**“Bayside’s urban forest will protect and restore ecological systems with special concern for biological diversity and natural processes which will create a cooler and greener Bayside with enhanced amenity and character where people are connected to nature.”**

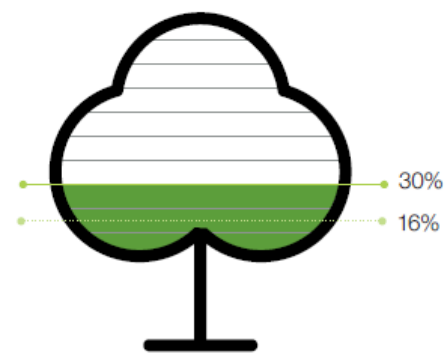
The overarching goal of the *Bayside Urban Forest Strategy* is to increase the urban tree canopy cover from the current 16.01% to 30% by 2040, and to continue this increase into the future.

The *Bayside Urban Forest Strategy* identifies a range of actions to be undertaken over the next four years. A key focus is the preparation of Precinct Plans for each suburb in Bayside to guide tree planting and greening at a local level. Precinct Plans are subsidiary documents to the *Bayside Urban Forest Strategy* and form a key component of the strategy’s implementation. Bayside is made up of 9 suburbs and the Urban Forest Precinct Plans will be prepared for each. They will provide tailored direction for increasing canopy cover and urban forest outcomes into the future.

## What is an urban forest?

The urban forest encompasses all the trees, shrubs, grasslands, other vegetation and the soil and water that support them – within Bayside, on both public and private land. The urban forest incorporates vegetation in streets, parks, gardens, plazas, campuses, river and creek embankments, wetlands, railway corridors, community gardens, home gardens, green walls, balconies, and roofs.<sup>1</sup> Fauna is an important component too, with complex interrelations between animals and plants helping to maintain the urban forest.

Bayside’s urban forest is made up of native, indigenous and exotic trees, shrubs, grasslands and other vegetation, growing on public and private land, and the soil and groundwater that support them. This includes vegetation in parks, reserves, private gardens, along railways, waterways, main roads, and local streets, and on other green infrastructure such as green walls and roofs. The urban forest provides habitat to a wide range of fauna.



The overarching goal of the Urban Forest Strategy in Bayside is to increase the urban tree canopy cover from the current 16.01% to 30% by 2040, and to continue this increase into the future.

<sup>1</sup> Resilient Melbourne, Living Melbourne Strategy, 2018, available at: [https://resilientmelbourne.com.au/wp-content/uploads/2019/09/LivingMelbourne\\_Strategy\\_online3.pdf](https://resilientmelbourne.com.au/wp-content/uploads/2019/09/LivingMelbourne_Strategy_online3.pdf)

# The Urban Forest Strategy

## Principles:

## Strategies:

### 1. Increase

- 1.1 Consider the individual needs of Bayside's suburbs and ensure that the approach to increasing canopy cover and urban forest outcomes is tailored to the conditions of each area.
- 1.2 Reframe Council's approach to major capital and infrastructure renewal projects as opportunities to increase urban forest outcomes.
- 1.3 Through the Bayside Planning Scheme, require development to provide increases to the number of canopy trees provided.

### 2. Healthier ecosystems

- 2.1 Increase the tree and vegetation canopy cover that is of a diverse range of species across Bayside.
- 2.2 Ensure humans and wildlife can simultaneously and safely access densely vegetated areas, streets and reserves.

### 3. Monitor

- 3.1 Improve, implement and facilitate Council processes and procedures to assist the monitoring of the urban forest

### 4. Maintain

- 4.1 Ensure the tree removal process is transparent and equitable
- 4.2 Reframe our planning and policy framework to give greater priority to existing trees and vegetation when siting new development and ensuring the longevity of any new trees or vegetation by ensuring it is appropriately sited nearby surrounding hard surfaces or infrastructure.
- 4.3 Enhance Council's ability to retain existing trees on private property through increased regulation of tree removal.
- 4.4 Support the maintenance and retention of trees on public land.

### 5. Learn and Celebrate

- 5.1 Increase Council's capacity to provide advice and build community sentiment to tree planting in Bayside.
- 5.2 Continue to build upon Council's green image and utilise this platform to advocate and partner with key stakeholders to provide greener outcomes across Bayside, metropolitan Melbourne and Victoria.
- 5.3 Leverage from the strengths of our network of volunteers, community groups, State Government departments, neighbouring local governments, academics and professionals to support the delivery of community education, information sharing and creating partnerships.

# Key Issues

## Environmental challenges:

**Impact of climate change:** All trees, including trees on private property, are being affected by climate change. It is important that Council continues to encourage residents to plant climate-resilient trees and vegetation on their property and nature strips. To support this, the provision of readily accessible information and useful tips on how to best plant these types of trees and vegetation will be of great value. Council will also ensure its species palette for streets and parks include the use of more climate-resilient trees and vegetation.

**Tree health, age, Useful Life Expectancy, and species diversity:** The Bayside *Urban Forest Strategy* defines key issues across Bayside's urban forest, including climate change, insufficient growth space and natural characteristics (disease, insects, etc.) being significant contributing factors to the health and sustainability of tree coverage across Bayside. This Precinct Plan identifies locations of trees that are in poor health, are reaching senescence and has low useful life expectancy so that appropriate action can be taken in due time.

**Tree survival rate:** A high proportion of street and park trees that have been planted have struggled to survive either during or after their initial period of maintenance (first 2 years). Expanding the urban forest and increasing tree canopy coverage will be challenging, especially if high tree attrition continues to occur.

## Developmental challenges:

**Trees on private property:** Trees on private property make up a significant proportion of Bayside's urban forest. The removal of trees on private property is a significant and challenging issue to address as the management of private trees, to some extent, falls into the hands of individual property owners. Partnering with the private owners and undertaking a precinct-based approach to the protection, retention and enhancement of the urban forest will allow Council to consider the local opportunities for vegetation and tree plantings, process improvements and other locally specific issues.

### Planning permits involving vegetation removal:

There are several mechanisms currently in place within the Bayside Planning Scheme that seek to protect vegetation in certain areas of Bayside and require a planning permit to be granted for tree or vegetation removal. These mechanisms include but are not limited to the Vegetation Protection Overlay (VPO), Significant Landscape Overlay (SLO), Heritage Overlay (HO) and Erosion Management Overlay (EMO).

**Surrounding infrastructure:** Street trees are located alongside public and private assets that include footpaths, roads, fences, overhead powerlines and underground services. This pressure is similarly felt on private property for medium and high density developments where there are competing uses and infrastructure to be sited. While there are management and design techniques that can mitigate most of these issues, it is not always easy, particularly with established trees. Established trees have larger roots that can impact footpaths and roads, creating potential hazards that need to be fixed.

## Social challenges:

### Older people, children, and people with disabilities:

More vulnerable members of the community include older people, young children and people with disabilities and their carers. While trees bring many benefits, they can also create challenges. Maintenance of trees can be challenging for older people or people living with disabilities. Particularly large trees that overhang private property or within the property that can become hazardous through debris that create trip and slip risks. Aging and/or disability can prevent some residents from being able to manage the debris from trees, requiring the use of private gardening services.

Bayside Council's *Disability Action Plan 2021-2025* states that over 14,000 people living in Bayside have a disability and over 4,000 people need assistance in their day-to-day lives. This assistance is required because of disability, long-term health conditions or old age.

There are also various benefits that leaf debris and plant litter provide to the natural environment. Plant litter provide shelter and food for many animals and assists in natural regeneration and the growth of new seedlings. Plant litter is also vital as it supplies nutrients to the soil and reduces soil erosion.

**Women's safety:** There are a number of elements that contribute to women feeling unsafe, including low visibility and lack of passive surveillance from nearby residents and/or other groups. Within streets, Council plants and maintains trees to ensure there is no foliage to block sight lines. Trees can contribute to this problem if not managed correctly as they have the potential to block visibility from the street if planted too closely together.

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## What will the Precinct Plans achieve?

A key action from the Bayside *Urban Forest Strategy* is the preparation of Precinct Plans. Each Precinct Plan will be informed by community consultation and will provide set targets to respond to the individual needs, challenges, and aspirations of the locality.

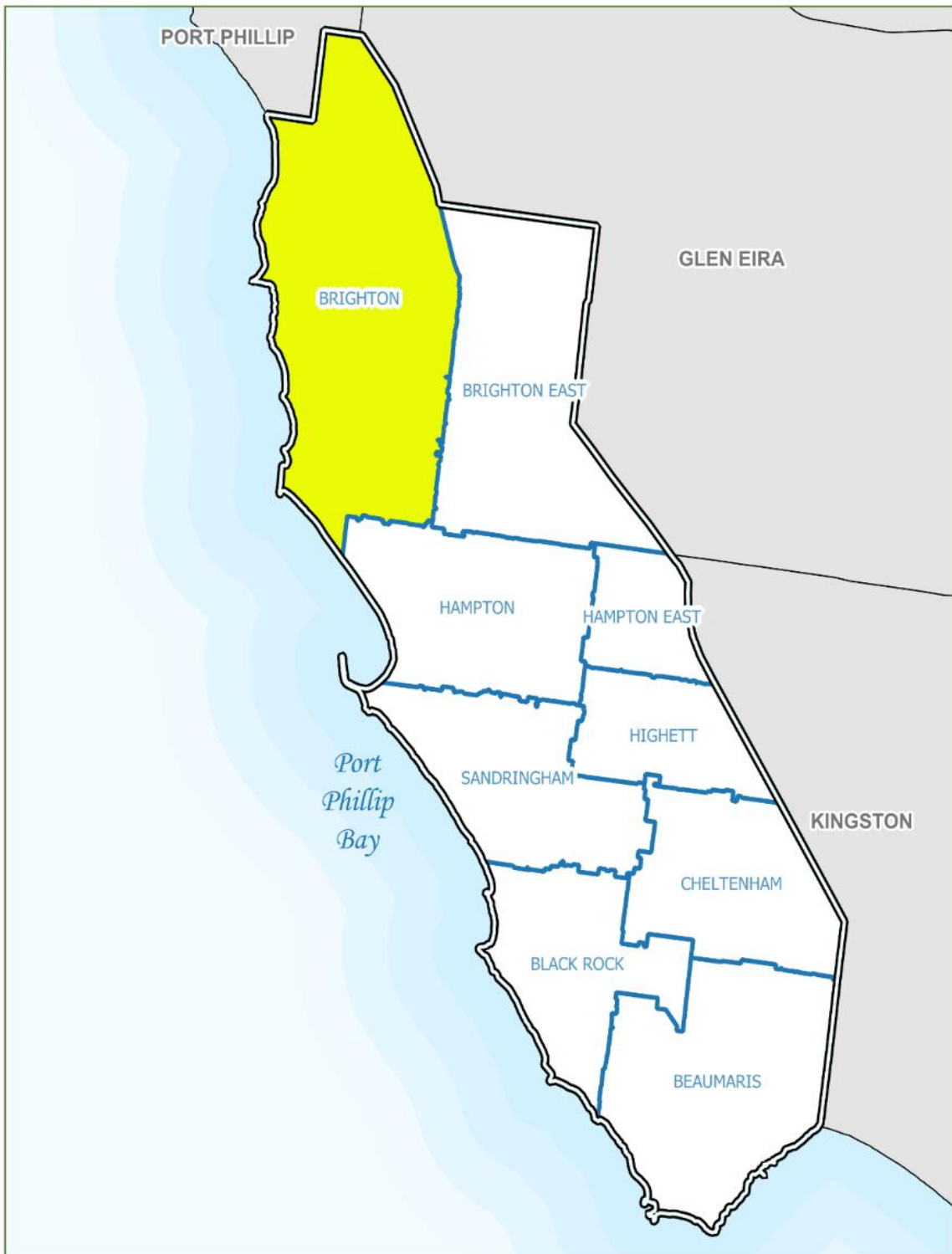
The Precinct Plans will help guide the implementation of the Bayside *Urban Forest Strategy* in Bayside and direct Council's focus to areas with low vegetation, to protect and enhance neighbourhood character and help achieve the objectives of the Bayside *Urban Forest Strategy*.

The prime objective of the Precinct Plan is to prioritise areas of greatest need, including areas with the lowest existing percentage canopy tree cover, as well as areas that are strategically located to mitigate urban heat island effects (including within major activity centres that are experiencing increased density and construction activity), areas of declining canopy or aging trees, highly trafficked pedestrian routes and gaps or vacancies in public planting.

Within this document, specific direction is provided on the selection of appropriate trees for the precinct. The Precinct Plans are performance-based in that they establish the desired outcomes for streets but do not prescribe specific species for each location.

High-performance guidelines have been developed to support the Precinct Plans with case studies and detailed guidance on how to achieve outcomes in street, parks and nature strips. Park and significant boulevard trees will be planted using existing master plans and site-specific plans to respond to the individual needs, challenges, and aspirations of the locality. This document focuses on the suburb of Brighton.

**Map 1: Brighton's location within Bayside**



	<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid blue; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Suburbs</li> <li><span style="border: 2px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Bayside LGA Boundary</li> </ul>	 <p>GDA 2020 MGA Zone 55</p>	<p><small>Disclaimer: Copyright 2022 Vector Data - DGLPR This material may be of assistance to you but the state of Victoria and Bayside City Council do not warrant that the published information is free of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or consequences which may arise from your relying on any information contained in this material. Created by Bayside City Council 02 November 2022</small></p>
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# Suburb Profile – Brighton

Information in this Suburb Profile was accessed from Profile.id which utilises 2021 census data from the Australian Bureau of Statistics and population, household and age structure forecasts.

## Population:

Brighton is a changing suburb, both physically and demographically. Similar to most suburbs across Bayside, Brighton is experiencing moderate population growth, having increased by 333 people from 23,401 in 2016 to 23,734 in 2021. It is forecasted that the population will continue to grow to 24,934 by 2041. Brighton's proximity to essential services, transport, the CBD and its gateway to the foreshore is valued by its residents and visitors.

## Age structure:

By 2041, it is anticipated that over 43% of residents in Brighton will be above 60 years of age, in comparison to the current 31.8% (2021). Brighton has a higher percentage of seniors (15%) and elderly aged (4.1%) residents compared to the whole of Bayside. It is expected that older populations will have greater difficulty maintaining gardens. Future housing will need to accommodate for an ageing population by providing a diverse housing typology, with a particular focus ensuring lone person households are accessible and adaptable for all ages. The provision of higher density housing provides residents living alone or with limited abilities the opportunity to live in smaller properties that require minimal garden maintenance.

## Residential developments:

Residential development forecasts assume the number of dwellings in Brighton will increase by an average of 82 dwellings per annum to 12,196 in 2041. In Brighton, there is a higher percentage of high density housing (16%) compared to Bayside (9%). This is due to a significant proportion of Middle and North Brighton being zoned in the Residential Growth Zone. This zone is applied to land identified as suitable for increased residential development. This reduces the available permeable surfaces to plant and allow for trees to grow to maturity, which would typically provide for large canopies. While population growth is moderate, it is a factor contributing to increased housing development that in turn impacts existing tree canopies and vegetation.

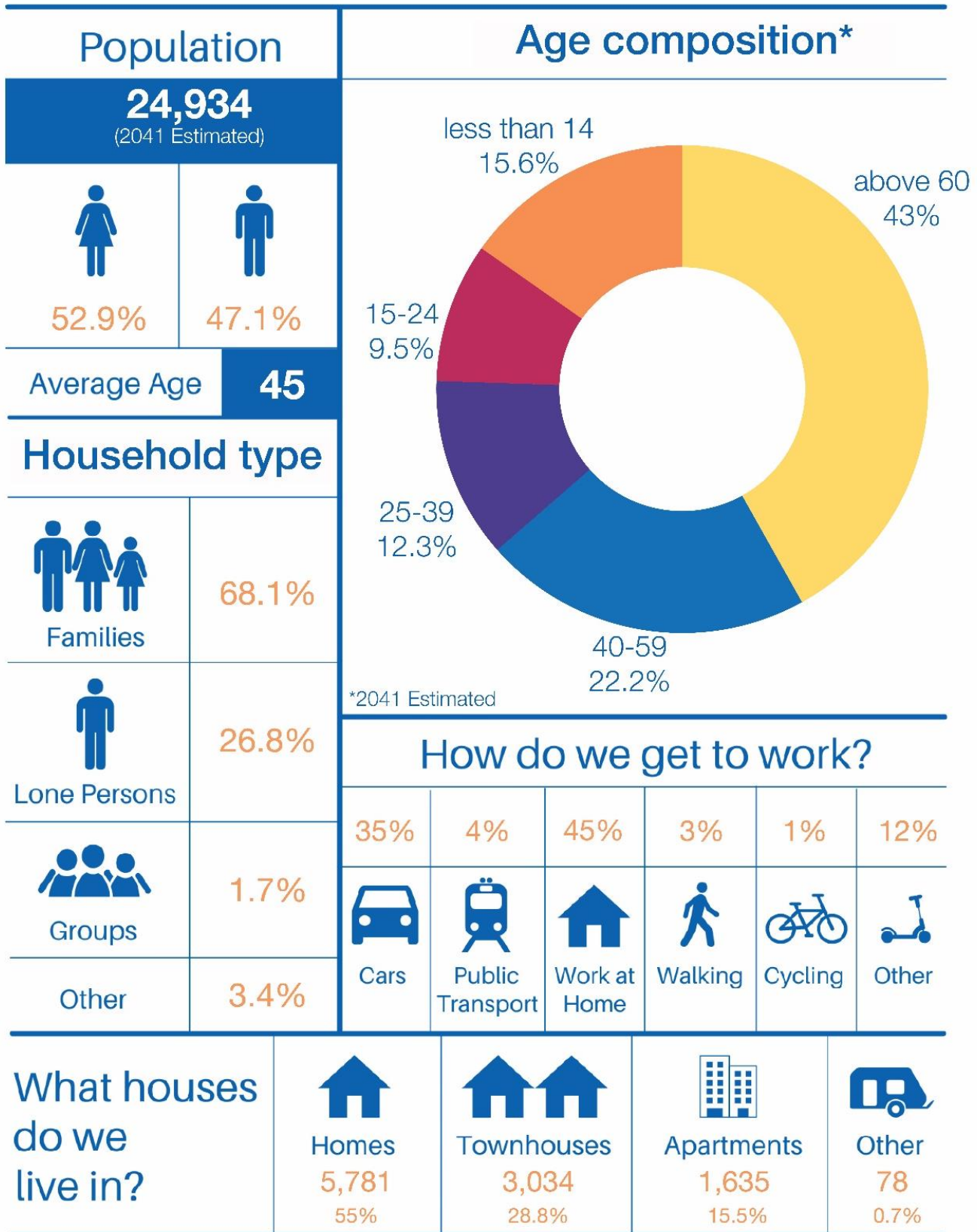
## Climate change:

The effects of climate change are anticipated to significantly impact tree canopy and vegetation. Due to climate change, there will be an increase in severe weather events including more intense rainfall over summer, leading to more frequent and severe flooding events. Trees can play an important role in mitigating the impacts of a flooding event. The soil under trees and vegetation absorbs water as opposed to urban impervious surfaces where the water just runs (such as pavement and roofs). The leafy canopy of trees also spreads out the rainfall and slows it down. This gives more time for the soil underneath to absorb the rainfall, resulting in less and slower runoff. As a result, the risk of flooding is reduced. When flooding does still occur, the volume and speed of the flood will be reduced. This will also reduce the need for larger stormwater gutters and pipes.

## Mode of transport:

In 2016, 35.4% of Brighton residents travelled to work by car compared to 49.7% in Greater Melbourne. Brighton is serviced by the Middle Brighton, North Brighton, Brighton Beach, and Gardenvale railway stations that form a part of the Sandringham line. There are also a range of bus services that run to the Melbourne CBD and Monash University. Transport hubs provide a great opportunity to increase street tree and understorey planting.

## Brighton Forecast for 2041



Note: Brighton suburb population and age data is a 2023 estimation for 2041, which was retrieved from the Australian Bureau of Statistics. All other data shown was retrieved from profile.id (2021).

## Aerial of Brighton



### The vision for suburbs urban forest

Brighton will be home to a healthy and vibrant urban forest that celebrates the diversity of indigenous, native and exotic species. Future plantings will enhance the existing established gardens and create a linkage between private spaces and the foreshore.

## Planning controls applying to Brighton

### Planning Zones

Planning Zones applying to Brighton include:

- Commercial 1 Zone for the Bay Street and the Church Street Major Activity Centres
- General Residential Zone for land which is in proximity to these Major Activity Centres.
- Residential Growth Zone applying to a discrete land parcel at 538 New Street, Brighton. Residential growth within this zone takes the form of higher density housing such as townhouses, multi-dwelling developments or apartment buildings.
- Mixed Use Zone applies to the small commercial centre adjacent to the Brighton Beach Train Station.
- Public Use Zone applies to specific sites through Brighton, recognising their public land use for public utility and community services and facilities. It also provides for associated uses that are consistent with the intent of the public land reservation or purpose.
- Public Park and Recreation Zone applying to Yulukit Willam Nature Reserve (formerly Elsternwick Park), the extensive Bayside reserve and smaller parks through the suburb.

The majority of Brighton's residential land is zoned as Neighbourhood Residential Zone (NRZ) which is applied to areas where there will be minimal residential growth. The NRZ has a maximum building height of two-storey limit. Much of the residential growth in Brighton takes the form of dual occupancy, the redevelopment of detached dwellings or small multi-dwelling developments.

### Planning Overlays

Planning Scheme Overlays applying to Brighton include:

#### Vegetation Protection Overlay

The Vegetation Protection Overlay Schedule 1 (VPO1), which aims to protect areas of significant vegetation. VPO1 is found along the foreshore in Brighton, and it aims to retain, protect, and enhance vegetation in coastal areas. Along the Brighton foreshore, remnant vegetation forms an integral component of vegetation character and overall ecosystem biodiversity. Biodiversity conservation of remnant vegetation is an essential component of responsible environment and natural resource management and is fundamental to the protection of ecosystems and environmental health.

#### Heritage and Built Form Overlays

There are several Heritage Overlays (HO) and Design & Development Overlays (DDO) applying to land within the suburb that shape the way new development is delivered. Heritage Overlays, in particular, provide for the protection of heritage significant buildings and places.

#### Erosion Management Overlay

The purpose of the EMO is to protect areas, located along the coast, which are prone to erosion and landslip by minimising land disturbance and inappropriate development.

#### Flooding Overlay

The Special Building Overlay is applied to areas liable to inundation by overland flows from the urban drainage system as determined by, or in consultation with, the floodplain management authority, Melbourne Water.

#### Development Contribution Plan Overlay

The DCPO identifies areas which require the preparation of a development contributions plan for the purpose of levying contributions for the provision of works, services and facilities before development can commence.

## **Environmental Audit Overlay**

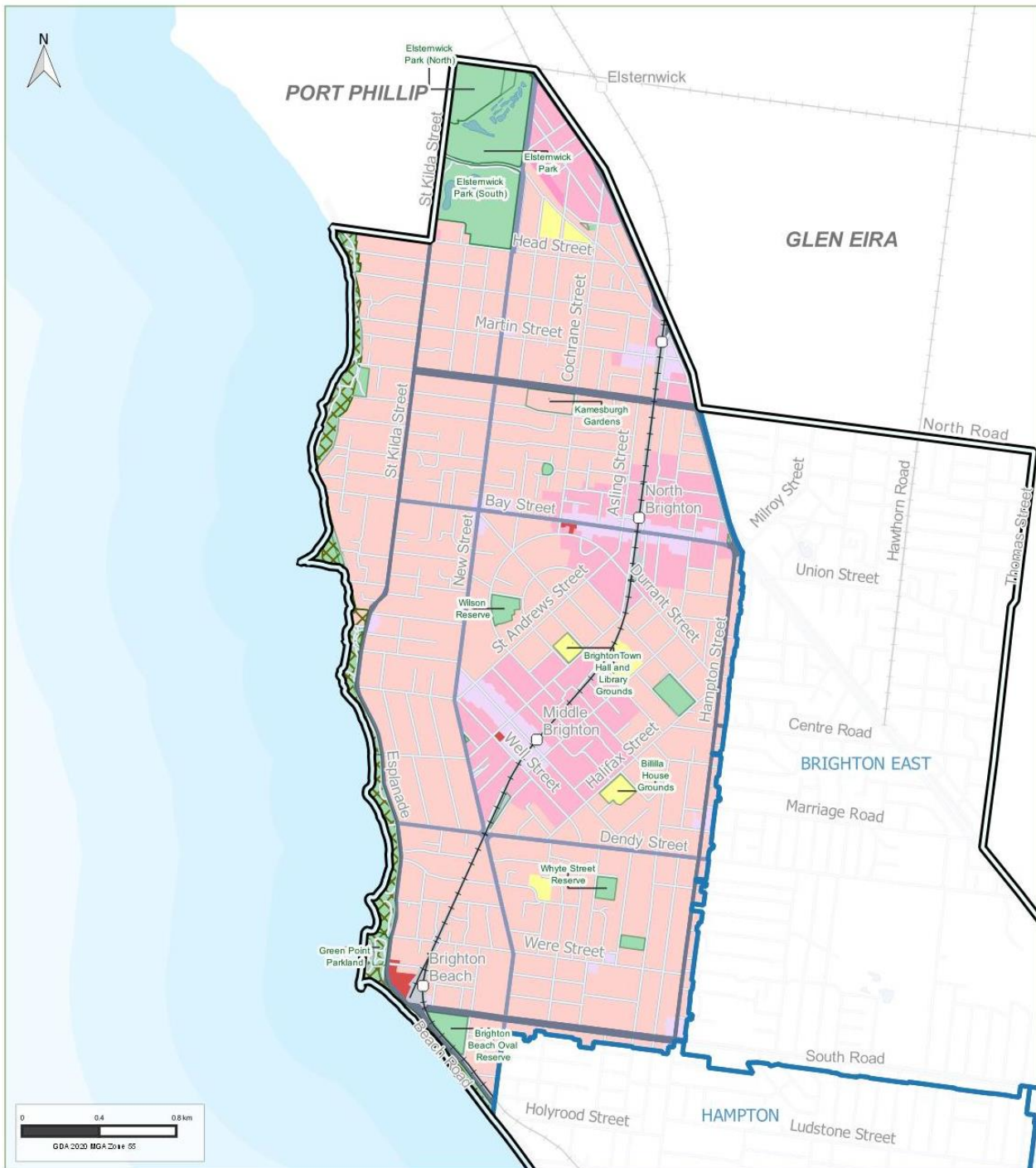
The EAO identifies sites that have known, identified or reasonably suspected contamination or potential contamination.

## **Neighbourhood Amenity Local Law 2021**

Local Laws are laws utilised by Council to respond to issues and community needs within a local context. Within Bayside's Local Laws are guidelines around trees on private land. The law determines that any tree on private land is protected if the *"single or combined tree trunk circumference is 155 centimetres or more at one metre above ground level."* If a tree is protected it means that a permit must be acquired from council in order to remove or prune it. The same permit requirements apply to any tree on Council's Significant Tree Register.

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## Map 2: Planning Controls in Brighton



### Legend

#### Planning Zones

- C1Z - Commercial 1 Zone
- GRZ - General Residential Zone
- MUZ - Mixed Use Zone

- NRZ - Neighbourhood Residential Zone
- PPRZ - Public Park and Recreation Zone
- PUZ - Public Use Zone
- RGZ - Residential Growth Zone

- TRZ1 - Transport Zone 1 - State Transport Infrastructure
- TRZ2 - Transport Zone 2 - Principal Road Network
- TRZ3 - Transport Zone 3 - Significant Municipal Road

- #### Planning Overlays
- Vegetation Protection Overlay 1

- Bayside LGA Boundary
- Suburb
- Railway Station
- Railway
- Roads

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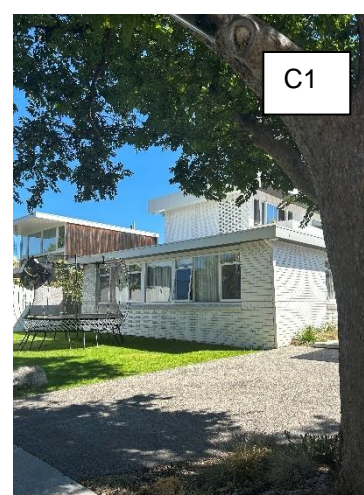
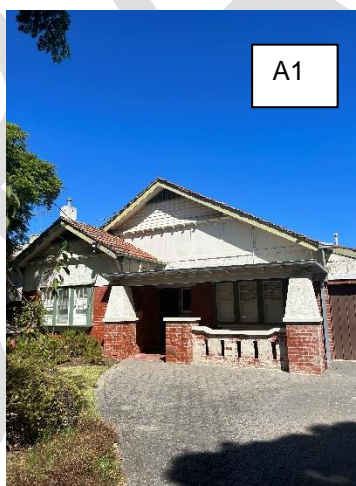
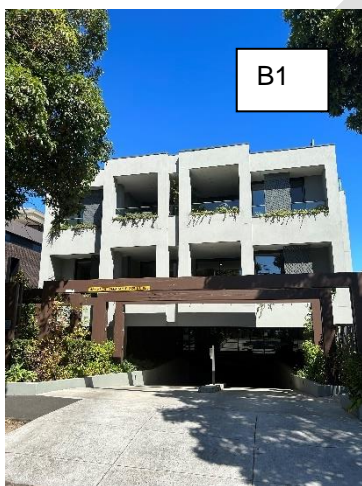


# Brighton Neighbourhood Character

Brighton is home to an array of architectural styles, large parks and reserves, beaches and busy commercial areas. Residents have and continue to be attracted to the leafy and coastal character of Brighton, enjoying the comfortable and well-established lifestyles attached. Which is why it is important that new development respects, supports and enhances the cherished characters of their surrounding neighbourhood. Clause 15.01-5L 'Bayside preferred neighbourhood character' in the Bayside Planning Scheme provides general objectives and policy guidelines for neighbourhood character precincts that have been set across the municipality.

Brighton is one of the oldest suburbs within Bayside and is home to dwellings that are of varying eras and styles including the Victorian and Edwardian styles, Italianate Estate Homes, California Bungalows, Mid-century Modern and art deco post-war style homes and more recently the development of new detached dwellings, dual occupancies and multi-dwelling apartments that have a more contemporary style and design. The construction of modern and higher density development has been increasing in and around Brighton's activity centres, specifically within the Church Street Major Activity Centre and the Bay Street Major Activity Centre. Along the foreshore, original dwellings are being replaced by larger contemporary dwellings and multi-dwelling apartments that maximise the view of the bay. Front setbacks vary from 5 to 9m, and side setbacks fall between 1 to 1.5m on one side with garages, carports or driveways to the boundary on the other.

Brighton is well-renowned for its leafy neighbourhood character, and the suburb is home to a mixture of indigenous, native, and exotic tree and vegetation. Established private gardens, manicured public parks, remnant foreshore vegetation and tree-lined streets all contribute to this much appreciated leafy neighbourhood character.



**Map 3: Brighton Neighbourhood Character Precincts**



**Legend**

- Bayside LGA Boundary
- Neighbourhood Character Precinct
- Suburb
- Local Road
- Council Land

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# The Urban Forest of Brighton

In Brighton, there is approximately 16.55% of tree canopy cover and 14.49% of understorey cover (2019). The urban forest of Brighton is quite diverse and expansive. Home to *gum trees*, *English oaks*, *peppercorns*, *canary island palms* and more, Brighton has a variety of native, indigenous and exotic tree species that all contribute to the unique and strong urban forest of the suburb.

## History

Before European settlement, Brighton was inhabited by the Bunurong peoples of the Kulin Nation. Renowned for its coastal environment and proximity to the central business district of Melbourne, substantial residential and commercial development continued throughout Brighton during the 19<sup>th</sup> century. This growth distinguished Brighton as an established and well-heeled suburb of Melbourne, becoming home to many large estates, grand homes, and exquisite gardens.

Historically, the Brighton urban forest has been dominated by Coast tea tree, Moonah, Coast banksia and Drooping she-oak trees. The established area of Coast tea tree on the southern side of North Road consists of trees that are over 120 years old. By 1999, street trees dominated the streetscape with an overriding character of exotic species. Vegetation tended to change towards the foreshore with a shift to smaller-scale species and younger street tree plantings.<sup>2</sup> Over time, Brighton has become well-recognised for its established boulevards and streets lined with exotic species. These species form an integral part of Brighton's urban forest and reflect significant time periods.

There are several canopy trees and garden plantings that have been recognised over time for their local heritage significance. In Brighton, these include established gardens such as *Billila*, *Kamesburgh* and *Brighton Beach gardens green point* as well as several trees that are of varying species (Sugar gums, English oak, Variegated elm, Bunya bunya pines, Moreton bay figs, Red ironbark, Eucalyptus and Bhutan cypress). Today, Brighton is still admired for its coastal environment, leafy and green streetscapes, and well-established neighbourhood character.

## Contemporary issues impacting Brighton's Urban Forest

There are a number of contemporary issues impacting the Urban Forest of Brighton which are causing a decline in canopy cover. These issues are associated with climate change, and its flow on effects such as the urban heat island effect and erratic weather events, are impacting and damaging the health and viability of tree and ground cover vegetation. Increasing tree and vegetation cover will help alleviate rising temperatures and dramatic changes in climatic conditions by providing shade and cooling effects.

For new developments on private and public land, Council considers all possible design solutions and ensures the application has met all relevant criteria. However, even with these measures in place, the removal of tree and understorey vegetation is an issue facing the entirety of Bayside and is a consequence of the increases in infill development which poses limitations on the provision of the permeable surfaces required for tree planting.

The removal of established gardens, large trees and understorey plantings is contributing to a loss of Brighton's distinct vegetation character and is impacting biodiversity. Other issues impacting the urban forest include:

- As previously mentioned in this document, Brighton is home to a diverse array of native, indigenous and exotic species which contribute to the unique urban forest of the suburb. Balancing the use of exotic species alongside native and indigenous species can be challenging, especially when considering community values, existing neighbourhood character and future neighbourhood character objectives and the benefits certain types of trees and vegetation can offer to improve habitat within certain parts of the suburb.

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<sup>2</sup> Bayside City Council, 'Vegetation Character Assessment – City of Bayside' by John Patrick Landscape Architects Pty Ltd, 1999.

- Trees nearing the end of their useful lifespan can also create safety issues particularly for more vulnerable residents. As a tree becomes older it loses its strength as it is prone to falling or losing limbs. Council monitors the health of its trees to ensure any hazardous trees are removed. Council, however, cannot monitor the health of trees on private property as that is the responsibility of the landowner.
- Vandalism of public and private trees is another issue contributing to tree canopy loss across Bayside. Illegal removal, lopping or poisoning of trees occurs throughout Bayside by members of the public for personal gain. A hotspot of this activity is along Beach Road where canopy trees are vandalised to gain better views of Port Phillip Bay. Another common example is the vandalism of trees due to the build up of leaf debris upon or near private property. Unpermitted removal, destruction, pruning and interference with trees and vegetation is illegal in Bayside. To deter vandals, Council has adopted a strong stance on vandalism and has installed signs and advertised on social media platforms an offering of rewards for information when and where an act of vandalism has occurred.
- Trees and vegetation play a vital role in mitigating coastal erosion and protecting Brighton's foreshore. Removal (whether it be legal or illegal) of trees along the foreshore only further impact the environment and the ability to reduce coastal erosion. Legal removal of trees upon the foreshore should only be undertaken where considered necessary and appropriate.



**Image 1.** Kamesburgh Gardens



**Image 2.** North Road



**Image 3.** Yalukit Willam Nature Reserve

## Tree canopy cover across Brighton and various land uses

As indicated previously in this document, Brighton has approximately 16.55% tree canopy cover and 14.49% understorey cover (2019). Of the 17% of tree canopy cover within Brighton:

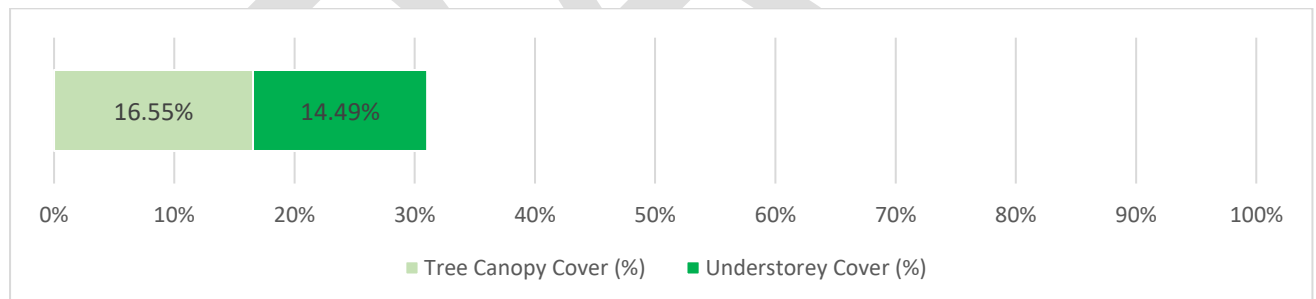
- 61.23% is located upon private residential and mixed-use areas;
- 29.1% is located upon streets;
- 5.04% is located upon open spaces and reserves;
- 2.91% is located upon public use areas
- 1.72% is located upon 'other' areas.

The number of trees on private residential property and public streets is significantly high, particularly in comparison to other suburbs. There appears to be less tree canopy coverage on open spaces which is likely due to the designated recreational uses of open spaces. Furthermore, and as previously identified in the Bayside Open Space Strategy 2012, Brighton has limited accessibility to useable open space in comparison to other suburbs, which is also contributing to the limited canopy cover in these areas.

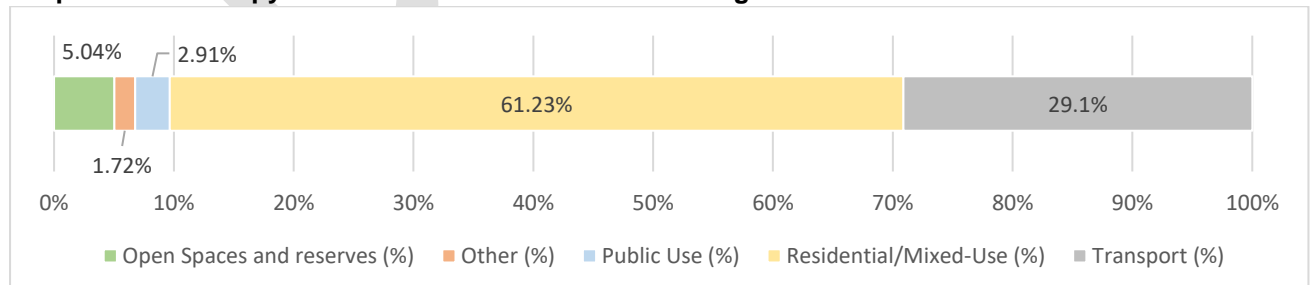
In 2022, there were 14,161 trees managed and maintained by Council throughout Brighton, with over 11,501 street trees, 2,647 park trees and 13 other locational-specific trees. Monitoring the age, health and useful life expectancy of these trees is important to ensuring that Council understands the local conditions, maintains tree and understorey plant populations, and effectively plans for future planting programs and strategies across Brighton.

In Brighton, there is approximately 16.55% tree canopy cover and 14.49% understorey cover. The suburb of Brighton will be a major contributor towards achieving Council's goal of 30% tree canopy cover by 2040 and the enhancement of understorey cover within the public and private realm.

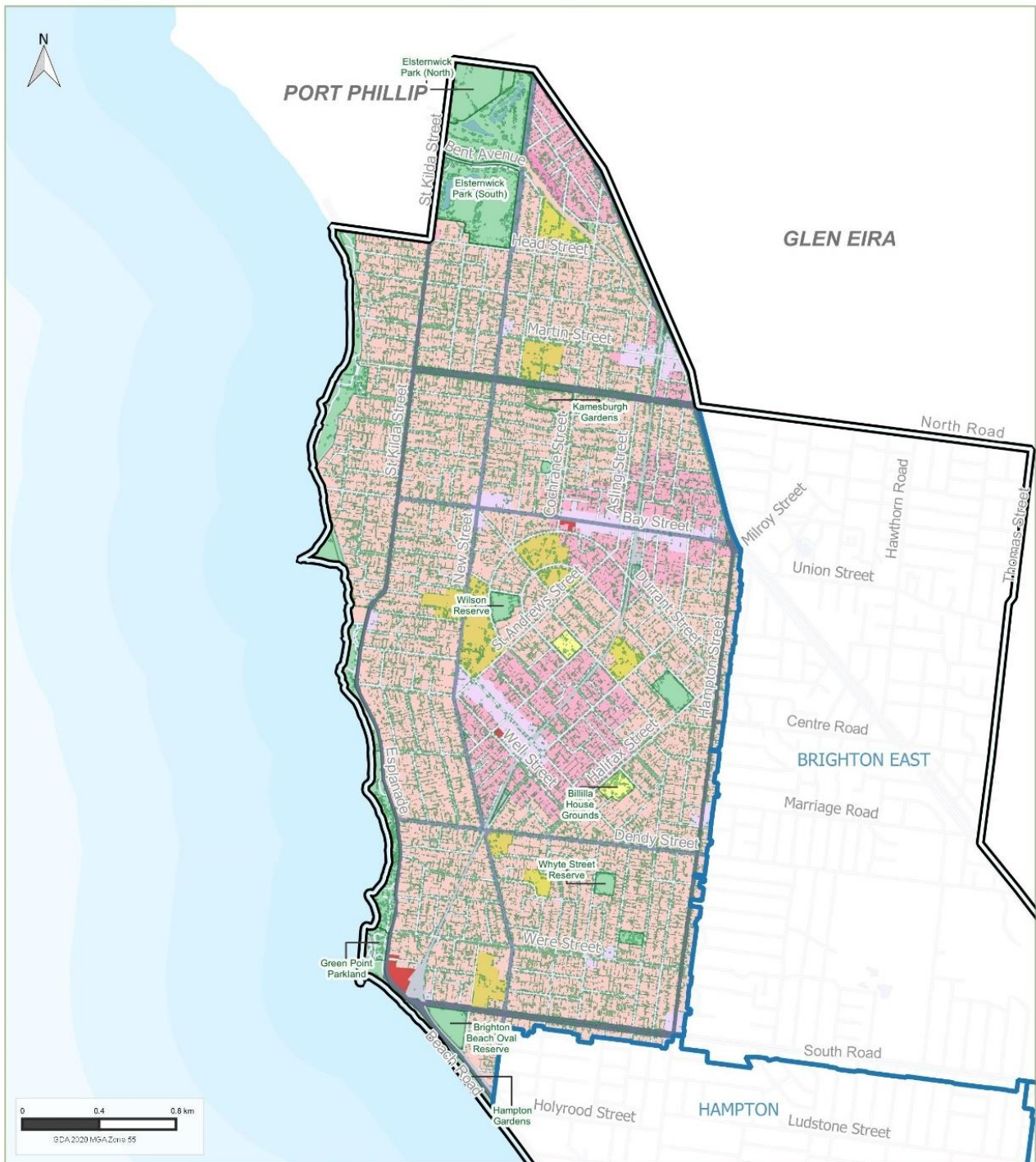
**Graph 1. Total tree canopy cover in Brighton**



**Graph 2. Tree canopy cover over various land uses in Brighton**



# Map 4: Tree Canopy Cover across Brighton



### Legend

- Bayside LGA Boundary
- Suburb
- Tree Canopy - October 2019
- Education (Government or Independent)
- Roads

### Planning Zones

- C1Z - Commercial 1 Zone
- GRZ - General Residential Zone
- MUZ - Mixed Use Zone
- NRZ - Neighbourhood Residential Zone

PPRZ - Public Park and Recreation Zone

PUZ - Public Use Zone

RGZ - Residential Growth Zone

TR1 - Transport Zone 1- State Transport Infrastructure

TR2 - Transport Zone 2- Principal Road Network

TRZ3 - Transport Zone 3- Significant Municipal Road

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12 January 2023

# Council-managed Tree Population

## Useful life expectancy (ULE)

Estimating the useful life expectancy of the council-managed tree population is regularly undertaken and informs the future management options for trees that have a limited useful life due to their age and/or health. The assessment of a tree's useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape is based on the tree's species, stage of life (cycle), health, amenity, environmental contribution, conflicts with adjacent infrastructure and risk to the community.<sup>3</sup> It is not a measure of the biological life of the tree within the natural range of the species, but more a measure of the health status and the tree's positive contribution to the urban landscape.<sup>3</sup>

There are approximately 8.84% of council-managed trees may not survive in Brighton after the next 10 years. By 2040, a total of 88.51%) council-managed trees may have reached the end of their useful life expectancy and may need to be replaced.

Where trees reaching the end of their useful life expectancy have been assessed and are no longer providing a benefit to the surrounding habitat, removal may be required. Where it has been found that trees reaching the end of their useful life still provide benefit and habitat, it should be retained as habitat tree as per the Tree Risk Assessment Tool (TRAQ).

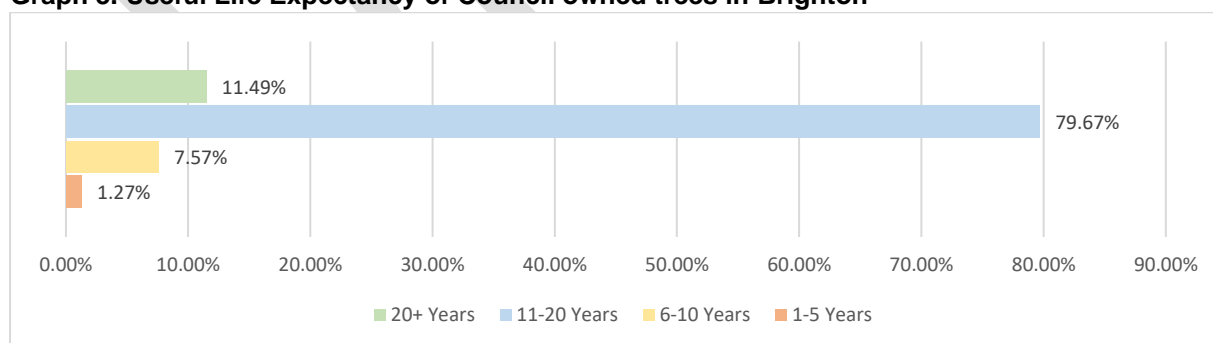
Where replacement of trees is required, new trees should be selected based on the existing surrounding vegetation, landscape character and ability to enhance habitat. Where there is a large concentration of trees required for replacement, this should be undertaken intermittently to enable varying ages and maturity.

The locations where there is a high concentration of trees which may require replacement within the next 10 years include Hampton Street, Dendy Street, Asling Street, Cowper Street, Dawson Avenue and Yalukit Willam Nature Reserve (Elsternwick Park).

In Brighton, approximately 8.84% of council managed trees are anticipated to reach the end of their Useful Life Expectancy over the next 10 years. Map 5 shows the location of trees with low ULE and the locations where the concentration of these trees is high.

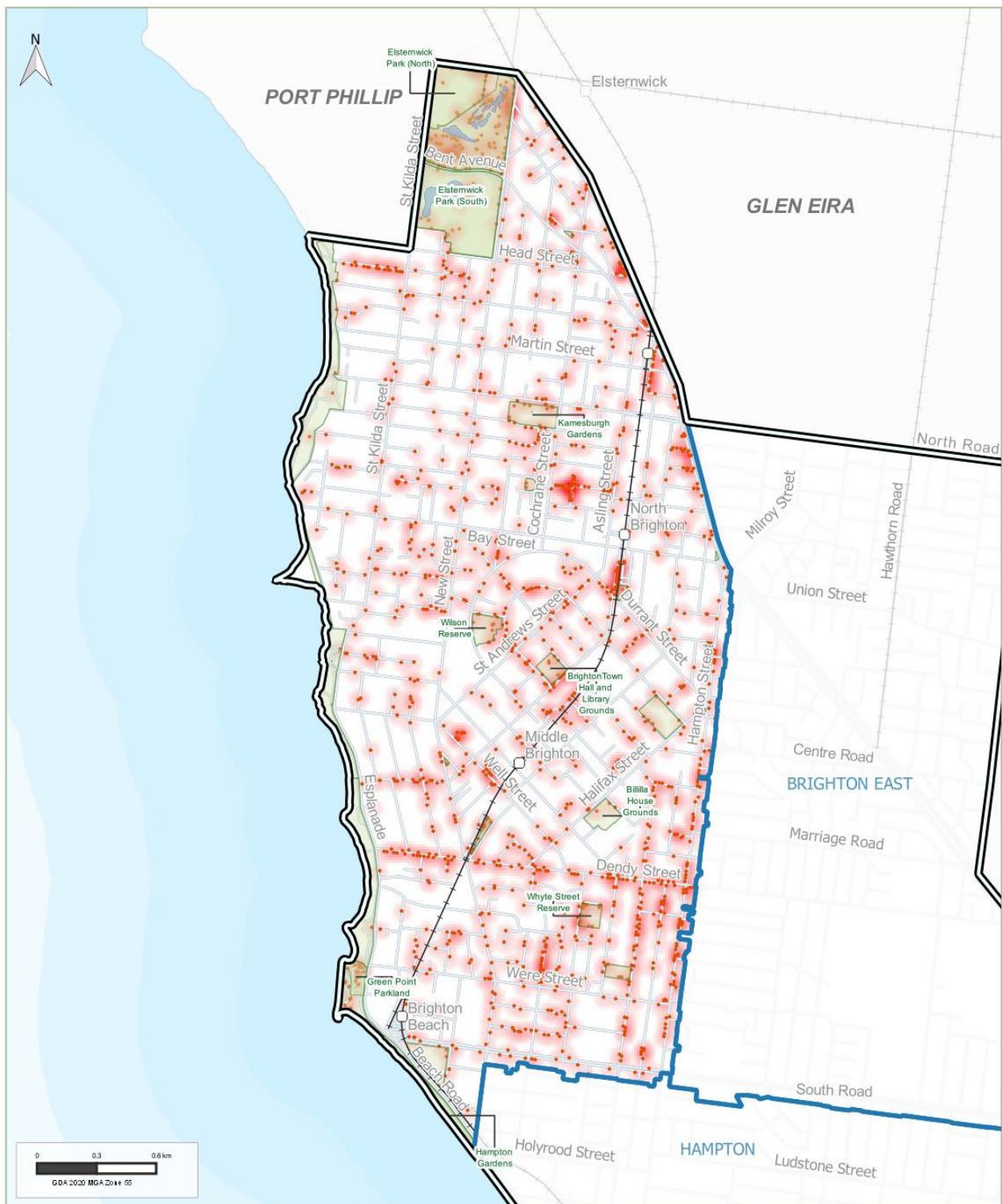
Where it has been found that trees reaching the end of their useful life still provide benefit and habitat, it should be retained as habitat tree as per the Tree Risk Assessment Tool (TRAQ).

**Graph 3. Useful Life Expectancy of Council owned trees in Brighton**



<sup>3</sup> Department of Health and Human Services, 'Arboricultural Assessment Holland Court, Flemington– 3.7 Useful Life Expectancy(ULE)', 2017, Available at [https://www.planning.vic.gov.au/\\_data/assets/pdf\\_file/0011/105500/SHRP-SH1-15.a.-Tree-Logic-Rpt\\_Holland-Court,-Flemington.pdf](https://www.planning.vic.gov.au/_data/assets/pdf_file/0011/105500/SHRP-SH1-15.a.-Tree-Logic-Rpt_Holland-Court,-Flemington.pdf)

**Map 5: Location of trees with low ULE in Brighton**



**Legend**

- Low ULE Tree
- Council Land
- Bayside LGA Boundary
- Suburb
- Roads

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## Tree health and age

Approximately 80.15% of the council-managed street and park trees in Brighton were classified as being in good health, while 4.3% were classified as excellent. Trees that are classified as poor, dangerous or dead make up 1.88% of street and park trees in Brighton.

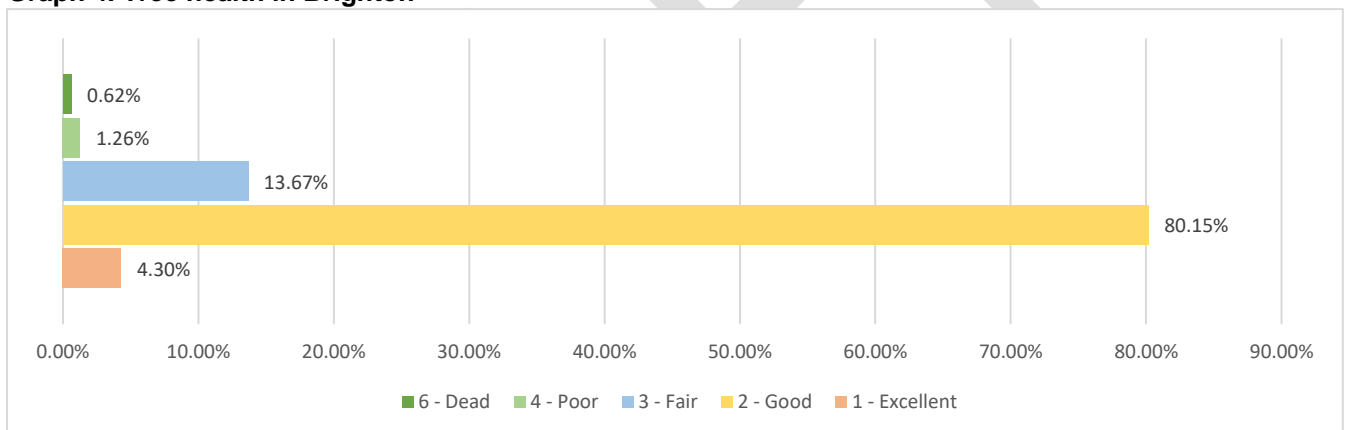
There is a reasonable level of diversity in the age of trees within the suburb. As seen in Graph 5, the highest proportions are semi-mature and mature, making up 37% and 24% respectively.

Map 6 provides the location of those trees that are in poor health, dangerous or dead. Trees that have been identified as dangerous or dead are mostly located along the foreshore, in open spaces alike Yalukit Willam Nature Reserve, Wilson Reserve and Billila House grounds and along roads such as North Road and the Nepean Highway. Street trees that are dead should be removed but dead trees on the foreshore and in parks can provide habitat for fauna. The map shows concentration of dead trees on foreshore that are providing habitat. Through the continued use of the Tree Risk Assessment Tool, Council will retain those trees and vegetation that provide a service to the ecosystem.

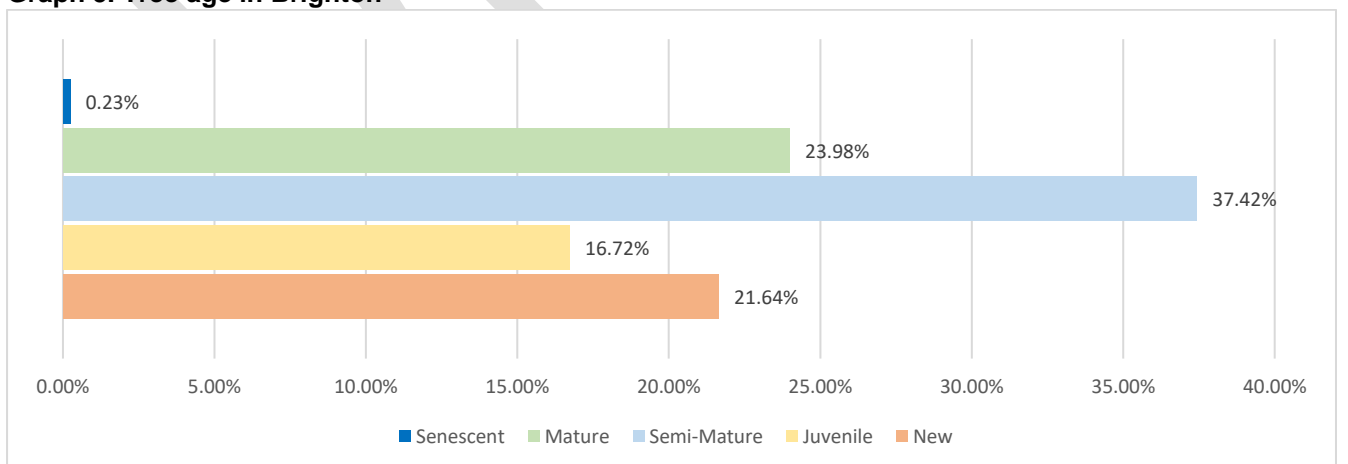
In 2022, 80% of the council-owned street and park trees in Brighton, were classified as being in 'good health'. Trees that are classified as poor, dangerous or dead make up for 1.88%.

Through the continued use of the Tree Risk Assessment Tool, the council will retain the trees and vegetation that provide a service to the ecosystem.

**Graph 4. Tree health in Brighton**



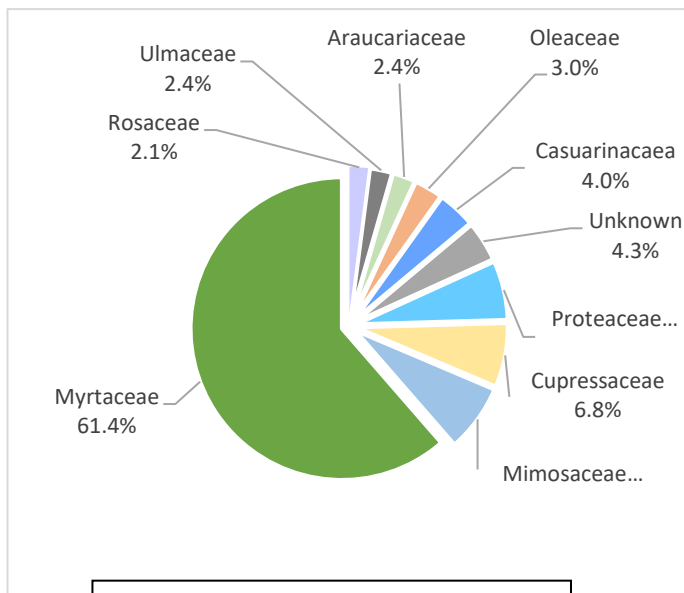
**Graph 5. Tree age in Brighton**



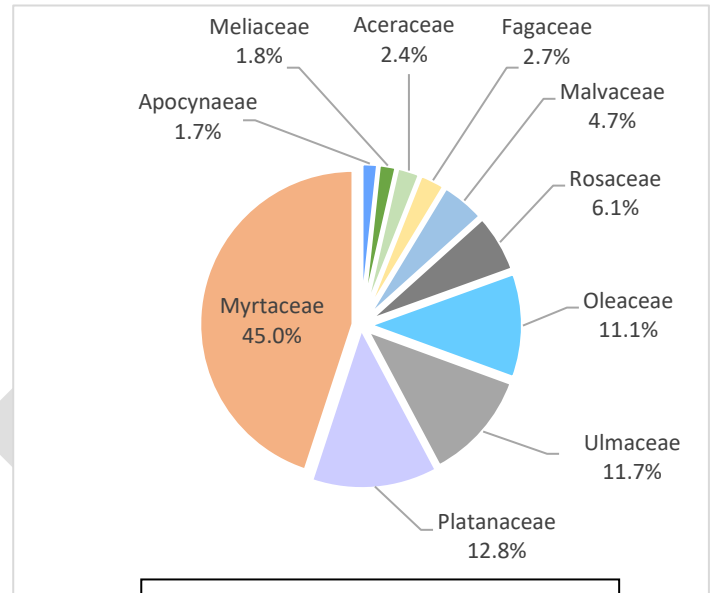


## Species diversity

A resilient urban forest has a diverse range of species from different families. As seen in graph 6 and 7, Council-managed street and park trees are largely dominated by *Myrtaceae*, making up to 45% of all street trees and 61% of all park trees. The *Platanaceae* family follows, making up 13% of all street trees and *Mimosaceae* makes up 7% of all park tree. Other families making up about 42% of street trees and 31% of park trees. About 4% of council-managed trees in Brighton are unknown species.



**Graph 6. Diversity of park tree species in Brighton**



**Graph 7. Diversity of street tree species in Brighton**

The reliance of a small number of species, and a lack of spatial diversity in species distribution, leaves the urban forest vulnerable to threats from pests and disease. Diversification of the family composition of the urban forest was a key challenge that was previously identified in the *Bayside Street and Park Tree Guide* and reiterated within the *Bayside Urban Forest Strategy*.

The inclusion of exotic species within Brighton allows for a great mix of species and diversity within the suburbs' urban forest. Future planting within Brighton will continue to preference this mix, however prioritisation should be placed on indigenous and native species.

Brighton has many significant tree-lined streetscape canopies consisting of exotic trees, such as the avenue of large mature *Maritime Pines* (*Pinus pinaster*) along North Road in Brighton. Exotic trees may be replanted along streets like North Road to retain consistency with the existing street trees. Other locations where exotic trees also form part of the character within Brighton include the Billilla Homestead and Kamesburgh Gardens.

The following families currently form part of the overall tree population in Brighton's streets and parks at a significantly lower percentage than the *Myrtaceae* family. The inclusion and increase of these families should be targeted through the actions and implementation of this Precinct Plan, ensuring that different types of trees align with the neighbourhood character of the surrounding locality:

- *Ulmaceae*
- *Rosaceae*
- *Araucariaceae*
- *Meliaceae*
- *Apocynaceae*
- *Aceraceae*

To improve species diversity, Bayside City Council is undertaking investigations through its *Park Improvement and Habitat Linkage Plan* to understand which species (trees and vegetation) would best support specific locations in Bayside and encourage the rebuilding of the ecological foundations in Bayside.

Currently, the Brighton street and park tree population is largely dominated by the *Myrtaceae* family (*eucalyptus* etc.), making up 61% of park trees and 45% of all street trees.

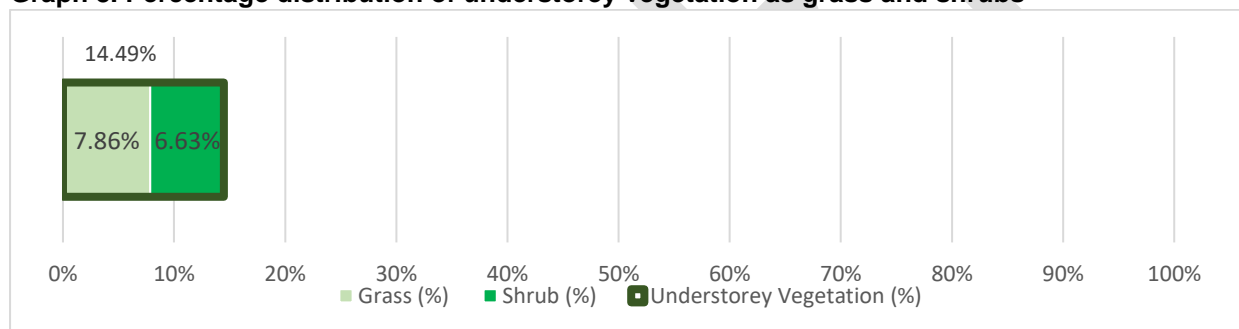
## Understorey planting in Brighton

This section investigates the potential habitat and biodiversity corridors in Brighton across public and private land to understand where further opportunities are to increase habitat connectivity and improve biodiversity.

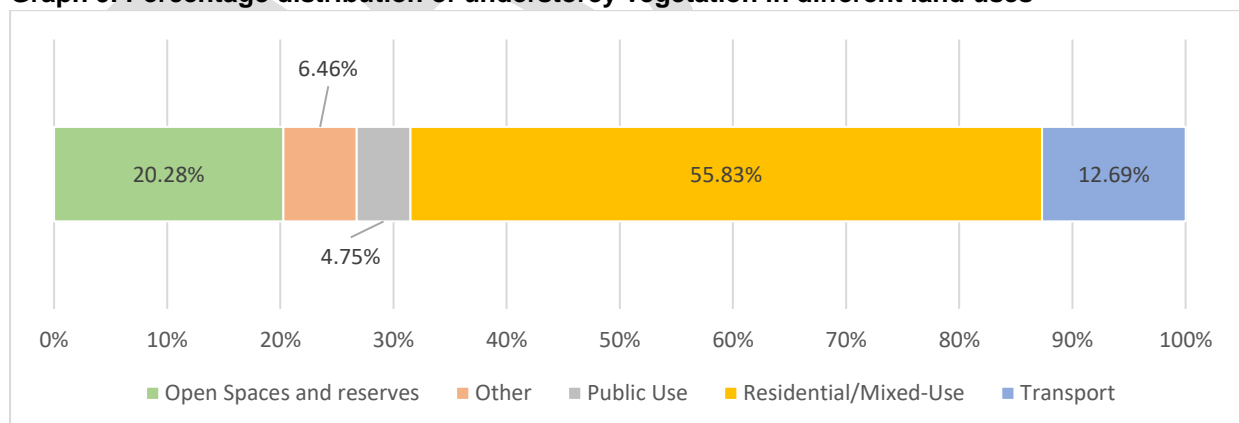
Understorey vegetation includes small trees, shrubs, herbs, grasses, mosses and lichens that occupy the vegetation layers below the canopy of taller trees.<sup>4</sup> Bayside's *Urban Forest Strategy* has three major goals to ensure the increase and improvement of the urban forest and the functions it serves. Two of these goals recognise the importance of understorey plantings. In addition, one of the strategic objectives of the *Bayside Urban Forest Strategy* is to support and enhance our local biodiversity and protect locally endangered and native species. This will be achieved by improving habitat connectivity and the protection and planting of Ecological Vegetation Classes (EVCs) through the implementation of the *Park Improvement and Habitat Linkage Plan 2022* which involves identifying the suitable locations to prioritise understorey planting.

There is currently 14.49% understorey vegetation coverage in Brighton, with 55.83% being located within residential / mixed use areas within the suburb. Open spaces and reserves then make up 20.28% of understorey cover and 12.69% on streets. Opportunities exist to increase understorey planting upon all land uses, with particular priority on those areas that have a very low percentage of understorey planting (0-10%). These locations have been identified in Map 7 and include sections of St Kilda Street, Well Street, Bay Street, Hampton Street and North Road.

**Graph 8. Percentage distribution of understorey vegetation as grass and shrubs**

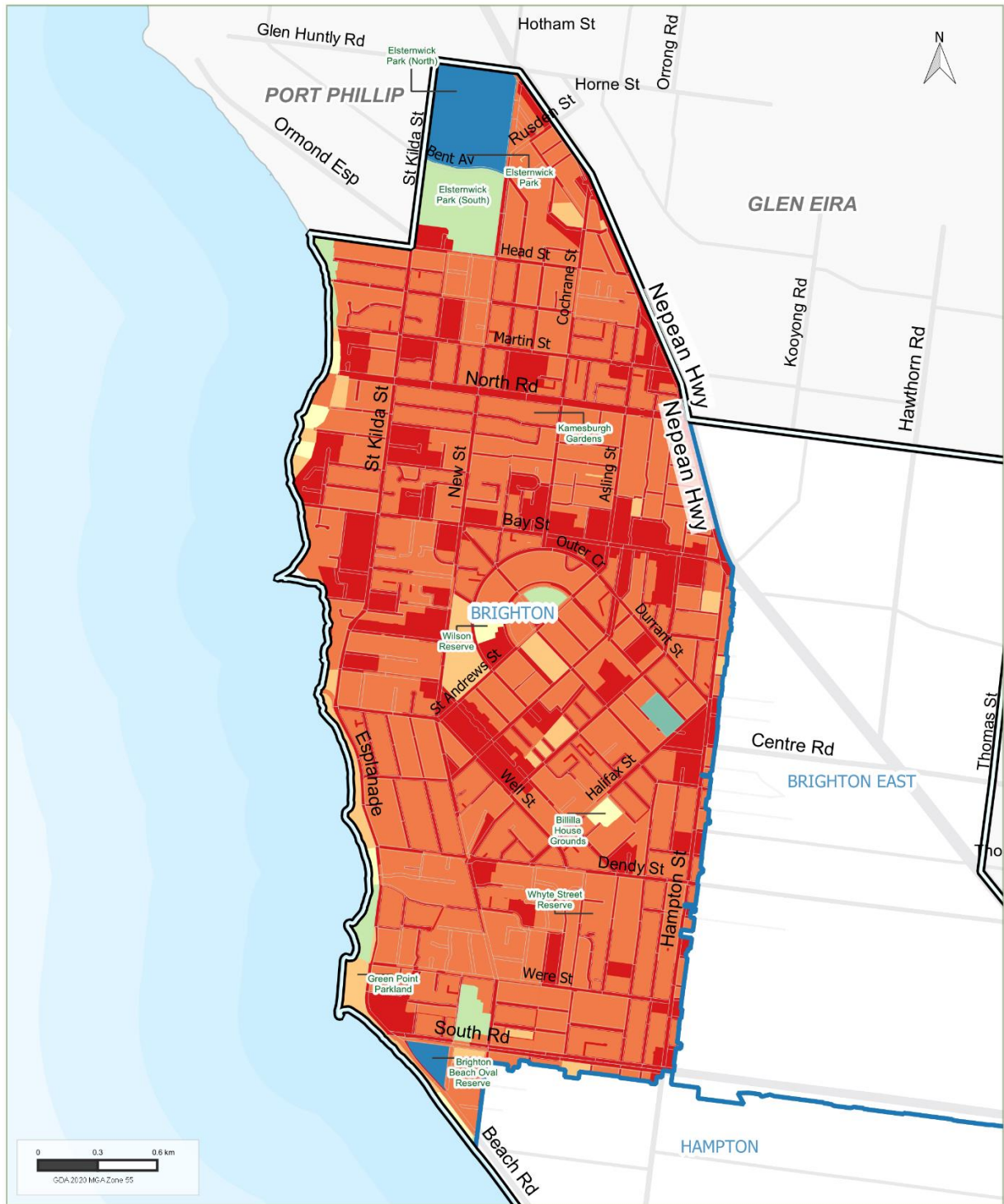


**Graph 9. Percentage distribution of understorey vegetation in different land uses**



<sup>4</sup> Land for Wildlife Queensland, 'The Value of Understorey Vegetation' Note V6, available at: <https://www.lfwseq.org.au/wp-content/uploads/2016/11/The-Value-of-Understorey-Vegetation.pdf>

**Map 7: Understorey Planting in Brighton**



Legend	
Understorey Planting Percentage	<ul style="list-style-type: none"> <li>0 to 10%</li> <li>10% to 20%</li> <li>20% to 30%</li> <li>30% to 40%</li> <li>40% to 50%</li> <li>50% to 60%</li> <li>60% and above</li> </ul>
<ul style="list-style-type: none"> <li>Bayside LGA Boundary</li> <li>Suburb</li> <li>Council Land</li> </ul>	<ul style="list-style-type: none"> <li>Golf Club</li> <li>Roads                             <ul style="list-style-type: none"> <li>Sub-Arterial</li> <li>Collector</li> <li>Local Road</li> <li>Highway</li> <li>Arterial</li> </ul> </li> </ul>

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# Urban Heat Island

## Urban heat island effect in Brighton

Urban heat island effect is the phenomenon of dense urban areas having significantly warmer air and land surface temperatures than surrounding areas.<sup>5</sup> It is primarily a result of impervious hard surfaces that generate heat and low vegetation cover that fails to provide adequate shade and natural cooling.

Urban heat data was captured in 2018 and provided in Map 8 below. The results are relatively moderate, with areas along the foreshore being least impacted. Areas within activity centres that provide for increased residential outcomes were seen to have increased temperature levels.

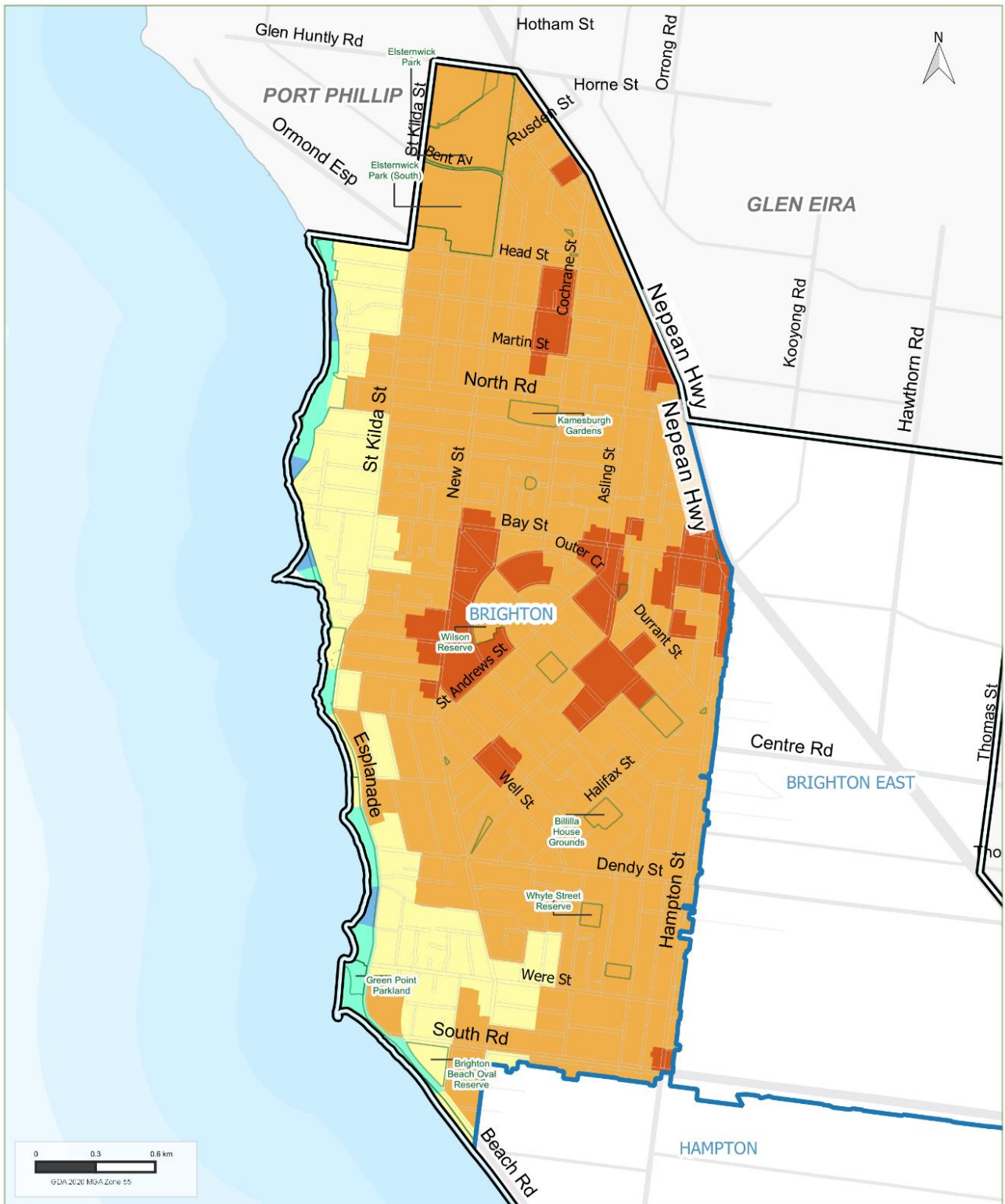
Council will prioritise planting on Council land that is most impacted by urban heat island effects. Innovative techniques such as green roofs and walls should also be explored and encouraged in places where more traditional approaches to increasing vegetation may be difficult to achieve (Bay Street, St Andrews Street, Well Street and Cochrane Street).

Due to larger areas that have impervious hard surfaces, that generate heat, and low understorey planting, the northern, there may be moderate impacts from urban heat island effect in and around activity and commercial areas of Brighton.

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<sup>5</sup> Resilient Melbourne and The Nature Conservancy, 'Living Melbourne – Our metropolitan Urban Forest', 2019, Available at [https://livingmelbourne.org.au/wp-content/uploads/2022/10/Strategy\\_online.pdf](https://livingmelbourne.org.au/wp-content/uploads/2022/10/Strategy_online.pdf)

# Map 8 - Urban Heat



### Legend

Urban Heat (°C)	6.5 - 8.5	Roads	Collector
0 - 2.5	8.5 and above	Highway	Local Road
2.5 - 4.5	Council Land	Arterial	Bayside LGA Boundary
4.5 - 6.5	Golf Club	Sub-Arterial	Suburb

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# Biodiversity Assessment

To help inform the Bayside *Urban Forest Strategy*, Council undertook a desktop biodiversity assessment across the entire municipality. The purpose of the desktop biodiversity assessment was to assess and identify the existing ecological values present within the municipality and identify key areas where biodiversity could be improved. This section of the Precinct Plan will focus on the findings of this assessment within the suburb of Brighton.

## Strategic Biodiversity Value Score

The Strategic Biodiversity Value (SBV) is a ranking system developed by DELWP that ranks the biodiversity contribution that a location has to Victoria's overall biodiversity. The SBV is presented as a score ranging between 0 and 1 and is mapped across all areas of Victoria.<sup>6</sup>

56 areas with SVB scores were identified within Bayside. A review of the SBV scores mapped within the Council municipality was undertaken, with the results shown on Map 9. While the majority of Brighton did not present an SBV score, there were a few key areas that had a high conservation value:

- Green Point Coastal Reserve had a score between 0.8 and 1
- A large proportion of the foreshore reserve and Yalukit William Nature Reserve Lake has a SBV score between 0.2 and 0.4, where native vegetation exists surrounding bodies of water.

Future planting within these areas should focus on ensuring the SBV scores modelled within these areas do not decrease, by promoting native restoration and plantings in these areas when required.

## Ecological Vegetation Classes (EVCs)

As part of this study, a review of Ecological Vegetation Classes (EVCs) model was undertaken. A total of 10 EVCs were modelled within the Bayside area. The modelled distribution of the 2005 DELWP (now DEECA) mapping extent, highlights that the majority of the study area has been cleared and no longer represents the EVCs. This is largely due to the extensive residential development that has occurred, and the associated road, rail and commercial development.

Of the 10 EVCs modelled within Bayside, three have been identified within Brighton, specifically the Coast Banksia Woodland / Coastal Dune, the Coastal Headland Scrub / Coast Banksia Woodland, and the Dam Sands Herb-rich Woodland. These identified EVCs have informed the species palette in Appendix 3 to this Precinct Plan. The species palette provides guidance on species of trees and vegetation that should be planted in order to enhance the character and enhance the ecological values of the urban forest.

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<sup>6</sup> Desktop Biodiversity Assessment for the Urban Forest Strategy, Bayside City Council (2022)

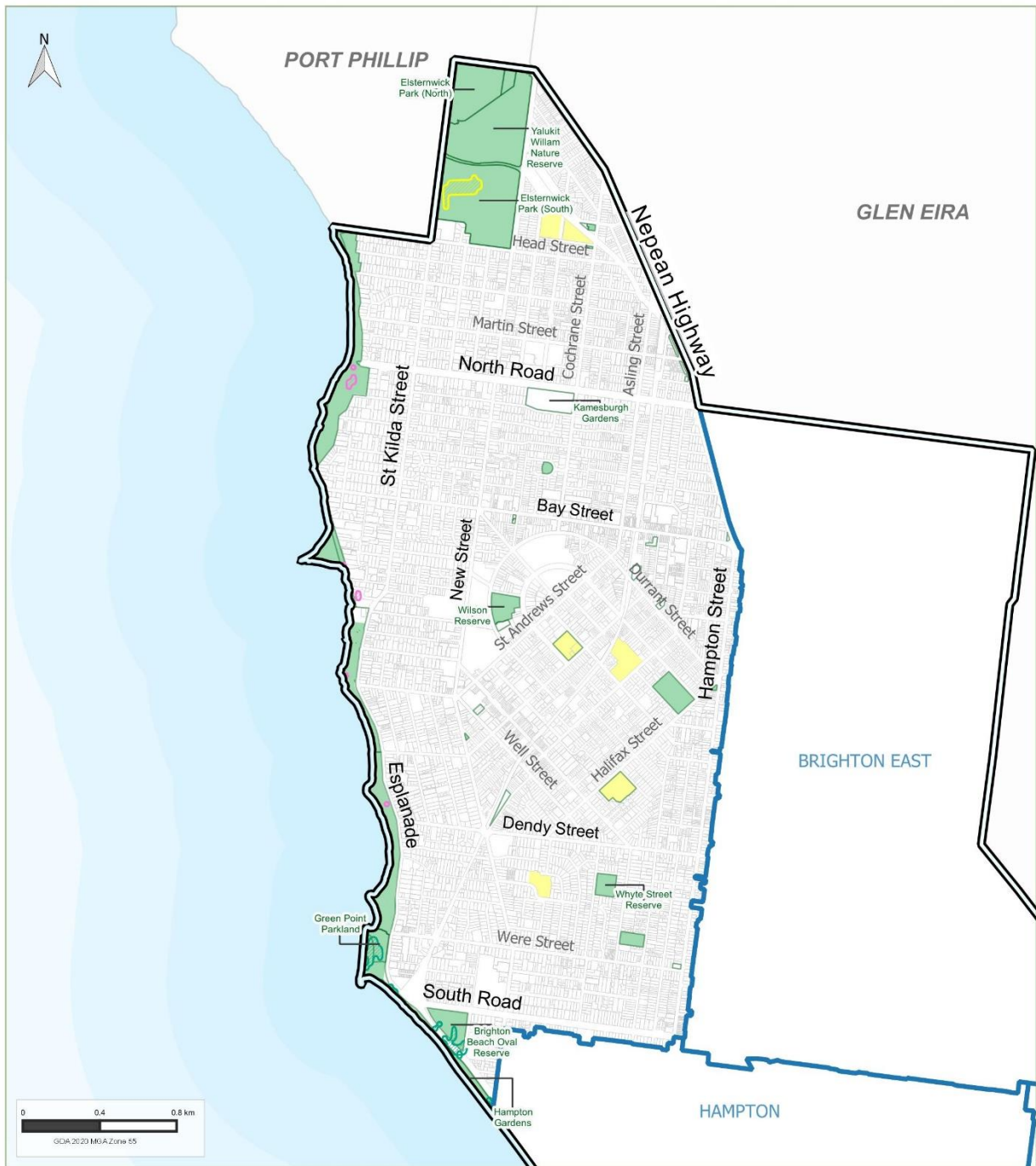


Map 9 - Biodiversity Value Score



# Map 10 – Ecological Vegetation Classes

## Ecological Vegetation Classes with Selected Zones in Brighton



### Legend

- Bayside LGA Boundary
- Suburb
- Council Land
- Property Boundaries

- #### Modelled 2005 Ecological Vegetation Classes
- Coast Banksia Woodland / Coastal Dune Scrub Mosaic (EVC 921)
  - Coastal Headland Scrub / Coast Banksia Woodland Mosaic (EVC 919)
  - Damp Sands Herb-rich Woodland (EVC 3)

- #### Planning Zones
- PPRZ - Public Park and Recreation Zone
  - PUZ2 - Public Use Zone - Education
  - PUZ6 - Public Use Zone - Local Government

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# Park Improvement and Habitat Linkage Plan 2022

The *Park Improvement and Habitat Linkage Plan 2022* was undertaken by Council as a way to improve species diversity within Bayside and understand what species (trees and vegetation) would best support specific locations in Bayside and encourage the rebuilding of ecological foundations. The objective of the plan is to assist in increasing the diversity of indigenous and native plantings in council-owned open spaces outside the conservation reserve system and strengthen the connections between natural areas.

Two major actions identified in the *Park Improvement and Habitat Linkage Plan* that correspond to the *Brighton Precinct Plan* are:

1. Streetscapes – Wherever possible, increase the extent of indigenous understorey vegetation in verges, nature strips, roundabouts, traffic islands and edges of carparks or other less frequented or unused areas.
2. Parklands – Expand on areas of existing native vegetation (both patches and individual trees) with dense understorey plantings, or identify locations for additional native plantings, to create structurally diverse ‘habitat planting zones’.

## Conservation reserves in Brighton

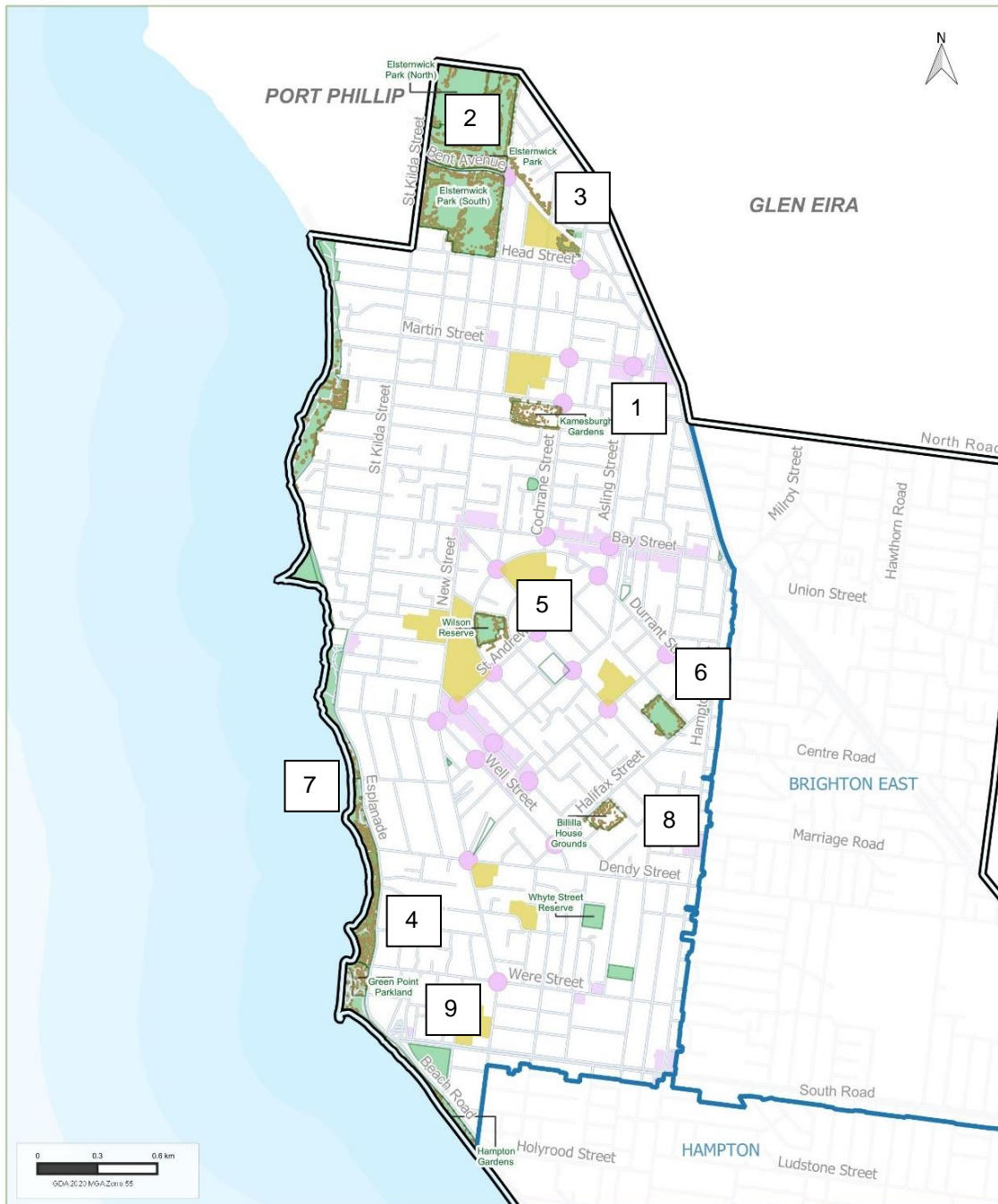
- Brighton Dunes

## Core habitat patches

Nine core habitat patches have been identified within Brighton as areas where planting should occur to implement new or improve existing links to areas of open space and provide habitat corridors:

1. Kamesburgh Gardens
2. Yalukit Willam Nature Reserve (Elsternwick Park)
3. Elster Canal Linear Reserve
4. Brighton Coastal Reserve
5. Wilson Reserve
6. William Street Reserve
7. Foreshore
8. Billilla Mansion
9. Green Point Coastal Reserve.

Map 11 – Core Habitat Patches in Brighton



Legend			
Bayside LGA Boundary	Core Habitat Patches	Planning Zones	PPRZ - Public Park and Recreation Zone
Suburb	Council Land	C1Z - Commercial 1 Zone	
Roads	Education (Government or Independent)		
Roundabouts			

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## **Priority Habitat Improvement Areas**

Priority habitat locations are primarily associated with parks or reserves that currently support High-quality habitat values (such as bushland or foreshore reserves) or have the potential to provide core habitat with further investment through on-ground plantings and complimentary habitat structures.<sup>7</sup>

Priority Habitat Improvement Areas identified in Brighton are:

- Yalukit Willam Nature Reserve (Elsternwick Park)
- Elster Canal Linear Reserve and adjoining land, including Cross Street Reserve and Lewis Reserve
- Kamesburgh Gardens
- Foreshore
- Green Point Coastal Reserve.

## **Priority Linkage Improvement Areas**

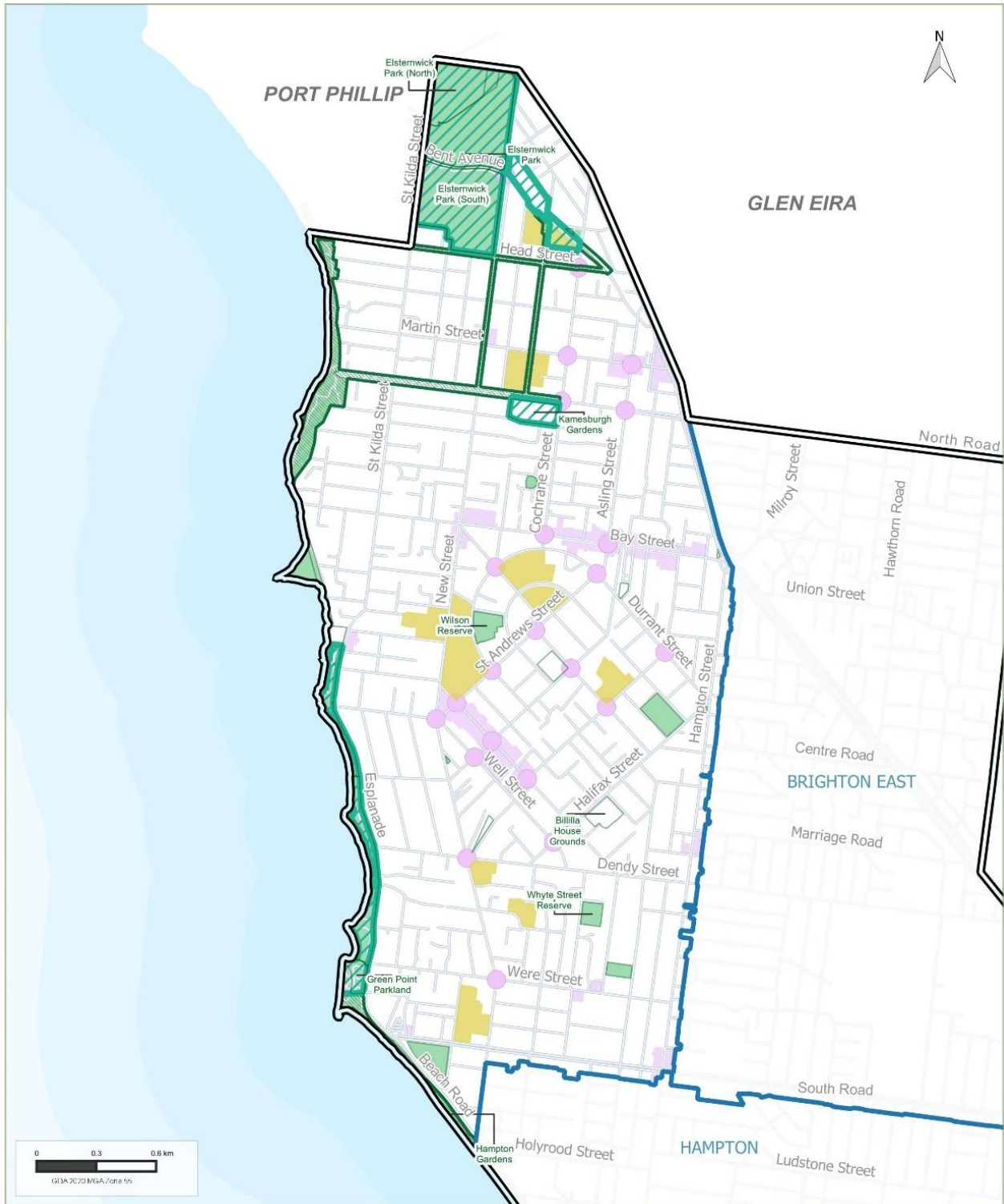
Linkage Improvement Areas are primarily associated with public road reserves with the objective being to increase the functional diversity of vegetation within these areas to improve connectivity a broader range of species.<sup>7</sup> Locations of priority linkages identified across the municipality have been restricted to public land, except for limited instances within privately owned golf courses.

- Brighton Beach Foreshore to Picnic Point Foreshore
- Elster Canal Linear Reserve to Kamesburgh Gardens via Brickwood Street
- Yalukit Willam Nature Reserve (Elsternwick Park) to Kamesburgh Gardens via Head Street/ New Street
- Kamesburgh Gardens to Foreshore via North Road.

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<sup>7</sup> Park Improvement and Habitat Linkage Plan, Bayside City Council (2022)

**Map 12: Habitat Linkages and Improvement in Brighton**



**Legend**

- |                      |                                       |                                  |  |
|----------------------|---------------------------------------|----------------------------------|--|
| Bayside LGA Boundary | Council Land                          | Habitat Improvement Area         | C1Z - Commercial 1 Zone                |
| Suburb               | Education (Government or Independent) | Habitat Linkage Improvement Area | PPRZ - Public Park and Recreation Zone |
| Roads                |                                       |                                  |  |
| Roundabouts          |                                       |                                  |  |

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# Trees on Private Land

While we encourage and support the increase of tree canopy cover on private land, it is recognised that the uptake of tree planting on private land can only be enforced through better planning mechanisms, education, advocacy and commitment from the community.

The objectives of the Bayside *Urban Forest Strategy* is to prioritise and strengthen the support for retaining existing trees on public and private land and to strengthen Council's ability to retain and monitor trees on both public and private land.

## Regulations involving trees on private land

Under the Neighbourhood Amenity Local Law 2021, a permit is required for the removal of a tree that is on the Significant Tree Register or a canopy tree that has a single or combined trunk greater than 155 centimetres measured at 1 metre above ground level.

There are several mechanisms currently in place within the Bayside Planning Scheme that require a planning permit to be granted for tree removal. These mechanisms include but are not limited to the Vegetation Protection Overlay (VPO), Significant Landscape Overlay (SLO) and the Heritage Overlay (HO). There is currently no land within Brighton that is within the Significant Landscape Overlay, however there are several trees and vegetation protected by the Heritage Overlay.

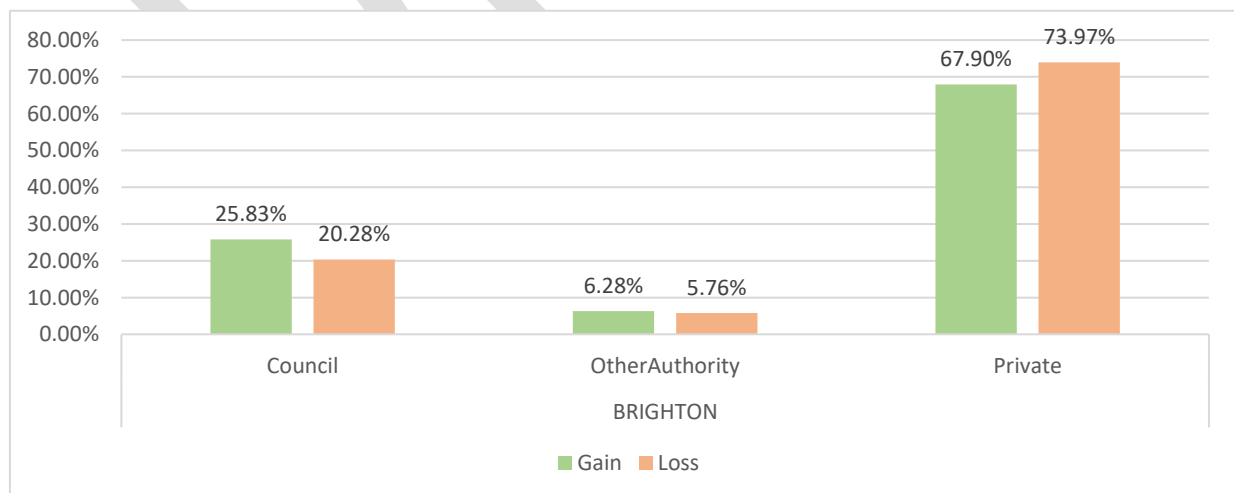
It is difficult to approximate the number of trees removed from private land each year under a planning permit as this is not separately recorded (and one application can be for multiple tree removals), let alone the extent of tree removal that is legal or illegal.

## Tree loss and gain in Suburb on private land

Map 13 shows tree canopy loss and gained in Brighton from 2015 to 2019. The source aerial photography datasets were obtained from the State Government's Coordinated Imagery Program (CIP). The datasets from 2015 and 2019 were further compared by Council's GIS team to identify changed areas of vegetation.

As indicated in Graph 10, while private land contributed to 68% of tree canopy gains in Brighton, it also contributed to 74% of tree canopy losses. Conversely, Council-owned land contributed 26% to tree canopy gain versus 20% of tree canopy losses. Losses and gains were calculated by comparing 2015 and 2019 canopy cover data.

**Graph 10: Tree canopy across various land ownerships**



## **Encouragement of trees on private land**

As mentioned in the Bayside *Urban Forest Strategy*, community engagement will be essential in growing the urban forest on private land and Council will continue to be proactive in communicating the benefits of trees and vegetation on private land.

Council will also investigate opportunities to provide free tree and vegetation giveaways to residents. This will provide Council with a pathway to influence the tree and vegetation cover that exists on private land and help residents maintain the health of their trees and gardens. Bayside already has a strong network of 'Friends of' groups and community volunteers who carry out tree and vegetation plantings and would be great allies in this work.

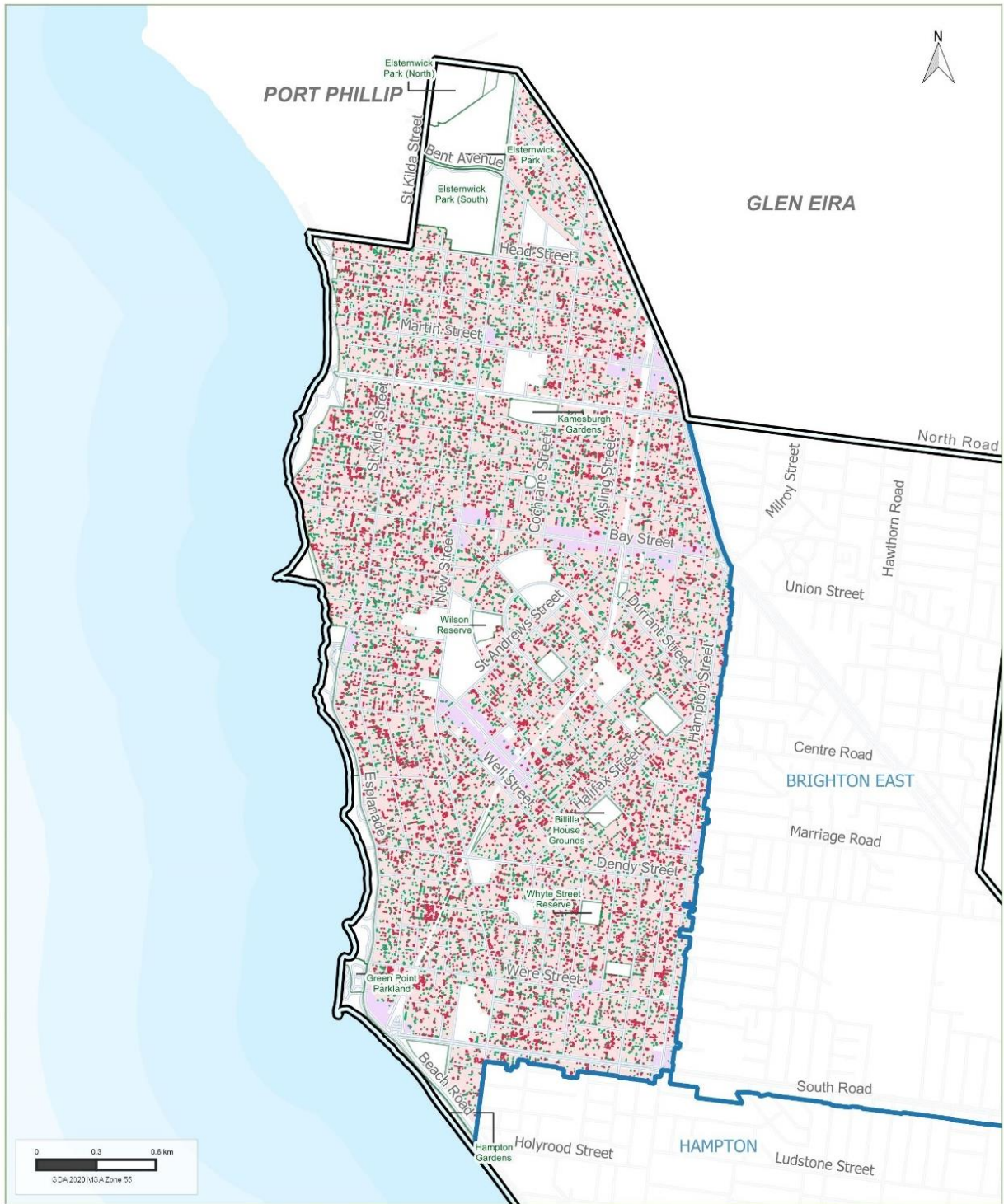
Council will encourage landowner participation in greening, particularly for areas identified as having less canopy cover. This is being undertaken through communications and engagement actions that has a focus on education, awareness on the benefits of vegetation, and participation in increased tree planting through various education programs.

There has been a greater interest from the younger population of Bayside to participate in increasing vegetation cover. Council will continue to run educational programs within schools and work alongside the community to reach the *Urban Forest Strategy* target of 30% canopy cover across Bayside by 2040.

As part of the Bayside *Urban Forest Strategy* Implementation Plan, Council is exploring opportunities to include further policies and planning mechanisms within the Bayside Planning Scheme with an aim to maintain and increase tree canopy and vegetation on private land.



Map 13 - Vegetation loss and gain on private land in Brighton



**Legend**

- |                      |   |  |
|----------------------|---|--|
| Bayside LGA Boundary | Tree Canopy Change<br>- February 2015 to October 2019<br>- Private Land | UFS Reporting Areas<br>Private-Residential |
| Suburb               | Gain  | Private-Commercial-Residential Mixed       |
| Council Land         | Loss  |  |
| Roads                |   |  |

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# Brighton in Images

The following images show examples of low, medium and high tree canopy coverage in Brighton.



**Image 6.** Beach Road, an example of a road with low tree canopy coverage.



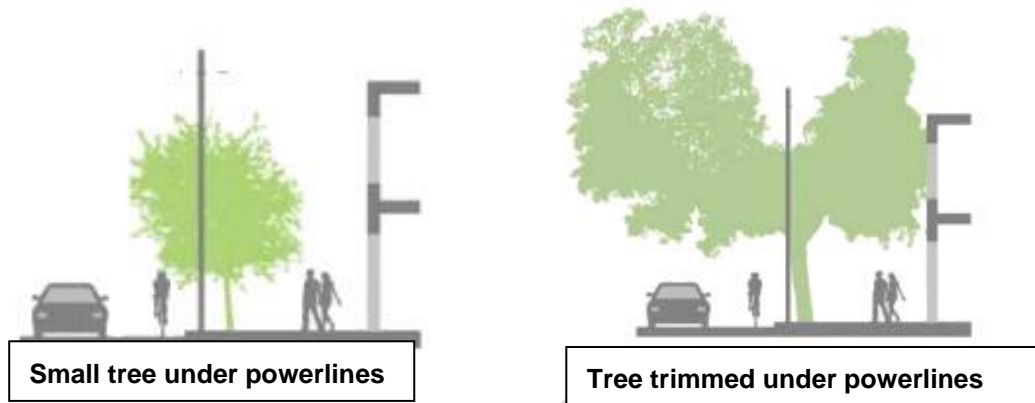
**Image 7.** Barkly Street, an example of a road with medium tree canopy coverage.



**Image 8.** Collins Street, an example of a road with high tree canopy coverage.

# Key Constraints – Infrastructure

Finding locations for street and park tree planting can be challenging as it is important to ensure trees do not compromise the existing above and below infrastructure, as well as the existing uses and accessibility of the space.



Certain pieces of infrastructure can cause constraint and impact the ability to plant trees. Street and park tree selection for trees growing under powerlines needs to consider a particular species' tolerance for pruning. For example, a tree that has a natural branching habit and a good wound response to mechanical damage would be considered an appropriate tree species for growing under powerlines.

In streets that have small or narrow nature strips, a smaller tree species will be considered for the powerline side of the street. In those circumstances, the trees on both sides of the street should have similar foliage and form to provide a consistent vegetation character for the street.

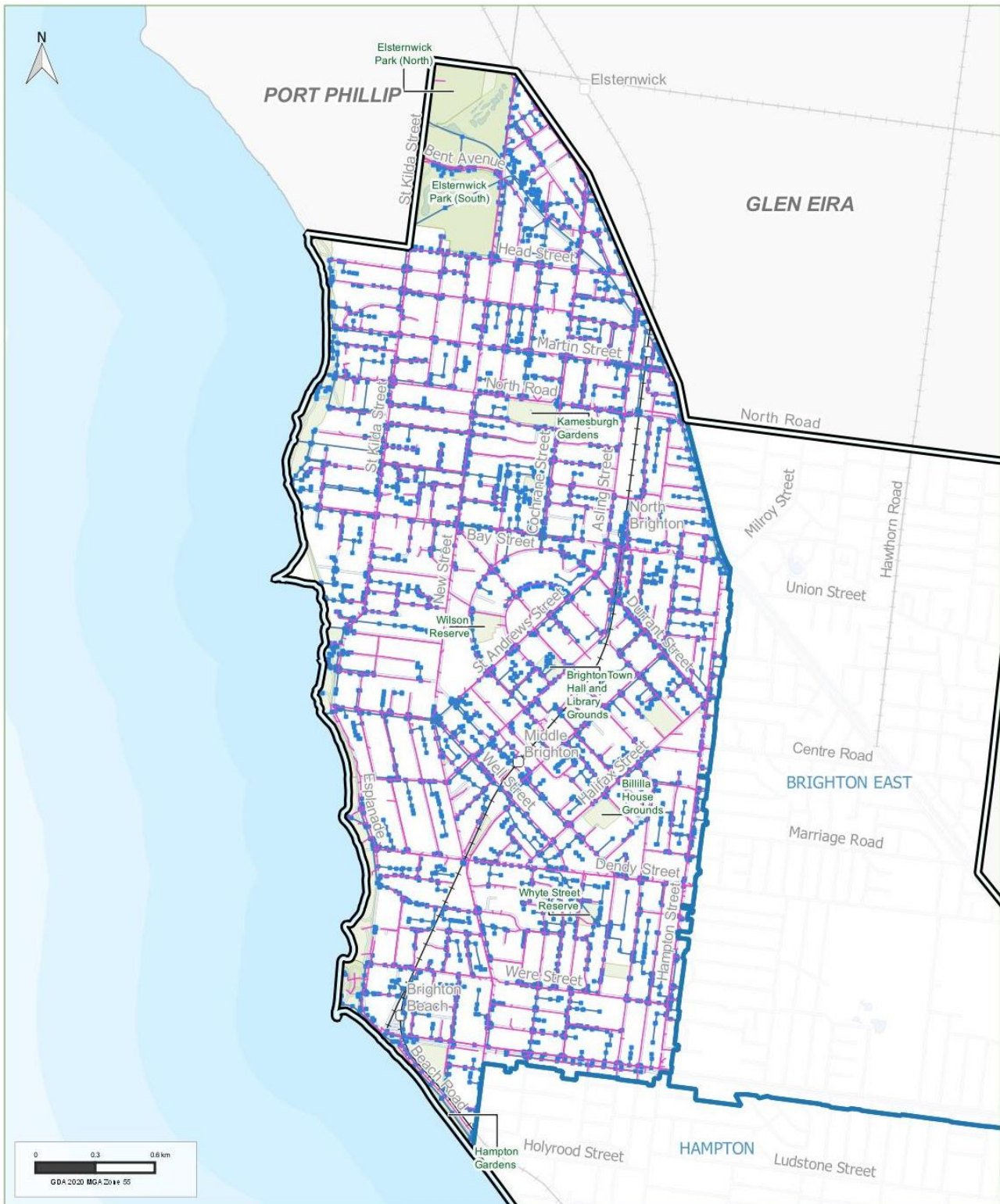
As a phase 1 action of this plan, Council will facilitate the negotiations between the residents and relevant authorities to support the undergrounding of powerlines (and other services) if there is sufficient interest in a street. Council will also advocate to VicRoads and other authorities for undergrounding the powerlines and plant vegetation on the Principal Transport Network. Other infrastructure that must be considered when undertaking tree and vegetation planting includes:

- Footpaths
- Kerb and channel
- Roadways
- Playgrounds
- Pathways
- Private infrastructure
- Public infrastructure.

When selecting tree species for planting, Council officers should consider which species will be the least destructive to underground infrastructure. Potential opportunities to install root barrier systems and other protection mechanisms are also investigated at the locations of key underground infrastructure. This will ensure that Council can increase vegetation cover whilst protecting existing infrastructure and reducing demand for maintenance.

It is also important to note that infrastructure can also be constrained due to weather events. The *Climate Emergency Action Plan 2020* requires that new infrastructure be designed to higher environmental standards and is located with consideration to future flood and storm surge risk. Existing infrastructure has to be retrofitted to reduce environmental impact and to improve resilience. It is critical to consider how each piece of new infrastructure can contribute to a more resilient built environment. Adapting to climate change requires taking actions to lessen its adverse consequences and increase capacity to withstand the stresses and shocks associated with natural hazards and extreme weather events. Investing in climate change adaption helps to embed economic, social, and environmental resilience to protect the most vulnerable to the consequences of climate change.

Map 14 – Infrastructure servicing across Brighton



**Legend**

- Bayside LGA Boundary
- Suburb
- Council Land
- Golf Club
- Overhead Powerlines
- Drainage Pipe
- Drainage Pit
- Roads

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# Prioritising Trees and Vegetation in streets

Streets make up approximately 23% of the total area of Brighton. When prioritising where to plant, it is important to focus resources in the locations that need it most. This includes consideration of where we have opportunities to plant understorey, improvement of habitat, where the highest density of people reside, and where very low canopy cover exists.

Tree replacements are only identified for streets where the useful life expectancy of multiple trees is rated at less than 10 years.

## Planting priorities

The Implementation Plan later in this document identifies phase 1 actions that are to be delivered within the next 5 years. These actions along with the *Park Improvements and Habitat Linkages Plan 2022* will identify priority areas and inform the planting program.

As a response to the Bayside *Urban Forest Strategy*, Council is committed to increasing tree planting every year. Maps 17 to 20 identify priority locations to be targeted in Council's Annual Tree Planting program.

The Annual Tree Planting Program provides a great opportunity to increase species diversity, habitat and local character. A general rule of thumb that should be applied is the 10:20:30 rule, where the urban tree population includes no more than 10% of any one species, 20% of any one genus, or 30% of any

## How the Precinct Plan guides planting

### Set planting program



Planting Priorities from Precinct plan  
Streets or Activity Centres undergoing Change  
Annual Budget



### Design Objectives for Streetscape

Review guiding principles and considerations for tree planting



### Undertake further investigation to assist planting strategy

On-site analysis and assessment



### Select Species

Review Species Palette



### Implement Planting

Produce streetscape design options  
Consult with residents and business owners

Map 17 – Number of Tree Replacements required in next 10 years in Brighton



**Legend**

Map17. Number of Trees Required to be Replaced in the Next 10 Years

- 1 - 2 Trees
- 2 - 4 Trees
- 4 - 6 Trees
- 6 - 8 Trees

- 8 - 10 Trees
- 10 - 12 Trees
- 12 - 14 Trees
- 14 - 16 Trees
- 16 - 18 Trees

Map18. Street Tree Canopy % (October 2019)

- Tree Canopy Cover less than 20%
- Tree Canopy Cover greater than 20%

Map19. Opportunities Identified by Community for Planting

- Understorey Planting
- Tree Planting
- Map20. Streets with High Urban Heat Island Effect

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Map 18 – Streets with less than 20% Tree Canopy Cover in Brighton



**Legend**

Map17. Number of Trees Required to be Replaced in the Next 10 Years

- 1 - 2 Trees
- 2 - 4 Trees
- 4 - 6 Trees
- 6 - 8 Trees

- 8 - 10 Trees
- 10 - 12 Trees
- 12 - 14 Trees
- 14 - 16 Trees
- 16 - 18 Trees

Map18. Street Tree Canopy % (October 2019)

- Tree Canopy Cover less than 20%
- Tree Canopy Cover greater than 20%

Map19. Opportunities Identified by Community for Planting

- Understorey Planting
- Tree Planting
- Map20. Streets with High Urban Heat Island Effect

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Map 19 – Opportunities Identified by Community for Planting in Brighton



Legend	
<b>Map17. Number of Trees Required to be Replaced in the Next 10 Years</b> 1 - 2 Trees 2 - 4 Trees 4 - 6 Trees 6 - 8 Trees	<b>Map18. Street Tree Canopy % (October 2019)</b> Tree Canopy Cover less than 20% Tree Canopy Cover greater than 20%
8 - 10 Trees 10 - 12 Trees 12 - 14 Trees 14 - 16 Trees 16 - 18 Trees	<b>Map19. Opportunities Identified by Community for Planting</b> Understorey Planting Tree Planting Map20. Streets with High Urban Heat Island Effect

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Map 20 – Streets with High Urban Heat Island Effect in Brighton



# Implementation Plan

The following set of actions specifically identifies outcomes for trees and vegetation planting. They provide the framework for change within Brighton with outcomes informed by all of the other factors outlined in previous sections of this Precinct Plan.

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
<b>Create a diverse and healthy urban forest that reinforces greater outcomes for biodiversity.</b>						
Phase 1	Prioritise and increase planting on identified habitat and biodiversity corridors across public land to enhance habitat linkages.	<p>Investigate opportunities to provide increased understorey planting in areas identified as part of Council's <i>Park Improvement and Habitat Linkage Plan</i> (Map 10 - 11), including:</p> <p><b>Priority Habitat Improvement Areas:</b></p> <ul style="list-style-type: none"> <li>• Yalukit Willam Nature Reserve (Elsternwick Park)</li> <li>• Elster Canal Linear Reserve and adjoining land, including Cross Street Reserve and Lewis Reserve</li> <li>• Kamesburgh Gardens</li> <li>• Foreshore</li> <li>• Green Point Costal Reserve.</li> </ul> <p><b>Priority Linkage Improvement Areas:</b></p> <ul style="list-style-type: none"> <li>• Brighton Beach Foreshore to Picnic Point Foreshore</li> <li>• Elster Canal Linear Reserve to Kamesburgh Gardens via Brickwood Street</li> <li>• Yalukit Willam Nature Reserve (Elsternwick Park) to Kamesburgh Gardens via Head Street/ New Street</li> <li>• Kamesburgh Gardens to Foreshore via North Road.</li> </ul> <p><b>Core habitat patches:</b></p> <ul style="list-style-type: none"> <li>• Kamesburgh Gardens</li> <li>• Yalukit Willam Nature Reserve (Elsternwick Park)</li> <li>• Elster Canal Linear Reserve</li> <li>• Brighton Costal Reserve</li> <li>• Wilson Reserve</li> <li>• William Street Reserve</li> <li>• Foreshore</li> <li>• Billilla Mansion</li> <li>• Green Point Costal Reserve.</li> </ul>	Open Space	Year 1 & 2	Budget allocated for 2022/23 and 2023/24 financial years.	<i>Park Improvement Habitat Linkage Plan</i> and the Urban Forest Strategy Annual Reporting Program.
Phase 1	Enhance biodiversity outcomes on private land.	<p>Encourage private landowners to plant vegetation on nature strips within their street and provide support and tools to assist.</p> <p>To ensure new plants enhance habitat and biodiversity, Council officers should recommend appropriate plants listed in Appendix 3 Species Palette of this document.</p>	Urban Strategy, Communication and Engagement	Ongoing	Budget may be required to create and implement specific engagement plans.	<p>Utilise engagement evaluation matrix to measure success.</p> <p>Increased number of community members involved in activities.</p> <p>Increased demand from residents for vegetation outside their house.</p>
Phase 1 & 2	Create new open space, pocket parks, micro-forests in the suburb seeking new biodiversity or habitat corridors.	Investigate opportunities to seek funds to support the acquisition of land for new open spaces to connect core habitat patches.	Open Space	Ongoing	Resources required for advocacy	Number of grants / opportunities applied for.
Phase 1	Ensure humans and wildlife can simultaneously and	Support the undergrounding of powerlines where it is at the request of the community and at their full cost.	Asset Protection, Urban Strategy	Ongoing	No budget required	Number of streets where undergrounding of powerlines has

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
	safely access densely vegetated areas, streets and reserves	Facilitate the negotiations between the residents and relevant authorities to support the undergrounding of powerlines (and other services) if there is sufficient interest in a street.				been implemented
<b>Enhance landscape outcomes and increase tree and vegetation cover to reach 30% across Brighton by prioritising areas in greatest need</b>						
Phase 1	Increase tree and understorey cover at areas with greatest need to enhance landscape outcomes, provide for heating and cooling benefits and combat climate change.	<p>Investigate opportunities to increase canopy tree and understorey planting at the following streets which have been identified as having low canopy cover (less than 20%):</p> <ul style="list-style-type: none"> <li>• New Street,</li> <li>• Bay Street; and</li> <li>• Dendy Street</li> </ul> <p>In addition, investigate opportunities to increase tree and understorey cover at the following streets which have been identified as hot spots due to potential impacts from Urban Heat Island effects:</p> <ul style="list-style-type: none"> <li>• Glendora Avenue, Cochrane Street, Head Street</li> <li>• Martin Street, Brickwood Street, Cole Street</li> <li>• Spink Street, Nepean Highway, Hampton Street</li> <li>• South Road, Well Street, Church Street</li> <li>• Carpenter Street, Male Street, Bleazby Avenue</li> <li>• Valda Grove, Wilson Street, William Street</li> <li>• Durrant Street, York Street, Alverna Grove</li> <li>• St Andrews Street, Outer Crescent, Bay Street</li> <li>• Middle Crescent, Barkly Street, New Street</li> <li>• Crowther Place, Allee Street, Parliament Street</li> <li>• Cadby Street, Grosvenor Street, Normanby Street</li> <li>• Marion Street, Asling Street, Clarkson Avenue</li> <li>• Warleigh Grove, Nepean Highway, Warriston Street</li> <li>• Hillcrest Avenue, Cowra Street, Southey Street</li> <li>• Byron Street, Bent Street, Blanche Street</li> </ul>	Open Space	Year 1 to 5	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	Number of plants planted  Urban Forest Strategy Annual Reporting Program.
Phase 1	Planting canopy trees and understorey vegetation on roundabouts that currently do not have vegetation to enhance landscape outcomes.	<p>Investigate opportunities to provide canopy cover and/or understorey planting at the following roundabouts (as per Map 16):</p> <ul style="list-style-type: none"> <li>• Church street / Male street</li> </ul> <p>New plantings must not affect sight lines, safety or accessibility for larger vehicles.</p>	<p>Open Space, Integrated transport team to guide and undertake road safety audit before and after planting.</p> <p>Council's contractor (Citywide) health and safety standards to be followed.</p>	Year 1 to 5	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	Number of plants planted  Urban Forest Strategy Annual Reporting Program.
Phase 2	Increase utilisation of green walls and green roofs in Activity Centre area.	<p>Encourage innovative greening in Bay Street and Church Street Major Activity Centres and other Small Activity Centres by promoting and piloting different greening initiatives.</p> <p>Investigate opportunities to introduce mechanisms to increase green roofs and walls within Activity Centres.</p>	Development Services, Economic Development, Strategic Planning	Year 5 to 10	Economic Development team may require budget to run pilot programs.	Number of plants planted  Urban Forest Strategy Annual Reporting Program.

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
Phase 1 and 2	Reframe Council's approach to major council-owned projects, capital infrastructure renewal projects as opportunity to increase urban forestry outcomes.	Explore opportunities within road reconstruction projects to provide new tree plots as boulevard planting or in between car parking bays to enhance tree and vegetation cover upon local streets.	Project Services	Ongoing	Budget will be considered as part of the project scope.	Number of plants planted.  Urban Forest Strategy Annual Reporting Program.
Phase 1	Increase tree canopy cover by prioritising vacant tree sites.	As part of the Annual Tree Planting Program, continue to identify the current vacant sites and prioritise planting at these sites.	Open Space	Ongoing	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	Number of plants planted  Urban Forest Strategy Annual Reporting Program.
<b>Learn together, educate each other, encourage and celebrate greater care and protection of the Bayside Urban Forest</b>						
Phase 1	Increase planting on VicRoads that have less than 20% of tree canopy cover.	Advocate to the VicRoads and other authorities for increased planting on St. Kilda Street, Nepean Highway, North Road, South Road, and Hampton Street.	Open Space, Urban Strategy	Ongoing	No budget required.	A commitment made to plant trees on the streets maintained by VicRoads.
Phase 1	Increase awareness amongst the community around the importance of vegetation through various programs and communication material.	Continue to run student and community educational programs to increase awareness around vegetation planting and protection.	Urban Strategy, Communication & Engagement	Ongoing	Budget may be required to create and implement educational programs.	Number of educational programs undertaken every year.
Phase 1 and 2	Ensure humans and wildlife can simultaneously and safely access densely vegetated areas, streets and reserves.	Advocate to VicRoads and other authorities for the undergrounding of powerlines.	Urban Strategy	Ongoing	No budget required.	Funding received and/or partnerships created.
<b>Maintain our existing canopy cover across Brighton and avoid any further decline where possible</b>						
Phase 2	Ensure our urban forest is healthy and resilient.	<p>Where trees reaching the end of their useful life expectancy have been assessed and are no longer providing a benefit to the surrounding habitat, removal may be required.</p> <p>Replacement trees should be selected based on the surrounding environment, neighbourhood character (where relevant) and above and below ground infrastructure. It is noted that there are various trees potentially reaching the end of their useful life expectancy at the following locations (Map 5):</p> <ul style="list-style-type: none"> <li>• Bent Avenue</li> <li>• New Street</li> <li>• Asling Street</li> <li>• Spink Street</li> <li>• Dawson Ave</li> <li>• Bridge Street</li> <li>• Budd Street</li> <li>• Cowper Street</li> <li>• Carpenter Street</li> <li>• Dendy Street</li> <li>• Hampton Street</li> <li>• Roslyn Street</li> <li>• Moffat Street</li> </ul>	Open Space	Year 5 to 10	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	Number of replacement plants planted, and number of those trees retained for habitat.  Urban Forest Strategy Annual Reporting Program.

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
		<ul style="list-style-type: none"> <li>Green Point Parkland</li> </ul> <p>Where it has been found that trees reaching the end of their useful life still provide benefit and habitat, it should be retained as a habitat tree as per the Tree Risk Assessment Tool (TRAQ).</p>				
Phase 1 and 2	Increase Council's ability to protect trees from vandalism.	<p>Explore additional opportunities to minimise vandalism, particularly along the foreshore:</p> <ul style="list-style-type: none"> <li>Consider the preparation of a communications and engagement strategy targeted to private property owners and the wider community.</li> </ul>	Local Laws, Open Space	Year 1 to 3	Budget and resources will be required to explore opportunities.	Utilise engagement evaluation matrix to measure success.
Phase 2	Provide safer and cleaner streets for our residents and visitors	As tree and vegetation cover increases with time, ensure future maintenance contracts appropriately funds the clean-up of tree leaves and debris on streets and public land.	City Asset, Open Space	Year 5 to 10	Additional budget may be required for maintenance contract.	The number of requests for additional service.
Phase 1	Strengthen requirements and advocacy to maintain and increase vegetation on private land.	Prepare Planning Scheme Amendments to strengthen the protection of vegetation on private land.	Development Services, Urban Strategy	Year 1 to 5	<p>Planning Scheme Amendment process to be funded via operation budget.</p> <p>Budget may be required to prepare detailed background information.</p>	Preparation of Planning Scheme Amendments

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# Appendix 1: Guiding Principles and Considerations

Council is responsible for the management of road reserves, parks, public spaces, and foreshore reserves and has an active tree planting and maintenance program, which is guided by the *Park and Street Tree Management Policy*. As such, Council has a greater degree of control and influence over the tree population on council-managed land.

Planting in streets and parks presents a variety of challenges and there are important principles to use in responding to those challenges that will help to meet the *Urban Forest Strategy* targets. A complete and expanded set of these principles is included in the *Street and Park Tree Selection Guide 2016* and should be referred to when designing or planting any streetscape.

Brighton has a distinctive character dominated by natives, local indigenous and exotic species. Future plantings should focus on increasing the presence of indigenous and native species. While exotic species are an integral part of Brighton's urban forest for historical and ecological reasons (and do provide habitat and food sources. Future planting of exotic species will be based on local conditions and which species is the most appropriate for the area.

## Planting types and locations in streets

### 1. Large canopy trees

A single large canopy tree provides greater benefits in terms of cooling, rainwater interception and other ecosystem services than multiple small trees totalling the same canopy extent. Prioritise the use of large canopy trees, with larger trees planted preferentially in centre medians or tree islands, then in the roadway and then the footpath.

We recognise that there are restrictions where medium or small size trees would be more appropriate due to competing infrastructure. Understorey planting in these locations is also encouraged.

### 2. Constrained planting spaces

- a.) *Cut-outs*. Planting in cut-outs in the road or footpaths provides a useful alternative where there may be insufficient space on the nature strip. Suitability for planting in the road or footpath will depend on road or footpath width and other factors such as traffic volume and impact to on-street.
- b.) *Planting in road reserve*. Designing in-road tree pits where there is an opportunity to plant trees in between on-street parking spaces, traffic islands and buffer areas like street corners.
- c.) *Narrow streets*: Narrow streets, including narrow footpaths and no nature strips, are best landscaped via tree planting within the parking lanes to either side, although this is partly limited by the need to maintain car parking spaces.

### 3. Roundabouts

Roundabouts will be considered as opportunities to plant canopy trees and understorey planting when appropriate. New plantings must not affect sight lines, safety or accessibility for larger vehicles. To ensure future planting is appropriate a Road Safety Audit will be completed before and after installation.

### 4. Boulevards

For the boulevards, consider inter-planting with large canopy trees and shrubs to enhance the existing canopy cover.

### 5. Streets and powerlines:

- a.) *Residential streets*. Low voltage overhead wires are present on one side of most residential streets. Where medians exist for large canopy tree planting, small to medium trees on the side overhead constraints should be selected, always prioritising understorey planting.

- b.) *Streets with small nature strip and powerlines:* In streets that have small or very small nature strips, a smaller growing tree will be considered for the powerline side of the street. In those circumstances, the trees on both sides of the street should have similar foliage and form to provide a consistent theme for the street.
- c.) *Tree pruning:* In streets where footpath trees provide the only canopy, medium to large trees that can be effectively pruned around powerlines should be selected. Street and park tree selection for trees growing under power lines will consider the species' tolerance for pruning. For example, a tree that has a natural branching habit and a good wound response to mechanical damage would be considered an appropriate tree for growing under powerlines.
- d.) *Underground powerlines.* Although overhead powerlines are typically more economical, they are susceptible to damage from windborne tree branches, debris, and high wind conditions from extreme weather.

Council will facilitate the negotiations between the residents and relevant authorities to support the undergrounding of powerlines (and other services) if there is sufficient interest in a street.

## **6. Planting patterns and species choice**

Brighton's urban forest character is quite varied, with many of the council-managed spaces having a significant amount of gum trees, while exotic species are more prominent as street trees and upon private residential land. In terms of opportunities to increase diversity in streets, kerb out stands, roundabouts and road ends should be considered as opportunities to plant species drawn from a wider palette that are unique to that location or intersection and provide visual interest. These areas should also be considered as opportunities to create landmark feature landscapes and to support understorey planting.

## **7. Important Facades**

In streets with important public buildings or building that have heritage importance, deciduous trees should be given preference so that building façades are exposed over winter.

The convention of planting avenues, or consistent lines of a single species, can limit species diversity. However, avenue plantings are important to local character in many streets and open spaces. To balance these two conflicting pressures, it is important to identify ways to minimise the extent of homogeneous avenue planting while maintaining a strong design outcome.

## **8. Selection criteria for street trees:**

The following factors can be considered for selection of suitable street tree species:

- Relationship with local landscape character
  - garden character, surrounding streetscape
  - vegetation protection overlays, heritage values
  - maintain existing landscape character by selection of low fruiting cultivators where possible
  - replacing difficult to replace existing species with species demonstrating similar characteristics, e.g. growth habit, foliage colour and size.
- Ability to tolerate and thrive in a site's environmental conditions: species that have or can adapt to local conditions like climate, soil, coastal and salt tolerances, pests and diseases.
- Possible future damage to infrastructure as assessed against identified current issues with footpaths, kerb and channel, roadways, private infrastructure and powerlines.

## **9. Permeable surfaces**

Impermeable surfaces such as pavements, roofing and building coverage increase the risk of flooding in urban areas. Comparatively, permeable surfaces are made of porous materials that allow stormwater to flow through, which reduces the volume of stormwater runoff that enters the drainage



system. This helps improve water quality as it reduces the number of pollutants that enter waterways and habitats.

For new private residential development, at least 20% of the site should have surfaces that can absorb water such as lawns, garden beds or permeable paving. The council has developed the *Integrated Water Management Plan 2019-2039*, called 'Water for Bayside', to provide clear direction to deliver high priority integrated water management and water sensitive urban design (WSUD) activities. A key technique to improve water management is to increase permeability and incorporate WSUD into new developments and council projects.

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1



2a



2b



2c



3



4



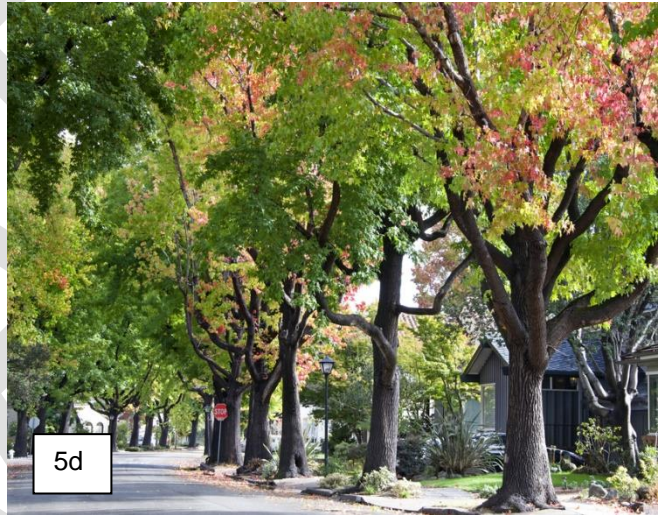
5a



5c



5b



5d



6

## Appendix 2: Case Studies

The following case studies showcase high-quality landscaping that combines the use of indigenous and native vegetation and high-quality design. A precinct's landscape helps define its character in much the same way as architecture or urban design because trees and other vegetation physically define a place. Landscapes are the setting for many everyday recreational and leisure activities and help forge a sense of connection to place.

### **Importance of high-quality landscaping to contribute to the urban forest:**

A precinct's landscape helps define its character in much the same way as architecture or urban design because trees and other vegetation physically define a place. Landscapes are the setting for many everyday recreational opportunities such as organised sport, walking or having a picnic and therefore help forge a sense of connection to place.

#### **1. Church Street**

Bayside Council has provided an example of how understory planting and canopy trees can be incorporated to enhance the visual appeal of a popular commercial precinct. Plane trees and grasses have been planted to improve the visual amenity of the streetscape, promote safety and increase vegetation. Church Street shows how vegetation can be integrated into a commercial area with high pedestrian and vehicle traffic.



## 2. Boxshall Street

Boxshall Street is a distinguished streetscape within Brighton that is dominated by exotic species. The *Cork Oaks* and *Chinese Elms* that line Boxshall Street showcase early exotic plantings within the suburb. This established avenue of exotic tree plantings should be retained to preserve the history and character of the street.

## 3. Billila Gardens

Billila House and Gardens has been recognised by Bayside Council and the local community as a significant historical site within Bayside. The residence was built by Robert Wright in 1878 with established gardens that are open for public use. The garden has retained much of its original layout, and it still contains several heritage-listed trees, a traditional parterre and a magnificent rose garden. Billila gardens consists of a diverse mix of native and exotic species such as *Canary Island Pines*. Billila provides a unique example of how the council is preserving vegetation in public open spaces and the importance of manicured gardens within Brighton. The gardens are maintained with their original exotic planting palette to reflect the historical eras that they represent.



3. Billila Gardens



2. Boxshall Street

# Appendix 3: Brighton Species Targets and Palette

## Species Targets

A broad target for Council's future planting has been set for native, indigenous and exotic species based on the vegetation character of each precinct. These targets should only be utilised as a guide to Council's Capital Works and Open Space teams for new and replacement planting in each suburb. While it is important to strive towards these targets and diversify the urban forest, species should also be picked based on their ability to survive in certain locations, their contribution to neighbourhood character and the community's safety as well as their ability to provide improvement of habitat.

Suburb	EVCs	Target % of new Exotic Species plants	Target % of new Native Species plants	Target % of new Indigenous Species plants
Brighton	719	30	30	40

## Species Palette

The following species provided are for guidance only. The Ecological Vegetation Classes (EVC) that exist in Brighton have informed the species palette as they focus on retaining and increasing native vegetation. In the suburb of Brighton, the EVCs found are Damp Sands Herb-rich Woodland (3), Coast Banksia Woodland/ Coastal Dune Scrub (921) and Coastal Headland Scrub/Coast Banksia Woodland Mosaic (EVC 919).<sup>6</sup> By prioritising the listed species, emphasis will be given on restoring native vegetation, to replicate the original vegetation of the area.

*Eucalyptus*, *Oaks*, *Pines* and other species are key genera across Brighton, forming an important part of the character of the suburb's urban forest. Species from many other genera will also be planted to increase the diversity of tree species, with the aim to reduce the vulnerability of Brighton's urban forest. The prepared species palette for Brighton seeks to enhance the already diverse urban forest while also ensuring the species are complimentary to the EVCs found within the suburb. A high diversity of plant species improves the chance of local ecosystems to survive destructive events or processes such as weed and pest animal invasion and climate change. Planting of specific species will depend on the geographic and environmental conditions, as well as the surrounding neighbourhood character.

Bayside City Council has also developed the *Live Bayside Plant Bayside 2022* as a guide to inform all future planting on public and private land. Residents are encouraged to use the guide in conjunction with the Brighton Species Palette when undertaking planting on their private properties. The *Live Bayside Plant Bayside* Guide features a selection of plants including:

- Herbs and groundcovers
- Creepers and climbers
- Lilies, grasses and tussocks
- Small shrubs
- Large shrubs
- Trees.

Council promotes the use of indigenous plants as they occur naturally within Bayside and have adapted to the conditions within the local environment such as soil and climate. Please note, all indigenous plants provide habitat and food for local birds, insects, and other native animals.

## General Planting List for Brighton

The following species are provided as guidance only and should be considered for planting on private and public land where the following doesn't apply:

- One of the EVC species list identified in this Appendix;
- An existing approved landscape plan
- Endorsed Master plan for a Park or Reserve.

The list uses letter to denote the type of environment the species are suited to:

- A plants are adaptable, growing well in most soil types and aspects
- C plants are for the coast – dune scrub and and woodland
- D plants prefer dry, well-drained soils and can tolerate dryness once established
- S plants prefer or tolerate full shade
- H plants prefer heath or woodland
- W plants prefer or tolerate moist soils, wetness and periodic inundation.

Climbing Plants		
Species Name	Common Name	Key
<i>Billardiera mutabilis</i>	Common Apple-berry	HA
<i>Clematis microphylla</i>	Small-leaved Clematis	HCA
<i>Comesperma volubile</i>	Love Creeper	HDS
<i>Hardenbergia violacea</i>	Purple Coral Pea	HD
<i>Muehlenbeckia australis</i>	Climbing Lignum	HCDS
Grasses and Tussocks		
Species Name	Common Name	Key
<i>Austrostipa flavescens</i>	Coast Spear-grass	CA
<i>Austrostipa mollis</i>	Soft Spear-grass	HA
<i>Austrostipa stipoides</i>	Prickly Spear-grass	CD
<i>Deyeuxia quadriseta</i>	Reed Bent-grass	HD
<i>Dianella admixta</i>	Spreading Flax-lily	HCSA
<i>Dianella brevicaulis</i>	Small-flower Flax-lily	HCDSA
<i>Dianella laevis var. laevis</i>	Pale Flax-lily	HA
<i>Dianella sp. aff. revoluta</i>	Coastal Flax-lily	C
<i>Dichelachne crinita</i>	Long-hair Plume-grass	HD
<i>Distichlis distichophylla</i>	Australian Salt-grass	CA
<i>Eragrostis brownii</i>	Common Love-grass	HA
<i>Ficinia nodosa</i>	Knobby Club-sedge	HCA
<i>Juncus pallidus</i>	Pale Rush	A
<i>Lomandra filiformis</i>	Wattle Mat-rush	HDSA
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	HCDSA
<i>Lomandra multiflora</i>	Many-flowered Mat-rush	HAD
<i>Microlaena stipoides</i>	Weeping Grass	HCA
<i>Patersonia fragilis</i>	Short Purple-flag	HW

<i>Patersonia occidentalis</i>	Long Purple-flag	HDW
<i>Poa labillardieri</i>	Common Tussock-grass	HA
<i>Poa poiformis</i>	Coast or Blue Tussock-grass	CA
<i>Poa sieberana</i>	Tussock-grass	HA
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	HCA
<i>Rytidosperma geniculatum</i>	Knead Wallaby-grass	HCA
<i>Rytidosperma racemosum</i>	Clustered Wallaby-grass	HCDW
<i>Rytidosperma setaceum</i>	Bristly Wallaby-grass	HA
<i>Sporobolus virginicus</i>	Salt or Sand Couch	CA
<i>Themeda triandra</i>	Kangaroo Grass	HA
<i>Triglochin striatum</i>	Streaked Arrowgrass	CW
<i>Xanthorrhoea minor</i>	Small Grass-tree	HD

<b>Ground Covers and Wildflowers</b>		
Species name	Common name	Key
<i>Acaena novae-zelandiae</i>	Bidgee-widgee	CSA
<i>Actites megalocarpus</i>	Dune Thistle	C
<i>Acrotriche serrulata</i>	Honey-pots	HD
<i>Amperea xiphoclada</i>	Broom Spurge	HD
<i>Apium prostratum ssp prostratum</i>	Sea Celery	CW
<i>Arthropodium strictum</i>	Chocolate Lily	HA
<i>Bossiaea prostrata</i>	Creeping Bossiaea	HD
<i>Brachyscome parvula</i>	Coast Daisy	CW
<i>Burchardia umbellata</i>	Milkmaids	HDW
<i>Carpobrotus rossii</i>	Karkalla	CD
<i>Chrysocephalum apiculatum</i>	Common Everlasting	HD
<i>Coronidium scorpioides</i>	Button Everlasting	HD
<i>Dichondra repens</i>	Kidney-weed	HCA
<i>Disphyma crassifolium</i>	Rounded Noon-flower	CA
<i>Einadia nutans</i>	Nodding Saltbush	HCDA
<i>Frankenia pauciflora</i>	Southern Sea-heath	CD
<i>Geranium solanderi</i>	Austral Cranesbill	HA
<i>Gonocarpus tetragynus</i>	Poverty Raspwort	HA
<i>Goodenia geniculata</i>	Bent Goodenia	HA
<i>Hibbertia acicularis</i>	Prickly Guinea-flower	HD
<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	W
<i>Isotoma fluviatilis ssp australis</i>	Swamp Isotome	W



<i>Kennedia prostrata</i>	Running Postman	HCD
<i>Lagenophora stipitata</i>	Common Bottle-daisy	HCA
<i>Laxmannia orientalis</i>	Dwarf Wire Lily	HD
<i>Lobelia anceps</i>	Angled Lobelia	HW
<i>Lobelia pratioides</i>	Poison Lobelia	HW
<i>Opercularia ovata</i>	Broad-leaf Stinkweed	HA
<i>Opercularia varia</i>	Variable Stinkweed	HDS
<i>Pelargonium australe</i>	Austral Stork's-bill	CA
<i>Pelargonium inodorum</i>	Kopata	HA
<i>Pimelea humilis</i>	Common Rice-flower	HA
<i>Platylobium obtusangulum</i>	Common Flat-pea	HD
<i>Platysace heterophylla</i>	Slender Platysace	HDW
<i>Sarcocornia quinqueflora</i> ssp. <i>quinqueflora</i>	Beaded Glasswort or Samphire	CW
<i>Selliera radicans</i>	Shiny Swamp-mat	CW
<i>Stylidium graminifolium</i>	Grass Trigger-plant	HDW
<i>Tetragonia implexicoma</i>	Bower Spinach	CA
<i>Tetragonia tetragonioides</i>	New Zealand Spinach	CA
<i>Viola hederacea</i>	Ivy-leaf or Native violet	HCWS

### Small to Medium Trees (5m - 10m)

Species name	Common name	Key
<i>Acacia implexa</i>	Lightwood	HSA
<i>Acacia mearnsii</i>	Black Wattle	HCD
<i>Acacia melanoxylon</i>	Blackwood	HWA
<i>Allocasuarina littoralis</i>	Black She-oak	HDS
<i>Allocasuarina verticillata</i>	Drooping She-oak	CD
<i>Bursaria spinosa</i>	Sweet Bursaria	HCA
<i>Leptospermum laevigatum</i>	Coast Tea-tree	CDA
<i>Melaleuca ericifolia</i>	Swamp Paperbark	HCDWA
Species Name	Common Name	Key
<i>Banksia integrifolia</i>	Coast Banksia	CD
<i>Eucalyptus camaldulensis</i>	River Red Gum	HA
<i>Eucalyptus melliodora</i>	Yellow Box	HA
<i>Eucalyptus ovata</i>	Swamp Gum	HW
<i>Eucalyptus pauciflora</i>	Snow Gum or White Sallee	HA
<i>Eucalyptus radiata</i>	Narrow-leaf Peppermint	HD
<i>Eucalyptus viminalis</i> ssp. <i>pryoriana</i>	Coast Manna-gum	HCD

Small Shrubs (50cm - 2m)		
Species name	Common name	Key
<i>Acacia brownii</i>	Heath Wattle	H
<i>Acacia suaveolens</i>	Sweet Wattle	HD
<i>Acacia ulicifolia</i>	Juniper Wattle	HW
<i>Allocasuarina paradoxa</i>	Green She-oak	HDS
<i>Aotus ericoides</i>	Common Aotus	HWD
<i>Atriplex cinerea</i>	Coast or Grey Saltbush	CD
<i>Bossiaea cinerea</i>	Showy Bossiaea	HCD
<i>Correa alba</i>	White Correa	CA
<i>Correa reflexa</i>	Common Correa	HSA
<i>Daviesia ulicifolia</i>	Gorse Bitter-pea	HA
<i>Dillwynia cinerascens</i>	Grey Parrot-pea	HDS
<i>Dillwynia glaberrima</i>	Heath Parrot-pea	HDS
<i>Epacris impressa</i>	Common Heath	HA
<i>Goodenia ovata</i>	Hop Goodenia	HCA
<i>Hibbertia fasciculata</i> var. <i>prostrata</i>	Bundled Guinea-flower	HD
<i>Hibbertia sericea</i>	Silky Guinea-flower	HD
<i>Hibbertia riparia</i>	Erect Guinea-flower	HA
<i>Lasiopetalum baueri</i>	Slender Velvet-bush	CDA
<i>Leptospermum myrsinoides</i>	Heath or Silky Tea-tree	HA
<i>Leucophyta brownii</i>	Cushion Bush	CD
<i>Leucopogon virgatus</i>	Common Beard-heath	HD
<i>Monotoca scoparia</i>	Prickly Broom-heath	HDW
<i>Myoporum petiolatum</i>	Sticky Boobialla	CA
<i>Olearia ramulosa</i>	Twiggy Daisy-bush	HD
<i>Rhagodia candolleana</i>	Seaberry Saltbush	CA
<i>Suaeda australis</i>	Austral Seablite	CW

Medium to Large Shrubs		
Species Name	Common Name	Key
<i>Acacia sophorae</i>	Coast Wattle	CA
<i>Acacia oxycedrus</i>	Spike Wattle	HWA
<i>Acacia paradoxa</i>	Hedge Wattle	HCA
<i>Acacia stricta</i>	Hop Wattle	HCSA
<i>Alyxia buxifolia</i>	Sea Box	CD
<i>Banksia marginata</i>	Silver Banksia	HDA
<i>Cassinia arcuata</i>	Drooping Cassinia	HA

<i>Cassinia aculeata</i>	Common Cassinia	HDS
<i>Indigofera australis</i>	Austral Indigo	HA
<i>Kunzea leptospermoides</i>	Yarra Burgan	HA
<i>Leptospermum continentale</i>	Prickly Tea-tree	HWA
<i>Melaleuca squarrosa</i>	Scented Paperbark	HW
<i>Myoporum insulare</i>	Common Boobialla	CA
<i>Olearia axillaris</i>	Coast Daisy-bush	CD
<i>Olearia glutinosa</i>	Sticky Daisy-bush	CD
<i>Ozothamnus ferrugineus</i>	Tree Everlasting	HWA
<i>Pomaderris paniculosa</i>	Shining Coast Pomaderris	CDA
<i>Ricinocarpos pinifolius</i>	Wedding Bush	HW
<i>Solanum laciniatum</i>	Large Kangaroo Apple	HCA
<i>Viminaria juncea</i>	Golden Spray	HA

### EVC Specific Lists

Of the 10 EVCs modelled within Bayside, three have been identified within Brighton. The Coast Banksia Woodland / Coastal Dune Scrub Mosaic, Coastal Headland Scrub/Coast Banksia Woodland Mosaic and the Damp Sands Herb-rich Woodland. The below species should be planted within the locations where these EVCs were historically present (as per Map 10).

#### Coast Banksia Woodland/Coastal Dune Scrub Mosaic (EVC 921)

Reference Location: North Road Reserve – modified representation

Species typical of at least part of EVC range	Common Name	Lifeform	Location
<i>Leucopogon parviflorus</i>	Coast Beard-heath	Middlestorey Shrub	Coastal Areas
<i>Rhagodia candolleana</i> subsp. <i>candolleana</i>	Seaberry Saltbush	Middlestorey Shrub	Coastal Areas
<i>Leptospermum laevigatum</i>	Coast Tea-tree	Middlestorey Shrub	Throughout
<i>Senecio minimus</i>	Shrubby Fireweed	Understorey Herb	Inland sheltered sites
<i>Haloragis brownii</i>	Swamp Raspwort	Understorey Herb	Not local to BCC
<i>Sambucus gaudichaudiana</i>	White Elderberry	Middlestorey Shrub	Not local to BCC
<i>Viola hederacea</i> sensu Willis (1972)	Ivy-leaf Violet	Understorey Herb	Inland sheltered sites
<i>Lobelia anceps</i>	Angled Lobelia	Understorey Herb	Coastal Areas and Wetlands
<i>Sarcocornia quinqueflora</i>	Beaded Glasswort	Understorey Herb	Exposed Coastal Areas
<i>Hydrocotyle sibthorpioides</i>	Shining Pennywort	Understorey Herb	Inland Damp Areas
<i>Dichondra repens</i>	Kidney-weed	Understorey Herb	Sheltered Damp Areas
<i>Pteridium esculentum</i>	Austral Bracken	Understorey Fern	Heathland and Woodland Areas
<i>Galium australe</i>	Tangled Bedstraw	Scrambler	Coastal and Woodland Areas

<i>Clematis microphylla</i>	Small-leaved Clematis	Climber	Throughout
<i>Acacia longifolia s.l.</i>	Coast Wattle	Middlestorey Shrub	Throughout
<i>Carpobrotus rossii</i>	Karkalla	Understorey Herb	Coastal Areas
<i>Austrostipa mollis</i>	Supple Spear-grass	Understorey Graminoid	Heathland and Woodland Areas
<i>Austrostipa flavescens</i>	Coast Spear-grass	Understorey Graminoid	Coastal Areas
<i>Austrodanthonia geniculate</i>	Kneed Wallaby-grass	Understorey Graminoid	Coastal and Heathlands
<i>Lepidosperma concavum</i>	Sandhill Sword-sedge	Understorey Graminoid	Heathlands and wetlands
<i>Tetragonia implexicoma</i>	Bower Spinach	Scrambler	Coastal Areas
<i>Banksia integrifolia subsp. integrifolia</i>	Coast Banksia	Canopy Tree	Coastal and Woodland Areas

Karkalla



White Elderberry



Angled Lobelia



Coast Wattle



Shrubby Fireweed



Small-leaved Clematis



Coast Spear-grass



Kneed Wallaby-grass



Coast Beard-heath



### Coastal Headland Scrub/Coast Banksia Woodland Mosaic (EVC 919)

Reference Location: Ricketts Point Beach Reserve

Species typical of at least part of EVC range	Common Name	Lifeform	Location
<i>Leptospermum laevigatum</i>	Coast Tea-tree	Middle Storey	Throughout
<i>Acacia longifolia</i> subsp. <i>sophorae</i>	Coast Wattle	Middle Storey	Throughout
<i>Rhagodia candolleana</i> subsp. <i>candolleana</i>	Seaberry Saltbush	Middle Storey	Coastal Areas
<i>Leucopogon parviflorus</i>	Coast Beard-heath	Middle Storey	Coastal Areas
<i>Leucophyta brownii</i>	Cushion Bush	Understorey Shrub	Coastal Areas
<i>Dichondra repens</i>	Kidney-weed	Understorey Herb	Woodlands
<i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>	Rounded Noon-flower	Understorey Herb	Coastal Areas
<i>Dianella brevicaulis</i>	Small-flower Flax-lily	Understorey Graminoid	Coastal and Heathland Areas
<i>Lachnagrostis billardierei</i> s.l.	Coast Blown-grass	Understorey Graminoid	Coastal Areas
<i>Poa poiformis</i>	Coast Tussock-grass	Understorey Graminoid	Coastal Areas
<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass	Understorey Graminoid	Throughout
<i>Ficinia nodosa</i>	Knobby Club-sedge	Understorey Graminoid	Coastal Areas
<i>Clematis microphylla</i>	Small-leaved Clematis	Climber	Throughout
<i>Tetragonia implexicoma</i>	Bower Spinach	Scrambler	Coastal Areas
<i>Senecio minimus</i>	Shrubby Fireweed	Understorey Herb	Inland sheltered sites
<i>Haloragis brownii</i>	Swamp Raspwort	Understorey Herb	Not local to BCC
<i>Sambucus gaudichaudiana</i>	White Elderberry	Middlestorey Shrub	Not local to BCC
<i>Viola hederacea</i> sensu Willis (1972)	Ivy-leaf Violet	Understorey Herb	Inland sheltered sites
<i>Lobelia anceps</i>	Angled Lobelia	Understorey Herb	Coastal Areas and Wetlands
<i>Sarcocornia quinqueflora</i>	Beaded Glasswort	Understorey Herb	Exposed Coastal Areas
<i>Hydrocotyle sibthorpioides</i>	Shining Pennywort	Understorey Herb	Inland Damp Areas
<i>Pteridium esculentum</i>	Austral Bracken	Understorey Fern	Coastal Woodlands and Inland Areas
<i>Galium australe</i>	Tangled Bedstraw	Scrambler	Coastal and Woodland Areas
<i>Banksia integrifolia</i>	Coast Banksia	Canopy Tree	Coastal and Woodland Areas
<i>Eucalyptus viminalis</i> subsp. <i>pyroriana</i>	Rough-barked Manna Gum	Canopy Tree	Woodland Areas

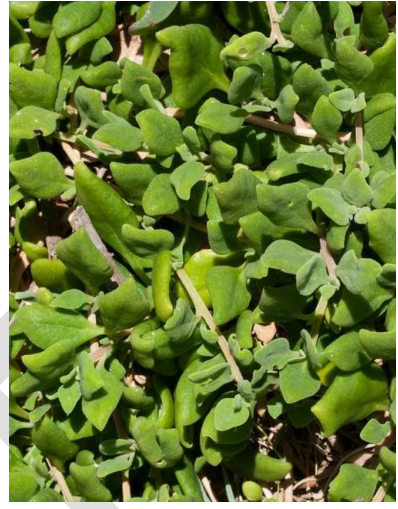
Seaberry Saltbush



Rounded Noon-flower



Bower Spinach



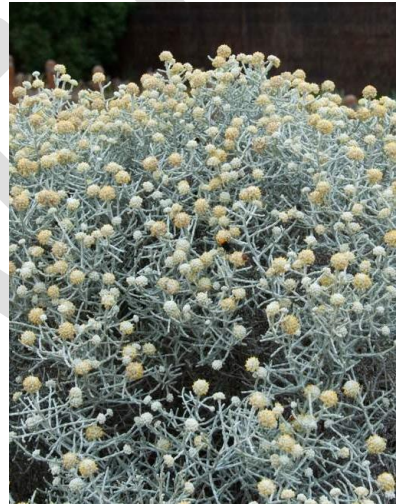
Common Wallaby-grass



Beaded Glasswort



Cushion Bush



Knobby Club-sedge



Tangled Bedstraw



Coast Blown-grass



### Damp Sands Herb-rich Woodland (EVC 3)

Reference Location: Yalukit Willam Nature Reserve (Elsternwick Park) – adjacent to the pond

Species typical of at least part of EVC range	Common Name	Lifeform	Location
<i>Acacia mearnsii</i>	Black Wattle	Middlestorey Tree	Throughout
<i>Acacia melanoxylon</i>	Blackwood	Middlestorey Tree	Inland Areas
<i>Epacris impressa</i>	Common Heath	Middlestorey Shrub	Heathlands
<i>Leptospermum continentale</i>	Prickly Tea-tree	Middlestorey Shrub	Throughout
<i>Banksia marginata</i>	Silver Banksia	Middlestorey Tree	Heathlands
<i>Leptospermum myrsinoides</i>	Heath Tea-tree	Middlestorey Shrub	Heathlands
<i>Leucopogon virgatus</i>	Common Beard-heath	Middlestorey Shrub	Heathlands
<i>Dillwynia glaberrima</i>	Smooth Parrot-pea	Middlestorey Shrub	Heathlands
<i>Amperea xiphoclada</i> var. <i>xiphoclada</i>	Broom Spurge	Understorey Shrub	Heathlands
<i>Astroloma humifusum</i>	Cranberry Heath	Understorey Shrub	Heathlands
<i>Gonocarpus tetragynus</i>	Common Raspwort	Understorey Herb	Heathlands
<i>Drosera peltata</i> subsp. <i>auriculata</i>	Tall Sundew	Understorey Herb	Inland Damp Areas
<i>Viola hederacea</i> sensu Willis (1972)	Ivy-leaf Violet	Understorey Herb	Inland sheltered sites
<i>Geranium solanderi</i> s.l.	Austral Cranesbill	Understorey Herb	Not local to BCC
<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	Understorey Herb	Throughout
<i>Opercularia varia</i>	Variable Stinkweed	Understorey Herb	Heathlands
<i>Dichondra repens</i>	Kidney-weed	Understorey Herb	Sheltered Damp Areas
<i>Poranthera microphylla</i>	Small Poranthera	Understorey Herb	Inland Areas
<i>Austrostipa mollis</i>	Supple Spear-grass	Understorey Graminoid	Heathland and Woodland Areas
<i>Tetrarrhena juncea</i>	Forest Wire-grass	Understorey Graminoid	Not local to BCC
<i>Lepidosperma concavum</i>	Sandhill Sword-sedge	Understorey Graminoid	Heathlands and wetlands
<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily	Understorey Graminoid	Coastal and Heathland Areas
<i>Poa sieberiana</i>	Grey Tussock-grass	Understorey Graminoid	Coastal and Heathland Areas
<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass	Understorey Graminoid	Inland and Heathland Areas
<i>Allocasuarina littoralis</i>	Black Sheoak	Middlestorey Tree	Throughout
<i>Exocarpos cupressiformis</i>	Cherry Ballart	Understorey Shrub	Heathlands
<i>Cassinia aculeata</i>	Common Cassinia	Understorey Shrub	Heathland and Woodland Areas
<i>Acacia paradoxa</i>	Hedge Wattle	Understorey Shrub	Throughout
<i>Pimelea humilis</i>	Common Rice-flower	Understorey Shrub	Coastal and Heathland Areas
<i>Hibbertia riparia</i>	Erect Guinea-flower	Understorey Shrub	Heathlands
<i>Bossiaea prostrata</i>	Creeping Bossiaea	Understorey Shrub	Coastal and Heathland Areas
<i>Acrotriche serrulata</i>	Honey-pots	Understorey Herb	Dry Sandy Areas
<i>Pterostylis longifolia</i> s.l.	Tall Greenhood	Understorey Herb	Inland sheltered sites
<i>Drosera whittakeri</i> subsp. <i>aberrans</i>	Scented Sundew	Understorey Graminoid	Heathlands
<i>Deyeuxia quadriseta</i>	Reed Bent-grass	Understorey Graminoid	Woodland Areas



<i>Xanthorrhoea minor</i> <i>subsp. lutea</i>	Small Grass-tree	Understorey Graminoid	Heathland and Woodland Areas
<i>Lomandra longifolia</i>	Spiny-headed Mat- rush	Understorey Graminoid	Coastal and Inland Damp Areas
<i>Gahnia radula</i>	Thatch Saw-sedge	Understorey Graminoid	Inland Damp Areas
<i>Lomandra filiformis</i>	Wattle Mat-rush	Understorey Graminoid	Inland Damp Areas
<i>Themeda triandra</i>	Kangaroo Grass	Understorey Graminoid	Inland Areas
<i>Lepidosperma laterale</i>	Variable Sword- sedge	Understorey Graminoid	Coastal and Woodland Areas
<i>Pteridium esculentum</i>	Austral Bracken	Understorey Fern	Heathland and Woodland Areas
<i>Comesperma volubile</i>	Love Creeper	Understorey Climber	Heathland and Woodland Areas
<i>Billardiera scandens</i>	Common Apple-berry	Middlestorey Tree	Coastal and Heathland Areas
<i>Eucalyptus viminalis</i> <i>subsp. pryoriana</i>	Rough-barked Manna Gum	Canopy Tree	Woodland Areas

Black Wattle



Common Heath



Silver Banksia



Blackwood



Kidney Weed



Smooth Parrot-pea



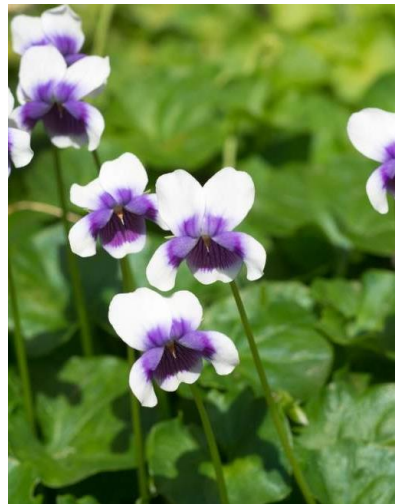
Prickly Tea-tree



Austral Bracken



Ivy-leaf Violet



## Exotic Species list

As reiterated in this Precinct Plan, focus will be placed on increasing the use of native and indigenous species. In certain areas of Bayside, the historic use of exotic plants makes part of the character of the area and has provided species diversity. The use of exotic plants is encouraged where appropriate and where considered to have a positive impact on the surrounding environment and neighbourhood.

### Ground cover & Grasses <1m

Scientific Name	Common Name	Location	Origin
<i>Abelia 'Kaleidoscope'</i>	'Kaleidoscope'	Private gardens, reserve, parkland, street	North Carolina
<i>Aponogeton distachyos</i>	Water Hawthorn	Waterways	South Africa
<i>Azalea</i>	Azalea	Private gardens, reserve, parkland, street	China
<i>Blechnum fern</i>	Silver Lady	Private gardens, reserve, parkland, street	Pacific Islands
<i>Bromeliad</i>	Bromeliad	Private gardens, reserve, parkland, street	North and South America
<i>Buxus sempervirens suffruticosa</i>	Dutch box	Private gardens, reserve, parkland, street	Europe
<i>Cistus x argenteus</i>	Silver Pink'	Private gardens, reserve, parkland, street	Mediterranean and Canary Island
<i>Clivia x cyrtanthiflora</i>	Belgium Hybrid	Private gardens, reserve, parkland, street	Southern Africa
<i>Convolvulus cneorum</i>	Silver Bush	Private gardens, reserve, parkland, street	Coastal Spain
<i>Coprosma repens</i>	Pacific Sunrise	Private gardens, reserve, parkland, street	New Zealand
<i>Daphne odora</i>	Perfume Princess	Private gardens, reserve, parkland, street	China
<i>Dichondra</i>	Silver Falls	Private gardens, reserve, parkland, street	America*** Under review in Australia
<i>Echinodorus uruguayensis</i>	Uruguay Sword Plant	Waterway	South America
<i>Escallonia laevis</i>	Pink Elle	Private gardens, reserve, parkland, street	North and South America
<i>Hebe</i>	Emerald Green Hebe	Private gardens, reserve, parkland, street	New Zealand
<i>Hemerocallis hybrida</i>	Stella Bella	Private gardens, reserve, parkland, street	China
<i>Liriope muscari</i>	Elmarco	Private gardens, reserve, parkland, street	East Asia
<i>Liriope muscari</i>	Evergreen Giant	Private gardens, reserve, parkland, street	East Asia
<i>Lithodora diffusa</i>	Grace Ward	Private gardens, reserve, parkland, street	Southern and Western Europe
<i>Nuphar japonica</i>	Japanese Pond Lily	Waterway	Japan
<i>Nymphoides indica</i>	Water Snowflake	Waterway	South Asia
<i>Orontium aquaticum</i>	Golden Club	Waterway	Eastern America
<i>Phlebodium</i>	'Davana'	Private gardens, reserve, parkland, street	Central, South America
<i>Rhaphiolepis indica</i>	Oriental Pearl	Private gardens, reserve, parkland, street	Asia
<i>Sagittaria subulata var. subulata</i>	Awl-Leaf Arrowhead	Waterway	America
<i>Salvia farinacea</i>	Blue Sage	Private gardens, reserve, parkland, street	Mexico

*Aponogeton distachyos*



*Daphne odora*



*Lithodora diffusa*



*Buxus sempervirens suffruticosa*



*Liriope muscari*



*Rhaphiolepis indica*



*Convolvulus cneorum*



*Hemerocallis hybrida*



*Sagittaria subulata var. subulata*



**Midstory Canopy 1m – 5m**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Location</b>	<b>Origin</b>
Aeonium arboreum	Irish Rose	Coastal	Atlantic Islands
Aloe plicatilis	Aloe Fan	Coastal	South Africa
Camellia japonica	Debbie'	Private gardens, reserve, parkland, street	New Zealand
Cotyledon orbiculata	Pigs ear	Coastal	South Africa
Dracaena warneckii	Janet Craig	Private gardens, reserve, parkland, street	China
Echium fastuosum	Pride of Madeira	Coastal	Madeira
Euphorbia characias	'Silver Swan'	Coastal	Mediterranean
Gardenia augusta	'Radicans'	Private gardens, reserve, parkland, street	China, Japan, Korea
Nandina domestica	Heavenly Bamboo	Coastal	Japan
Phormium tenax	Flax	Coastal	New Zealand
Pinus heldreichii 'COMPACT GEM'	Heldreich's pine	Coastal	Southern Italy
Rosemary officinalis	Rosemary	Private gardens, reserve, parkland, street	Mediterranean

*Aloe plicatilis*



*Cotyledon orbiculata*



*Echium fastuosum*



*Gardenia augusta*



*Nandina domestica*



*Pinus heldreichii* 'COMPACT GEM'



*Aeonium arboreum*



*Phormium tenax*



*Dracaena warneckii*



**Canopy Tree >5m**

Scientific Name	Common Name	Location	Origin
<i>Acer buergerianum</i>	Three toothed Maple	Private Garden, street, reserve, parkland	China
<i>Acer campestre</i> 'Elsrijk'	Field Maple	Private Garden, street, reserve, parkland	West Europe
<i>Acer platanoides</i>	Norway Maple	Private Garden, reserve, parkland	Eastern Europe
<i>Acer rubrum</i>	'October Glory'	Private Garden, street, reserve, parkland	North East America
<i>Acer truncatum</i>	Shangtung maple	Private Garden, reserve, parkland	China
<i>Acer x freemanii</i>	'Autumn Blaze'	Private Garden, street, reserve, parkland	North East America
<i>Afrocarpus Falcatus</i>	Common Yellow	Private Garden, street, reserve, parkland	Southern Africa
<i>Catalpa bignonioides</i> 'Nana'	Southern Catalpa	Private Garden, street, reserve, parkland	America
<i>Cedrus atlantica</i>	Atlas Cedar	Private Garden, street, reserve, parkland	North Africa
<i>Cedrus deodara</i>	Himalayan Cedar	Private Garden, street, reserve, parkland	Himalayas
<i>Celtis australis</i>	European nettle tree	Private Garden, street, reserve, parkland	Southern Europe, North Africa
<i>Celtis occidentalis</i>	Common Hackberry	Private Garden, street, reserve, parkland	North America
<i>Cercis siliquastrum</i>	Judas Tree	Private Garden, street, reserve, parkland	Mediterranean
<i>Cupressus glabra</i> (syn. <i>C. arizonica</i> )	Arizona smooth bark cypress	Private Garden, street, reserve, parkland	South western America
<i>Cupressus sempervirens</i>	Mediterranean cypress	Private Garden, reserve, parkland	Mediterranean
<i>Cupressus torulosa</i>	Himalayan cypress	Private Garden, street, reserve, parkland	India, Himalayas
<i>Fraxinus excelsior</i>	Golden Ash	Private Garden, street, reserve, parkland	Europe
<i>Fraxinus ornus</i>	Manna Ash	Private Garden, street, reserve, parkland	Southern Europe and West Asia
<i>Fraxinus pennsylvanica</i>	Cimmaron Green Ash	Private Garden, street, reserve, parkland	North America

<i>Fraxinus velutina</i>	Velvet Ash	Private Garden, street, reserve, parkland	South western North America
<i>Ginkgo biloba</i>	Ginkgo	Private Garden, street, reserve, parkland	China
<i>Gleditsia triacanthos</i> var.inermis Varieties	Honey locust	Private Garden, street, reserve, parkland	North America
<i>Jacaranda mimosifolia</i>	Jacaranda	Private Garden, street, reserve, parkland	South America
<i>Lagerstroemia indica</i> x <i>L. fauriei</i> varieties	Crepe Myrtle	Private Garden, reserve, parkland	Japan
<i>Liquidambar formosana</i>	Chinese sweet gum	Private Garden, street, reserve, parkland	Southern China and Taiwan
<i>Liquidambar styraciflua</i>	Fruitless sweet gum	Private Garden, street, reserve, parkland	North and Central America
<i>Maclura pomifera</i>	Osange Orange	Private Garden, street, reserve, parkland	South central America
<i>Magnolia grandiflora</i>	Exmouth	Private Garden, street, reserve, parkland	America
<i>Metasequoia glyptostroboides</i>	Dawn Redwood	Private Garden, street, reserve, parkland	China
<i>Olea europaea</i>	Olive	Private Garden, street, reserve, parkland	Southern Europe, northern Africa and western Asia
<i>Paulownia tomentosa</i>	Canary Pine	Private Garden, street, reserve, parkland	Canary Island
<i>Phoenix canariensis</i>	Canary Date Palm	Private Garden, street, reserve, parkland, coastal	Morocco
<i>Pinus halepensis</i>	Jerusalem Pine	Private Garden, street, reserve, parkland	Mediterranean
<i>Pinus patula</i>	Mexican weeping pine	Private Garden, street, reserve, parkland	Mexico
<i>Pinus pinaster</i>	Maritime pine	Private Garden, street, reserve, parkland	Western Mediterranean
<i>Pinus pinea</i>	Italian Stone Pine	Private Garden, street, reserve, parkland	Southern Europe
<i>Pistacia chinensis</i>	Chinese pistacia	Private Garden, street, reserve, parkland	China
<i>Platanus orientalis</i>	Oriental Plane	Private Garden, street, reserve, parkland	Asia, Cypress
<i>Platanus X acerifolia</i>	London Plane	Street, reserve, parkland	Britain
<i>Pyrus calleryana</i> varieties	Celery pear	Private Garden, street, reserve, parkland	China, Vietnam



<i>Pyrus nivalis</i>	Snowy pear	Private Garden, street, reserve, parkland	South east Europe to western Asia
<i>Quercus acutissima</i>	Sawtooth Oak	Private Garden, street, reserve, parkland	Asia
<i>Quercus agrifolia</i>	Coast live oak	Private Garden, street, reserve, parkland, coastal	California
<i>Quercus bicolor</i>	Swamp white Oak	Private Garden, street, reserve, parkland	Eastern and Central Midwest America
<i>Quercus canariensis</i>	Algerian Oak	Private Garden, street, reserve, parkland	Spain, Morocco
<i>Quercus cerris</i>	Austrian Oak	Private Garden, street, reserve, parkland	South-eastern Europe
<i>Quercus coccinea</i>	Scarlett Oak	Private Garden, reserve, parkland	America
<i>Quercus ilex</i>	Holly Oak	Private Garden, street, reserve, parkland	Mediterranean
<i>Quercus macrocarpa</i>	Burr Oak	Private Garden, street, reserve, parkland	North America
<i>Quercus phellos</i>	Willow Oak	Private Garden, reserve, parkland	America
<i>Sapium sebiferum</i>	Chinese Tallow	Private Garden, street, reserve, parkland	China
<i>Sophora japonica</i>	Princeton Upright	Private Garden, street, reserve, parkland	China
<i>Taxodium distichum</i>	Bald Cypress	Private Garden, street, reserve, parkland	South-eastern America
<i>Tilia cordata</i>	Greenspire	Private Garden, street, reserve, parkland	Europe
<i>Trachycarpus fortunei</i>	Windmill Palm	Private Garden, street, reserve, parkland	China
<i>Ulmus glabra</i>	Golden Wych Elm	Private Garden, street, reserve, parkland	Britain
<i>Ulmus parvifolia</i>	Chinese Elm	Private Garden, street, reserve, parkland	Eastern Asia
<i>Washingtonia filifera</i>	Dessert fan palm	Private Garden, street, reserve, parkland, coastal	Southwest America
<i>Washingtonia robusta</i>	Mexican Fan Palm	Private Garden, reserve, parkland	North west Mexico
<i>Zelkova serrata</i>	Green Vase	Private Garden, street, reserve, parkland	Japan

Acer rubrum



Catalpa bignonioides 'Nana



Cupressus torulosa



Fraxinus ornus



Ginkgo biloba



Maclura pomifera



Magnolia grandiflora



Pinus patula



Pistacia chinensis



*Platanus orientalis*



*Quercus acutissima*



*Tilia cordata*



*Zelkova serrata*



*Lagerstroemia indica* x *L. fauriei*  
varieties



*Paulownia tomentosa*



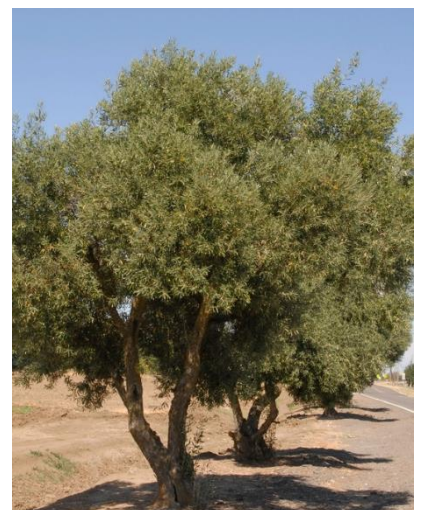
*Platanus X acerifolia*



*Quercus macrocarpa*



*Olea europaea*



# Glossary

**Biodiversity:** 'All components of the living world: the number and variety of plants, animals, and other living things (including fungi and micro-organisms) across our land, rivers, coast, and ocean. It includes the diversity of their genetic information, the habitats, and ecosystems within which they live, and their connections with other life forms and the natural world'.<sup>8</sup>

**Canopy cover** is the layer formed by the branches and crowns of plants or trees. The cover can be continuous, as in primary forests, or discontinuous - with gaps as in an urban area. Canopy is defined in Living Melbourne as vegetation above three metres in height.<sup>9</sup>

**Canopy tree:** A tree which has, or at maturity is likely to have, sufficient height and canopy characteristics to make a positive contribution to local amenity, sense of place, micro climate and/or biodiversity. Minimum 8 x 4 metres.<sup>10</sup>

**Climate change** refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer.<sup>11</sup>

**Climate change adaptation** is the process of adjustment to actual or expected climate and its effects.<sup>12</sup>

**Climate change mitigation** is the human intervention to reduce the sources or enhance the sinks of greenhouse gases.<sup>12</sup>

**Climate Emergency** refers to the catastrophic changes to the climate brought about by human activity that poses a dangerous threat to all life on the planet.<sup>12</sup>

**Environmentally Sustainable Development** refers to development that is designed, constructed, and managed to optimise climate resilience, energy efficiency, integrated water management, indoor environment quality, the circular economy, low carbon transport and urban ecology.<sup>13</sup>

**General Residential Zone (GRZ)** is applied to land in areas where growth and housing diversity is anticipated. It is expected that the type of housing provided will evolve over time to provide more diverse forms of housing, but not at the expense of existing open garden character.<sup>14</sup>

**Greenways** are a form of landscape planning. They are linear open space corridors in the built or natural environment, which preserve biodiversity or other aspects of a sustainable environment, and generally engage the community in recreational use.<sup>15</sup>

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<sup>8</sup> The State of Victoria Department of Environment, Land, Water and Planning, 'Protecting Victoria's Environment – Biodiversity 2037', 2017, Available at <https://www.environment.vic.gov.au/biodiversity/biodiversity-plan>

<sup>9</sup> CID Bio-Science, 'Forest and Plant Canopy Analysis – Tools and Methods', 2019, Available at <https://cid-inc.com/blog/forest-plant-canopy-analysis-tools-methods/>

<sup>10</sup> Bayside City Council, 'Local Law Guidelines, Neighbourhood Amenity Local Law 2021', 2021, Available at <https://www.bayside.vic.gov.au/sites/default/files/2022-05/Neighbourhood%20Amenity%20Local%20Law%202021%20Guidelines%20-%20Final.pdf>

<sup>11</sup> Definition has been sourced from 'Bayside's Climate Emergency Action Plan 2020-2025 – Glossary', 2019, Available at [https://www.bayside.vic.gov.au/sites/default/files/sustainability\\_and\\_environment/climate\\_emergency\\_action\\_plan\\_v1.2\\_140920\\_for\\_web.pdf](https://www.bayside.vic.gov.au/sites/default/files/sustainability_and_environment/climate_emergency_action_plan_v1.2_140920_for_web.pdf)

<sup>12</sup> Department of Health and Human Services, 'Arboricultural Assessment Holland Court, Flemington– 3.7 Useful Life Expectancy(ULE)', 2017, available at [https://www.planning.vic.gov.au/\\_data/assets/pdf\\_file/0011/105500/SHRP-SH1-15.a.-Tree-Logic-Rpt\\_Holland-Court.-Flemington.pdf](https://www.planning.vic.gov.au/_data/assets/pdf_file/0011/105500/SHRP-SH1-15.a.-Tree-Logic-Rpt_Holland-Court.-Flemington.pdf)

<sup>13</sup> Bayside Sustainable Building and Infrastructure Policy (updated 2021)

<sup>14</sup> Victorian Planning Authority, 'Reformed Residential Zones – General Residential Zone', 2017, Available at [https://www.planning.vic.gov.au/\\_data/assets/pdf\\_file/0023/103865/General-Residential-Zone.pdf](https://www.planning.vic.gov.au/_data/assets/pdf_file/0023/103865/General-Residential-Zone.pdf)

<sup>15</sup> University of New South Wales, 'The future of greenways in Sydney,' by P. Crawshaw, 2009, available at: [https://www.be.unsw.edu.au/sites/default/files/upload/pdf/schools\\_and\\_engagement/resources/\\_notes/5A2\\_41.pdf](https://www.be.unsw.edu.au/sites/default/files/upload/pdf/schools_and_engagement/resources/_notes/5A2_41.pdf)

**Habitat:** All the physical and biological things that collectively make up the place where a plant or animal lives.<sup>16</sup>

**Habitat Corridor:** A habitat corridor is a linear two-dimensional landscape element that differs from the surrounding vegetation, in both vegetation structure and form, and connects two or more patches, of otherwise isolated, habitat that have been connected in historical time, this is meant to function as a conduit for both plants and animals.<sup>17</sup>

**Heat Vulnerability Index:** The heat vulnerability index (HVI) is represented by a scale of 1 to 5 based on quintiles, with 1 representing low exposure, low sensitivity or high adaptive capacity and 5 representing high exposure, high sensitivity or low adaptive capacity. We integrated indicators of heat vulnerability to calculate a Heat Vulnerability Index (HVI) at SA1 level. The index consists of three component layers: heat exposure, sensitivity to heat, and adaptive capability. Integration was accomplished by adding the scores from the three vulnerability components, dividing the SA1s into quintiles, and attributing SA1s with a Heat Vulnerability Rating scaled from 1 to 5.<sup>18</sup>

**Neighbourhood Residential Zone (NRZ)** is applied to land that has been identified as having specific neighbourhood, heritage, environmental or landscape character values that distinguish the land from other parts of the municipality or surrounding area.<sup>19</sup>

**Permeability:** The readiness with which a surface, whether man-made (such as a paved road) or natural (such as soil or rock) allows water, air or plant roots to penetrate or pass through.<sup>20</sup>

**Residential Growth Zone (RGZ)** is considered a substantial change area where medium density housing growth and diversity of housing types is encouraged, for example town houses and apartments around activity centres and close to train stations.<sup>21</sup>

**Resilience:** The capacity of individuals, institutions, businesses and systems within a city to adapt, survive and thrive no matter what kind of chronic stresses and acute shocks they experience.<sup>12</sup>

**SEIFA:** Socio-Economic Indexes for Areas (SEIFA) measures the relative level of socio-economic disadvantage and/or advantage based on a range of Census characteristics.<sup>22</sup>

**Senescence** is the process by which cells irreversibly stop dividing and enter a state of permanent growth arrest without undergoing cell death.<sup>23</sup>

**Significant Landscape Overlay (SLO):** The Significant Landscape Overlay (SLO) is the most appropriate planning scheme tool for protecting and managing significant landscapes. Its purpose is to identify significant landscapes, and conserve and enhance their character. The SLO can require a

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<sup>16</sup> Resilient Melbourne and The Nature Conservancy, 'Living Melbourne – Our metropolitan Urban Forest', 2019, Available at [https://resilientmelbourne.com.au/wp-content/uploads/2019/05/LivingMelbourne\\_Strategy\\_online.pdf](https://resilientmelbourne.com.au/wp-content/uploads/2019/05/LivingMelbourne_Strategy_online.pdf)

<sup>17</sup> Definition as used in 'Corridors for Habitat and Biodiversity Conservation in the Act with Links to the Region' from 'The theory of wildlife corridor capability – in Nature Conservation 2: The role of corridors', 1991 by Soulé, M. E. and M. E. Gilpin, Available at [https://www.parliament.act.gov.au/\\_data/assets/pdf\\_file/0008/381077/PE\\_06\\_Environment\\_attach.pdf](https://www.parliament.act.gov.au/_data/assets/pdf_file/0008/381077/PE_06_Environment_attach.pdf)

<sup>18</sup> Department of Environment, Land, Water and Planning, Victorian Government 'Urban Vegetation, Urban Heat Islands and Heat Vulnerability Assessment in Melbourne, 2018', Available at [https://www.planning.vic.gov.au/\\_data/assets/pdf\\_file/0018/440181/UHI-and-HVI2018\\_Report\\_v1.pdf](https://www.planning.vic.gov.au/_data/assets/pdf_file/0018/440181/UHI-and-HVI2018_Report_v1.pdf)

<sup>19</sup> Victorian Planning Authority, 'Using the residential zones – Planning Practice Note 91, Clause 32.09', 2019, Available at [https://www.planning.vic.gov.au/\\_data/assets/pdf\\_file/0033/445389/PPN91-Using-the-residential-zones.pdf](https://www.planning.vic.gov.au/_data/assets/pdf_file/0033/445389/PPN91-Using-the-residential-zones.pdf)

<sup>20</sup> DELWP, 'Land for Wildlife' available at: <https://www.wildlife.vic.gov.au/protecting-wildlife/land-for-wildlife>

<sup>21</sup> Victorian Planning Authority website, 'Frequently Asked Questions – What is a Residential Growth Zone (RGZ)', 2017, Available at <https://vpa.vic.gov.au/faq/berwick-residential-growth-zone-rgz/>

<sup>22</sup> Id community, 'Demographic Resources', Available at <https://profile.id.com.au/bayside/seifa-disadvantage-small-area?WebID=10>

<sup>23</sup> CSIRO Linked Data Registry, 'Definition of Senescence', Available at <http://registry.it.csiro.au/def/keyword/nature/subjects/senescence>

permit to construct a building or construct or carry out works, construct a fence, and remove, destroy, or lop any vegetation.<sup>24</sup>

**Significant Tree:** Some trees, through age, size, and rarity of planting or association with historical events achieve a higher level of importance on private or public land. Identifies the following the categories used to define significant trees as scientific, social, historic and aesthetic.<sup>25</sup>

**Tree Canopy:** The uppermost trees or branches of trees in a forest, forming an almost continuous layer of foliage. The topmost layer of bioactivity in a forest setting.<sup>5</sup>

**Urban Forest** encompasses all of the trees, shrubs and grasslands – and the soil and water that support them. An urban forest incorporates vegetation in streets, parks, gardens, plazas, campuses, river and creek embankments, coastal foreshores, wetlands, railway corridors, community gardens, green walls, balconies, and roofs.<sup>5</sup>

**Urban Heat Island Effect:** The phenomenon of dense urban areas having significantly warmer air and land surface temperatures than surrounding rural areas.<sup>5</sup>

**Useful Life Expectancy (ULE):** Assessment of useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape based on species, stage of life (cycle), health, amenity, environmental services contribution, conflicts with adjacent infrastructure and risk to the community. It is not a measure of the biological life of the tree within the natural range of the species. It is more a measure of the health status and the tree's positive contribution to the urban landscape.**Error! Bookmark not defined.**

**Vegetation Protection Overlay (VPO):** The VPO focuses on the protection of significant vegetation, including native and introduced vegetation in urban environments. The overlay can be applied to individual trees, groups of trees or areas of significant vegetation. It requires a landowner to obtain a permit to remove, destroy or lop any vegetation specified in a schedule to the overlay subject to a list of exemptions. Some of those exemptions apply to particular types of vegetation and others apply to specific situations, for example, to clear vegetation from electricity lines and to ensure emergency access.<sup>26</sup>

**Vulnerability:** Exposure to contingencies and stress, and the difficulty in coping with them. This can apply to ecosystems, trees, people, and places.<sup>27</sup>

**Water Sensitive Urban Design (WSUD)** is a more sustainable approach to urban planning and design to make use of stormwater and reduce the harm it causes to our natural waterways.<sup>28</sup>

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<sup>24</sup> Victorian Planning Authority, 'DPCD South West Victoria Landscape Assessment Study – Regional Overview Report', 2013, Available at [https://www.planning.vic.gov.au/\\_data/assets/pdf\\_file/0023/94820/ROR-Chapter-5-Implementation-Part-2.pdf](https://www.planning.vic.gov.au/_data/assets/pdf_file/0023/94820/ROR-Chapter-5-Implementation-Part-2.pdf)

<sup>25</sup> Bayside City Council, 'Significant Tree Management Policy 2020', 2020, Available at [https://www.bayside.vic.gov.au/sites/default/files/trees\\_parks\\_and\\_beaches/significant\\_tree\\_management\\_policy\\_2020.pdf](https://www.bayside.vic.gov.au/sites/default/files/trees_parks_and_beaches/significant_tree_management_policy_2020.pdf)

<sup>26</sup> Victorian Law Reform Commission, '4. Planning law and regulation affecting trees on private land - Vegetation Protection Overlay, Available at <https://lawreform.vic.gov.au/content/introduction-34>

<sup>27</sup> GreenFacts, 'Vulnerability (in ecosystems), available at: <https://www.greenfacts.org/glossary/tuv/vulnerability-ecosystems.htm>

<sup>28</sup> Melbourne Water, 'Introduction to WSUD', available at: <https://www.melbournewater.com.au/building-and-works/stormwater-management/introduction-wsud>

A photograph of a park scene. On the left, there is a dense, tall hedge of green bushes. A gravel path leads from the foreground towards the background, curving slightly to the right. To the right of the path is a well-maintained green lawn. In the distance, a tall palm tree stands prominently against a clear blue sky. Behind the palm tree, a white building with classical architectural features is partially visible. The overall atmosphere is bright and sunny.

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