



# **Sandringham Urban Forest Precinct Plan 2024**





**Cover page:** George Street Reserve

**Inside Cover Page:** Bay Road Heathland Sanctuary



### **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.

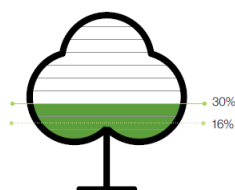
The Bayside *Urban Forest Strategy* identifies a range of actions to be undertaken over the next four years. A key focus is the preparation of Precinct Plans for each suburb in Bayside to guide tree planting and greening at a local level. Precinct Plans are subsidiary documents to the Bayside *Urban 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.

Tree and vegetation (understorey) cover data referenced in these Precinct Plans has been derived from the Victorian Government’s aerial imagery and has been analysed by Council’s GIS (Geographical Information System) to determine an approximate level of tree and vegetation cover per suburb.

## 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:

### 1. Increase

## Strategies:

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. The greening of activity centres can contribute to a healthier and more comfortable place.

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.

### **Safety**

There are a number of elements that contribute to people 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.



## 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.

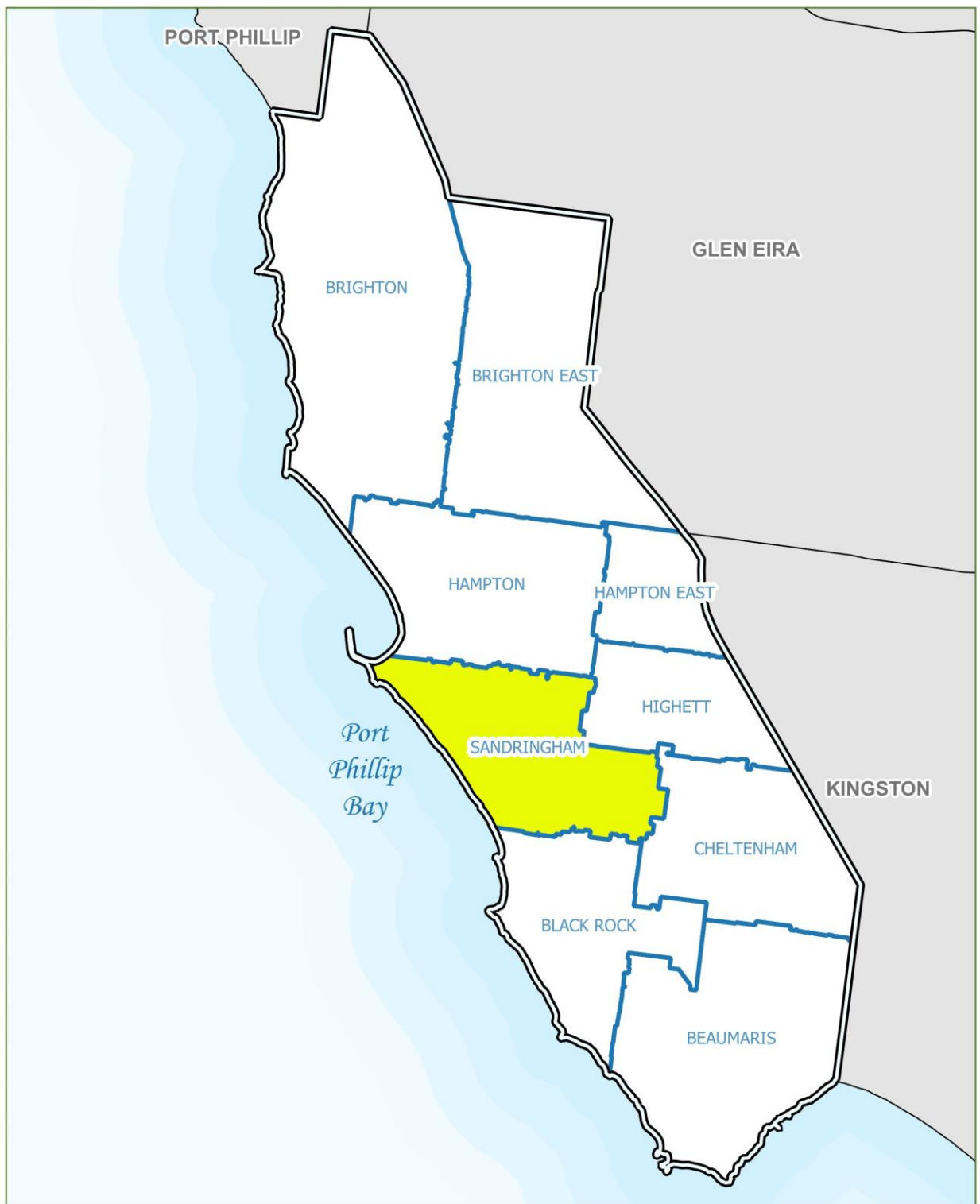
The Precinct Plans will help guide the implementation of the Bayside *Urban Forest Strategy* in Bayside and direct Council's focus to areas with low vegetation, to protect and enhance neighbourhood character and help achieve the objectives of the Bayside *Urban Forest Strategy*.

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 Sandringham.

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



 <p><b>Bayside</b> CITY COUNCIL</p>	<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>	<div style="text-align: center;">       <p>GDA 2020 MGA Zone 55</p> </div>	<p><small>Disclaimer: Copyright 2022 VicMap Data - DELWP This material may be of assistance to you but the state of Victoria and Bayside City Council do not guarantee that the publication is without flaw 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 – Sandringham

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

Sandringham is a changing suburb, both physically and demographically. Sandringham is currently experiencing moderate population growth, having increased by 788 people, from 10,138 in 2016 to 10,926 in 2021. It is forecasted that the population will continue to slowly grow to 11,753 (increasing by 8.7%) by 2041.

## Age structure

By 2041, it is anticipated that over 46.1% of residents in Sandringham will be above 60 years of age, in comparison to the current 29.2% (2021). It is expected that older populations may 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 Sandringham will increase by an average of 56.5 dwellings per annum to 5,964 in 2041. It is anticipated these new dwellings may come in the form of low-rise apartment buildings and subdivision of existing lots into units. While population growth and housing growth is moderate, it is a factor contributing to the decrease in permeable surfaces to plant trees. Without the space, there is less ability for new trees to growth to maturity and provide large canopy.

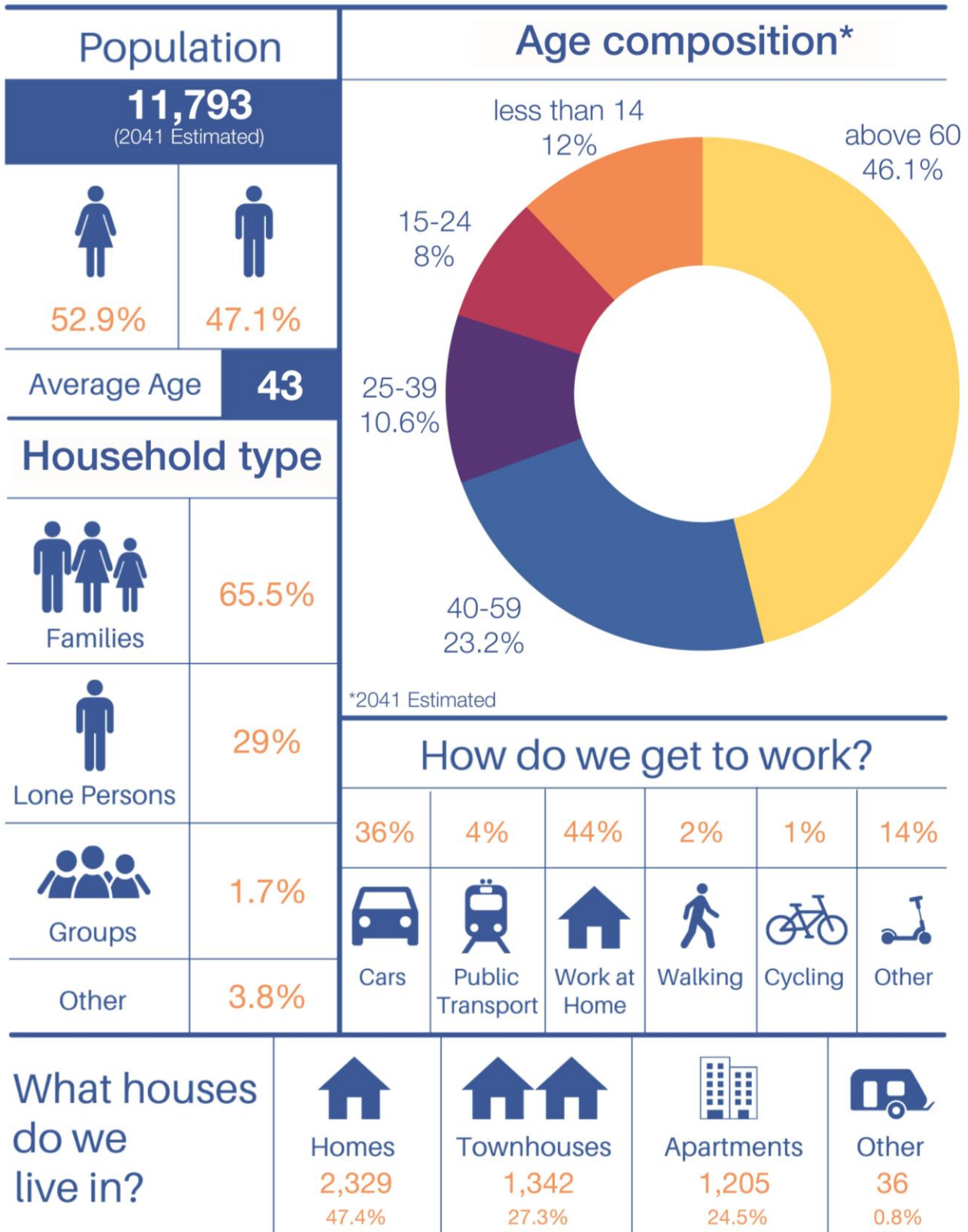
## Climate change

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 2021, 35.8% of Sandringham residents travelled to work by car compared to 49.7% in Greater Melbourne. Multiple modes of public transport are available, with trains accessible at Sandringham Station in Sandringham Village as well as bus routes servicing the suburb.

# Sandringham Forecast for 2041



Note: Sandringham 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 Sandringham



### The vision for Sandringham's urban forest

Sandringham's established urban forest features a rich park network and avenues of street trees. This network will be enhanced with new indigenous plantings, providing the community with health and wellbeing benefits along with the natural beauty of nature within an urban setting.

## Planning Controls applying to Sandringham

### Vegetation Protection Overlay

Sandringham contains multiple areas protected by the Vegetation Protection Overlay Schedule 1 (VPO1), Schedule 2 (VPO2) and Schedule 3 (VPO3), which aims to protect areas of significant vegetation. As seen in Map 2, VPO1 is found along the foreshore in Sandringham, and it aims to retain, protect, and enhance vegetation in coastal areas. Along the Sandringham 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 an environmental health.

VPO2 applies specifically to remnant bushland reserves that are discontinuous, landlocked and surrounded by either residential or industrial development, aiming to maintain the quality of the remaining fauna habitat and to create additional habitat in bushland areas. In Sandringham, VPO2 applies to the bushland areas located at George Street Reserve / Merindah Park and Bay Road Heathland Sanctuary. The vegetation of Bayside's remnant bushland reserves is significant for its diversity and environmental value in providing habitat areas of regional, state, national and worldwide significance. Permits are therefore required to remove, destroy, or lop any native vegetation in areas that are covered by the VPO2 (unless it is undertaken by or on behalf of the public land manager to maintain or improve the area as a flora and fauna conservation site).

A small section of Sandringham south of Edward Street and west of Bluff Road is covered by the VPO3 which aims to retain the amenity, aesthetic character, and habitat value of vegetation within the area. Aside from the protection of indigenous vegetation, it also seeks to promote the regeneration and planting of vegetation in Sandringham. Permits are required to remove, destroy, or lop any vegetation that is native to Australia in areas that are covered by the VPO3.

As VPO1 and VPO2 both apply to public land, the threat of loss of trees and vegetation is low. VPO3 however applies to both public and private land meaning Council has less control over whether trees are removed on land controlled by the Overlay.

### VPO3 controls: permit removals

VPO3 aims to retain the amenity, aesthetic character, and habitat value of vegetation within the area by seeking the protection of a number of indigenous species that are of local significance. Under VPO3, a planning permit is required to remove, destroy, or lop any vegetation native to Australia. This does not apply to:

- The removal, destruction or lopping of vegetation which is less than 2 metres high or has a single trunk circumference of less than 0.5 metre at a height of 1 metre above ground level.
- The pruning of vegetation to remove that part of any branch which overhands an existing dwelling or is within 2 metres of an existing dwelling.

### Benefits of strengthening the VPO3

As identified as an Action of the Bayside *Urban Forest Strategy*, Council is seeking to strengthen the Vegetation Protection Overlays to increase the effectiveness of the policy tool and maximise the retention of protected vegetation.

Any expansion of the VPO would help maintain existing trees and enhance leafy character, provide relief from urban heat island effects, filter air pollutants and better support the community's health and lifestyle.

### **Community feedback for VPO3**

Council's community feedback survey provided an insight into the community's views on VPO controls. Council proposed to strengthen the VPO to protect more vegetation including non-native existing canopy trees, which 76.1% of respondents supported. The survey also captured some VPO related suggestions that have been summarised below:

- VPO protections should be implemented across the whole of Bayside, particularly in Cheltenham, Highett and Hampton East, which already have the least tree canopy coverage in Bayside.
- Improve communication and education around VPO protections for residents and potential buyers in VPO affected areas.
- Review and strengthen the wording of VPO decision guidelines to prioritise tree retention over replanting.
- Undertake habitat studies to support the VPO habitat decision guidelines.
- There needs to be stricter enforcement of the VPO controls.
- The process of removing a VPO protected tree is time consuming and expensive. This discourages residents from planting native trees in the first place due to the issues it could cause in the future.

### **Residential and Commercial zones**

The majority of Sandringham'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-storeys. Residential growth in these areas mostly take the form of dual occupancy, the redevelopment of detached dwellings or small multi-dwelling developments.

Residential land within the Sandringham Village Major Activity Centre is zoned General Residential Zone (GRZ) which is applied to areas where there will be moderate residential growth. The GRZ has a maximum building height limit of three storeys. This allows for moderate density development including dual occupancy, unit developments and low-rise apartment buildings. Much of the core of the Sandringham Village is within the Commercial 1 Zone (C1Z) along Bay Road, Melrose Street, Waltham Street and Station Street. Commercial uses within Sandringham Village are mostly retail, with several restaurants and takeaway shops.

### **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.

### **Landscape Guidelines**

A review of Bayside's Landscape Guidelines was adopted in December 2023. The changes have been made in response to the adopted Urban Forest Strategy action which outlines that Council must provide further guidance on species selection, sizes, and trees suitable for private property.

The new landscape guidelines focus on improving the quality of tree plantings through soil type and volume, site characteristics, and correct species selection. This way, it can be ensured that canopy tree plantings that are selected are the largest and most ideal species for its location. This will provide the trees with a better chance of growing to maturity. By focusing on canopy spread, species selection can be refined for better canopy coverage and consideration of a tree's location.

The changes to Bayside's Landscape Guidelines require new development to provide increases to the number of canopy trees and high-quality landscape outcomes. Furthermore, the Species Palette listed in the Appendix 3 to this Precinct Plan has also been utilised as the list of species to encourage selection from when preparing a Landscape Plan.

**Local Law Review**

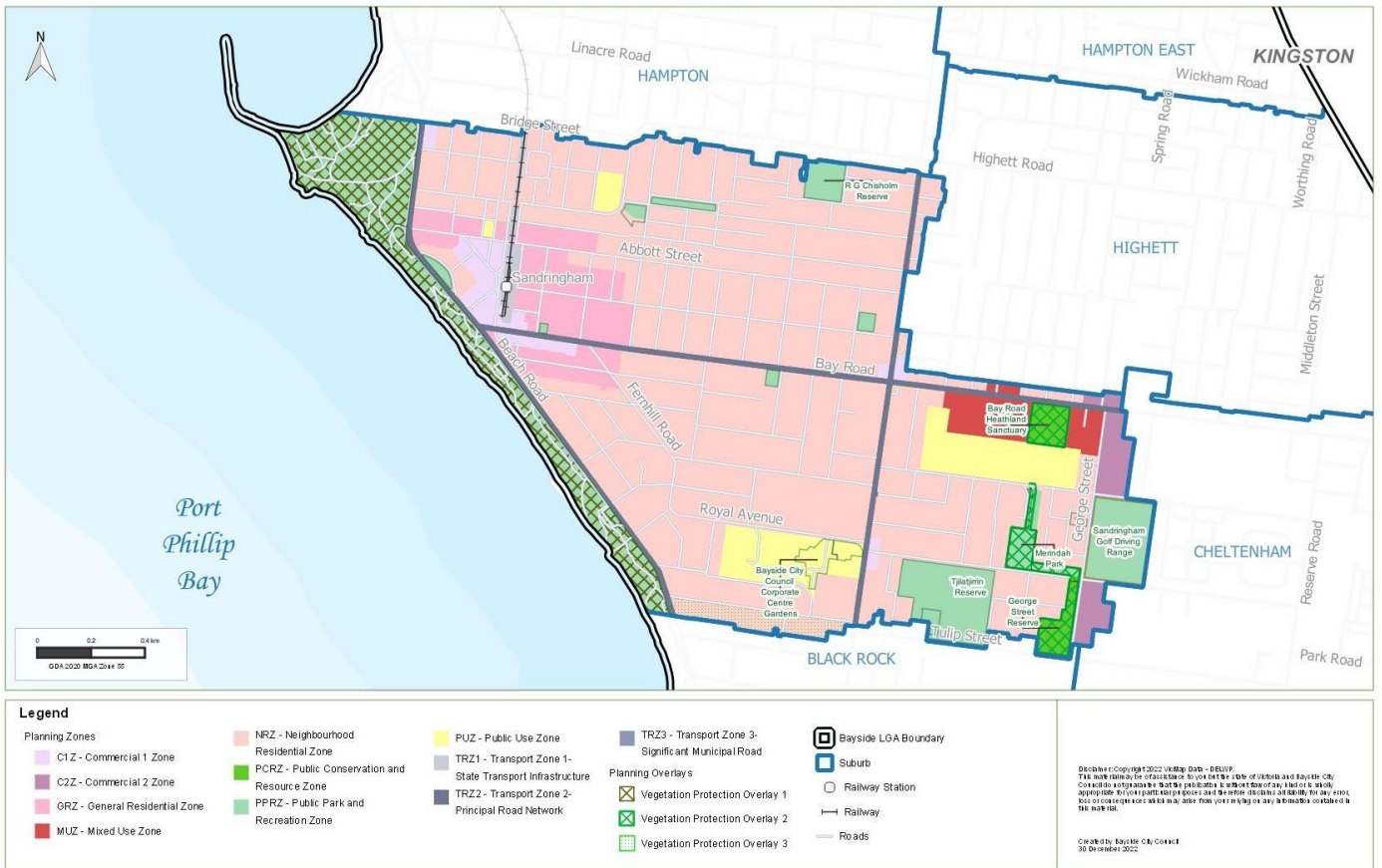
A key action of the Urban Forest Strategy includes reviewing the Management of Tree Protection on Private Property Policy. An update to the Local Laws Guidelines will protect more trees and strengthen alignment between planning and local law permit applications for tree removal.

The updated Local Law Guidelines will protect more trees by removing some permit assessment considerations, such as consideration for the number of other protected trees on the site, or neighbours support for removal. Trees will also now be assessed for its habitat value to native wildlife.

For tree removal permit applications, special circumstances including medical conditions, disability, access safety or financial hardship will be referred to Council's Community Care unit. The Community Care unit will establish what support may be available to vulnerable resident and whether there is any reasonably practicable way to manage issues directly related to the tree other than removal.



## Map 2: Planning Controls in Sandringham



# Community Engagement Findings

Community engagement was undertaken for a total of seven weeks from 28 August - 15 October 2023. The community engagement period consisted of pop-up sessions, online survey, presentations to community groups, opportunity to provide written submissions and 1:1 meetings with Council.

Overall, there were a total of 368 contributors from the pop-up events and 111 online survey participants. Of the 111 survey participants, 14.41 (16% of the total respondents) were from Sandringham

Survey participants that live in Sandringham were asked how they feel about the plan overall. Sandringham participants provided the following responses:

- 12% loved the plans
- 20% liked the plan
- 20% thought the plan was ok
- 28% had some concerns
- 8% had many concerns
- 4% did not like the plans
- 8% did not know how they felt

**Table 1: Comments made by survey participants regarding Sandringham**

Comments	Number of participants who raised concern
Commented that they agreed with the actions in the plan	4
Comment concerned about the removal of the Badminton Club	5
Would like to see the habitat corridors extended	2
Commented that the foreshore should take priority	1
Plant more trees and vegetation	2
General unspecific comment that more details are required	2
Supports the Precinct Plan	4

The eight face-to-face engagement sessions were an opportunity for community members to provide feedback on priority planting locations and preferred species. The pop-up events were held at various locations, these included:

- Bayside Community Nursery
- Middle Brighton Baths
- Black Rock Gardens
- Youth FriYay Session
- Bayside Farmer's Market
- Thomas Street Playground

- Bay Road Heathland Reserve
- Bayside Community Nursery -Gala Day

For each pop-up session participants were asked which plants they would love to see more of in their neighbourhood. The sticker boards were separated into three categories these were:

- *Indigenous* – species that were native to Bayside
- *Native* – species that were native to Australia
- *Exotic* – species that have been introduced to Australia

The following images show the indigenous, native and exotic species that Sandringham residents would like to see more of in their neighbourhood.

### Top Indigenous Plantings – Sandringham



*Acacia mearnsii* (Black Wattle)



*Indigofera Australis* (Austral Indigo)



*Banksia Marginata* (Silver Banksia)

### Top Native Plantings – Sandringham



*Eucalyptus spp.* (Gum trees)



*Grevillea sp.* (Grevillea Cultivar)



*Grevillea spp.* (Grevillea species)

**Top Exotic Plantings – Sandringham**



*Salvia spp*  
(Lilac Sage)



*Osteospermum spp.*  
(African Daisy)



*Knifofia uvaria*  
(Red Hot Poker)

# Sandringham Neighbourhood Character

Sandringham attracts residents and visitors alike with its appealing character which features an array of architectural styles, an extensive foreshore, a large 'village' style shopping centre and an array of architectural styles. As population continues to grow, 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. The Neighbourhood Character Zones are shown on Map 3.

The western side of Sandringham (F1) contains predominantly Federation and Inter-War dwellings along with infill development from the 1950s onwards. Development along Beach Road is an eclectic mix of contemporary dwellings. Buildings have a consistency of setbacks within the streetscapes which have a lightness due to the frequent use of weatherboard or lighter coloured materials. Newer dwellings are often constructed of heavier materials such as brick. Gardens in this precinct are established with some areas having frequent large native trees, which creates a casual bayside setting, enhanced by native street trees.

The central area of Sandringham (E3 & E4) contains buildings for a range of eras, with a prevalence of California Bungalow style dwellings in the north and post WWII dwellings in the south. The central section of Sandringham also has examples of other development eras such as Inter-war and contemporary dwellings. The north has great examples of strong avenue street tree plantings, providing a green leafy street setting.

The area east of Bluff Road (G1 & G2) contains post-war dwellings reflecting across a variety of architectural styles. There are some pockets of more recent two storey development, some of it reproduction style. Gardens in this area are predominantly low lying, with exotic shrubs and lawn, occasional large trees providing a backdrop of vegetation.

Sandringham Beach Park is of Regional Significance as a predominantly intact belt of native coastal vegetation and associated gardens. Remnant belts of native vegetation exists along the length of Sandringham Park, listed on the Register of the National Estate. These belts are dominated mainly by *Coast Banksia* and *Coast Tea Tree*.

## Examples of neighbourhood character across Sandringham



**Map 3: Sandringham Neighbourhood Character Precincts**



# The Urban Forest of Sandringham

In Sandringham, there is approximately 17.01% of tree canopy cover and 17.9% of understorey cover (2019). The urban forest of Sandringham is of a reasonable size and diversity, mainly consisting of native species, with some exotics present. Street trees are typically large scale and have been planted as avenues on many of the residential streets. Private gardens contain a mix of both native and exotic species. Together with distinctive parks, reserves and an extensive foreshore environment, Sandringham has a unique urban forest character.

## History

Before European Settlement, Sandringham was inhabited by the Bunurong people of the Kulin Nation. In 1852, Sandringham was occupied by land speculator, Josiah Holloway, who attempted to sell land allotments in an estate named "Gypsy Village." In 1881 Gipsy Village had grown to have a population of 183 people, which grew further following the extension of the train line to Sandringham in 1887.

A landmark on Sandringham's foreshore is the band rotunda, situated directly opposite the Sandringham Hotel on a clifftop overlooking the beach. Built in 1926, the rotunda is surrounded by palm trees, lawns and gardens, with scenic views available from its upper level. Large palm trees also form an iconic character in the Sandringham Village Activity Centre.

By 1999, public space vegetation became a dominant component of Sandringham's vegetation character, with street trees typically being single, native species plantings, supplemented by some exotic avenue plantings. Public open spaces and reserves generally contained remnant indigenous vegetation, particularly around the boundary of sporting fields.<sup>2</sup>

## Contemporary issues impacting Sandringham's urban forest

There are a number of contemporary issues impacting the urban forest of Sandringham 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 Sandringham's distinct vegetation character and is impacting biodiversity. Other issues impacting the urban forest include:

- 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 vitality 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.

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

- 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 to limit fruit, berry or leaf drop on footpaths and 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 Sandringham'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:** Trees in Sandringham Village



**Image 2:** Large tree in Royal Avenue Reserve





**Image 3:** Sandringham Foreshore vegetation

## Tree canopy cover across Sandringham and various land uses

As indicated previously in this document, Sandringham has approximately 17.01% tree canopy cover and 17.9% understorey cover (2019). Of the 17.01% of tree canopy cover within Sandringham:

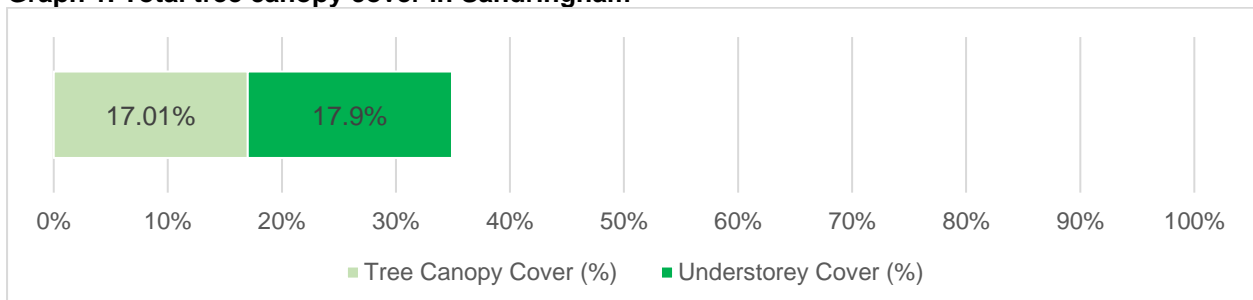
- 53.1% is located upon private residential and mixed-use areas;
- 25.62% is located upon streets;
- 8.95% is located upon open spaces and reserves;
- 8.32% is located upon 'other'; and
- 4.01% is located upon public use areas.

The number of trees on private land is of a reasonable amount in comparison to other suburbs within Bayside. Through encouragement and enhancement of planning controls on private land, it is hoped canopy cover can increase with time. Priority should also be placed on enhancing tree canopy cover on streets and open spaces and where possible, upon land within the public use zone.

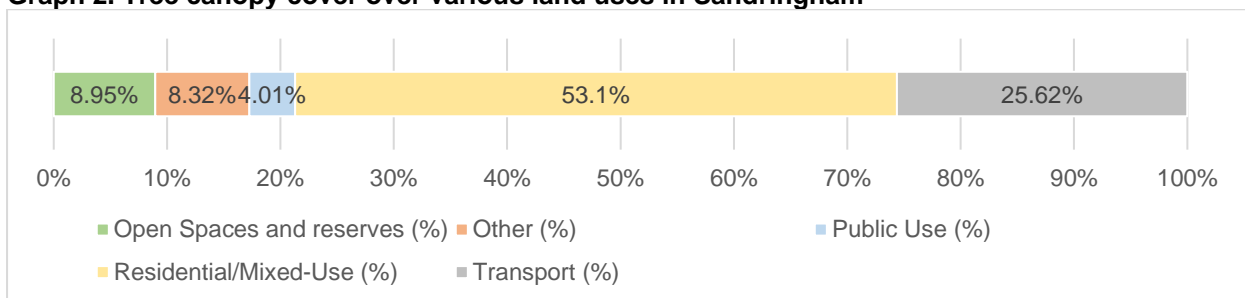
In 2022, there were 7,265 trees managed and maintained by Council throughout Sandringham, with 5,277 street trees, 1,980 park trees and 8 other location-specific trees. Monitoring the health and growth patterns of these trees is important to ensuring that Council understands how local conditions, affect tree and understorey plant populations to effectively plan for future planting programs and strategies across Sandringham. Tree canopy coverage is depicted on Map 4.

In Sandringham, there is approximately 17.01% tree canopy cover and 17.9% understorey cover. The suburb of Sandringham will be a major contributor towards achieving Councils goal of 30% tree canopy cover by 2040 and the enhancement of understorey cover within the public and private realm.

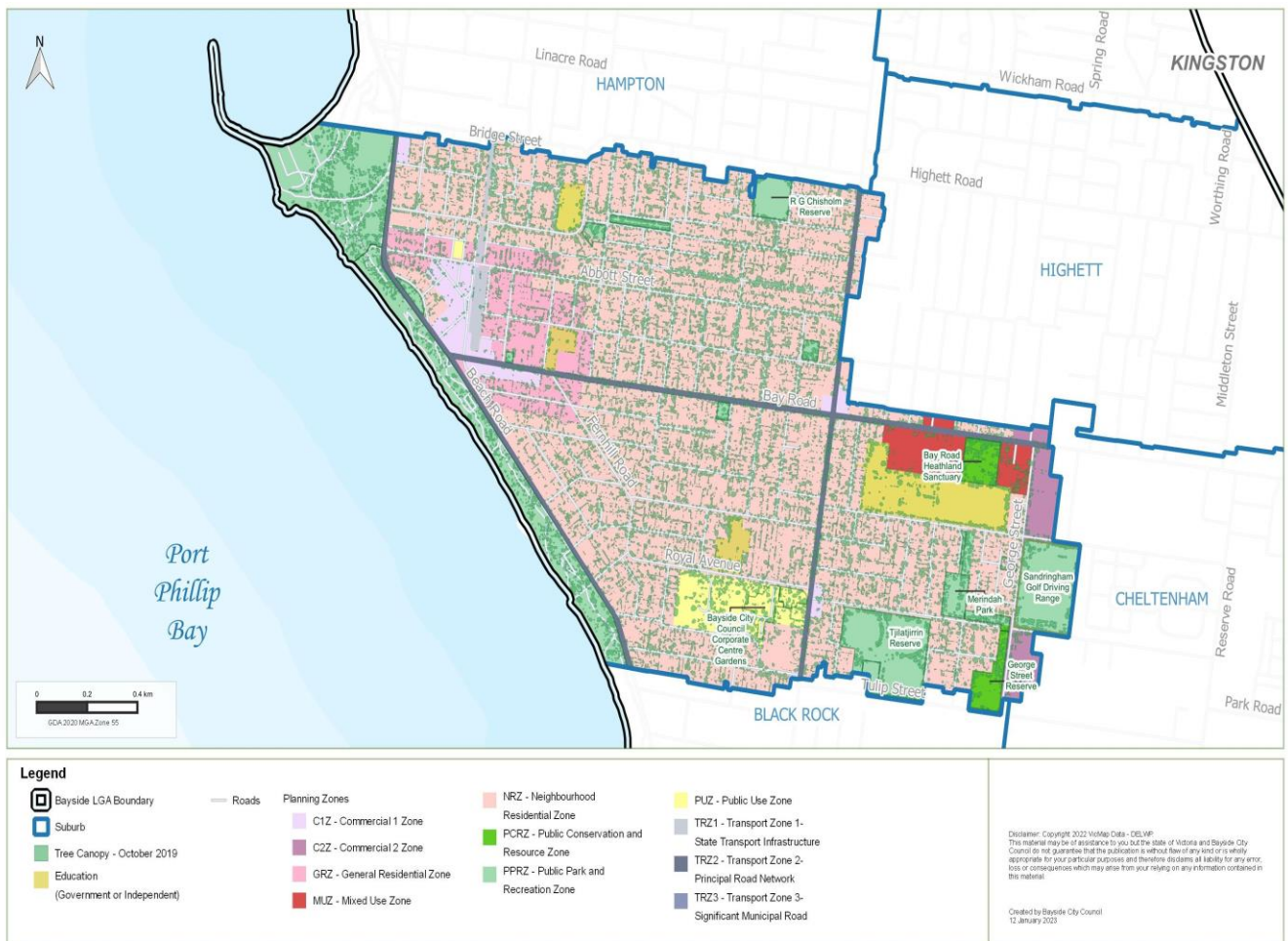
**Graph 1. Total tree canopy cover in Sandringham**



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



### Map 4: Tree Canopy Cover across Sandringham



# Council-managed Tree Population

## Useful life expectancy (ULE)

Estimating the useful life expectancy of the council-managed tree population is regularly undertaken and can inform the future management options for tree's that have limited useful life left. 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 based on species, stage of life (cycle), health, amenity, environmental services 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 373 (4.3%) of council-managed trees that may not survive in Sandringham after the next 10 years. By 2040, a total of 5,264 (76.6%) council-managed trees may have reached the end of their useful life expectancy and will 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).

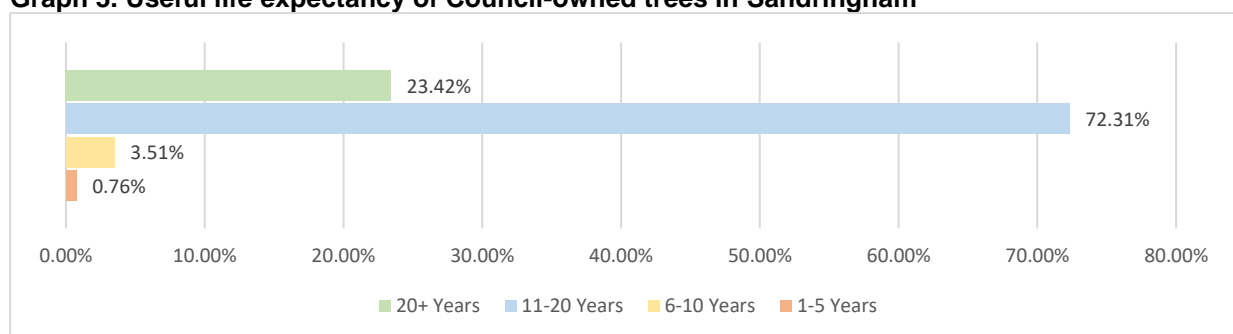
Where replacement of trees is required, new trees should be selected based on the existing surrounding vegetation, landscape character and ability to enhance habitat. Where there is a large concentration of trees required for replacement, this should be undertaken intermittently to enable varying ages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

The locations where there is a high concentration of trees which may require replacement within the next 10 years include Spring Street (section of Merindah Park), Picnic Gardens and the Abbott Street railway crossing (Map 5).

In Sandringham, approximately 4.3% of council-managed trees may not survive after the next 10 years.

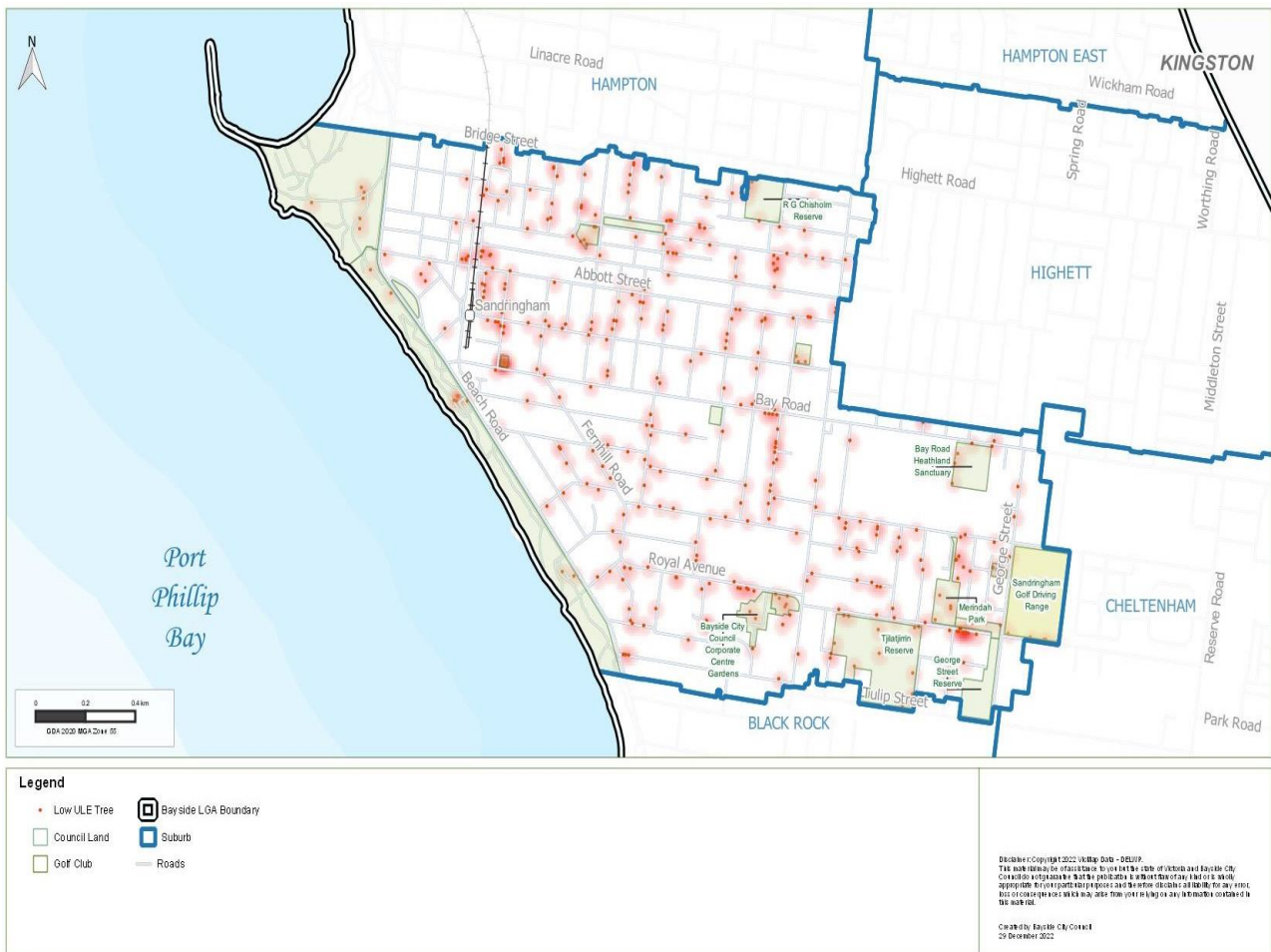
Where it has been found that trees reaching the end of their useful life still provide benefit and habitat, it should be retained as habitat tree as per the Tree Risk Assessment Tool (TRAQ).

**Graph 3. Useful life expectancy of Council-owned trees in Sandringham**



<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 Sandringham**



## Tree health and age

Approximately 82.8% of the council-managed street and park trees in Sandringham were classified as being in good health, while 7.8% were classified as excellent. Trees that are classified as poor, dangerous or dead make up for 1.8% of street and park trees in Sandringham. Tree health can be viewed on Map 6.

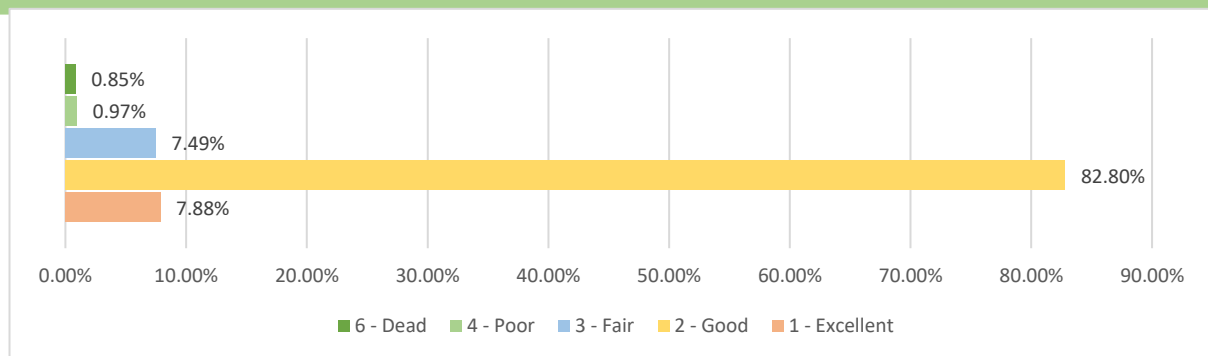
There is a reasonable level of diversity in the age of trees within Sandringham. As seen in Graph 5, the highest proportions are new and semi-mature, making up 38.3% and 32.1% respectively.

Map 6 provides the location of those trees that are in poor health, dangerous or dead. Trees that have been identified as dead are mostly located in Merindah Park, Royal Avenue Reserve and Bamfield Reserve Park, with an extremely high concentration in Merindah Park. There are also a number of dead street trees across Sandringham, namely Keats Street and Queens Square. Street trees that are dead should be removed but dead or dying trees with natural hollows on the foreshore and in parks can provide habitat for fauna. Through the continued use of the Tree Risk Assessment Tool, Council will retain those trees and vegetation that provide a service to the ecosystem.

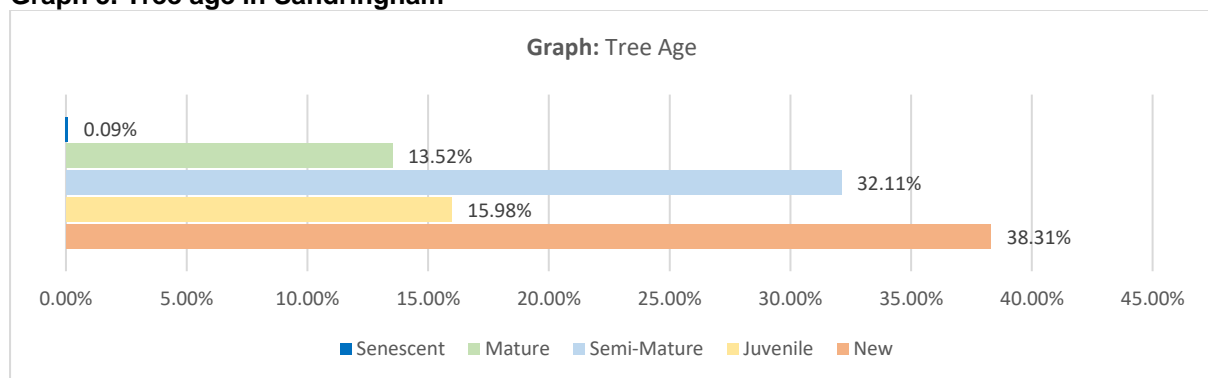
### Graph 4. Tree health in Sandringham

In 2022, 82.8% of the council-owned street and park trees in Sandringham, were classified as being in good health. Trees that are classified as poor, dangerous or dead make up for 1.8%.

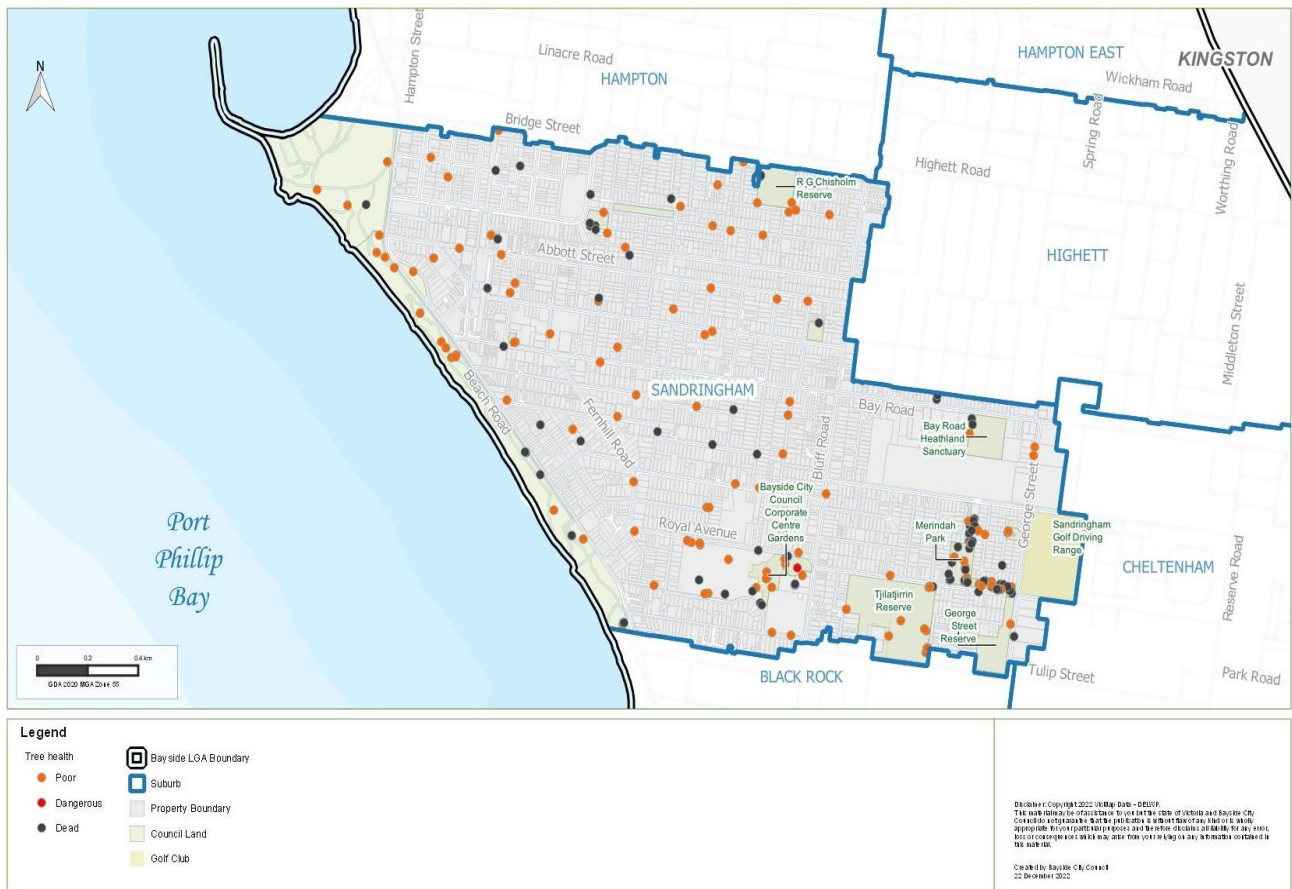
Through the continued use of the Tree Risk Assessment Tool, council will retain the trees and vegetation that provide a service to the ecosystem.



### Graph 5. Tree age in Sandringham

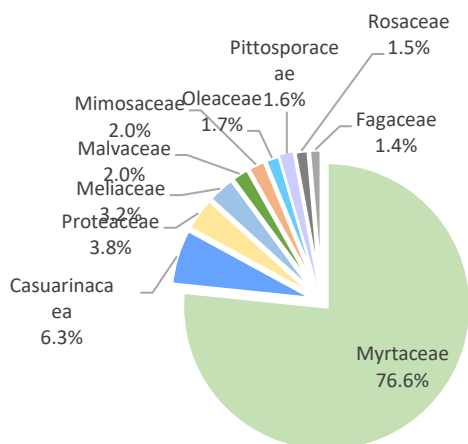


# Map 6: Tree Health in Sandringham

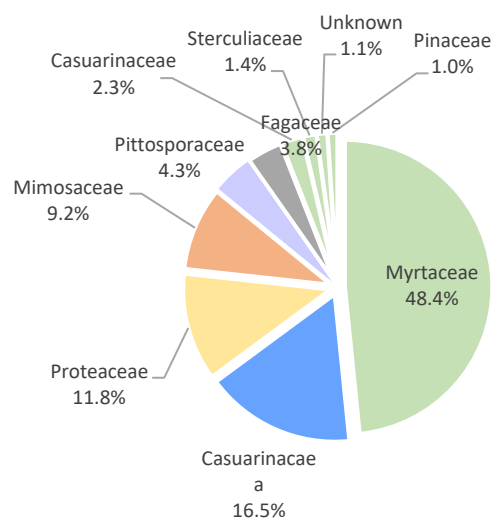


## Species diversity

A resilient urban forest has a diverse range of species from different families. As seen in graphs 6 and 7, Sandringham's Street and park trees are largely dominated by *Myrtaceae*, making up to 76.6% of all street trees and 48.4% of all park trees. The *Casuarinaceae* family follows, making up 6.3% of all street trees and 16.5% of all park trees, with other families making up about 17% of street trees and 35% of park trees.



**Graph 6. Diversity of street tree species in Sandringham**



**Graph 7. Diversity of park tree species in Sandringham**

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 following families currently form part of the overall tree population in Sandringham'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:

- Oleaceae
- Casuarinaceae
- Proteaceae
- Mimosaceae
- Pittosporaceae
- Fagaceae
- Sterculiaceae
- Pinaceae
- Meliaceae
- Malvaceae
- Oleaceae
- Pittosporaceae
- Rosaceae

Through the Park Improvement and Habitat Linkage Plan, Council will undertake tree and vegetation planting to support specific habitat locations, encourage the rebuilding of ecological foundations and improve species diversity in Bayside.

Currently Sandringham's street and park tree population is largely dominated by the *Myrtaceae* family (eucalyptus etc.), making up 48.4% of park trees and 76.6% of all street trees.



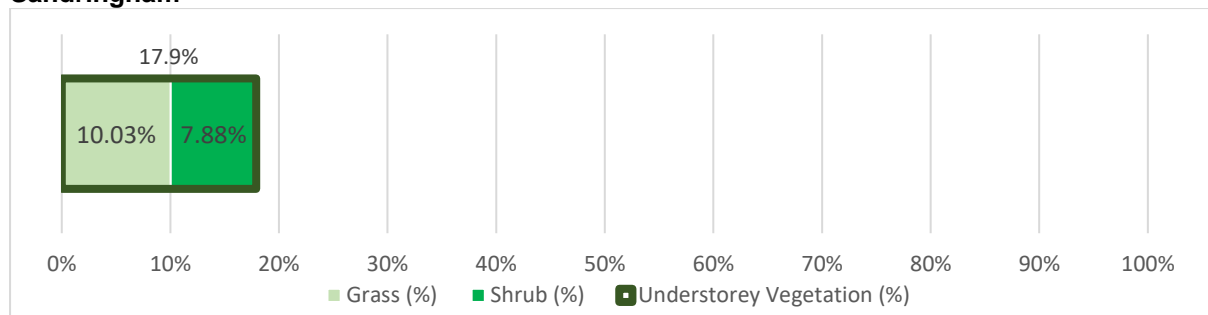
## Understorey planting in Sandringham

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

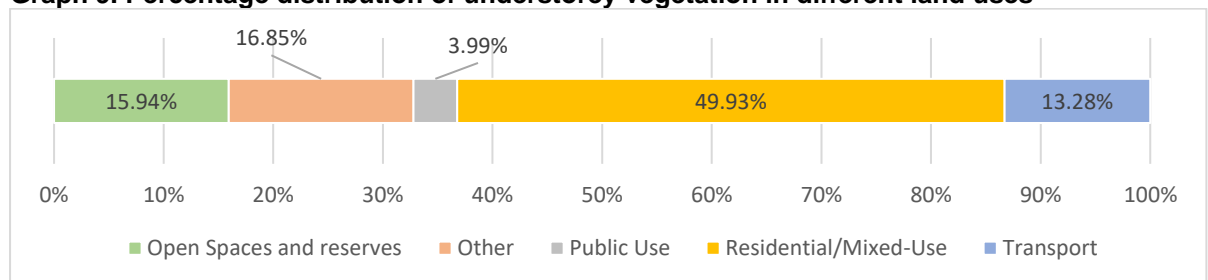
Understorey vegetation includes small trees, shrubs, herbs, grasses, mosses and lichens that occupy the vegetation layers below the canopy of taller trees.<sup>4</sup> Bayside's *Urban Forest Strategy* has three major goals to ensure the increase and improvement of the urban forest and the functions 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 17.9% understorey vegetation coverage in Sandringham, with 49.3% being located within residential and mixed-use areas within the suburb. Open space and reserves then make up 15.94% of understorey cover and 13.28% on streets. Opportunities exist to increase understorey planting upon all land uses, with particular priority on those areas that have very low percentage understorey planting (0-10%). These locations have been identified in Map 7 and include sections of Station Street, George Street, Abbott Street, Bluff Road, Bay Road and Beach Road.

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

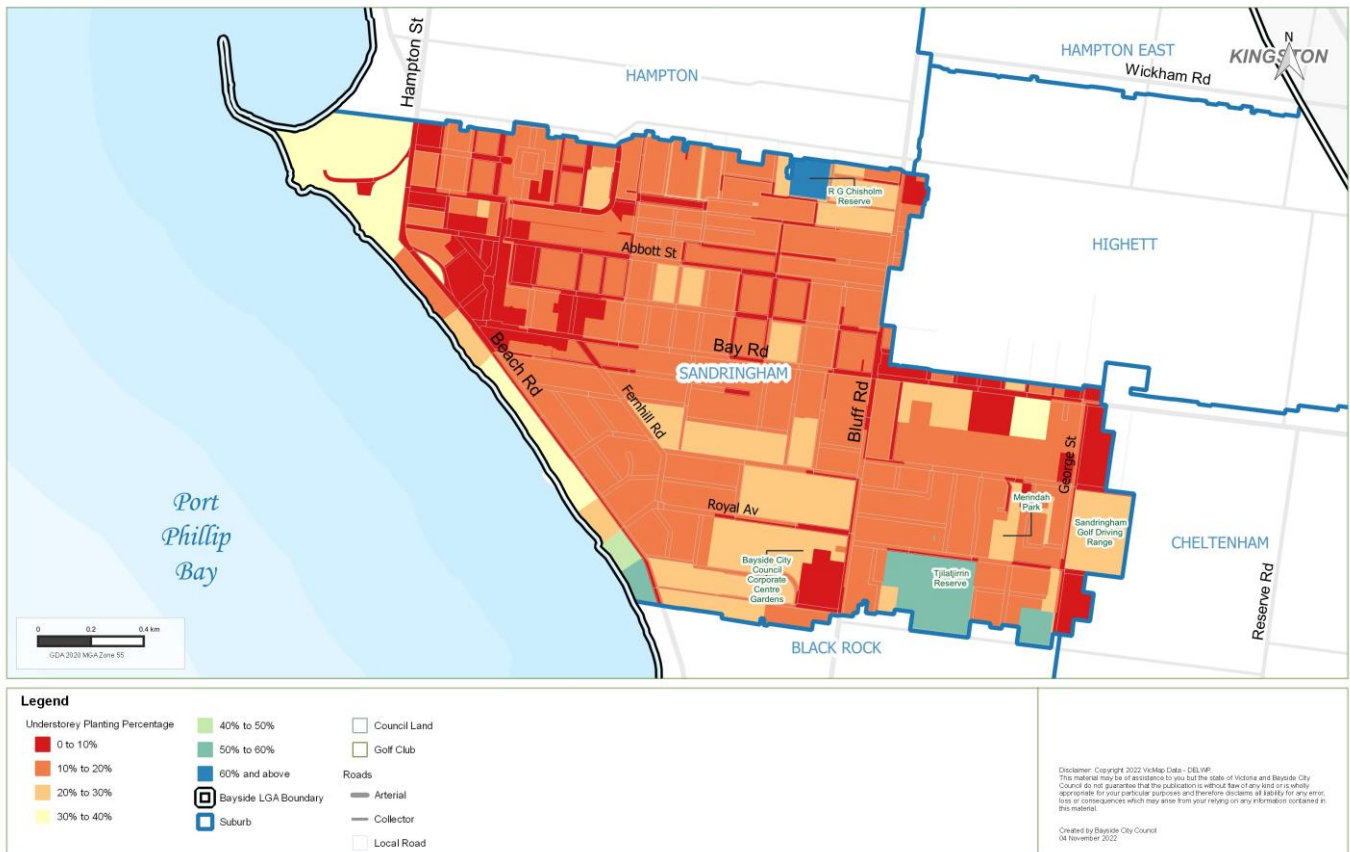


**Graph 9. Percentage distribution of understorey vegetation in different land uses**



<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 Sandringham



# Urban Heat Island

## Urban heat island effect in Sandringham

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. The eastern inland portion of the suburb is most impacted, which is where the Bayside Business District is located (BBD) and development is considerably more intensive.

Streets that may be subject to potential impacts include Bay Road, Bluff Road, George Street, Rose Street, Holloway Road, Wangara Road, Spring Street, Talinga Road, Cooke Street, Holloway Close, Forrest Court, Balmoral Avenue, Regent Court, Lansell Avenue, Clements Street, Frances Street and Regworth Court. These streets are displayed on Map 20 later in the Plan.

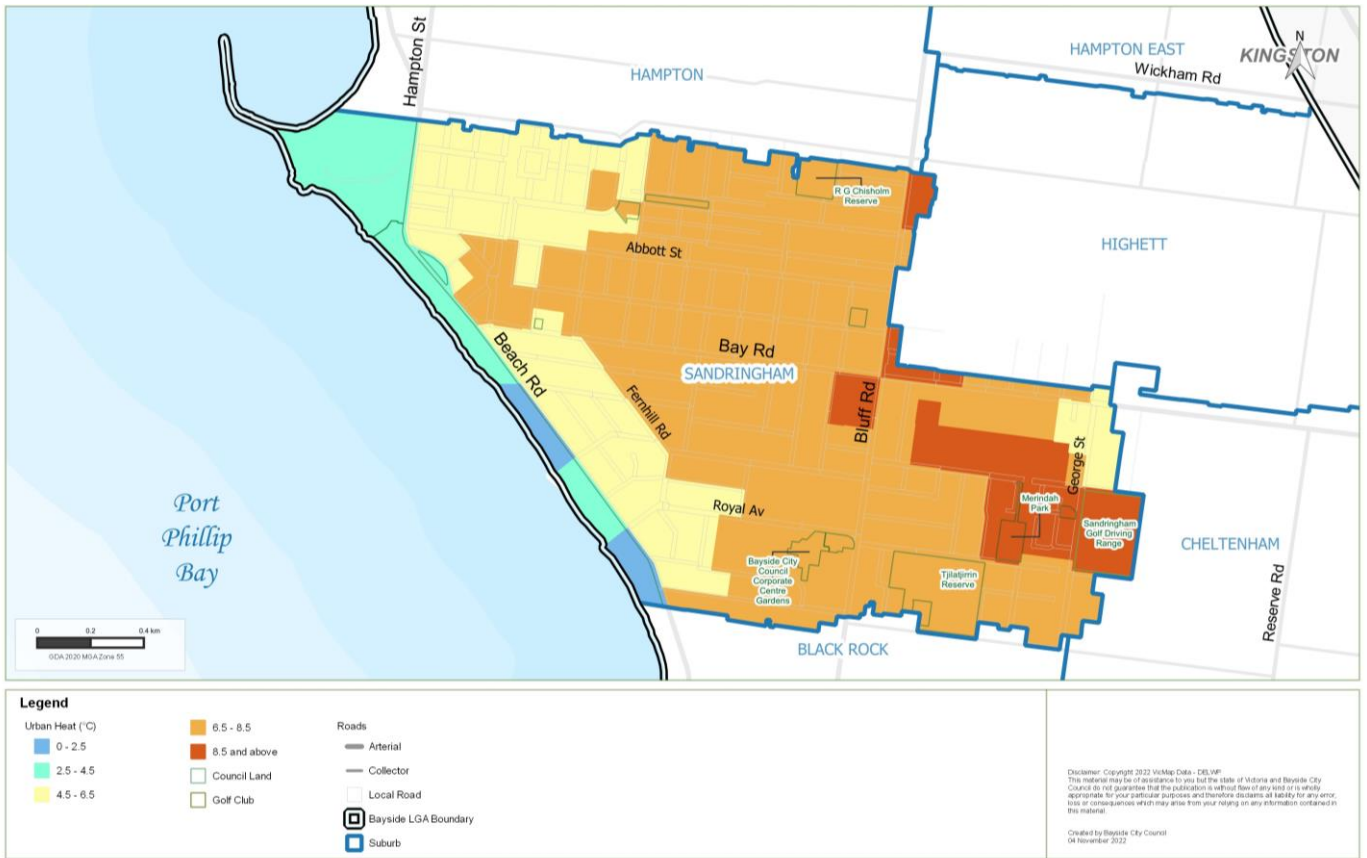
Council will investigate opportunities to prioritise planting on Council land that is most impacted by urban heat island effects. In Activity Centres that are facing high temperatures innovative techniques such as green roofs and walls will be explored and encouraged to increase vegetation.

Due to larger areas that have impervious hard surfaces, that generate heat, and low [percentage of understorey planting, the eastern area of Sandringham will reach threshold temperatures for heat-related illness in vulnerable populations more often and for longer than surrounding areas.

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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



# 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 Sandringham.

## Strategic Biodiversity Value Score

The Strategic Biodiversity Value (SBV) is a ranking system developed by the Department of Environment, Land, Water and Planning (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>

A review of the SBV scores mapped within the council region was undertaken, with the results shown on Map 9. While the majority of Sandringham did not present a high SBV score, there were a few key areas where the score is higher, between 0.8 and 1, indicating that these areas have a higher conservation value. Specifically, these areas included:

- Sandringham Beach Park Reserve
- Bay Road Heathland Sanctuary.

George Street Reserve also presented with an SBV score, which was between 0.2 - 0.4. The remainder of the foreshore reserve generally has an SBV score between 0.2 and 0.4, where native vegetation exists between the road and water's edge.

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 8 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 8 EVCs modelled within Bayside, three were present within Sandringham, specifically the Coastal Headland Scrub/Coast Banksia Woodland Mosaic along the foreshore, the Heathy Woodland/Sand Heathland Mosaic at George Street Reserve and Bay Road Heathland Sanctuary as well as Grassy Woodland/Damp Sands Herb-rich Woodland Mosaic at Bay Road Heathland Sanctuary. The species palette provides guidance on species of trees and vegetation that should be planted 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 – Historic Ecological Vegetation Classes



# Park Improvement and Habitat Linkage Plan

A key outcome from the *Park Improvement and Habitat Linkage Plan 2022* is to identify where vegetation planting can be implemented or improved to link areas of open space and provide habitat corridors and to prioritise areas for immediate planting on council land.

The objective of the plan is to assist in increasing the diversity of indigenous and native plantings in council-owned open space outside the conservation reserve system and strengthen the connections between natural areas.

## Conservation reserves in Sandringham

- George Street Reserve
- Bay Road Heathland Sanctuary
- Sandringham Foreshore – south
- Picnic Point.

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

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.

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’.

## Core Habitat Patches

As per Map 11, ten core habitat patches have been identified where planting should occur to implement new or improve existing links to areas of open space and provide habitat corridors:

1. Picnic Point
2. Sandringham Foreshore - south
3. Allambee Park & adjoining properties
4. Firbank Grammar (Royal Avenue)
5. Royal Avenue Reserve
6. Tjilatjirrin Reserve
7. George Street Reserve
8. Merindah Park
9. Bay Road Heathland Sanctuary
10. Sandringham Driving Range



**Map 11 - Habitat Linkages and Improvement (Core areas)**



## **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>

As per Map 12, Priority Habitat Improvement Areas identified in Sandringham are:

- Picnic Point foreshore
- Sandringham foreshore
- George Street Reserve
- Tjilajirrin Reserve
- Sandringham Driving Range
- Bay Road Heathland Sanctuary
- Merindah Park
- Pobblebonk Park
- Royal Avenue 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 for 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, see Map 12.

- Picnic Point to Sandringham Foreshore – South
- Sandringham Foreshore - South to George Street Reserve via Royal Avenue Reserve and Tjilajirrin Reserve
- Sandringham Secondary College to George Street Reserve via Bay Road and George Street.

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

## 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 Sandringham that is within the Significant Landscape Overlay, however there are several trees and vegetation protected by the Heritage Overlay.

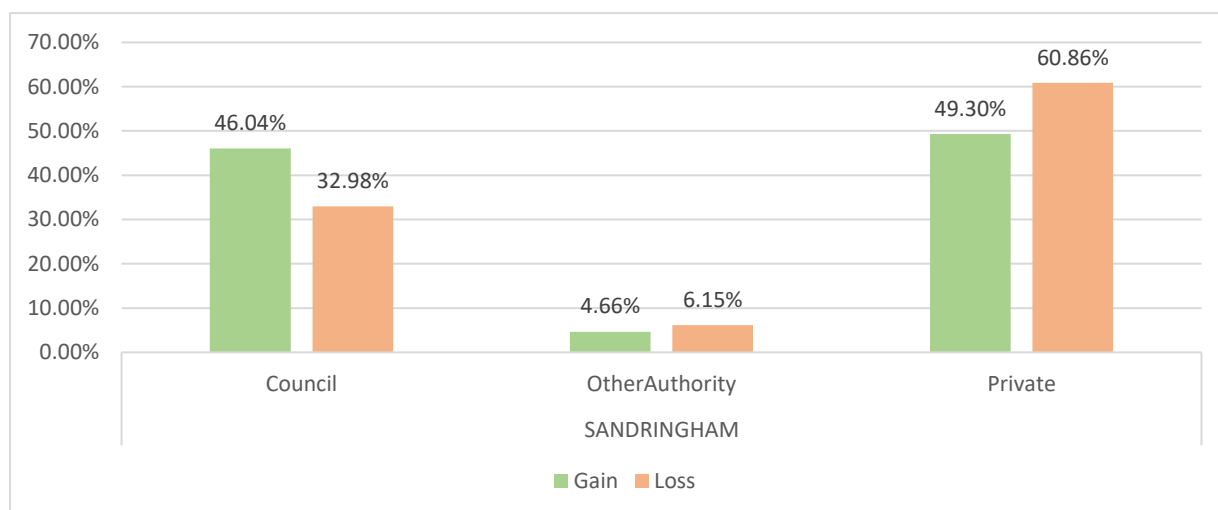
It is difficult to approximate the number of trees removed from private land each year under a planning permit as this is not separately recorded (and one application can be for multiple tree removals), let alone the extent of tree removal that is legal or illegal.

### Tree loss and gain in Sandringham on private land

Map 13 shows tree canopy loss and gain in Sandringham 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 the council's GIS team to identify changed areas of vegetation.

As indicated in Graph 10, while private land contributed to 49.3% of tree canopy gains in Sandringham, it also contributed to 60.9% of tree canopy losses. Conversely, council-owned land contributed 46% to tree canopy gain versus 33% of tree canopy loss. 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.

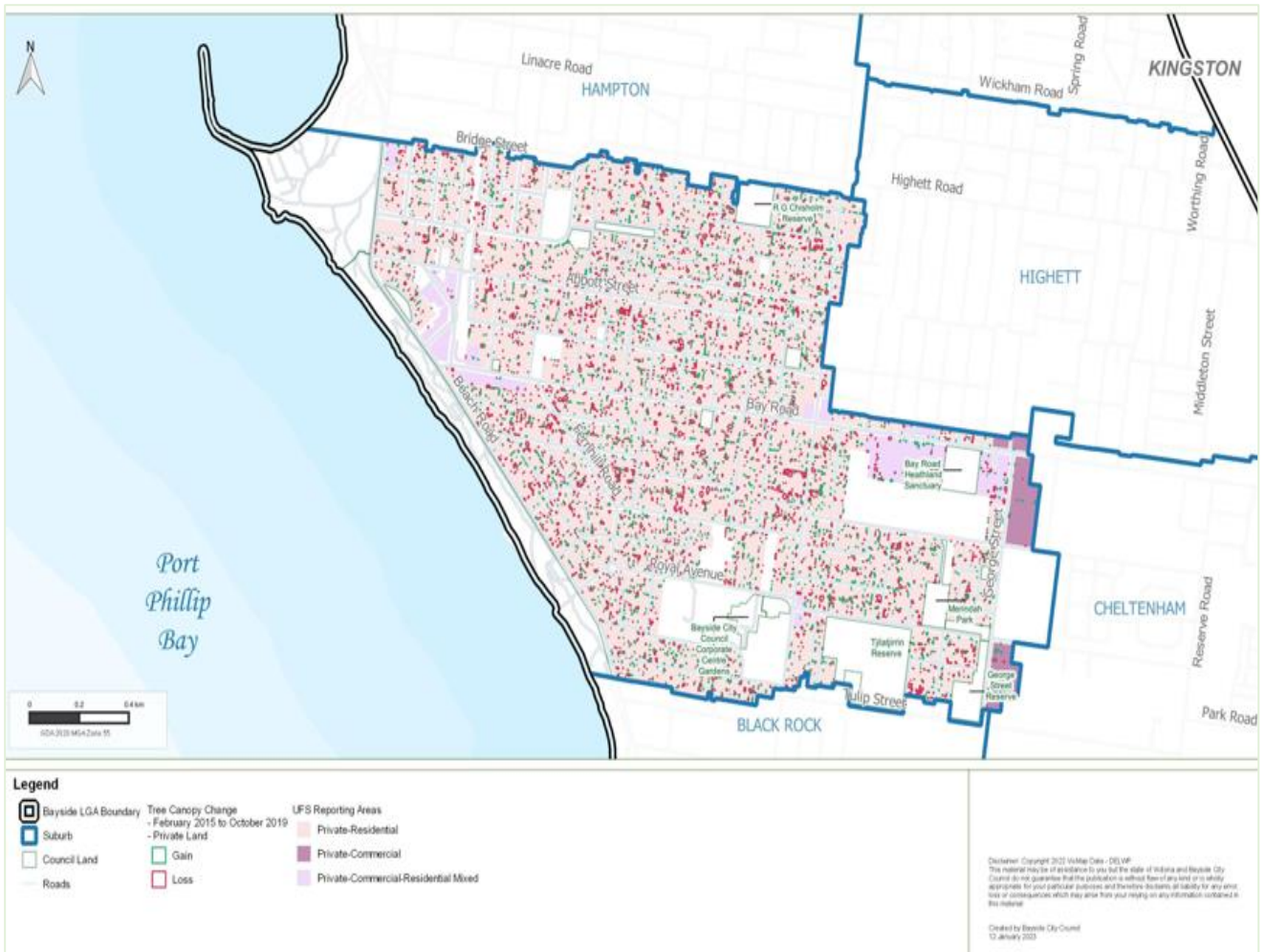
Council will also investigate opportunities to provide free tree and vegetation giveaways to residents. This will provide Council with a pathway to influence the tree and vegetation cover that exists on private land and help residents maintain the health of their trees and gardens. Bayside already has 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 Sandringham**



## Sandringham in Images

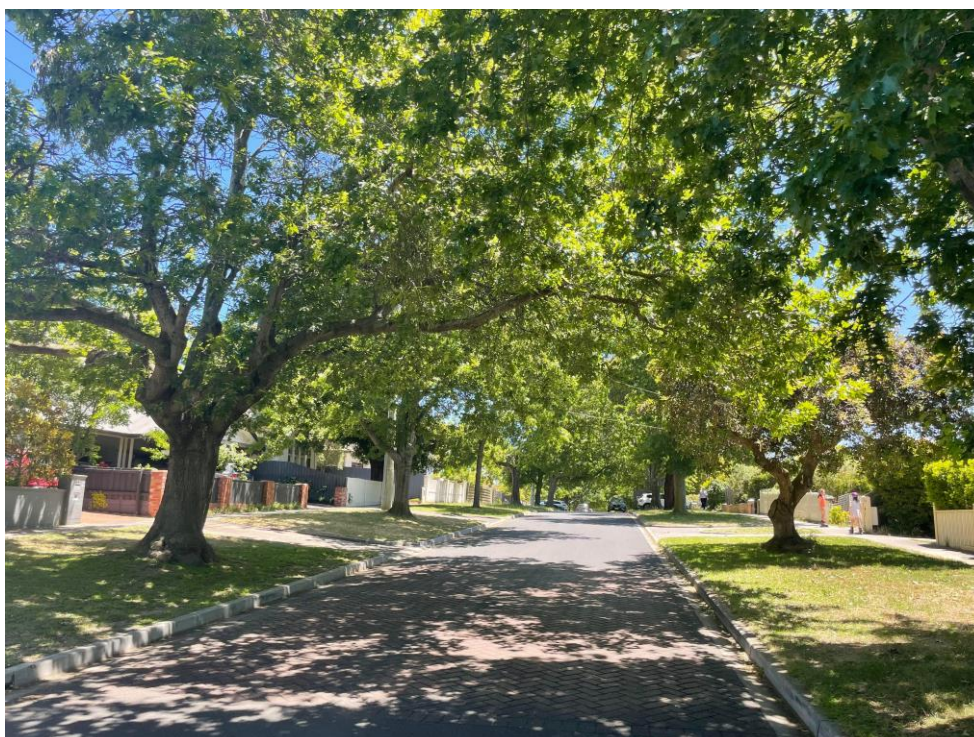
The following images show examples of low, medium, and high tree canopy coverage in Sandringham.



**Image 6.** Balmoral Avenue, an example of a road with low tree canopy coverage.



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



**Image 8.** Vincent 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.



**Small tree under powerlines**



**Tree trimmed under powerlines**

Certain pieces of infrastructure introduce constraints that 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. Map 14 identifies infrastructure that must be considered when undertaking tree and vegetation planting including:

- 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 Sandringham**



# Key Opportunities

**Greening Sandringham**  
Increasing tree canopy cover to reach 30% and vegetation cover to reach 30% across Sandringham by 2040.

**Biodiverse suburb**  
Create a diverse and healthy urban forest that reinforces greater outcomes for biodiversity.

**Improve monitoring and maintain**  
Improve the ability to monitor and track along with maintaining our existing canopy cover and avoid further decline.

**Encourage residents and private owners**  
Learn together, educate each other, encourage and celebrate greater care and protection.

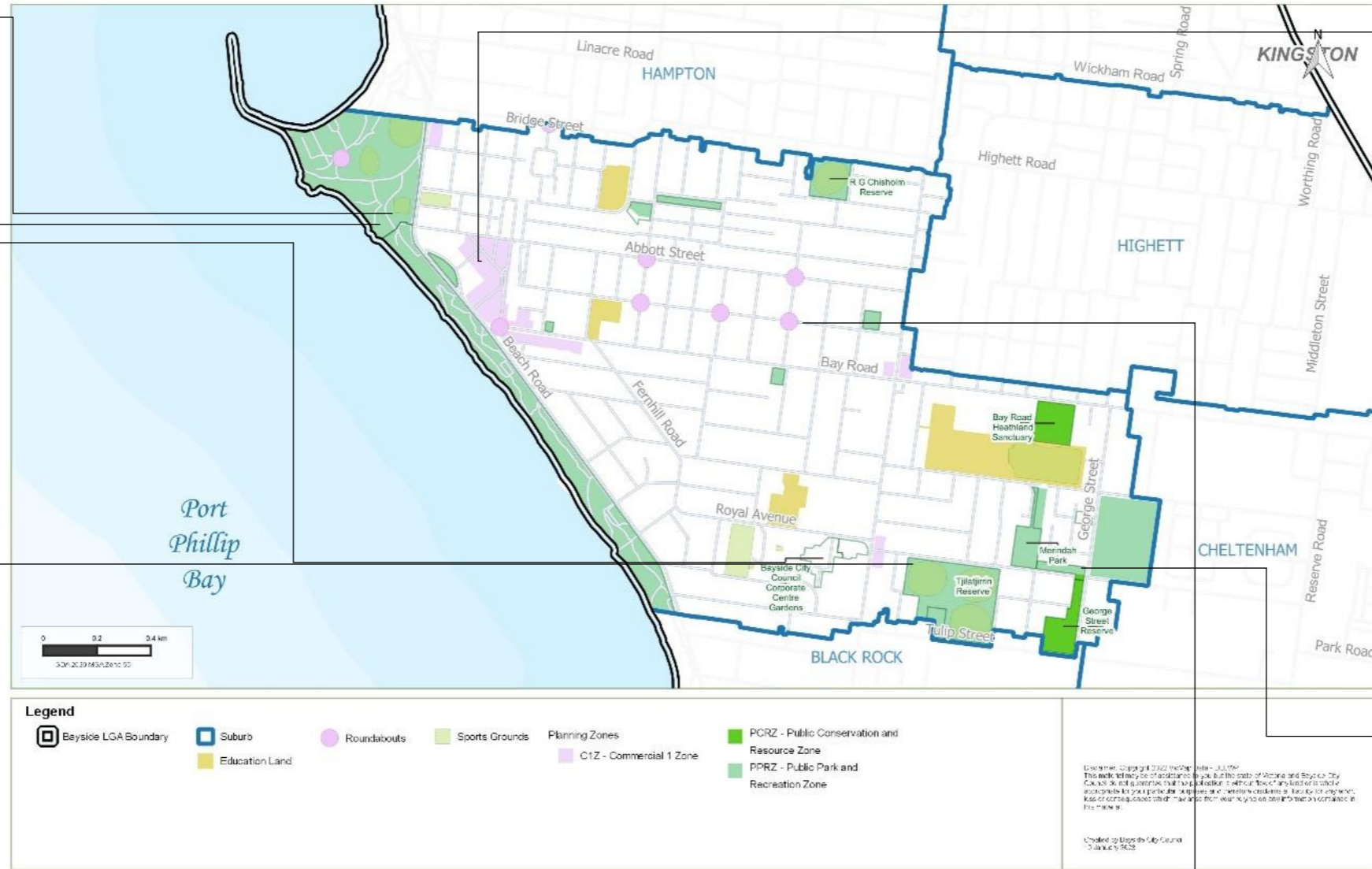
Map 15 – Key Opportunities in Sandringham

**Nature strips**  
In terms of tree planting, the **Street and Park Tree Management Policy** states that: 'Council aims to have 100% of suitable sites within Bayside planted with a tree to contribute to the municipality's leafy character. Most property frontages in Bayside can accommodate at least one tree within the nature strip.'

**Council-owned open spaces**  
Sandringham has approximately 53.4 hectares of open space that includes parks, reserves, and foreshore areas.

Opportunity exists to increase the number of canopy trees planted in council-owned open spaces, with the most prominent example being along the foreshore. Priority should also be given to parks and reserves where core habitat patches exist as well as habitat linkage and improvement areas.

**Council-owned projects**  
There is a significant opportunity to increase vegetation cover in Sandringham through council-owned projects like the renewal or development of community buildings and sporting club facilities. Each Council project has site-specific issues and opportunities that need to be considered as part of the project scope. Examples of this include having a buffer around Council buildings and sporting ovals to ensure new plantings do not hinder future projects. When planting near sporting ovals maintenance of future trees must be considered to ensure sporting events can still run.



- Priority Linkage Improvement Areas**
- Picnic Point to Sandringham Foreshore – South
  - Sandringham Foreshore - South to George Street Reserve via Royal Avenue Reserve and Tjilajirrin Reserve
  - Sandringham Secondary College to George Street Reserve via Bay Road and George Street.

**Commercial areas**  
Across Sandringham there are three areas that are zoned for commercial use. These include:

- Sandringham Village (Major Activity Centre)
- Beach Road & Georgiana Street (Small Neighbourhood Activity Centre)
- Bluff Road & Bay Road (Small Neighbourhood Activity Centre)
- Bluff Road & Spring Street (Small Neighbourhood Activity Centre)
- Bluff Road & Edward Street (Small Neighbourhood Activity Centre) (part)

The character of these commercial centres can be improved by increasing the amount of vegetation. This will create more appealing centres that will attract a greater number of visitors and therefore increase business for local traders.

When planting trees in commercial areas conflicting priorities such as the demand for car parking, footpath activation, shop awnings, street lighting and road signage must be considered. Innovative techniques such as green roofs and walls and replacing trees in poor health should be explored and encouraged to increase vegetation.

**Educational land**  
Council will work with other State Government departments and with private owners to increase vegetation cover on educational land. The schools within Sandringham are Sandringham College, Sandringham Primary School, Sandringham East Primary School, Sacred Heart Parish School, Firkbank Grammar Junior School.

**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.

## Prioritising Trees and Vegetation

Planting will commence by focussing on habitat linkages and core habitat patches identified in the Park Improvement and Habitat Linkage plan (Action 1 of the Implementation Plan). Focus will also be given to streets that have low canopy cover.

Encouraging planting on private property will prove to be more challenging. The species palette listed in this Precinct Plan is also provided within the revised Bayside Landscaping Guidelines and selection from this list will be encouraged as part of the Planning and Local Law tree removal application and approval process for Landscape Plans. Council will also work with private property owners to seek enhanced landscaping outcomes on nature strips.

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 family.

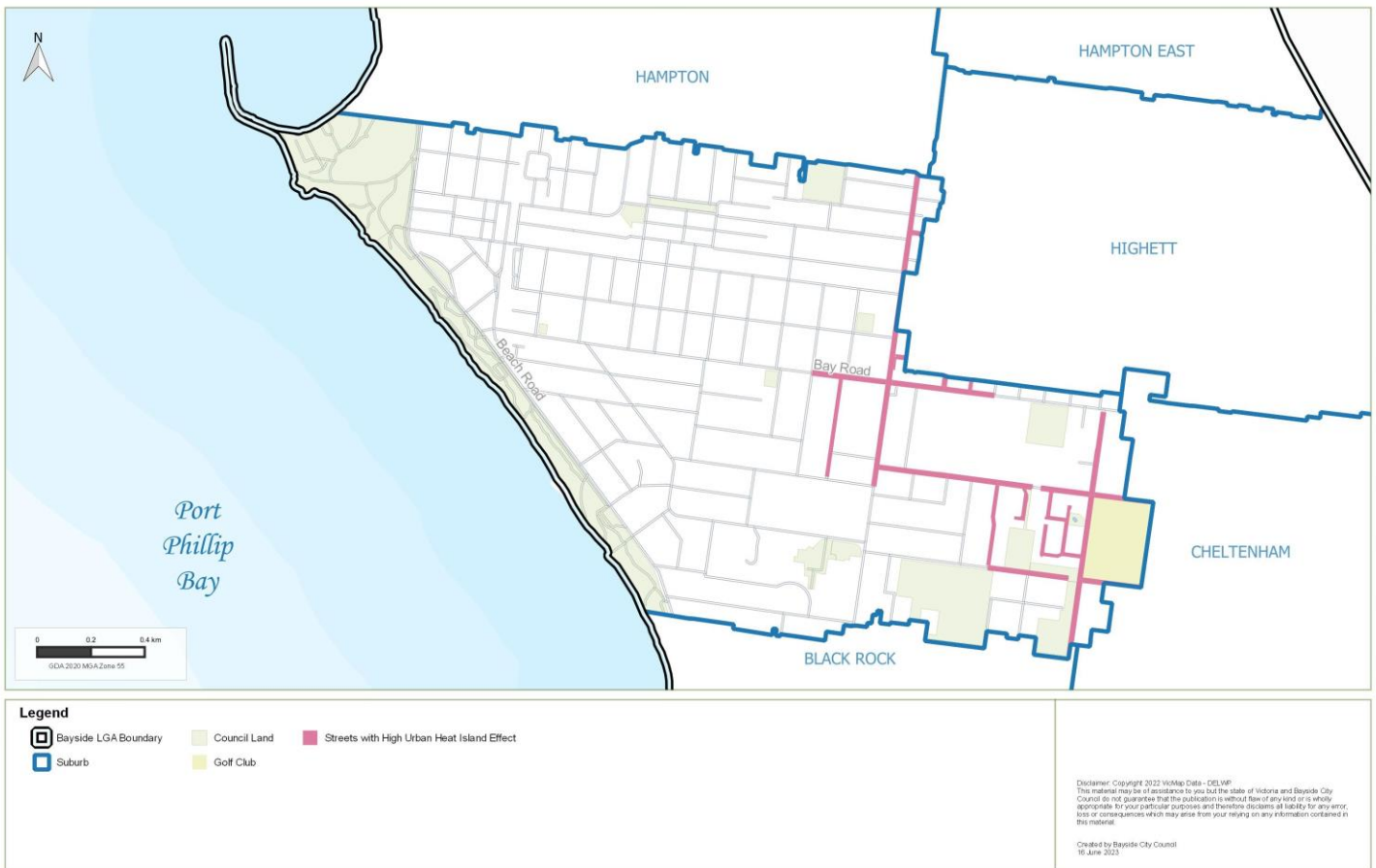
# Map 16 – Location of Tree Replacements required in next 10 years in Sandringham



## Map 17 – Streets with less than 20% Tree Canopy Cover in Sandringham



## Map 18 – Streets with High Urban Heat Island Effect in Sandringham



## Implementation Plan

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

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
<b>Create a diverse and healthy urban forest that reinforces greater outcomes for biodiversity.</b>						
Action 1 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>Priority Habitat Improvement Areas:</p> <ul style="list-style-type: none"> <li>• Picnic Point foreshore</li> <li>• Sandringham foreshore</li> <li>• George Street Reserve</li> <li>• Tjilatjirrin Reserve</li> <li>• Sandringham Driving Range</li> <li>• Bay Road Heathland Sanctuary</li> <li>• Merindah Park</li> <li>• Pobblebonk Park</li> <li>• Royal Avenue Reserve.</li> </ul> <p>Priority Linkage Improvement Areas:</p> <ul style="list-style-type: none"> <li>• Picnic Point to Sandringham Foreshore – South</li> <li>• Sandringham Foreshore - South to George Street Reserve via Royal Avenue Reserve and Tjilatjirrin Reserve</li> <li>• Sandringham Secondary College to George Street Reserve via Bay Road and George Street.</li> </ul> <p>Core habitat patches:</p> <ul style="list-style-type: none"> <li>• Picnic Point</li> <li>• Sandringham Foreshore - south</li> <li>• Allambee Park &amp; adjoining properties</li> <li>• Firbank Grammar (Royal Avenue)</li> <li>• Royal Avenue Reserve</li> <li>• Tjilatjirrin Reserve</li> <li>• George Street Reserve</li> <li>• Merindah Park</li> <li>• Bay Road Heathland Sanctuary</li> <li>• Sandringham Driving Range</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.
Action 2 Phase 1	Enhance biodiversity outcomes on private land.	<p>Encourage private landowners to plant vegetation on private property and 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>	Open Space, Urban Strategy, Communication and Engagement	Ongoing	Budget will be required.	<p>Utilise engagement evaluation matrix to measure success.</p> <p>Number of community members involved in activities.</p> <p>Demand from residents for vegetation outside their house.</p>
Action 3 Phase 1 & 2	Create new open space, pocket parks, micro-forests in the suburb seeking new biodiversity or habitat corridors.	Investigate opportunities to create new public open space, pocket parks, microforests, and habitat corridors, ensuring that the design of these spaces are contributing to Bayside's urban forest outcomes and the existing Ecological Vegetation Community.	Open Space	Ongoing	This can be considered as part of the Open Space Strategy review and can be considered with the resourcing of that project.	Council to prepare list of potential open space sites as part of the adoption of the Open Space Strategy review.
Action 4 Phase 1	Ensure humans and wildlife can simultaneously and safely access densely vegetated areas, streets and reserves	Support the undergrounding of powerlines where it is at the request of the community and at their full cost. 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.	Asset Protection	Ongoing	No budget required	Number of streets where undergrounding of powerlines has been implemented
Action 5 Phase 1	Ensure open space opportunities along the Sandringham trainline are considered.	Council will work with the Port Phillip Emergency Climate Action Network (PECAN) to seek the increase of vegetation cover along the Sandringham rail line from North Brighton Station to Sandringham	Open Space, Urban Strategy, Climate, Sustainability, Waste and Transport	Ongoing	No budget required	Confirmation that planting along the Sandringham line will commence.

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
		Station as a Stage 2 of the Green Line Project.				
<b>Enhance landscape outcomes and increase tree and vegetation cover to reach 30% across Sandringham by prioritising areas in greatest need</b>						
Action 6 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.	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%): <ul style="list-style-type: none"> <li>Abbott Street</li> </ul> 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: <ul style="list-style-type: none"> <li>Bay Road</li> <li>Bluff Road</li> <li>George Street</li> <li>Rose Street</li> <li>Holloway Road</li> <li>Wangara Road</li> <li>Spring Street</li> <li>Talinga Road</li> <li>Cooke Street</li> <li>Holloway Close</li> <li>Forrest Court</li> <li>Balmoral Avenue</li> <li>Regent Court</li> <li>Lansell Avenue</li> <li>Clements Street</li> <li>Frances Street</li> <li>Regworth Court.</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.
Action 7 Phase 1	Planting canopy trees and understorey vegetation on roundabouts that currently do not have vegetation to enhance landscape outcomes.	Investigate opportunities to provide canopy cover and/or understorey planting at the following roundabouts (as per Map 15): <ul style="list-style-type: none"> <li>Codrington Street / Sandringham Road</li> </ul> New plantings must not affect sight lines, safety or accessibility for larger vehicles.	Open Space, Urban Strategy, Integrated Transport.  Integrated Transport team to undertake internal safety assessment before and after planting.	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  In line with the review of the Precinct Plans, a comparison should be undertaken for all roundabouts that currently do not have vegetation.
Action 8 Phase 2	Increase utilisation of green walls and green roofs in Activity Centre area.	Investigate opportunities to introduce mechanisms to increase green roofs and walls within Activity Centres.	Development Services, Strategic Planning	Year 5 to 10	Initiate a Planning Scheme Amendment.	Number of green walls implemented.  Urban Forest Strategy Annual Reporting Program
Action 9 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, City Assets	Ongoing	Budget will be considered as part of the project scope.	Number of plants planted.  Urban Forest Strategy Annual Reporting Program.
Action 10 Phase 1	Increase tree canopy cover by prioritising vacant tree sites.	As part of the Annual Tree Planting Program, prioritise planting vacant sites.	Open Space, Urban Strategy	Ongoing	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	Number of trees planted.  Urban Forest Strategy Annual Reporting Program.
Action 11 Phase 1	Ensure our urban forest is healthy and resilient.	As part of the Annual Tree Planting Program, Council should continue to choose species that are resilient and adaptive to the effects of climate change and increasing urban development.  Property owners are also encouraged to select species that are resilient and adaptive through the planning and local law application processes.	Open Space, Development Services and Urban Strategy	Ongoing	Budget allocation as part of the Annual Tree Planting Program  Budget allocation required to continue programs such as the Gardens for Wildlife Program to encourage planting on private property.	Species 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>						
Action 12 Phase 1 and 2	Increase planting on State owned roads that have less than 20% tree canopy cover.	Advocate to VicRoads and other authorities for increased planting on Bay Road, Bluff Road, Beach Road and Fernhill Road.	Open Space, Urban Strategy, Communications & Engagement	Ongoing	Budget will be required for any additional planting or maintenance should Council take on those functions for land in State ownership.	A commitment made to plant trees on the streets maintained by VicRoads.



Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
Action 13 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.
Action 14 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 Sandringham and avoid any further decline where possible</b>						
Action 16 Phase 2	Ensure our urban forest is healthy and resilient.	Continue to assess trees that have limited useful life expectancy or are dead, for potential retention as habitat trees using TRAQ (Tree Risk Assessment Tool).	Open Space	Year 5 to 10	Budget and resources will be required to assess trees for habitat and to plant understorey to support habitat trees.	Number of replacement plants planted, and number of trees retained for habitat.  Urban Forest Strategy Annual Reporting Program.
Action 17 Phase 1 and 2	Increase Council's ability to protect trees from vandalism.	Explore additional opportunities to minimise vandalism, particularly along the foreshore.  Consider the preparation of a communications and engagement strategy targeted to private property owners and the wider community.	Local Laws, Open Space, Communications and Engagement	Year 1 to 5	Budget and resources will be required to explore opportunities.	Utilise engagement evaluation matrix to measure success.
Action 18 Phase 2	Provide safer and cleaner streets for our residents and visitors	As vegetation cover increases with time, ensure future maintenance contracts appropriately fund the clean-up of tree leaves and debris on roads, public land and in activity centres.	City Asset, Open Space	Ongoing	Additional budget will be required for maintenance contract.	The number of requests for additional service.
Action 19 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	Planning Scheme Amendment process to be funded via operation budget.  Budget may be required to prepare detailed background information.	Preparation of Planning Scheme Amendments.

# 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.

Sandringham has a distinctive character dominated by natives and local indigenous species. Future plantings should focus on increasing the presence of indigenous species. A small section of Sandringham south of Edward Street and west of Bluff Road is in the VPO3 and is to be planted with a minimum of 80% indigenous tree, as per the requirements of the planning overlay.

## 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 in wider nature strips or tree islands, where there will be low impact to adjacent infrastructure.

We recognise that there are restrictions where medium or small size trees would be more appropriate due to competing infrastructure. Understorey planting, or multiple tree plantings 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 parking.
- b.) *Planting in road reserve*: Designing in-road tree pits where there is 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. Council will be working with DELWP and VicRoads to prepare a long-term boulevard strategy. Where possible the philosophy of establishing boulevards should extend to local streets.

### 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, medium trees on the side with

overhead constraints should be selected. Council will continue to investigate engineering and horticultural solutions to manage larger trees under powerlines

- 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**

Sandringham's urban forest character is strongly connected to gum trees, and there will continue to be a higher population of gum trees in Sandringham. 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. 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.





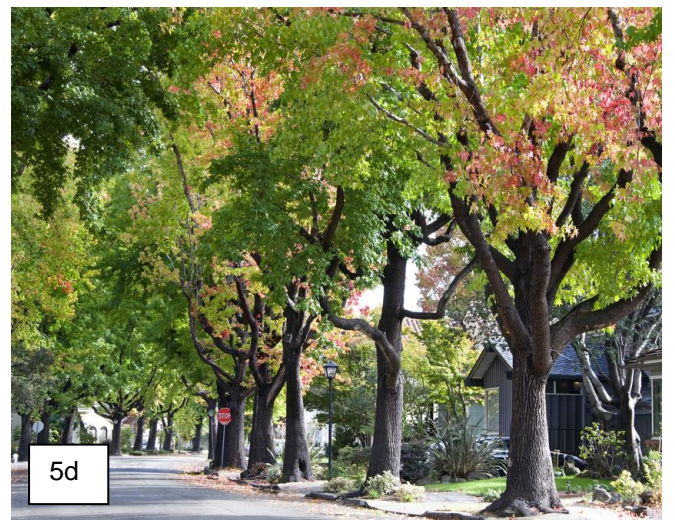
5a



5b



5c



5d



6

## Appendix 2: Case Studies

The following case studies showcase high-quality landscaping.. 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.

### Royal Avenue Reserve

There are several plantings in The Royal Avenue Reserve which would be great alternatives for exotic plantings. The Poa Species and Dianella could replace exotic counterparts, such as Agapanthus. Agapanthus form dense stands, causing them to become the dominant species wherever they grow. This leads to the loss of indigenous and native plants that previously occupied the area. *Agapanthus* also spread very easily and are difficult to eradicate. The Saltbush species make great Indigenous ground cover for understorey planting.



3 Royal Avenue Reserve, Sandringham

### Beach Road 1



1 Beach Road, Sandringham

These plantings are found along nature strips abutting Edward Street. They also extend upon the corner of Beach Road heading East towards Black Rock.

## Beach Road 2

This case study shows Indigenous *Lomandra longifolia* planted along beach road, abutting The Bay Trail. These planting are both Indigenous and contribute to Sandringham's bushy coastal aesthetic and character.



**2 Beach Road, Sandringham**

## Village Zero – Sandringham

'Village Zero' is a community-driven initiative with the goal of regenerating the Sandringham Village Major Activity Centre through sustainable solutions.

The action group has identified seven areas of focus, these are:

1. Renewable Energy
2. Waste
3. Green Spaces
4. Transport
5. Water
6. Art
7. Culture

The relevant action to the Precinct Plans is Green Spaces.

This focus area aims to:

- Connect green and open spaces to surrounding pollinator corridors, to promote biodiversity and support local ecosystems. This could include planting native flowers and shrubs, and creating habitats for bees, butterflies, and birds. This includes investigating the viability of



green infrastructure, such as creating green roofs, and vertical gardens for apartment buildings;

- Increase access to green and open spaces, maximising flexibility of spaces for multiple uses and users, in accordance with Bayside Council's "Open Spaces" policies. Prioritise accessibility for people living with disabilities, youth and the elderly in the design and development of green and open spaces. This could include incorporating features such as raised garden beds, wheelchair-accessible pathways, and age-appropriate playground equipment. Improved accessibility will interface with other infrastructure initiatives such as crossing improvements at Abbott Street, across Station Street, and Beach Road;
- Coordinate with the community to increase the uptake of Bayside Council's tree-planting commitment for nature strips;
- Increase community enjoyment of streets, open and green spaces through community building events and activities;
- Align with and enabling other partners in supporting and nurturing green spaces;
- Engage the community in the planning, design, and maintenance of green and open spaces. This could include activities such as community clean-ups, volunteer gardening days, and educational workshops;
- Create and connect community gardens and orchards, which allow for community members to grow their own produce and educate the community on sustainable food production and consumption.

Council will continue to assist the 'Village Zero' project and will support any future initiatives that focus on increasing vegetation cover in activity centres.

### **Green Line Project – Sandringham Train Line**

The Green Line project is a community-driven proposal for a linear park that will follow along the Sandringham rail line from South Yarra Station to Gardenvale Station. The Port Phillip Emergency Climate Action Network (PECAN) developed the Green Line project in response to City of Port Phillip's Draft Public Open Space Strategy.

The Green Line project will connect existing open space and rehabilitate underutilised spaces to create a biodiverse urban green space that will improve pedestrian and cycling accessibility. Gardenvale Station is located along the border of the Bayside municipality and the project presents an opportunity to increase planting and tree canopy cover.

Bayside City Council supports this project and will advocate for the project to be extended along the remaining Sandringham rail corridor. Council will also advocate for increased open space connectivity along the Frankston railway line.

# Appendix 3: Sandringham Species Palette

## Species Palette

The following species provided are of guidance only.

Coastal trees, grasses and other species are key genera across Sandringham, 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 Sandringham's urban forest. The prepared species palette for Sandringham seeks to enhance the already diverse urban forest while also ensuring species are complimentary to the EVCs found within the suburb.

When selecting tree and vegetation species for planting on Council-managed streets, parks and reserves, Council will consider existing infrastructure to minimise potential impact. This will ensure that Council can increase vegetation cover whilst protecting existing infrastructure and reducing demand for maintenance.

Bayside City Council utilises the Street and Park Tree Management Policy and the Street and Park Tree Selection Guide when planting in streets, parks, and reserves or as part of capital infrastructure projects.

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 neighborhood character.

The following list of Indigenous, native and exotic plants is provided as guidance only. The list is split into 8 categories:

- Large canopy trees
- Medium canopy trees
- Small canopy trees
- Medium to large shrubs
- Small shrubs
- Grasses & tussocks
- Groundcovers & wildflowers
- Climbers

Each list is accompanied by a key which categorises each plant based on its characteristics (Height and spread at maturity, Uses/traits, habitat, tolerances, sunlight, flowering period, flowering colours and EVC number if applicable).

## Indigenous Plants

Council promotes the use of indigenous plants as they occur naturally within Bayside and have adapted to the conditions within the local environment (soil and climate) whilst also providing habitat and food for local birds, insects, and other native animals. There are a number of indigenous trees listed within the Street and Park Tree Selection Guide which are planted as part of Council's Annual Tree Planting Program.

Indigenous plants are the original flora, or plants that occur naturally, in a given location. Indigenous plants have adapted to the soils, topography and climate of the local area because they have evolved to the conditions within the local environment. Indigenous species also help to maintain the ecological balance of the local ecosystem, as plants and animals depend upon one another for their survival.

## **Native and Exotic Plants**

Native species are plant species that did not historically originate within the bayside region but were extant in other regions within the Australian continent. Exotic species are those plants that have been introduced and are not native to Australia and therefore did not historically occur within Bayside.

Bayside's urban forest is a mix of native, indigenous, and exotic species. While priority is placed on increasing the use of indigenous species, the historic planting of exotic, native and indigenous species is a core element of the character in certain areas of Bayside.

The use of native and exotic plants in this list is encouraged in areas where it is considered to have a positive impact on the surrounding environment and neighbourhood. This is of relevance where the existing plant(s) enhances the neighbourhood character. In these areas replanting like for like is encouraged.

Council utilises native and exotic species as part of its annual planting program. To ensure long term resilience and increase survival rates, native and exotic species adapted to Bayside's future climate will be considered for planting. Council utilises the Street and Park Tree Selection Guide to inform the annual tree planting program.



## Species Palette 2 – Medium Trees

INDIGENOUS TO PROVIDENCE (Grown at nursery/within Bayside)		Uses/Traits Key		Habitat Key										Tolerances		Flowering Months		Flower colours		E/D		Habitat		Uses/Traits	
INDIGENOUS (Grown Outside Bayside)		R - Robust and Hardy		H - Healthy Woodland										High = tolerates well without damage.		complete range		Fair - can tolerate medium levels		E		MW		R, LM, bird-attracting, screening, shading, bush garden, fragrant flowers	
NATIVE TREES (From Australia)		LM - Low Maintenance		M - Moist/Closed forest										acid to neutral		Moderate = tolerates somewhat with some effects in low levels		E		CD		R, LM, foliage interest, screening, shading, bush garden, bird-attracting			
EXOTIC (From outside Australia)		S - Shade		C - Coast - dune scrub & woodland										acid Low = suffers serious damage to death if exposed		Unknown		E=MW		D=Deciduous		Please contact your local nursery or a horticultural professional for further advice.			
Additional Species		Shade = FSH		D - Prefers dry, well drained soils & tolerates dryness once established.										Unknown		E=MW		D=Deciduous		All indigenous plants provide habitat & food for local birds, insects & animals.					
PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY		Sh - Prefers or tolerates full shade		W - Prefers or tolerates moist soils, wetness, periodic inundation										Unknown		E=MW		D=Deciduous		All indigenous plants provide habitat & food for local birds, insects & animals.					
Use of any of the below species is preferred but not limited to these species		A - Adaptable, growing well in most soil types		A - Adaptable, growing well in most soil types										Unknown		E=MW		D=Deciduous		All indigenous plants provide habitat & food for local birds, insects & animals.					
Species that grow to a height greater than 9m, and canopy greater than 6m at maturity		EVC= Ecological Vegetation Class		Tolerances										Flowering Months		Flower colours		E/D		Habitat		Uses/Traits			
BOTANICAL NAME	COMMON NAME	Mat. HEIGHT	Mat. CANOPY	Growth Rate	EVC	Sunlight	Wind	Salinity	Sea Spray	Drought	Waterlogging	Compaction	PH	Flowering Months	Flower colours	E/D	Habitat	Uses/Traits							
<i>Acacia mearnsii</i>	Black Wattle	9	6	Fast	719, 3	FS	High	Low	Moderate	High	Fair	High	Acid	Sep-Nov.	Pale yellow or Cream	E	MW	R, LM, bird-attracting, screening, shading, bush garden, fragrant flowers							
<i>Allocasuarina littoralis</i>	Black She-oak	9	6	Slow	719, 3	PS-FS	High	High	High	High	Moderate	Moderate	Complete range	Apr-May.	Red	E	CA	R, LM, foliage interest, screening, shading, bush garden, bird-attracting							
<i>Allocasuarina verticillata</i>	Drooping She-oak	9	6	Moderate-slow	n/a	FS	High	High	High	High	Fair	Fair	Complete range	Mar-Dec.	Red	E	HD	architectural form, foliage interest, bird-attracting, screening, UPL, street tree, bush garden							
<i>Banksia integrifolia</i>	Coast Banksia	10	6	Moderate	919, 921	FS	High	High	High	High	Moderate	Moderate	Complete range	Mar-Sep.	Lemon yellow to Red	E	CD	R, bird-attracting, foliage interest, Screening, Shading, Street tree							
<i>Eucalyptus ovata</i>	Swamp Paperbark	10	6	Moderate	707	FS	Moderate	Low	Moderate	Moderate	High	High	Acid	Mar-Jun.	Creamy-White	E	MW	LM, S, R, Attractive bark, bird-attracting, aromatic							
<i>Eucalyptus pauciflora</i>	Snow Gum	10	7	Moderate-fast	n/a	FS	High	Moderate	Moderate	Moderate	Fair	Moderate	Acid	Aug-Nov.	White or Cream	E	HD	LM, S, R, attractive bark and foliage, bird-attracting, Aromatic, Accent tree							
<i>Allocasuarina torulosa</i>	Rose She-oak	10	7	Fast	n/a	FS	High	High	Fair	Fair	Moderate	High	Acid to Neutral	Mar-Aug.	Red and brown	E	HD	Wind break, unique sound, screening, windbreak, decorative fruit							
<i>Brachychiton populneus (Native)</i>	Kurrajong	15	6	Fast	n/a	FS	High	Moderate	Moderate	High	Low	Low	Complete Range	Sep-April	White, red, pink	E	C,D	R,F, LM, Attracts bees, seed eating birds, butterflies, insects.							
<i>Brachychiton rupestris (Native)</i>	Queensland bottle tree	15	6	Slow	n/a	FS	High	Moderate	Moderate	Moderate	Low	Low	Complete Range	Oct-Dec	Cream	D	C,D	R, LM, F, Bird attracting flowers.							
<i>Brachychiton obovatus</i>	Illawarra flame tree	12	6	Fast	n/a	FS	Moderate	Low	Low	Moderate	Low	Low	Acid	Sep-Dec.	Red	D	DW	Attracts bees, nectar eating birds, butterflies, other insect							
<i>Melia azedarach (Native)</i>	White cedar	10	6	Fast	n/a	FS	Moderate	High	High	Moderate	Moderate	Moderate	Complete range	Sep-Nov	Lilac flowers	D	CDWA	R, LM, S, F. Bird and bats are attracted to the berries.							
<i>Syzygium paniculatum (Native)</i>	Brush cherry	15	8	Moderate to Fast	n/a	FS-PS	Low	Moderate	Moderate	High	Moderate	High	Acid to Neutral	Nov-Jan.	White	E	M, CA	LM, S, R, Bird and bee attracting							
<i>Syzygium australe (native)</i>	Lilly Pilly	10	6	Fast	n/a	FS	High	High	Low	Moderate	Low	Low	Complete Range	Sep-Oct	White/cream	E	WA	RL Flowers and berries attracts birds and bats.							
<i>Acer rubrum 'Brandywine'</i>	Maple, Autumn Flame	9	6	Moderate	n/a	PS-FS	Moderate	Low	Moderate	Moderate	High	Moderate	Acid	Sep-Oct.	Bright Red	D	MW	S, Autumn Colour - Orange to purple-red, foliage interest, Ornamental							
<i>Acer rubrum 'October Glory'</i>	Maple, Lipstick Tree	12	9	Moderate	n/a	PS-FS	Moderate	Low	Moderate	Moderate	High	Moderate	Acid	Sep-Oct.	Red or orange	D	MW	S, Foliage interest, Ornamental, Autumn colours - *superior if grown in full sun							
<i>Acer x freemanii</i>	Armstrong	12	6	Moderate	n/a	PS-FS	Moderate	Low	Moderate	Moderate	High	Moderate	Acid	Sep-Oct.	Red	D	MW	S, Autumn Colour, foliage interest, Ornamental							
<i>Catalpa bignonioides</i>	Indian Bean Tree	10	7	Fast	n/a	FS	Low	Low	Low	Fair	Moderate	Unknown	Complete range	Nov-Dec.	White	D	MW	interesting foliage, autumn colour, shading, accent							
<i>Celtis occidentalis</i>	Hackberry	8	8	Moderate	n/a	FS	Moderate	Moderate	Moderate	Moderate	Moderate	Unknown	Complete range	Sep-Nov.	Yellowish Green	D	HD	S, Autumn colour. Attractive bark							
<i>Fraxinus excelsior 'Aurea'</i>	Golden Ash	10	7	Moderate	n/a	FS	Moderate	Low	Moderate	Moderate	High	High	Complete range	Sep-Oct.	Green	D	HW	LM, S, R, Colourful foliage, Autumn colour							
<i>Jacaranda mimosifolia</i>	Jacaranda	12	8	Slow	n/a	PS-FS	Moderate	Low	Moderate	Moderate	Low	Fair	Complete range	Oct-Nov.	bluish-purple	D	CD	interesting and aesethic foliage, blue flowers, shading, accent tree							
<i>Metrosideros excelsa</i>	Pohutukawa	10	8	Moderate-slow	n/a	FS	High	Moderate	High	High	Moderate	Moderate	Complete range	Dec.	Crimson and yellow	E	CA	R, LM, attractive bark, bird-attracting, hedging, screening, shading							
<i>Pyrus calleryana</i> and other cultivars	Flowering Pear	10	4-8	Fast	n/a	PS-FS	Moderate	Low	Moderate	Fair	High	High	Complete range	Sep-Oct.	White	D	HW	S, Screening, Street tree, Autumn colour							

# Species Palette 3 – Small Tree

INDIGENOUS TO PROVIDENCE (Grown at nursery/within Bayside)		INDIGENOUS (Grown Outside Bayside)		UPL=Under Power Lines		Uses/trails key		Habitat Key		Tolerances		Evergreen/Deciduous		Uses/Traits				
NATIVE TREES (From Australia)		Full Sun = FS		LM - Low Maintenance		R - Robust and Hardy		H - Heath/Woodland		High = tolerates well without damage.		Flowering Months		Flower colours				
EXOTIC (From outside Australia)		Part Shade=PS		S - Shade		LM - Low Maintenance		M - Moist/Closed forest		complete range		Flowering Months		Flower colours				
Additional Species		Shade = FSH		F - Feature		C - Coast - dune scrub & woodland		D - Prefers dry, well drained soils & tolerates dryness once established.		acid to neutral		Flowering Months		Flower colours				
*PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY		Use of any of the below species is preferred but not limited to these species		Sh - Prefers or tolerates full shade		S - Shade		W - Prefers dry, well drained soils & tolerates dryness once established.		acid Low = suffers serious damage to death if exposed		Flowering Months		Flower colours				
SMALL CANOPY TREES - Species that reach 6-8metres in height and a spread of 4m @ maturity		EVC= Ecological Vegetation Class		Wind		Salinity		Sea Spray		Drought		Waterlogging		Compaction		SOIL PH		
BOTANICAL NAME	COMMON NAME	Max. HEIGHT	Mat. CANOPY	Growth Rate	EVC	Sunlight	Wind	Salinity	Sea Spray	Drought	Waterlogging	Compaction	SOIL PH	Flowering Months	Flower colours	E/D	Habitat	Uses/Traits
<i>Acacia implexa</i>	Lightwood	8	4	Moderate	n/a	PS-FS	Fair	Moderate	Moderate	High	Fair	Fair	Acid	Dec	Cream-white	E	HDA	R, LM, S, Bird-attracting, attractive bark, screening.
<i>Lepidospermum laevigatum</i>	Coast Tea-tree	6	3	Moderate	919, 921	FS	High	High	High	Moderate	Moderate	Moderate	Complete Range	Aug-Oct	White	E	CDA	R, LM, Bird-attracting, hedging, screening
<i>Bursaria spinosa</i>	Sweet Bursaria	6	3	Moderate-Fast	n/a	PS-FS	Fair	Fair	Fair	High	Fair	Fair	Acid to Neutral	Mar-Dec	Cream-white	E	FDA	R, LM, Fragrant, thorns, hedging, screening, UPL
<i>Banksia marginata</i>	Silver Banksia	5	3	Moderate	719, 892, 3	PS-FS	High	High	Fair	High	Fair	Moderate	Acid to Neutral	Mar, May-Nov.	Pale Yellow	E	HCDA	R, LM, S, Bird-attracting, Winter features, Screening, UPL
<i>Melaleuca squarrosa</i>	Scented Paperbark	3	1.5	Moderate	n/a	PS-FS	High	Moderate	Fair	Moderate	High	High	Complete range	Sep-Dec.	Cream-White	E	HMW	R, LM, S, Bird-attracting, Fragrant, screen, UPL, Ornament pond
<i>Acacia pendula</i>	Weeping Myall	6	3	Slow-Moderate	n/a	FS	High	Low	High	Moderate	Moderate	Fair	Complete range	May, Jul-Oct.	Yellow/Creamy white	E	CD	R, LM, Fragrant, thorns, hedging, screening, UPL
<i>Angophora hispida (Native)</i>	Dwarf apple gum	7	5	Moderate	n/a	FS	High	High	High	Moderate	Low	Low	Acid - neutral	Sep-Dec	Cream-White	E	CDA	R, LM, F, Attracts honey eaters and other nectar eating birds
<i>Banksia grandis</i>	Bull Banksia	8	4	Moderate	n/a	FS	High	High	High	High	Low	Low	Mild acidic to Mild alkaline		Crème, Yellow	E		
<i>Banksia serrata</i>	Saw Banksia	5	5	Slow	n/a	PS-FS	High	High	High	High	Moderate	Moderate	Mild acidic to Mild alkaline	Mar, May, Aug-Dec.	Yellow-Creamy green	E	MW	R, LM, S, Bird-attracting, Winter features, Screening, UPL
<i>Callistemon viminalis (native)</i>	Weeping Callistemon	4	4	Fast	n/a	FS-PS	Moderate	Moderate	Moderate	High	High	Moderate	Complete range	Sep-Oct.	Red	E	WA	R, F, Attractive new foliage, showy bird attractant flowers
<i>Cupaniopsis anacardioides (native)</i>	Tuckeroo	7	4	Fast	n/a	FS-PS	Moderate	High	High	Moderate	Low	Low	Complete range	Sep-Oct.	White	E	DA	R, LM, bird attractant
<i>Eucalyptus viridis</i>	Green mallee	8	4	Slow-Moderate	n/a	FS	Moderate	Moderate	Unknown	High	Moderate	Moderate	Mild acidic to Mild alkaline	Dec-Mar	White	E	CDA	R, LM, attractive small eucalypt, attracts bees and nectar eating birds.
<i>Gouiera parviflora (native)</i>	Wilga	8	6	Slow	n/a	FS	High	High	Moderate	High	Low	Low	Alkaline	June-Nov	White	E	DA	R, LM, ornamental, hardy species that attracts birds, butterflies, lady beetles.
<i>Hakea spp. (native)</i>	Hakea	6	4	Moderate to Fast	n/a	FS	Moderate	Moderate	Moderate	High	Low	Moderate	Acid	May, Jul-Oct.	various	E	CD	R, F, bird and butterfly attracting, cockatoos, iconic australian native
<i>Hymenoparum flavum (Native)</i>	Native frangipani	8	4	Slow - Moderate	n/a	FS-PS	Moderate	Low	Moderate	High	Low	Low	Acid - neutral	March to July	Blue-black-edible fruit	E	MW	R, bird attracting, screening, decorative fruit, foliage used for flower arranging
<i>Melaleuca ericifolia</i>	Melaleuca	5	2	Moderate	n/a	FS-PS	High	Moderate	Moderate	High	High	Moderate	Acid - neutral	Aug-Nov	Cream	E		
<i>Stenocarpus sinuatus</i>	Firewheel tree	8	5	Slow	n/a	FS	Low	Moderate	Low	High	Moderate	Low	Acid	Sep	Orange, Red	E	W	L, M, F Summer flowering tree that provides nectar and shelter for birds
<i>Taxandria juniperina (native)</i>	Native cedar	7	4	Fast	n/a	PS	High	Moderate	Moderate	Moderate	Low	Moderate	Complete range	March-June	White	E	C, A	R, LM Aromatic foliage, attracts insect eating birds.
<i>Tristania lourina</i>	Kanooka, Water gum	5	5	Slow-Moderate	n/a	PS-FS	Moderate	Low	Moderate	Fair	High	High	Acid-Neutral	Dec.	Yellow	E	MW	R, LM, aesthetic, bird-attracting, under powerline, shading, screening
<i>Waterhousea floribunda (native)</i>	Weeping lilypillly	6	4	Moderate to Fast	n/a	FS-PS	Low	Moderate	Moderate	High	Moderate	High	Acid to Neutral	Nov-Jan.	White	E	M, C, A	LM, S, R, Bird and bee attracting
<i>Acer campestre</i>	Field Maple	7	6	Moderate	n/a	PS-FS	Moderate	Low	Moderate	Moderate	High	Moderate	Acid	Sep-Oct.	yellow-green	D	MW	S, Autumn Colour, foliage interest, Ornamental
<i>Acer negundo</i>	Flamingo	5	4	Slow-Moderate	n/a	PS-FS	Moderate	Low	Moderate	Moderate	High	Moderate	Acid	Sep-Oct.	yellow-green	D	MW	S, Autumn Colour, foliage interest, Ornamental
<i>Acer palmatum 'Atropurpureum'</i>	Japanese Maple	4	3	Slow-Moderate	n/a	PS-FS	Moderate	Low	Moderate	Moderate	High	Moderate	Acid	Sep-Oct.	Red	D	MW	S, Autumn Colour, foliage interest, Ornamental,
<i>Acer rubrum 'Bowhall'</i>	Red Maple	8	4	Moderate	n/a	PS-FS	Moderate	Low	Moderate	Moderate	High	Moderate	Acid	Sep-Oct.	Pale Orange	D	MW	S, Autumn Colour, foliage interest, Ornamental
<i>Kalmata olive</i>	Olive	6	3	Slow-Moderate	n/a	FS	High	Fair	High	Fair	Fair	Moderate	Complete range	Sep-Nov.	White	E	DA	R, LM
<i>Keelbutteria paniculata</i>	Golden Rain Tree	8	8	Slow	n/a	PS-FS	Moderate	Fair	Moderate	High	Moderate	Fair	Complete range	Nov-Jan.	Bright yellow	D	D	R, LM, F
<i>Lagerstræmia indica</i>	Crepe Myrtle	6	7	Moderate	n/a	FS	Low	Moderate	Moderate	Fair	Low	Low	Acid-Neutral	Mar-Apr.	Pink/Purple/White	D	CD	R, LM, Sh, F
<i>Olea europæa subsp. europæa</i>	Olive	8	6	Slow-Moderate	n/a	FS	High	Fair	High	Fair	Fair	Moderate	Complete range	Sep-Nov.	Creamy white	E	DA	R, LM
<i>Photinia robusta</i>	Photinia	15	4	Slow-Moderate	n/a	FS	High	Moderate	Moderate	High	Low	Low	Complete range	Oct-Nov	White	E	C, D, A	R, LM, S, F, Bird attractant
<i>Rhododendron arboreum</i>	Rhododendron	12	4	Moderate	n/a	PS	Moderate	Low	Low	Low	Low	Low	Acid	June-Nov	Various	E	WM	Grown for showy flowers, All parts of the Rhododendron are considered toxic.







# Species Palette 6 – Grasses and Tussocks

INDIGENOUS TO PROVIDENCE (Grown at nursery/within Bayside)		Additional Species		Uses/Traits Key		Habitat Key		Tolerances		pH Range		Flowering period		Flower colours		Habitat		Uses/Traits	
INDIGENOUS (Grown Outside Bayside)		Full Sun = FS		R - Robust and Hardy		H - Heath/Woodland		Complete		Acid to Neutral		Sep-Feb.		Brown		HCD		A, R, LM	
NATIVE TREES (From Australia)		Part Shade=PS		LM - Low Maintenance		M - Moist/Closed forest		Moderate		Moderate		Sep-Mar.		Green or purple/Strawed		HCD		A, R, LM, F, Habitat	
EXOTIC (From outside Australia)		Shade = FSh		S - Shade Tree		C - Coast - dune scrub & woodland		High		High		Apr-Jul.		White		HCD		A, R, LM, F, Habitat, wildflower garden, Bird attracting	
Additional Species:				F - Feature Tree		D - Prefers dry, well drained soils & tolerates dryness once established.		Low		Low		Sep-May.		Reddish Brown		HCD		A, R, LM, F, Habitat	
				Sh - Prefers or tolerates full shade		W - Wetland		Moderate		Moderate		Aug-Jan.		Greenish white-Blue		HCD		A, R, LM, F, Habitat	
						D - Prefers or tolerates moist soils, wetness, periodic inundation		High		High		Aug-Jan.		yellow/brown/red glumes		HCD		A, R, LM, F, Habitat	
						A - Adaptable, growing well in most soil types		Low		Low		Sep-May.		Pale Green/Purple		RIM		A, R, LM, F, Habitat	
								Acid to Neutral		Acid to Neutral		Aug-Jan.		Blue-Purple		HM		A, LM, Ornamental, F, Habitat	
								Complete		Complete		Sep-Feb.		Blue and Yellow		HM		A, LM, Ornamental, F, Habitat	
								Moderate		Moderate		Sep-Dec.		Blue to Violet		HM		A, LM, Ornamental, F, Habitat	
								High		High		Sep-Dec.		Green to Purple		HM		A, LM, F, Habitat	
								Low		Low		Sep-Nov.		Blue or Purple		HM		A, LM, Ornamental, F, Habitat	
								Moderate		Moderate		Sep-Apr.		Green to Purple		HM		A, LM, F, Habitat	
								High		High		Sep-Nov.		Green growth		CDW		A, R, LM, F, interesting foliage, Bloom in response to rain	
								Low		Low		Sep-Apr.		Green growth		HM		A, LM, F, Bird attracting, turf, groundcover, can flower most of year	
								High		High		Sep-Feb.		Brown		RiWeM		A, R, LM, F, Habitat, pond, Can flower throughout year	
								Acid to Neutral		Acid to Neutral		Sep-Feb.		Brown to Black		MRI		A, R, LM, F, Habitat	
								High		High		Sep-Feb.		Yellow-Deep Red		MRI		A, R, LM, F, Habitat	
								Moderate		Moderate		Aug-Dec.		Reddish Brown		MRI		A, R, LM, F, Habitat, Can flower most of year	
								High		High		Oct-Jan.		Green		E		A, R, LM, F, Habitat, bird attracting, pond, flowers most of year	
								Low		Low		Sep-Nov.		Green/Purple Spikelets		MRI		A, R, LM, F, Ground cover, turf	
								High		High		Sep-Feb.		Yellow		C,HR,We		A, R, LM, R, Groundcover	
								Moderate		Moderate		Sep-Feb.		Red to grey/brown		MRI		A, R, LM, F, Frog Habitat	
								High		High		Oct-Nov.		Yellow		HD		A, LM, Ornamental, F, Habitat, FSh	
								Moderate		Moderate		Aug-Feb.		Yellow, Purple centre		MRI		A, R, LM, F, Habitat, ground cover, edge.	
								Low		Low		Jun-Nov, Jan.		Creamy Yellow		HM		A, LM, Ornamental, F, Habitat, Erosion control	
								High		High		Oct-Dec.		Green growth		HC		A, R, LM, Turf/lawn or groundcover	
								Moderate		Moderate		Sep-Dec.		Purple		HDW		LM, Wildlife attracting, Wildflower, Attractive foliage,	
								High		High		Oct-Dec.		Golden		HC		A, R, LM, Bird attracting, Attractive, Ornamental, groundcover, erosion control	
								Moderate		Moderate		Dec.		Golden		HC		A, R, LM, Bird attracting, Attractive, Ornamental, groundcover, erosion contro	
								High		High		Oct-Mar.		Green or Purplish		HD		R, A, Ornamental, border plant, Bird/butterfly attracting	
								Moderate		Moderate		Oct-Dec.		White		HC		A, R, LM, Rockeries, Bird-attracting, lawn alternative	
								High		High		Oct-Dec.		White		HCD		A, LM, Ornamental, Rock planting, Lawn grass, bird attracting	
								Moderate		Moderate		Oct-Dec.		White		HCDW		A, R, LM, Feature, Revegetation, Lawn alternative, thrives in poor soil, rockeries	
								High		High		Oct-Dec.		White		HCDW		A, R, LM, Feature, Revegetation, Lawn alternative, thrives in poor soil, rockeries	
								Low		Low		Sep-Feb.		Red-brown		WeMW		Shiny dark red-brown foliage, ornamental, bird attracting,	
								High		High		Nov-Dec.		Yellow and Brown		CDW		R, LM, Bush, Groundcover	
								High		High		Dec-May.		Green-purple		CWeW		A, LM, coastal and low dune stabilizer	
								Moderate		Moderate		Nov-Apr.		Purple		WHD		A, Habitat, Climber, High management, Wombat attracting	
								High		High		Sep-Dec.		Purple-Red		HMW		A, R, LM, Accenting, wildflower	
								Moderate		Moderate		Sep-Dec.		Blue, White and Yellow		HWeW		A, Rockeries, border planting	
								Low		Low		Oct-Mar.		Bright Yellow		HDW		A, ground cover, Rockeries	
								High		High		Aug-Apr.		Dark Green		CW		Can tolerate poor drainage well, erosion protection, semi-aquatic	
								Moderate		Moderate		Dec-Feb.		White/creamy-pale yellow		HCD		A, R, LM, Ornamental, F, Habitat, bird attracting, architectural foliage	
								Low		Low		Nov-Apr.		Various		CDA		Attracts birds, butterflies, bees	
								High		High		Nov-Jan.		Purple		RLM		Attractive foliage, can be used as lawn substitute ground cover	



# Species Palette 8 – Climbers

INDIGENOUS TO PROVIDENCE (Grown at nursery/within)		Additional Species		Uses/Traits Key		Habitat Key		Tolerances									
INDIGENOUS (Grown Outside Bayside)		Full Sun = FS		R - Robust and Hardy		H - Heath/Woodland/R - Riparian forest (interface between land and river/stream)		High = tolerates well without damage.									
NATIVE TREES (From Australia)		Part Shade = PS		LM - Low Maintenance		M - Moist/Closed forest		complete range									
EXOTIC (From outside Australia)		Shade = FSh		S - Shade Tree		C - Coast - dune scrub & woodland		acid to neutral									
Additional Species		Shade = FSh		F - Feature Tree		D - Prefers dry, well drained soils & tolerates dryness once established.		Moderate = tolerates somewhat with some effects in low levels									
PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY		Sh - Prefers or tolerates full shade		W - Prefers or tolerates moist soils, wetness, periodic inundation		A - Adaptable, growing well in most soil types		acid Low = suffers serious damage to death if exposed									
Use of any of the below species is preferred but not limited to these species								Unknown									
								Please contact your local nursery or a horticultural professional for further advice. All indigenous plants provide habitat & food for local birds, insects & animals.									
CLIMBERS				EVCs Ecological Vegetation Class													
BOTANICAL NAME	COMMON NAME	Mat. HEIGHT	Mat. SPREAD	Growth Rate	EVC	Sunlight	Wind	Salinity	Sea spray	Drought	Waterlogging	Compaction	pH Range	Flowering period	Flower colours	Habitat	Uses/Traits
<i>Billardiera mutabilis</i> (syn. <i>B. scandens</i> )	Common Appleberry	1	1	Moderate	719, 3	FS	Moderate	Moderate	Moderate	Fair	Moderate	Unknown	Acid	Mar-Dec.	Green, White, Yellow	HD	A, Bird attracting
<i>Cassytha glabella</i> (W)	Slender Dodder-laurel	Climber	indefinite	Moderate to Fast	892	FS-PS	Moderate	Moderate	Low	High	Moderate	Moderate	Unknown	Aug-Nov.	Creamy white/cream	HDMA	Parasitic, feeding off other plants, R, climber
<i>Clematis microphylla</i> var. <i>microphylla</i>	Small-leaved Clematis	S	5	Moderate to Fast	919, 921	PS-FS	Fair	Fair	Fair	Fair	Low	Unknown	acid to neutral	Aug-Oct.	White	HCA	Winter aesthetic, interesting foliage, screening
<i>Comesperma volubile</i>	Love Creeper	Climber	indefinite	Slow	719, 3	SP-FS	Moderate	Moderate	Moderate	Moderate	Moderate	Unknown	Acid	Aug-Dec.	Blue & Purple	HCDW	A, Contrainner
<i>Galium australe</i>	Tangled Bedstraw	Climber	indefinite	Fast	919, 921	PS-FS	High	Moderate	High	High	Low	Moderate	Unknown	Sep-May.	White	HCD	Scrambler, trailing, groundcover
<i>Hardenbergia violacea</i>	Purple Coral Pea	Climber	indefinite	Fast	n/a	PS-FS	High	Moderate	High	High	Moderate	Moderate	Unknown	Jul-Sep.	pink or white	HDS	Scrambler. Will not negatively impact plants it climbs, pruning required after flowering
<i>Muehlenbeckia adpressa</i>	Climbing Ligum	Climber	indefinite	Fast	n/a	PS-FS	High	Moderate	High	High	Moderate	Moderate	Complete	Dec-Mar	Greenish white	HCDSh	plant as groundcover, house plant, potplant, can become invasive, pruning required
<i>Aphanopetalum resinosum</i>	Gum vine	Climber	3m x 3m	Fast	n/a	FSh	Low	Low	Low	High	Moderate	Low	Id Acid-Mild Alkali	Sep	Greenish yellow	MW	LM, Sh, attractive climber for shady positions, attracts native birds and insect
<i>Hardenbergia comptoniana</i>	Native Wisteria	Climber	indefinite	Fast	n/a	PS-FS	High	Moderate	High	High	Moderate	Moderate	Unknown	Jul-Sep.	pink or white	HDS	Scrambler. Will not negatively impact plants it climbs, pruning required after flowering
<i>Hibbertia scandens</i>	Golden guinea flower	Climber	indefinite	Fast	n/a	FS	High	Low	High	High	High	Low	acid to neutral	Aug-Dec.	Yellow	CDA	R, LM, attracts solitary native bees
<i>Pandorea pandorana</i>	Wonga wonga vine	Climber	indefinite	Fast	n/a	FS	Low	Low	Low	High	Low	Moderate	acid to neutral	Sep-May.	White, crea, Yellow, gold, purple	WA	LM, attracts bees and birds, vigorous climber with attractive scented flowers.
<i>Trachelospermum jasminoides</i>	Chinese star jasmine	Climber	indefinite	Fast	n/a	FS-PS	Moderate	Low	Low	Moderate	Low	Low	acid to neutral	Sep-May.	White	D, WA	LM, Highly scented flowers, Attracts bees and butterflies.

## 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>

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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)

**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>

**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>

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<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)

<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/>

**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 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.

**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>

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<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>

<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>

**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>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>



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