

Cheltenham (including Pennydale) Urban Forest Precinct Plan 2024

Bayside CITY COUNCIL



Cover Page: Cheltenham Golf Club

Inside Cover Page: Cheltenham Park Reserve



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 *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.[1] 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.

[1] Resilient Melbourne, Living Melbourne Strategy, 2018, available at: https://resilientmelbourne.com.au/wp-content/uploads/2019/09/LivingMelbourne_Strategy_online3.pdf

The Urban Forest Strategy

Principles:	Strategies:
1. Increase	1.1 Consider the individual needs of Bayside's suburbs and ensure that the approach to increasing canopy cover and urban forest outcomes is tailored to the conditions of each area. 1.2 Reframe Council's approach to major capital and infrastructure renewal projects as opportunities to increase urban forest outcomes. 1.3 Through the Bayside Planning Scheme, require development to provide increases to the number of canopy trees provided.
2. Healthier ecosystems	2.1 Increase the tree and vegetation canopy cover that is of a diverse range of species across Bayside. 2.2 Ensure humans and wildlife can simultaneously and safely access densely vegetated areas, streets and reserves.
3. Monitor	3.1 Improve, implement and facilitate Council processes and procedures to assist the monitoring of the urban forest
4. Maintain	4.1 Ensure the tree removal process is transparent and equitable 4.2 Reframe our planning and policy framework to give greater priority to existing trees and vegetation when siting new development and ensuring the longevity of any new trees or vegetation by ensuring it is appropriately sited nearby surrounding hard surfaces or infrastructure. 4.3 Enhance Council's ability to retain existing trees on private property through increased regulation of tree removal. 4.4 Support the maintenance and retention of trees on public land.
5. Learn and Celebrate	5.1 Increase Council's capacity to provide advice and build community sentiment to tree planting in Bayside. 5.2 Continue to build upon Council's green image and utilise this platform to advocate and partner with key stakeholders to provide greener outcomes across Bayside, metropolitan Melbourne and Victoria. 5.3 Leverage from the strengths of our network of volunteers, community groups, State Government departments, neighbouring local governments, academics and professionals to support the delivery of community education, information sharing and creating partnerships.

Key Issues

Environmental challenges

Impact of climate change

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

Tree health, age, Useful Life Expectancy, and species diversity

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

Tree survival rate

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

Developmental challenges

Trees on private property

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

Planning permits involving vegetation removal

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

Surrounding infrastructure

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

Social challenges

Older people, children, and people with disabilities

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

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.

What will the Precinct Plans achieve?

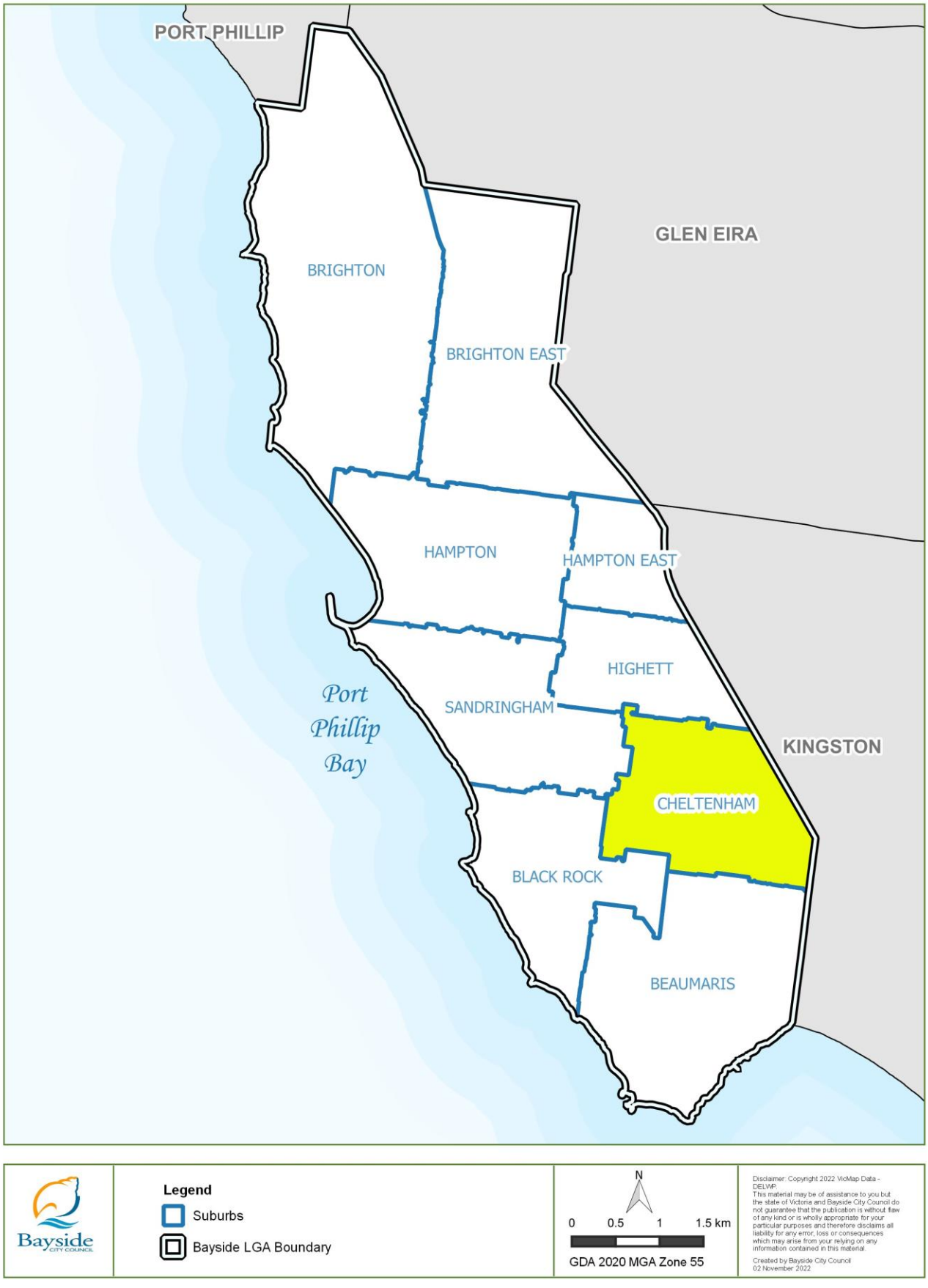
A key action from the Bayside *Urban Forest Strategy* is the preparation of Precinct Plans. Each Precinct Plan will be informed by community consultation and will provide set targets to respond to the individual needs, challenges, and aspirations of the locality.

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. A high level landscape character assessment has been undertaken to assist with the species selection. 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 Cheltenham (including Pennydale).

Map 1. Cheltenham's location within Bayside



Suburb Profile – Cheltenham (including Pennydale)

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

Cheltenham (including Pennydale) is experiencing a high rate of demographic change as well as population and housing growth. The suburb population increased by 697 people from 3,605 in 2016 to 4,302 in 2021 and forecasted to grow significantly to 5,767 (increasing by 34.06%) by 2041.

With respect to household size, in 2021 the most dominant household type in Cheltenham (including Pennydale) was couple families with dependents, which accounted for 37% of households. By 2041, this household type will continue to be the most dominant (31%), followed by couples without dependents (28.2%) and lone person households (27.8%).

As the household structure suggests, Cheltenham (including Pennydale) also has a higher percentage of parents (24%) compared to Bayside (19%) and residents classified as being in the young workforce (10% compared to 8% in Bayside). Future housing will need to accommodate for this varied population by providing a diverse housing typology by providing dwellings for families, skilled workers and older residents.

Age structure

By 2041, it is anticipated that 29.3% of Cheltenham (including Pennydale) residents will be above 60 years of age, which is an increase from the current 21% (2021). It is expected that older populations will have greater difficulty maintaining gardens and are susceptible to environmental challenges, such as heatwaves and increasing temperatures.

Senior residents who decide to remain in their family home after their children move out become what is known as ‘empty nesters’. Many low-density residential dwellings in Cheltenham typically have moderate sized gardens with which empty nesters may have difficulty maintaining and therefore may require assistance now and in the future.

Residential developments

Cheltenham is undergoing significant commercial and residential growth to accommodate for the growing population. Residential development forecasts assume the number of dwellings in Cheltenham (including Pennydale) will increase by an average of 43 dwellings per annum to 2,561 in 2041. In Cheltenham (including Pennydale), there is a higher percentage of medium density housing (38%) compared to Bayside (30%). This is due to a significant proportion of Cheltenham (including Pennydale) being zoned in the General Residential Zone, which is a moderate growth zone where housing development can be permitted up to three storeys.

As the number of units and apartments across Cheltenham (including Pennydale) increases, housing will diversify, providing ageing residents with the opportunity to downsize to smaller homes, while staying in their local community. Smaller homes for senior residents provide a number of benefits, including a minimal need for garden maintenance.

In addition to residential growth, commercial development will continue to occur in the north-western part of the suburb (the Bayside Business District) which is within the Commercial 2 Zone. This zone encourages commercial areas for offices, appropriate manufacturing and industries, bulky goods retailing, other retail uses, and associated business and commercial services. While increases in residential and commercial development are consequent to population growth, this development in turn reduces the available permeable surfaces to plant trees, which can impact their ability to grow to maturity and provide large canopies if not planted appropriately.
In addition, the facilitation of new residential development will likely see the loss of existing trees and

vegetation – a problem that will continue to occur if appropriate processes and planning tools are not put in place.

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, 38.8% of Cheltenham (including Pennydale) residents travelled to work by car. Cheltenham (including Pennydale) is serviced by Cheltenham Train Station, Southland Train Station and various bus routes. A new station is proposed for construction at Cheltenham (within the Kingston municipal boundary) as part of the Suburban Rail Loop (SRL) Project. SRL East will connect Cheltenham with Box Hill and Clayton and is to be completed by 2035. An important output of this major infrastructure project will be to ensure the construction and delivery of the station and surrounding development does not impede on the ability to provide increased tree and vegetation cover across the suburb.

Cheltenham (including Pennydale) Forecast for 2041

Population

5,767
(2041 Estimated)

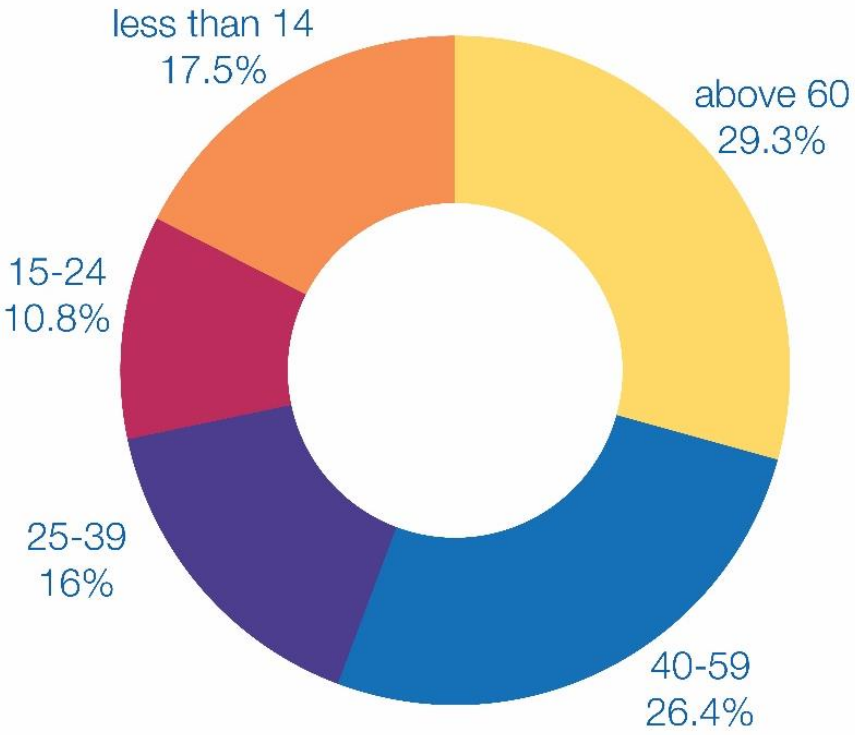
51.5%	48.5%

Average Age	40

Household type

Families	71.5%
Lone Persons	23%
Groups	3.2%
Other	2.3%

Age composition*



*2041 Estimated

How do we get to work?

Cars	Public Transport	Work at Home	Walking	Cycling	Other
38.8%	4.3%	40%	2.5%	1%	14%

What houses do we live in?

Homes	Townhouses	Apartments	Other
993	622	5	20
60.5%	37.9%	0.3%	1.2%

Note: Cheltenham 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 Cheltenham (including Pennydale)



Legend

- Bayside LGA Boundary
- Suburb

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The Vision for Cheltenham's (including Pennydale) Urban Forest:

The Cheltenham (including Pennydale) Urban Forest will be enhanced by connecting private dwellings with public open space. Future planting will complement the different types of uses and development within the suburb.

Planning controls applying to Cheltenham (including Pennydale)

Residential and Commercial zone
The majority of Cheltenham's (including Pennydale) residential land is located within the General Residential Zone (GRZ) see Map 2. GRZ is a planning zone applied to areas where growth and housing diversity is anticipated. The GRZ discretionary maximum building height is 11 metres or 3 storeys.

Much of the current residential growth in Cheltenham (including Pennydale) takes the form of dual occupancy, townhouses, and apartments. As the population increases, it is expected that housing types will continue to change to provide more diverse built forms, in response to the preferred future neighbourhood character.

There are several areas within the suburb that have been identified as areas subject to housing growth and change. Both Pennydale and Cheltenham have centres designated as moderate residential growth areas. There are also 4 small neighbourhood activity centres to support local convenience retailing and employment as well as a significant portion of the Bayside Business District (BBD) which dissects the suburb. Uses within the BBD include offices, commercial businesses, manufacturing and light industrial and retail activity. Commercial and industrial areas generally have lower canopy coverage, which will be targeted and explored further within this Precinct Plan.

Traditional ways of increasing tree and vegetation cover are of course encouraged throughout the suburb, particularly where it is needed most. However, as commercial and residential development continues to occur throughout the suburb, the ways of increasing planting may require more innovative methods in response to the changes in built form, such as green walls and roofs. Additionally, strengthened protection through the Bayside Planning Scheme must be investigated.

VPO controls: permit removals
There are areas within Cheltenham (including Pennydale) that are covered by the Vegetation Protection Overlay Schedule 2 (VPO2) and Schedule 3 (VPO3), which aims to protect areas of significant vegetation.

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. All areas within VPO2 are Council-owned. 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 in order to maintain or improve the area as a flora and fauna conservation site).

VPO3 aims to retain the amenity, aesthetic character, and habitat value of vegetation within the area by seeking the protection 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 Cheltenham's (including Pennydale) 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. The survey 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.

Neighbourhood Amenity Local Law 2021
Local Laws are laws utilised by Council to respond to issues and community needs within a local context. The *Neighbourhood Amenity Local Law* 2021 applies to the Bayside municipality, including 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 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.

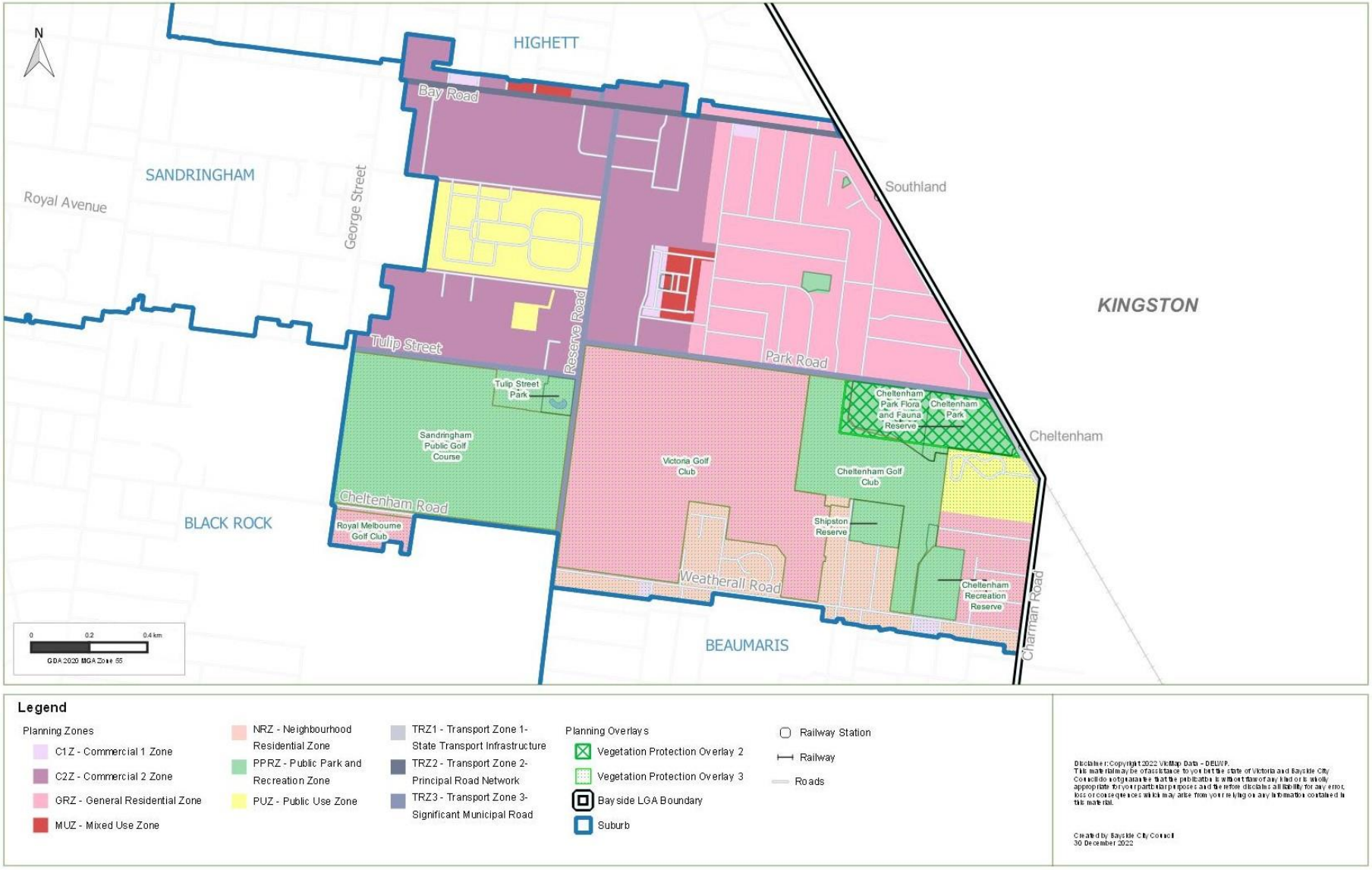
The changes to Bayside's Landscape Guidelines require new development to provide increases to the number of canopy trees and high-quality landscape outcomes. Furthermore, the Species Palette listed in the Appendix 3 to this Precinct Plan has also been utilised as the list of species to encourage selection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



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, 10 (9.01% of the total respondents) were from Cheltenham.

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

- 9.09% loved the plan
- 18.18% liked the plan
- 18.18% thought the plans were ok
- 36.36% had some concerns
- 9.09% had many concerns
- 9.09% did not know how they felt

Table 1: Comments made by survey participants regarding Cheltenham

Comments	Number of participants who raised concern
Comments to plant more trees to create linkages for habitat	5
Comments to plant native trees	2
Comments to plant trees and increase canopy	2
Comment to plant trees for shade along streets	2
Could like to join friends group for Cheltenham Recreation Reserve	1
Comment to plant trees to maintain neighbourhood character	1
Comment about better tree selection - plant trees under power lines to reduce pruning requirements	1
Comments to encourage more nature strip planting	2
Comment for educational program to encourage more private land planting, integrated strategies for water harvesting and habitat creation	1

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 Cheltenham (including Pennydale) residents would like to see more of in their neighbourhood.

Top Indigenous Plantings – Cheltenham



Banksia marginata (Silver Banksia)



Acacia mearnsii (Black Wattle)



Indigofera australis (Austral Indigo)

Top Native Plantings – Cheltenham



Eucalyptus sp. (Tuckeroo)



Brachyscome sp (Native Daisy)



Grevillea sp (Grevillea Cultivar)

Top Exotic Plantings – Cheltenham



Rhapholepis sp
(Indian Hawthorn)



Jacaranda mimosifolia.
(Jacaranda)



Kniphofia sp (Red Hot Poker)

Cheltenham (including Pennydale) Neighbourhood Character

Cheltenham (including Pennydale) is a distinct suburb that is currently undergoing increased residential and commercial growth. It is important that new development respects, supports and enhances the cherished characteristics 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.

For many of the streets within the suburb, the regular pattern of predominately single storey, bungalow-style homes, with setbacks on all sides, is readily apparent. Front setbacks vary from 6-8 metres and side setbacks are generally 1 metres on one side with 3-4 metres setbacks including garages and driveways to the boundary on the other. While there are many 1950s-60's post war dwellings still intact throughout the suburb, there are also various pockets of infill contemporary development which continues to occur and has allowed for more increased density outcomes in more recent times.

While tree planting in various streets in Hampton and Brighton have a purposeful appearance, tree planting style and type within Cheltenham appears more sporadic and this is likely in response to the increases in housing growth. There are many examples of mature trees throughout the suburb, however larger trees tend to occur in small groups across the suburb. Currently, only 10.7% of the street tree population is considered to be 'mature' whilst 24.7% is 'juvenile' and 34.28% 'new.' Gardens are typically well developed with a mixture of low-level shrubs, lawn, and native or exotic canopy trees.

A large portion of Cheltenham, being the Bayside Business District, is not within a neighbourhood character precinct as it is a commercial and industrial area. The remainder of the suburb is within Precinct H5 and H2, both having specific preferred character strategies to consider as relevant as part of the assessment of planning applications.

The Pennydale neighbourhood is within Precinct H5. Notably, the H5 preferred character strategies do not provide any specific direction on the retention of existing established vegetation, nor do the strategies provide for enhanced landscaping outcomes as part of new development. The preferred character strategies for Precinct H2 are enhanced, and seek the retention of large, established trees wherever possible and provide for the planting of new indigenous trees and shrubs. Through the implementation of the Urban Forest Strategy, Council is investigating the ability to strengthen vegetation protection and landscaping outcomes throughout the Bayside Planning Scheme, particularly through Bayside's preferred neighbourhood character.

Examples of neighbourhood character across various precincts within Cheltenham (including Pennydale)

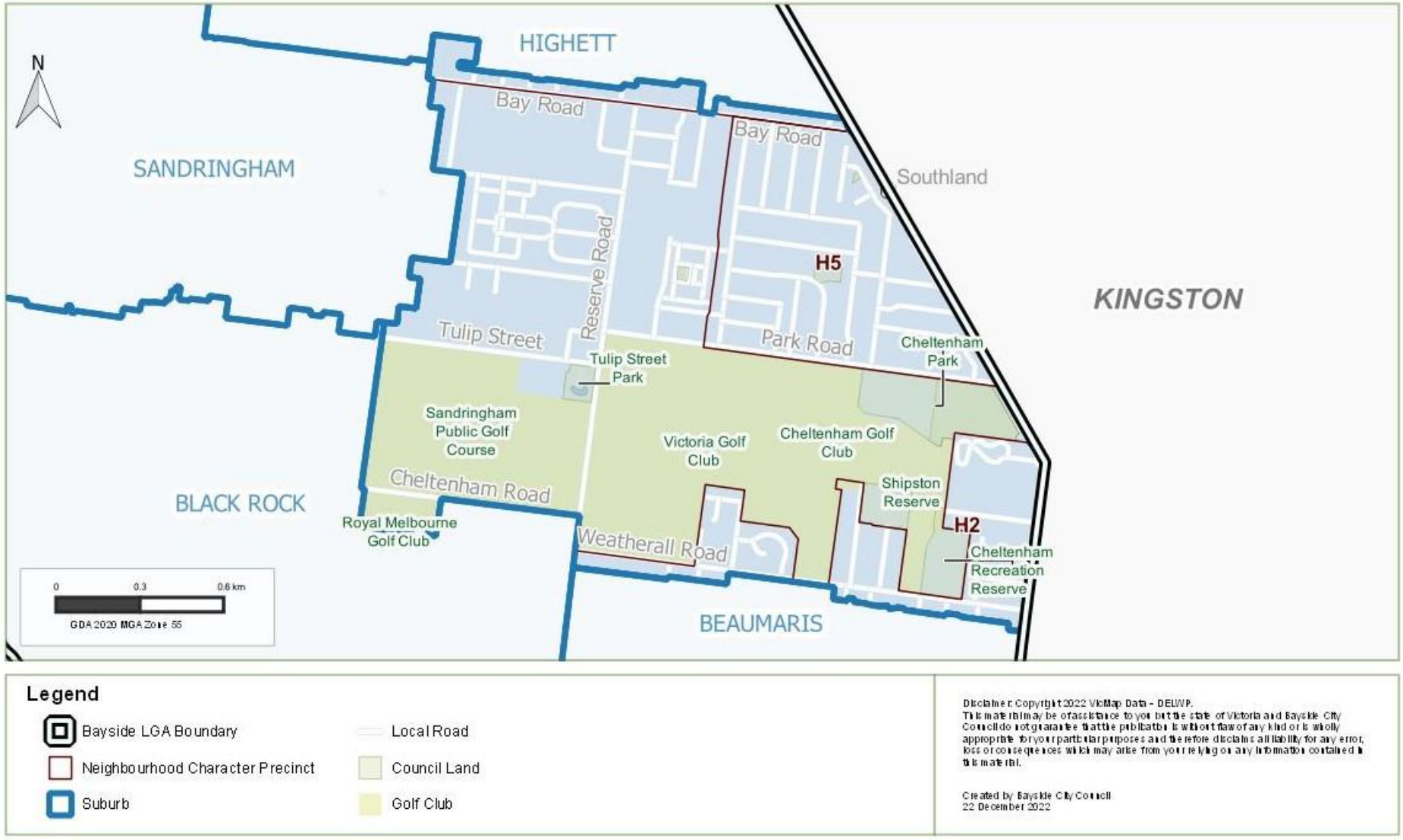








Map 3: Cheltenham (including Pennydale) Neighbourhood Character Precincts



The Urban Forest of Cheltenham (including Pennydale)

In Cheltenham, there is approximately 15% of tree canopy cover and 28% of understorey cover (2019), which is an average amount in comparison to all other suburbs within Bayside.

Cheltenham's (including Pennydale) urban forest encompasses a distinct character of indigenous, native and exotic trees and understorey planting, contributing to a highly biodiverse environment. The contribution of tree and vegetation cover is largely felt within the parks, reserves and golf clubs within Cheltenham (including Pennydale). Outside of these areas, tree canopy coverage is limited, particularly within the Pennydale neighbourhood and the Bayside Business District.

Within the Pennydale neighbourhood alone, there is only 16.48% of tree canopy cover, and 14.8% of understorey cover (2019). While the size of the neighbourhood is small, this is still a significantly low percentage for a residential area that is located amongst commercial and industrial land.

The Bayside Business District, the Cheltenham Cemetery and the Southland Shopping Centre (located within the City of Kingston) are all within close proximity to the Pennydale neighbourhood. Due to these places having increased impermeable surfaces, there is potential for urban heat island effects to be considerably heightened if action is not taken quickly. Prioritisation of planting will be required within Cheltenham, particularly within the Pennydale neighbourhood area to reach the intended target.

History

Prior to European settlement, the Bunurong people of the Kulin Nation inhabited the land and used the natural springs in the area. Following European settlement, settlers established market gardens and orchards in the area. Cheltenham was one of the earliest suburbs to be settled in the parish of Moorabbin. In 1852, Josiah Morris Holloway purchased 625 acres of land which he subdivided into 370 allotments and then sold in 1853. The community was referred to as the 'Two Acre Village' as many of the blocks sold were two acres in size. Cheltenham Park dates back to 1872 and was previously utilised for cricket and other recreational activities. Significant population growth occurred in the 1880s after the Cheltenham railway station opened in 1881.

Residential development occurred in the second half of the 1940s post World War II with growth continuing into the 1980s. Looking at aerial imagery from 1970, there is notably very little tree canopy cover across the suburb, within housing lots, parks and along its streets. This was likely subject to the fast increases in development and the conversion of land within Hampton East from bare, vacant land (with little vegetation prior existing, having been cleared) into a mostly residential neighbourhood. It appears the majority of planting has occurred since the 1970s and continues to occur to help enhance the urban forest within the suburb. Private gardens have seen a mix of both exotic, native and indigenous vegetation and consisted of shrubs with limited canopy trees. Tree canopy coverage within Cheltenham (including Pennydale) is still limited in comparison to other suburbs, especially throughout within the residential areas of the suburb.

While the overall canopy cover is limited, there are a number of canopy trees and vegetation that have been recognised over time for their local heritage significance within the suburb. This includes remnant vegetation such as *Coast Banksia*, *Sallow Wattle*, *Manna Gum* and *Flower Gum* in Cheltenham Park. Vegetation in the old and new Cheltenham Cemetery also form a part of the heritage overlay. The four golf clubs located within Cheltenham (including Pennydale) consist of older canopy trees and understorey vegetation that contributes to the amenity and ecological importance of the courses.

Contemporary issues impacting Cheltenham's urban forest

There are several contemporary issues impacting the urban forest of Cheltenham (including Pennydale) providing cause to the decrease 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 whichare impacting and damaging the health and viability of trees and vegetation cover.

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 criteria provided in the Procedure for *Street and Park Tree Removal for Development 2020*. However, even with these measures in place, the removal of tree and understorey vegetation is an issue facing Cheltenham (including Pennydale) and is likely consequential to the increase in medium density residential development and the limitations on permeable surfaces appropriate for planting. This is further heightened by the lack of preferred neighbourhood character strategies in place within the Bayside Planning Scheme relating to the retention of large, established trees and enhanced landscape outcomes for new development.

The removal of established gardens, large trees, and understorey planting is contributing to a loss of the area's distinct vegetation character and its 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 strength as is more prone to falling or losing limbs. Council monitors the health of its trees to ensure any hazardous trees are removed.

- Both Cheltenham and Highett are shared across the Bayside and Kingston municipalities and are undergoing significant growth now and into the future. There are several major infrastructure projects in these suburbs being led by the Victorian government which will see an increase in employment opportunities, housing growth and population growth, including:

    - The Suburban Rail Loop, a State government commitment which will deliver a 90km rail line linking various major train services from the Frankston Line to the Werribee Line via Melbourne Airport, providing better connection to jobs, retail, education and health services across Melbourne. A new train station will be constructed at Cheltenham which is to be completed by 2035. Council is mindful that the development of the train station may result in the loss of vegetation within Bayside and will work closely with the Suburban Rail Loop Authority to advocate for an increase in planting and ensuring all trees that have been removed are replaced. As new trees are planted and they mature in age, canopy coverage will increase, reducing temperatures within the precinct.

    - The Bayside Business District has been growing and transforming over the past decade, with many mixed use and industrial developments being sought in this area. However, the BBD is an area of particularly low tree canopy and vegetation.

      Council's *Retail, Commercial and Employment Strategy* envisages a shift towards high end professional services in an area that attracts those types of businesses. The area has potential to transition towards a higher amenity. Site specific opportunities within and surrounding the BBD should be investigated through the implementation of this Precinct Plan.

  Through this precinct plan, site specific opportunities within and surrounding the BBD should be investigated. It will be important to seek enhanced landscaping outcomes through major State infrastructure projects and Council will need to be creative in its advocacy and partnerships to ensure these outcomes can be achieved.

- 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 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. In an

effort to deter vandals, Council has adopted a strong stance on vandalism and has installed signs and advertised on social media platforms and offering of rewards for information when an act of vandalism has occurred.



Image 1: Cheltenham Park Reserve



Image 2: Cheltenham Park Playground



Image 3: Cheltenham Recreation Reserve

Tree canopy cover across Cheltenham (including Pennydale) and various land uses

As indicated previously in this document, Cheltenham (including Pennydale) has an average amount of canopy cover in comparison. Of the 15% of tree canopy cover within Cheltenham (including Pennydale):

- 51.84% is located upon open spaces and reserves;
- 29.13% is located upon private residential and mixed-used areas;
- 14.82% is located upon streets;
- 4.19% is located within the public use zone; and
- 0.02% 'other'

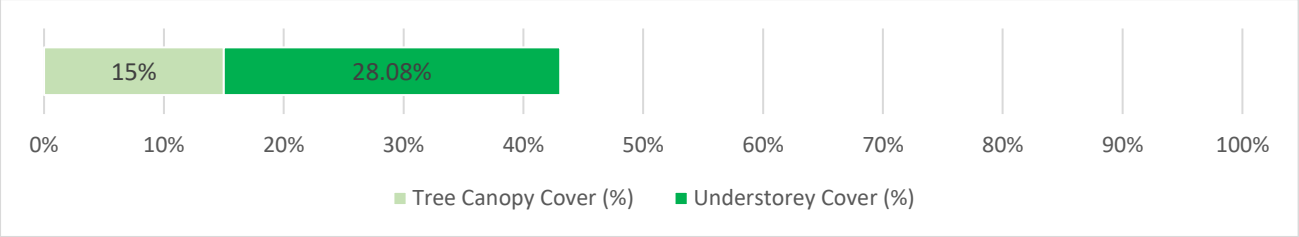
The amount of tree canopy cover upon streets is significantly low in comparison to other suburbs, and as previously mentioned in this Precinct Plan, it is evident that this has occurred due to increases residential and commercial development within the suburb.

In 2022, there were 3,830 trees managed and maintained by Council throughout Cheltenham (including Pennydale), with over 2,705 street trees, 1,119 park trees and 6 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, and to effectively plan for future planting programs and strategies across Cheltenham (including Pennydale).

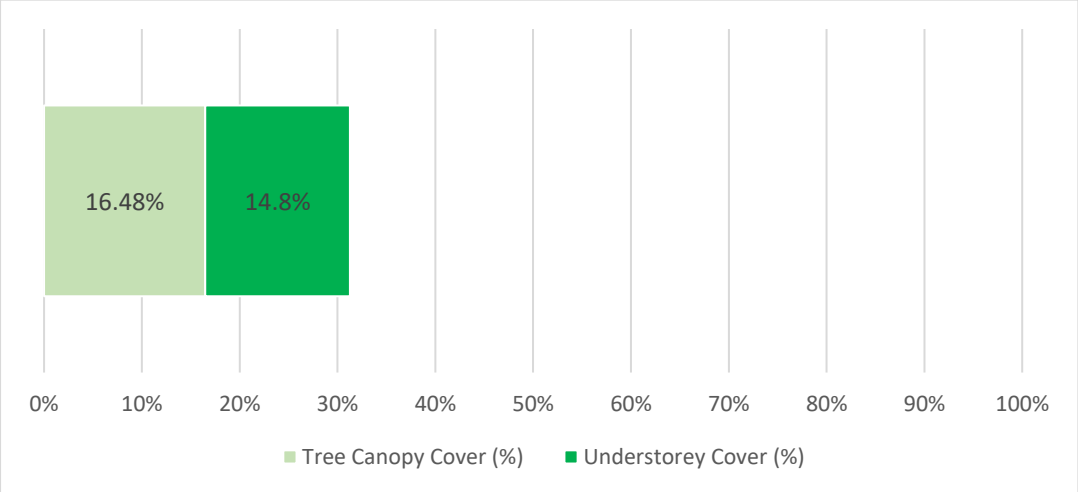
Map 4 identifies locations of tree canopy cover across Cheltenham (including Pennydale). It is evident upon observations of this map that there is a significantly limited amount of tree canopy cover within the Bayside Business District (Commercial Zoned 2) as well as land within the Public Use Zone.

In Cheltenham (including Pennydale), there is approximately 15% tree canopy cover and 28% understorey cover. Through increased and prioritized planting, Cheltenham (including Pennydale) will be a major contributor towards achieving the council's goal of 30% tree canopy cover by 2040, and the enhancement of understorey cover within the public and private realm.

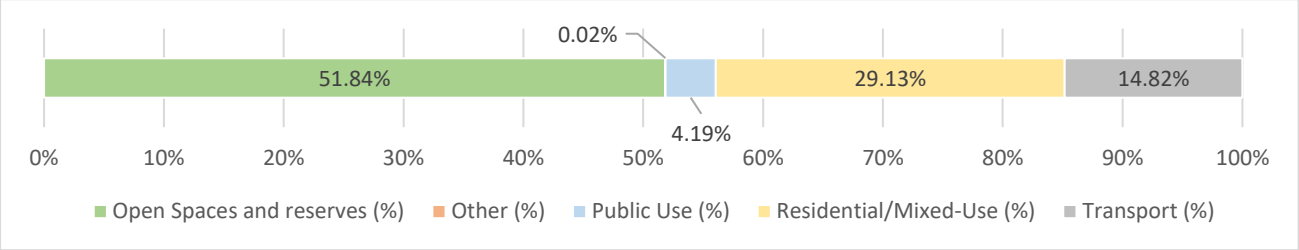
Graph 1. Total tree canopy cover in Cheltenham (including Pennydale)



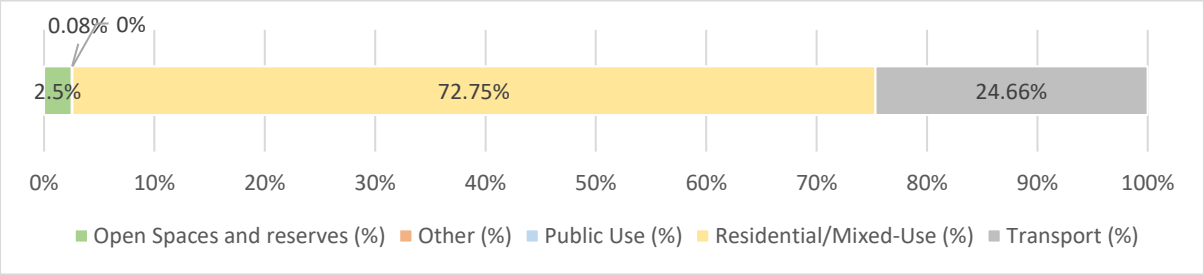
Graph 1.1 Total tree canopy cover in Pennydale



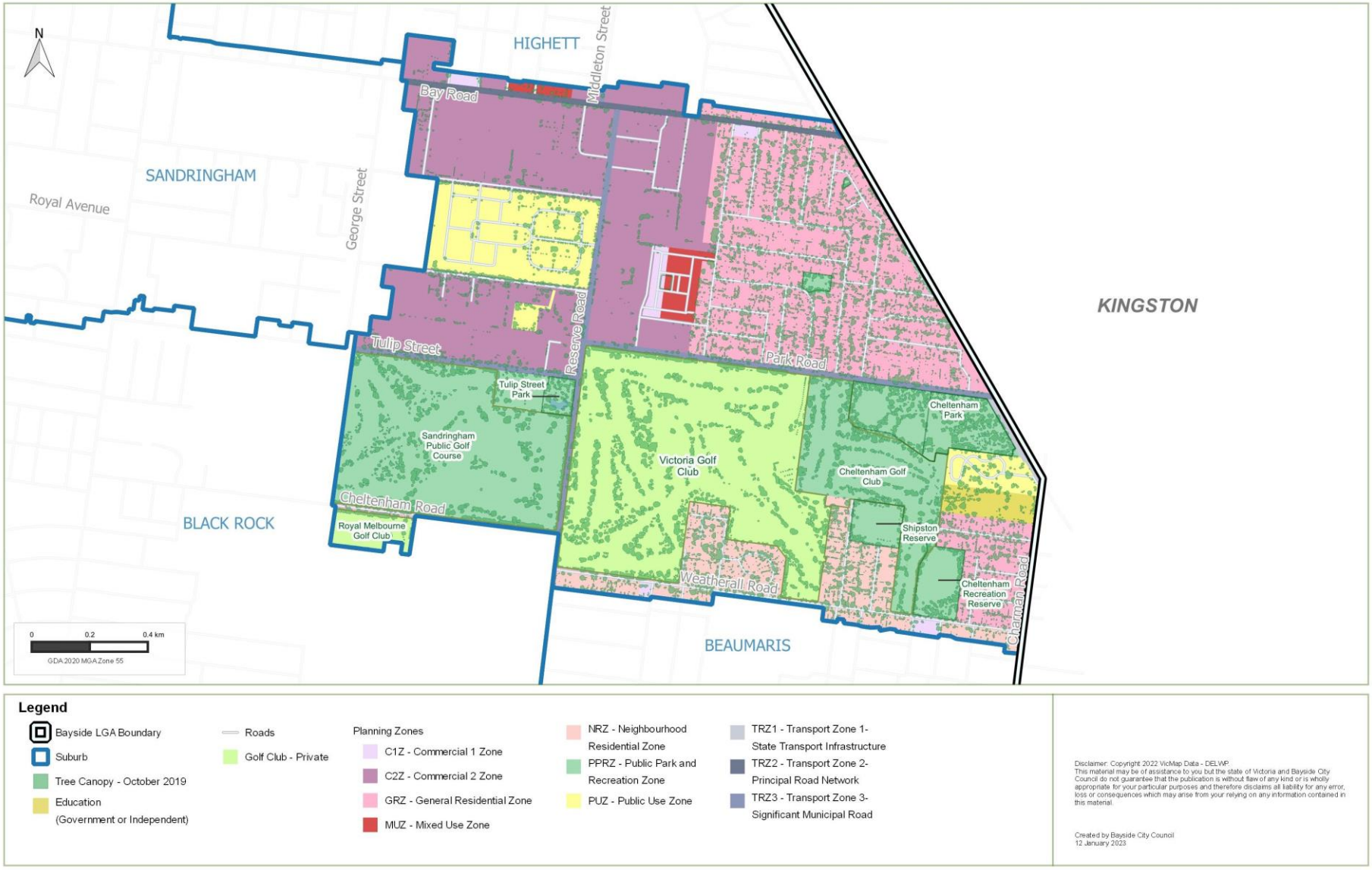
Graph 2. Tree canopy cover over various land uses in Cheltenham (including Pennydale)



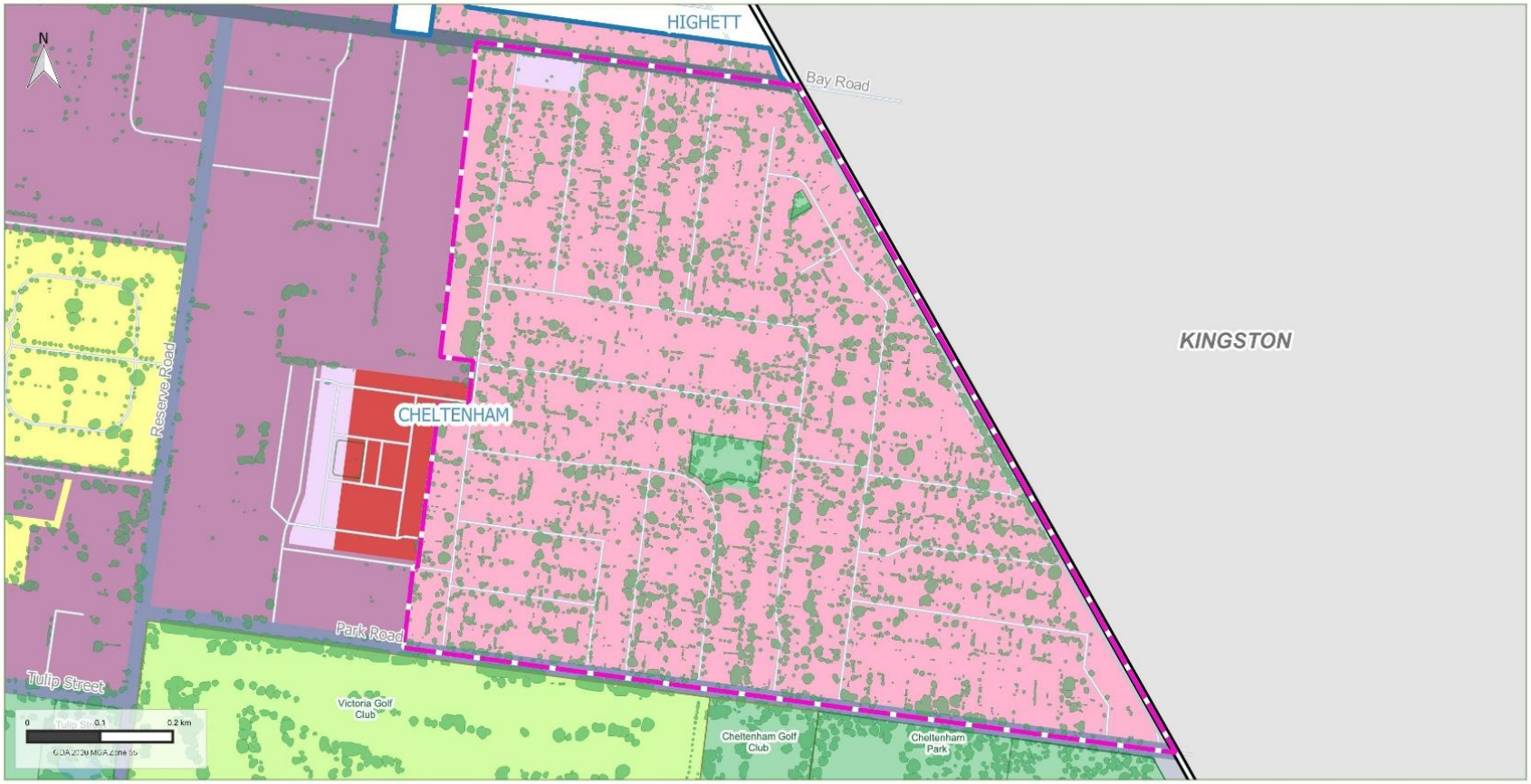
Graph 2.1 Tree canopy cover over various land uses in Pennydale



Map 4: Tree canopy cover in Cheltenham (including Pennydale)



Map 4.1: Tree canopy cover in Pennydale



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 trees 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.[2] 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.[2]

There are approximately 208 (3%) council-managed trees that may not survive in Cheltenham (including Pennydale) after the next 10 years (Graph 3). By 2040, a total of 3,481 (91%) council-managed trees will have reached the end of their useful life expectancy and may need to be replaced.

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

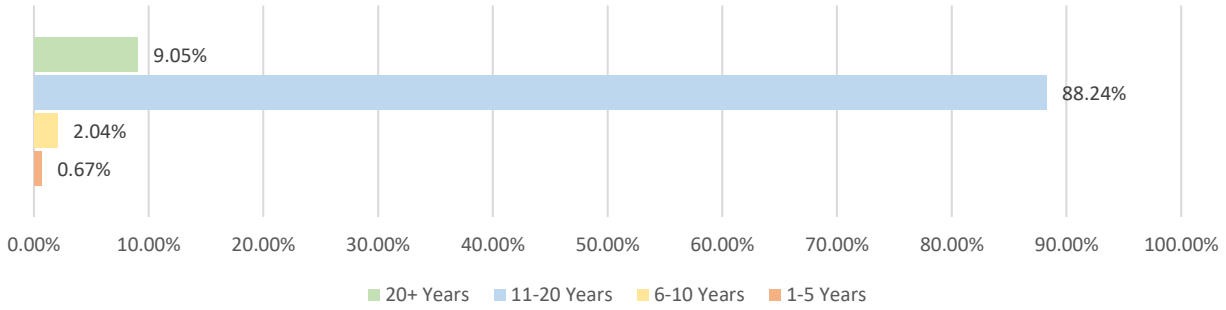
Where replacement of trees is required, new trees should be selected based on the existing surrounding vegetation, landscape character and ability to enhance habitat. Where there is a large concentration of trees required for replacement, this should be undertaken intermittently to enable varying ages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

The locations where there is a high concentration of trees that will need to be replaced in the next 10 years include Tulip Grove, Cheltenham Road, Shipston Reserve, Cheltenham Recreation Reserve, Cheltenham Park Reserve and Park Road.

In Cheltenham (including Pennydale), approximately 3% of council-managed trees will not survive after the next 10 years (Graph 3). Map 5 shows the location of trees with low ULE and the locations where the concentration of these trees is high.

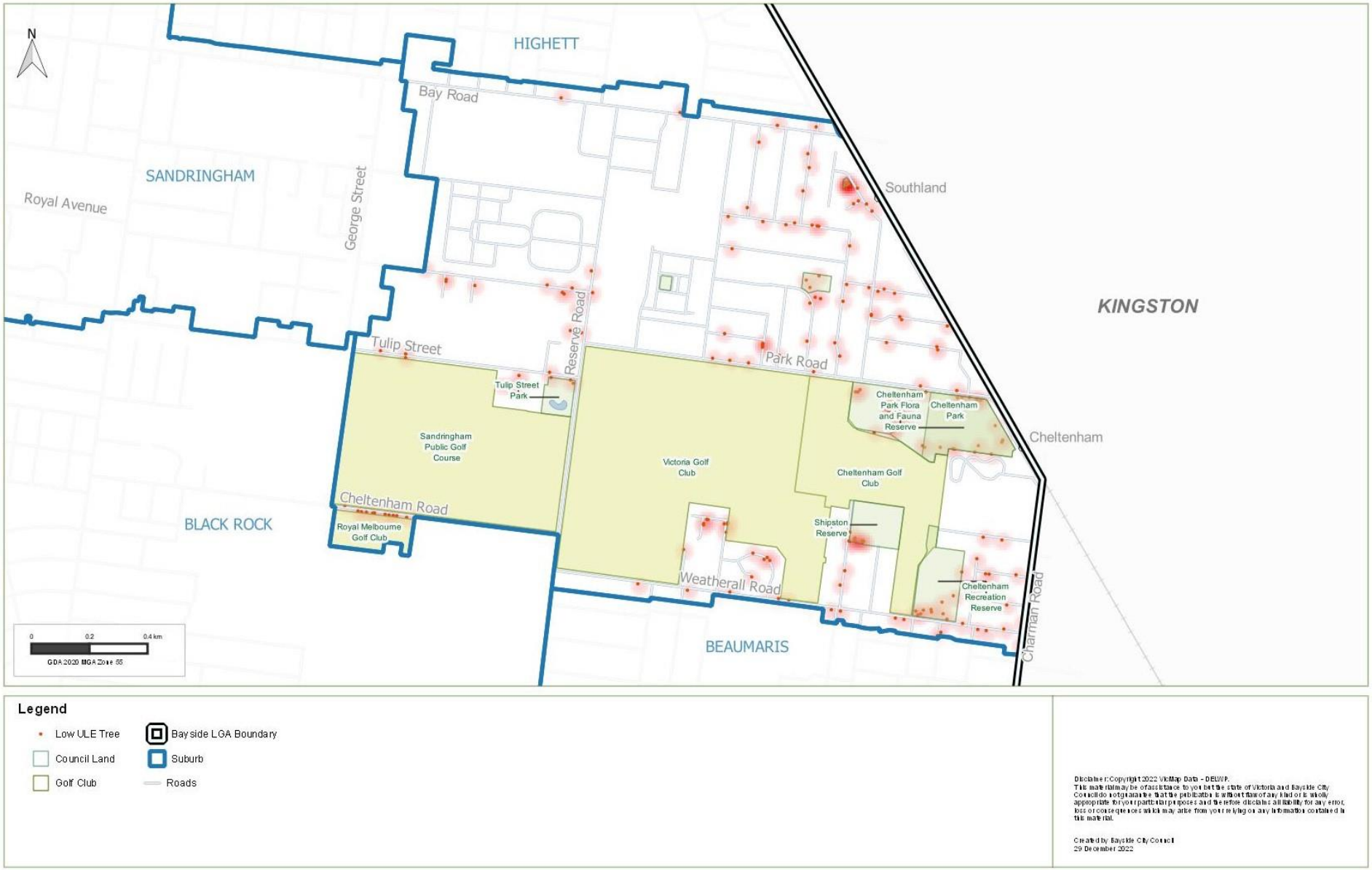
Where it has been found that trees reaching the end of their useful life still provide benefit and habitat, it should be retained as habitat tree as per the Tree Risk Assessment Tool (TRAQ).

Graph 3. Useful life expectancy of council owned trees in Cheltenham (including Pennydale)



[2] 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

Map 5: Location of trees with low ULE in Cheltenham (including Pennydale)



Tree health and age

Approximately 88% of council-managed street and park trees in Cheltenham (including Pennydale) were classified as being in good health, while 5% were classified as excellent. Trees that are classified as poor, dangerous or dead make up for 2% of street and park trees. Tree health can be viewed on Map 6.

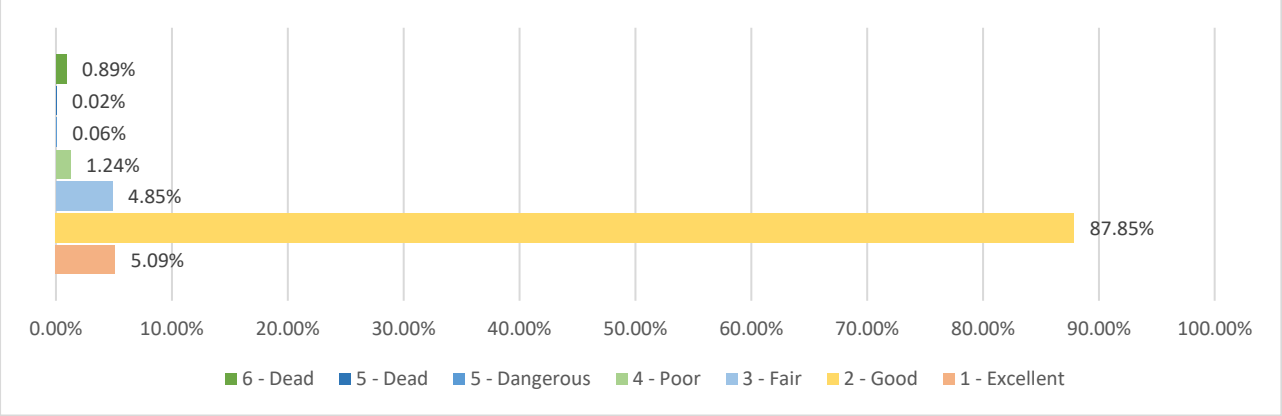
There is a reasonable level of diversity in the age of trees within the suburb. As seen in Graph 5, the highest proportions are new and semi-mature trees, making up 34% and 30% respectively.

Map 6 provides the location of those trees that are in poor health or dead. Where tree health is poor, dangerous, and dead. Trees that have been identified as poor or dead are concentrated within reserves and in parks such as Tulip Street Park, Cheltenham Park and Shipston Reserve. Street trees that are dead should be removed but dead or dying trees with natural hollows in parks can provide habitat for fauna. The map shows concentration of dead trees on foreshore that are providing habitat.. Through the continued use of the Tree Risk Assessment Tool, Council will retain those trees and vegetation that provide a service to the ecosystem.

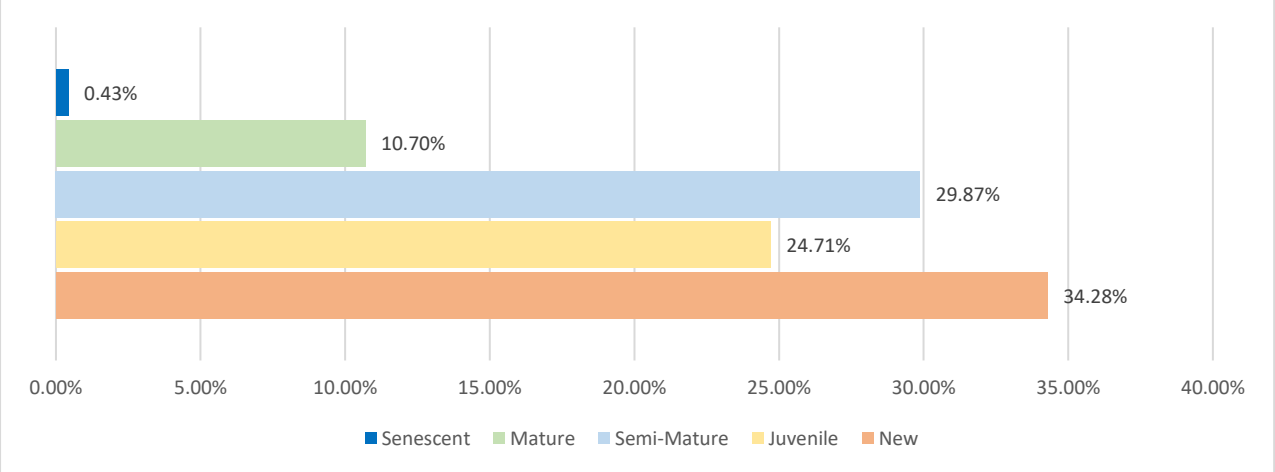
Graph 4. Tree health in Cheltenham (including Pennydale)

In 2022, 88% of the council-owned street and park trees in Cheltenham (including Pennydale), were classified as being in good health. Trees that are classified as poor, dangerous or dead make up for 2%.

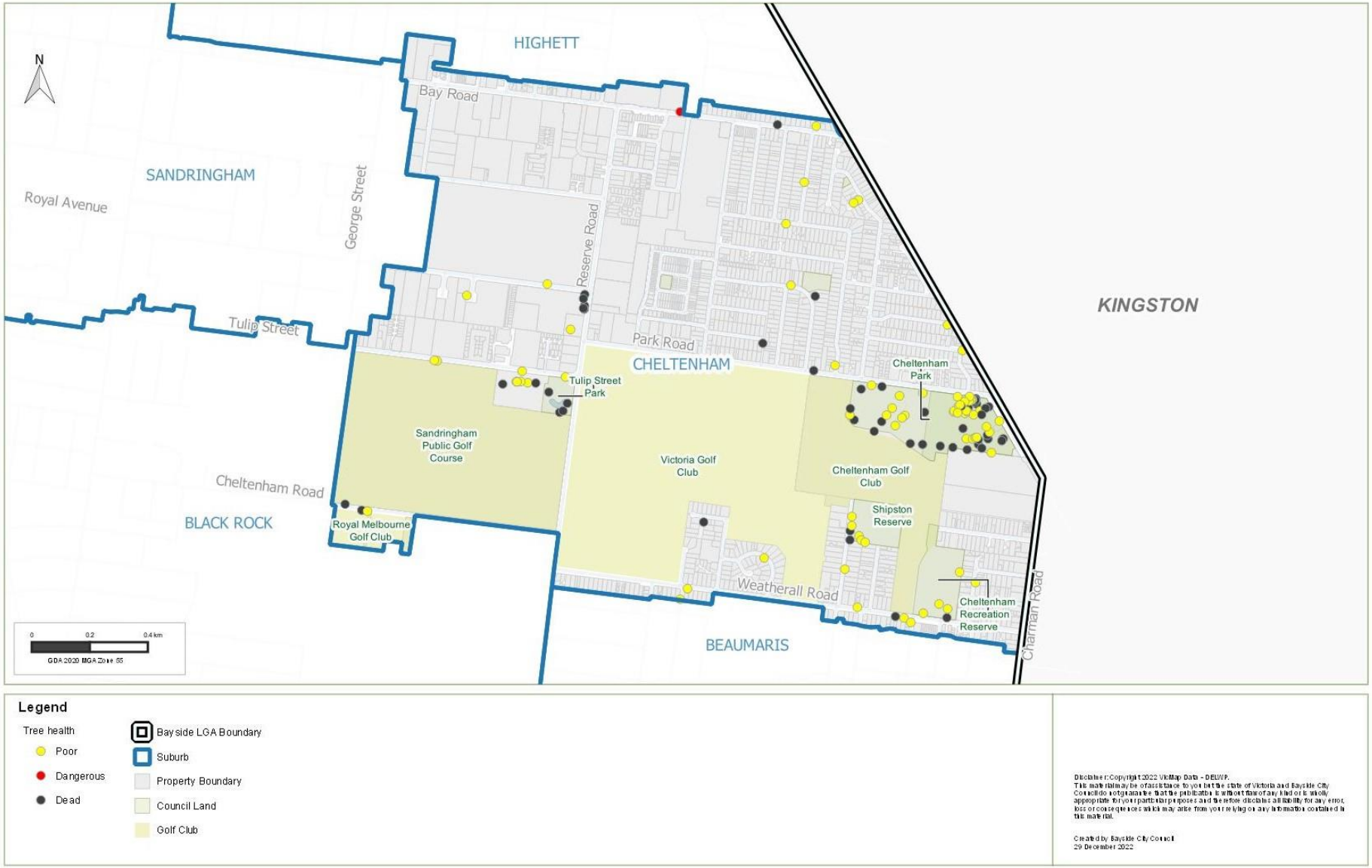
Through the continued use of the Tree Risk Assessment Tool, the council will retain the trees and vegetation that provide a service to the ecosystem.



Graph 5. Tree age in Cheltenham (including Pennydale)

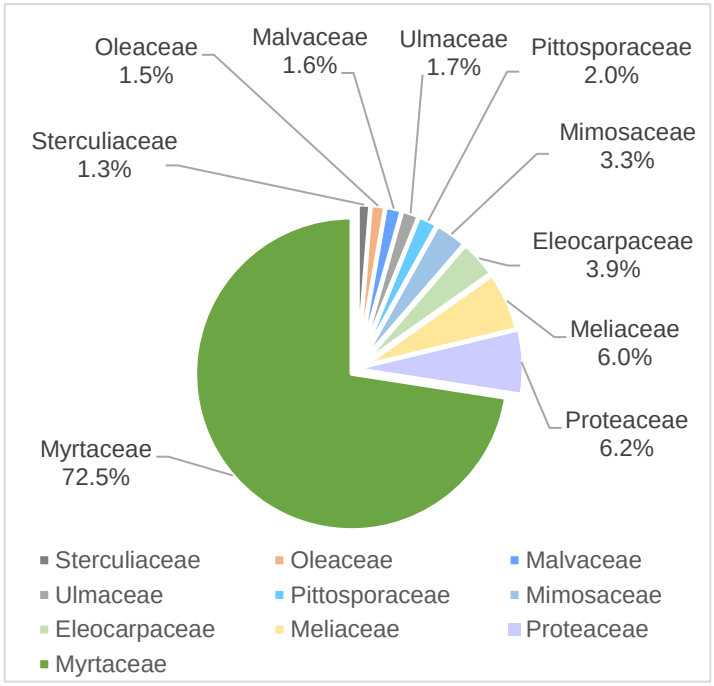


Map 6: Tree Health in Cheltenham (including Pennydale)

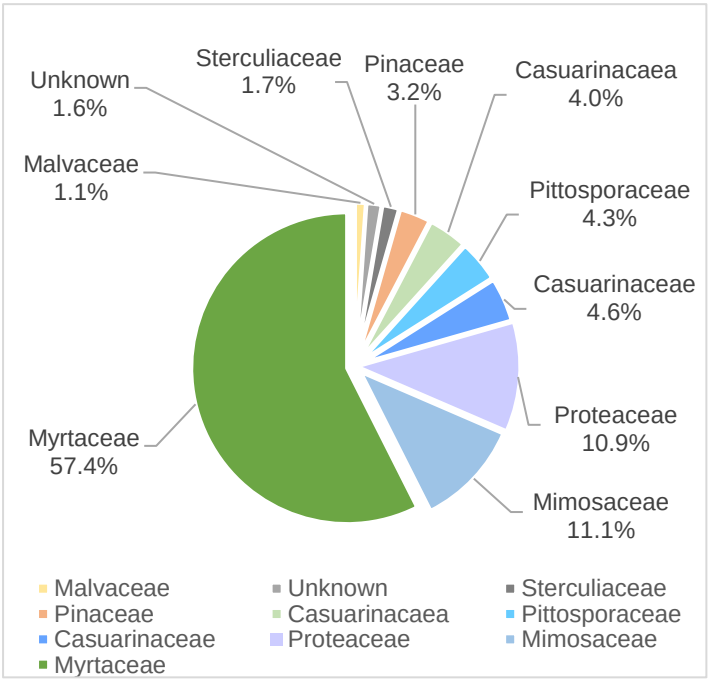


Species diversity

A resilient urban forest has a diverse range of species from different families. As seen in graphs 6 and 7 below, Council-managed street and park trees are predominantly within the *Myrtaceae* family, making up to 73% of all street trees and 57% of all park trees. This is then followed by the *Mimosaceae* family (11% of all park trees), and the *Proteaceae* family (6% of all street trees). Other families make up about 21% of street trees and 32% of park trees, with a small percentage (2%) of council-managed trees in Cheltenham (including Pennydale) that are listed as unknown species.



Graph 6. Diversity of street tree species in Cheltenham (including Pennydale)



Graph 7. Diversity of park tree species in Cheltenham (including Pennydale)

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 Cheltenham's (including Pennydale) 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:

- *Malvaceae*
- *Sterculiaceae*
- *Pinaceae*
- *Oleaceae*
- *Ulmaceae*
- *Pittosporaceae*
- *Mimosaceae*
- *Eleocarpaceae*

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, Cheltenham's (including Pennydale) street and park tree population is largely dominated by the *Myrtaceae* family (*eucalyptus* etc.), making up 73% of all street trees and 57% of park trees.

Understorey planting in Cheltenham (including Pennydale)

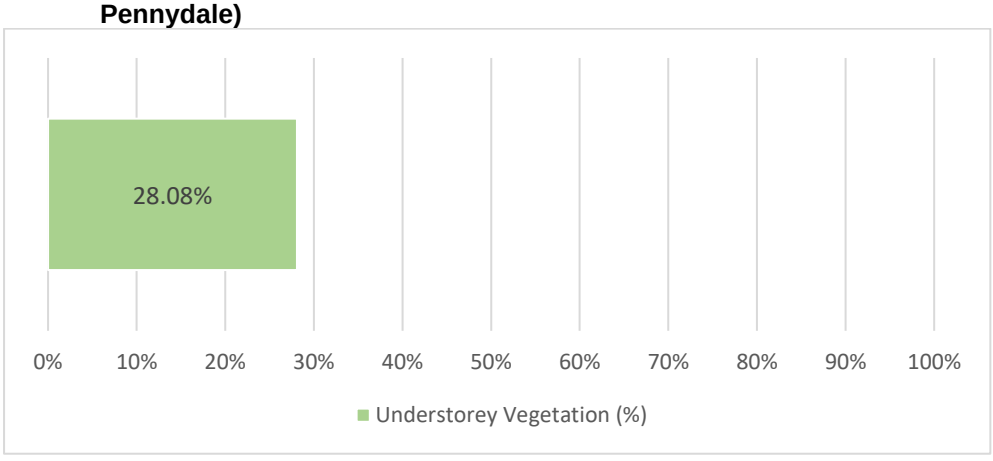
This section investigates the potential habitat and biodiversity corridors in Cheltenham (including Pennydale) across public and private land to understand where further opportunities are to increase habitat connectivity and improve biodiversity.

Understorey vegetation includes small trees, shrubs, herbs, grasses, mosses, and lichens that occupy the vegetation layers below the canopy of taller trees.[3] 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 28.08% of understorey vegetation coverage in Cheltenham (including Pennydale), with a majority of this being located on the golf courses and recreational reserves within the suburb, as shown in graph 8, graph 9 and Map 7. In contrast, Pennydale currently has 14.9% of understorey vegetation coverage as shown in graph 8.1, graph 9.1 and Map 7.1. This is significantly less than the whole of Cheltenham due to the more residential character of Pennydale as shown on graph 10.1.

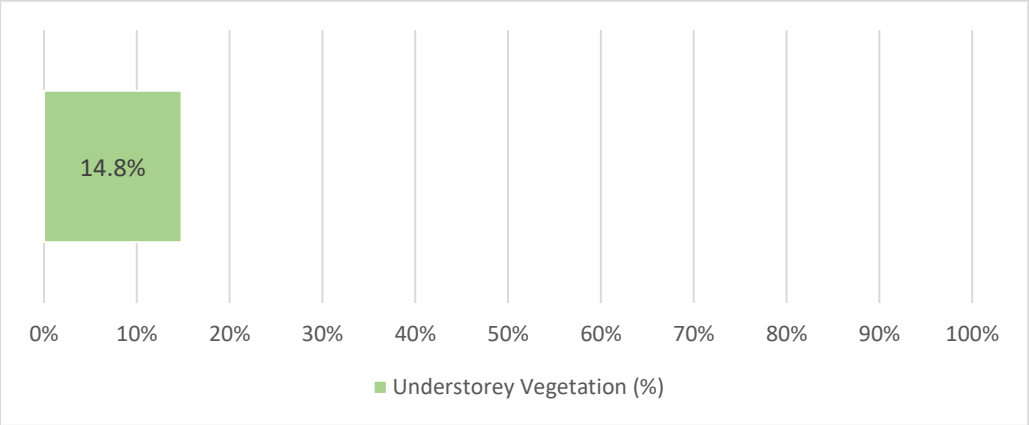
Council's priority will be to increase understorey planting in a range of ways and specifically within areas that significantly lower coverage – including residential, commercial and mixed-use areas and streets, locations where core habitat patches exists and habitat improvement is recommended (Maps 10-11), and also by encouraging residents to have biodiverse gardens with indigenous and native plants. Streets that have a very low percentage of understorey planting (0-10%) have been identified in Map 7 and include Tulip Street, Reserve Road and Wangara Road.

Graph 8. Percentage distribution of understorey vegetation in Cheltenham (including Pennydale)

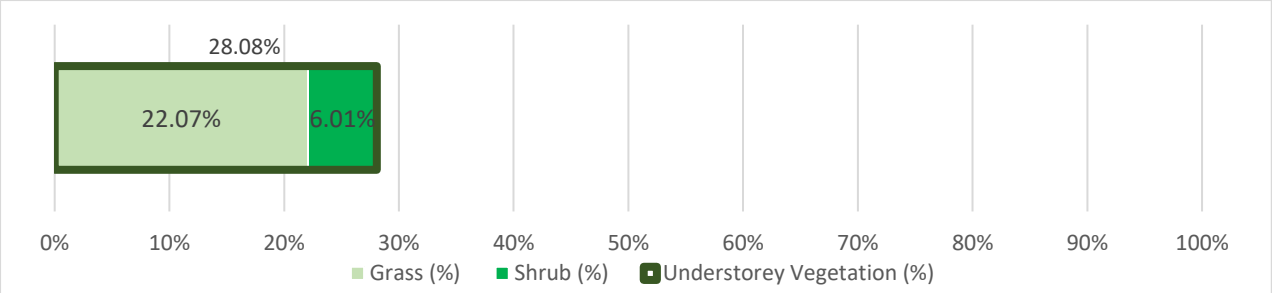


[3] Land for Wildlife Queensland, 'The Value of Understorey Vegetation' Note V6, available at: https://www.lfwseq.org.au/wp-content/uploads/2016/11/The-Value-of-Understorey-Vegetation.pdf

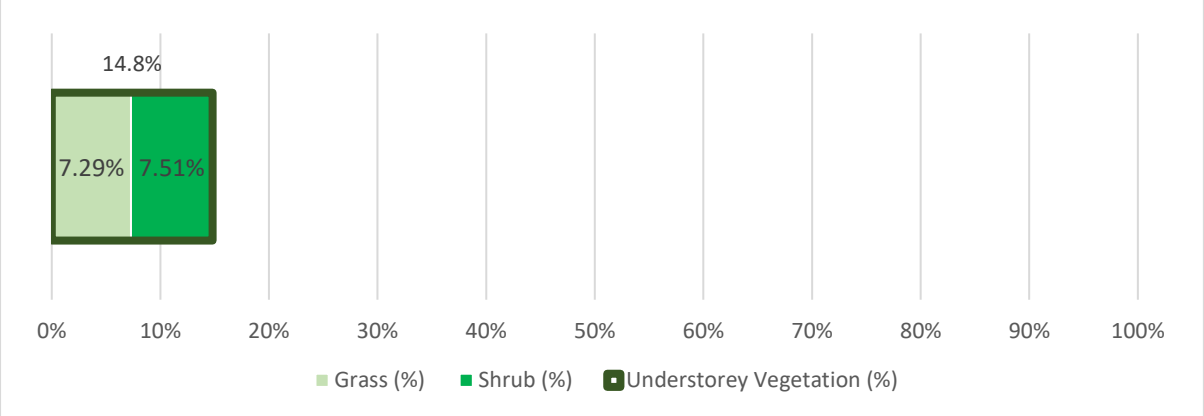
Graph 8.1 Percentage distribution of understorey vegetation in Pennydale



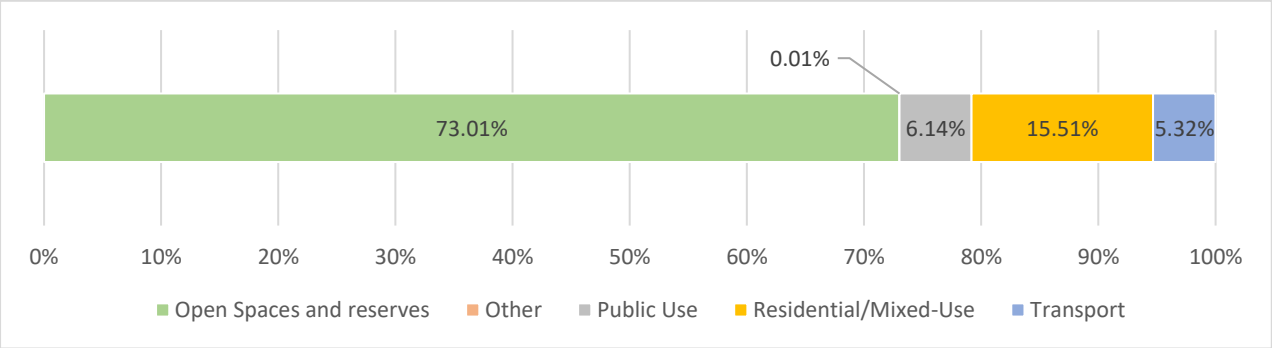
Graph 9. Percentage distribution of understorey vegetation as grass and shrubs in Cheltenham (including Pennydale)



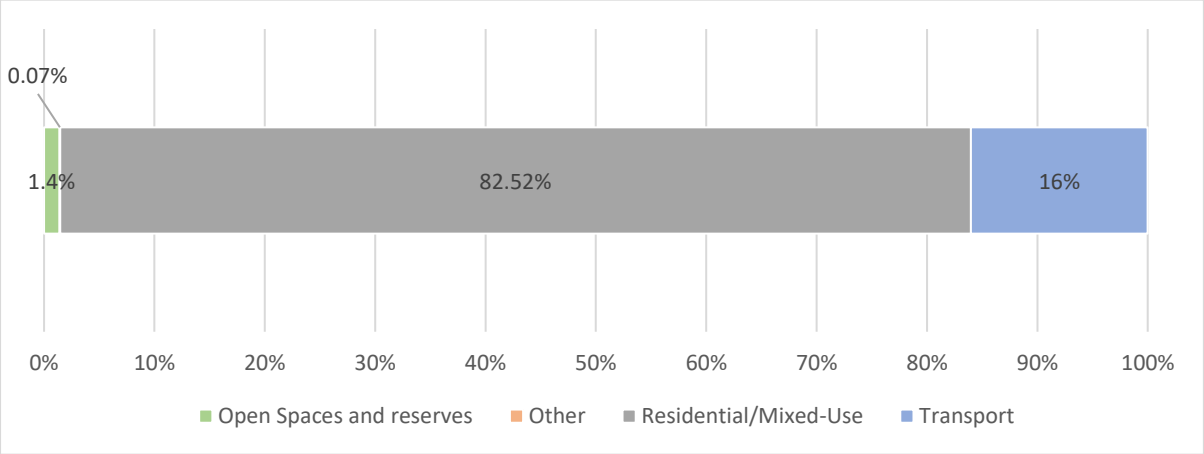
Graph 9.1 Percentage distribution of understorey vegetation as grass and shrubs in Pennydale



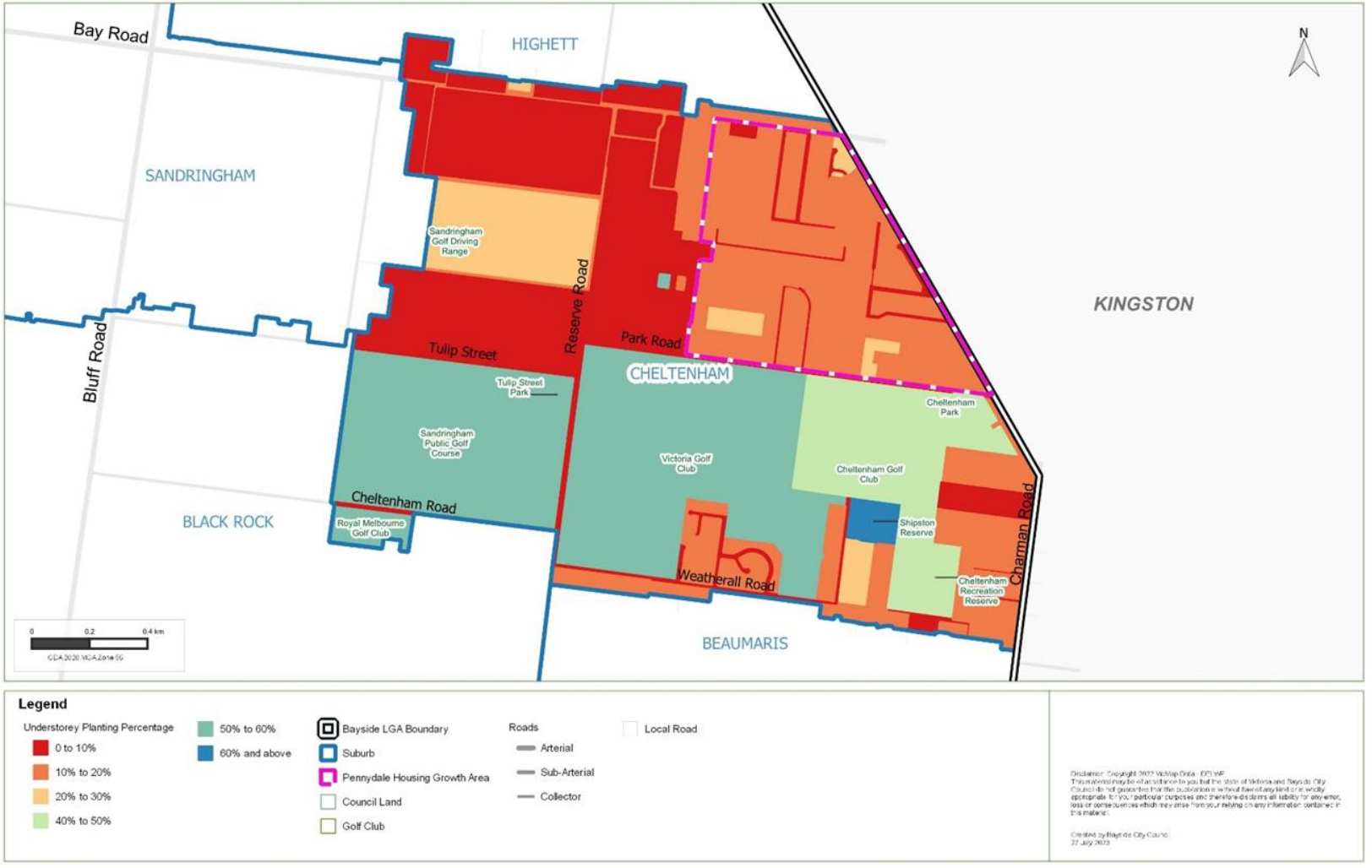
Graph 10. Percentage distribution of understorey vegetation in different land uses



Graph 10.1 Percentage distribution of understorey vegetation in different land uses in Pennydale



Map 7: Understorey planting in Cheltenham (including Pennydale)



Map 7.1: Understorey planting in Pennydale



Urban Heat Island

Urban heat island effect in Cheltenham (including Pennydale)

Urban heat island effect is the phenomenon of dense urban areas having significantly warmer air and land surface temperatures than surrounding areas.[4] 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. It is evident from this map that there are various areas of Cheltenham (including Pennydale), particularly in the north, east and centre of the suburb, which are undergoing increased temperatures and are subject to urban heat island effects.

The Pennydale neighbourhood is unique in that it is sandwiched between significantly larger commercial, industrial and public use areas, being the Bayside Business District (BBD), Southland Shopping Centre and the Cheltenham Cemetery. Development is forecasted to continue to be accommodated within these areas, which will only further exacerbate urban heat island effects if not appropriately planned for.

Increased greening and enhancement of the urban forest has been identified as one of the most cost-effective means of mitigating the potential impacts of climate change and urban heat island effects. Planting will be prioritised on streets in Cheltenham (including Pennydale) impacted by urban heat island effects as shown on Map 8, including:

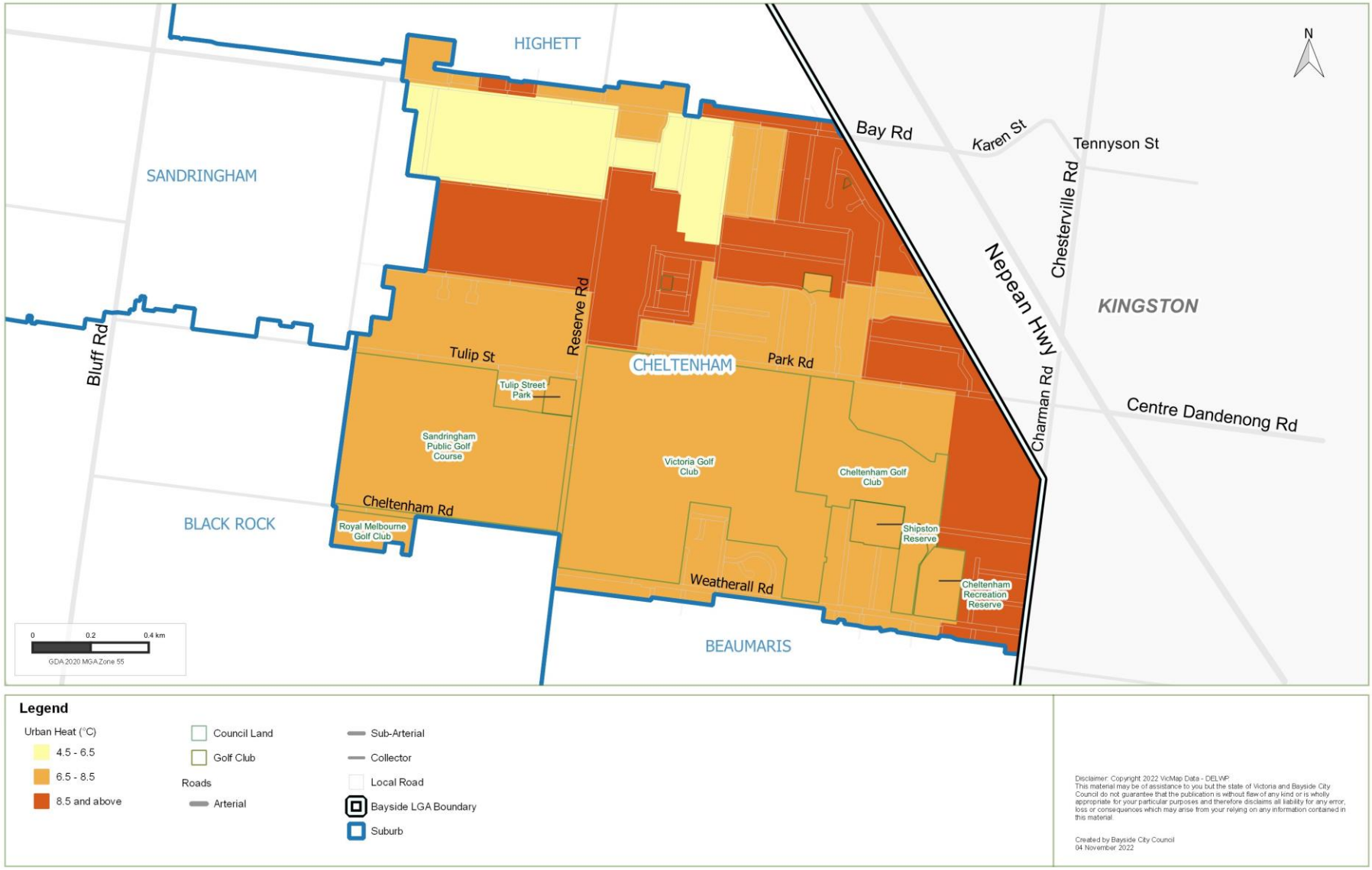
- Weatherall Road, MacKenzie Street, Sydney Street
- Glebe Avenue, Coape Street, Llewellyn Street
- Cheltenham Park Reserve (eastern section)
- Park Road, Churchill Avenue, Tulip Grove
- Gilford Avenue, Heather Grove, Bay Road
- Cheltenham Memorial Park
- Cloyne Street, Reserve Road, Beaumaris Parade
- Tibrockney Street, Arnold Street, Phillip Street
- Ambrose Avenue, Pallisades Bvd, Amberley Drive
- Fairview Drive, Monterey Drive, Bellevue Road
- Charlton Avenue, Jack Road, Luxmoore Street
- Paul Street, Stuart Avenue, Olympic Avenue
- Davie Avenue, Munro Avenue.

Council will prioritise planting on council land in the northern, central and eastern areas of Cheltenham (including Pennydale) through its annual tree planting program. 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 northern, central and eastern areas of Cheltenham (including Pennydale) will reach threshold temperatures for heat-related illness in vulnerable populations more often and for longer than surrounding areas.

[4] 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

Map 8 - Urban Heat – Increased temperatures in Cheltenham (including Pennydale)



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 Cheltenham (including Pennydale).

Strategic Biodiversity Value Score

The Strategic Biodiversity Value (SBV) is a ranking system developed by the Department of Transport & Planning (DTP) that ranks the biodiversity contribution that a location has to Victoria's overall biodiversity. The SBV is presented as a score ranging between 0 - 1 and is mapped across all areas of Victoria.[5]

56 areas with SBV scores were identified within Bayside, all of which exist on public land and are provided in Map 9. There was only one location within Cheltenham which presented a SBV score. The location is the Sandringham Golf Links, with a score between 0.2 and 0.4.

To ensure SBV scores modelled within these areas do not decrease over time, native restoration and plantings in these areas must continue when required. It is important that these areas remain as much in their current condition as possible to preserve the ecological values present within these areas. The Biodiversity Assessment can be seen in Map 9.

Ecological Vegetation Classes (EVCs)

As a 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 and provided in Map 10. However, these have largely been cleared and do not represent what they once were, due to human settlement and the extensive residential development that has occurred, and the associated road, rail and commercial development. While it's not possible to restore our environment to what it was like pre-settlement, we can improve how we restore native vegetation and ensure what we are planting is complimentary and in replica to what was historically within these EVC areas.

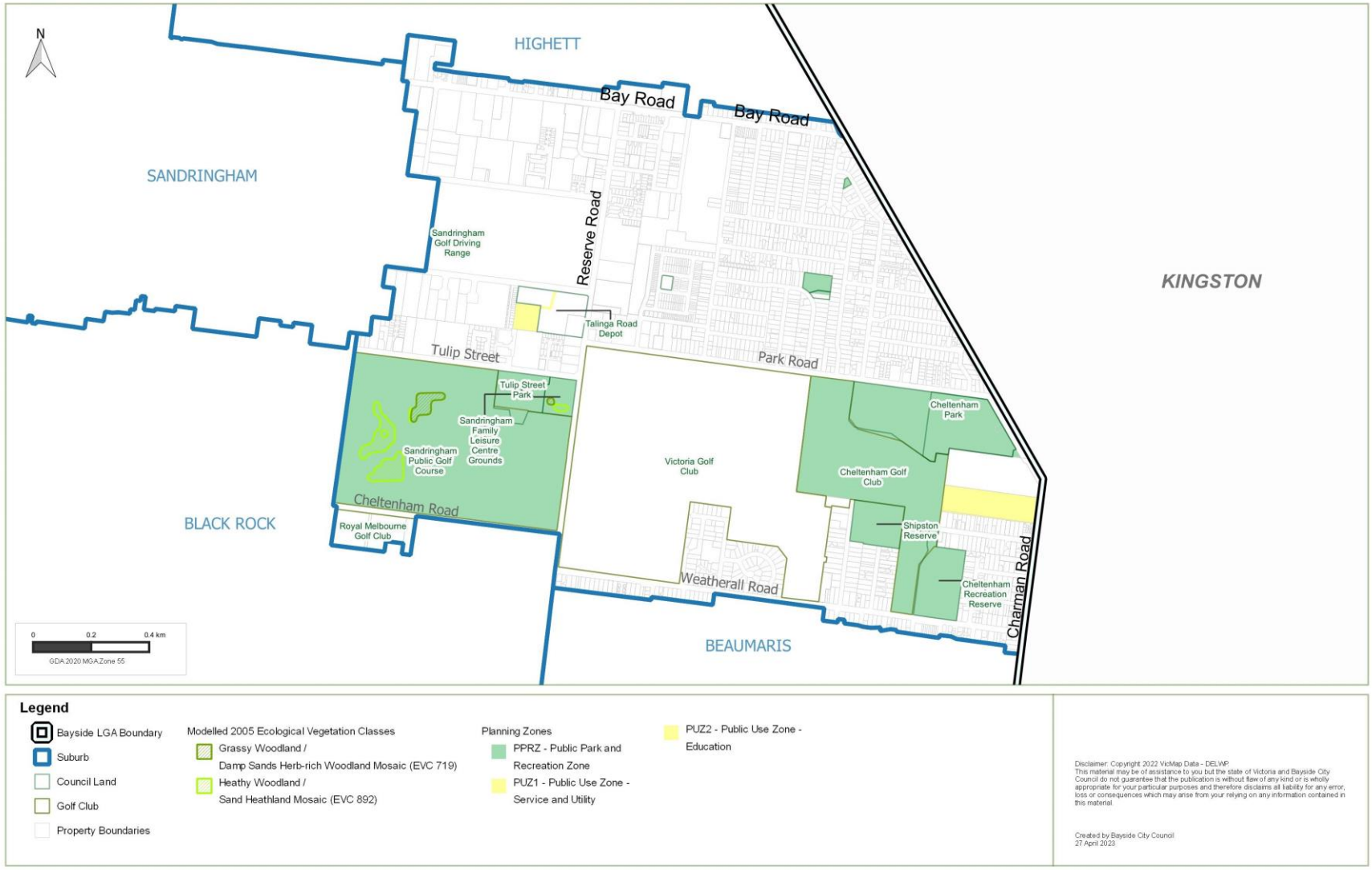
Of the 8 EVCs modelled within Bayside, two were present within Cheltenham (including Pennydale). These EVCs are the grassy woodland / damp sands herb-rich woodland and the heathy woodland / sand heathland (locations of EVCs are identified in Map 10). This identified EVC has informed the species palette in Appendix 3 to this Precinct Plan. The species palette provides guidance on species of trees and vegetation that should be planted to enhance the character and enhance the ecological values of the urban forest.

[5] 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 2022

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

Two major actions identified in the *Park Improvement and Habitat Linkage Plan* that correspond to the Cheltenham (including Pennydale) Precinct Plan are:

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

Conservation reserves in Cheltenham (including Pennydale)

- Cheltenham Park Flora and Fauna Reserve.

Core habitat patches

As per Map 11, Eight core habitat patches have been identified within Cheltenham (including Pennydale) as areas where planting should occur to implement new or improve existing links to areas of open space and provide habitat corridors:

1. Victoria Golf Club
2. Wangara Road
3. Sandringham Golf Links
4. Cheltenham Golf Club
5. Cheltenham Pioneer Cemetery
6. Cheltenham Park
7. Cheltenham Recreation Reserve
8. Jack Road.

Map 11 – Core Habitat Patches



Priority Habitat Improvement Areas

Priority habitat locations are primarily associated with parks or reserves that 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.[6]

As portrayed on Map 12, Priority Habitat Improvement Areas identified in Cheltenham (including Pennydale) are:

- Cheltenham Park Flora and Fauna Reserve
- Cheltenham Park
- Cheltenham Golf Course.

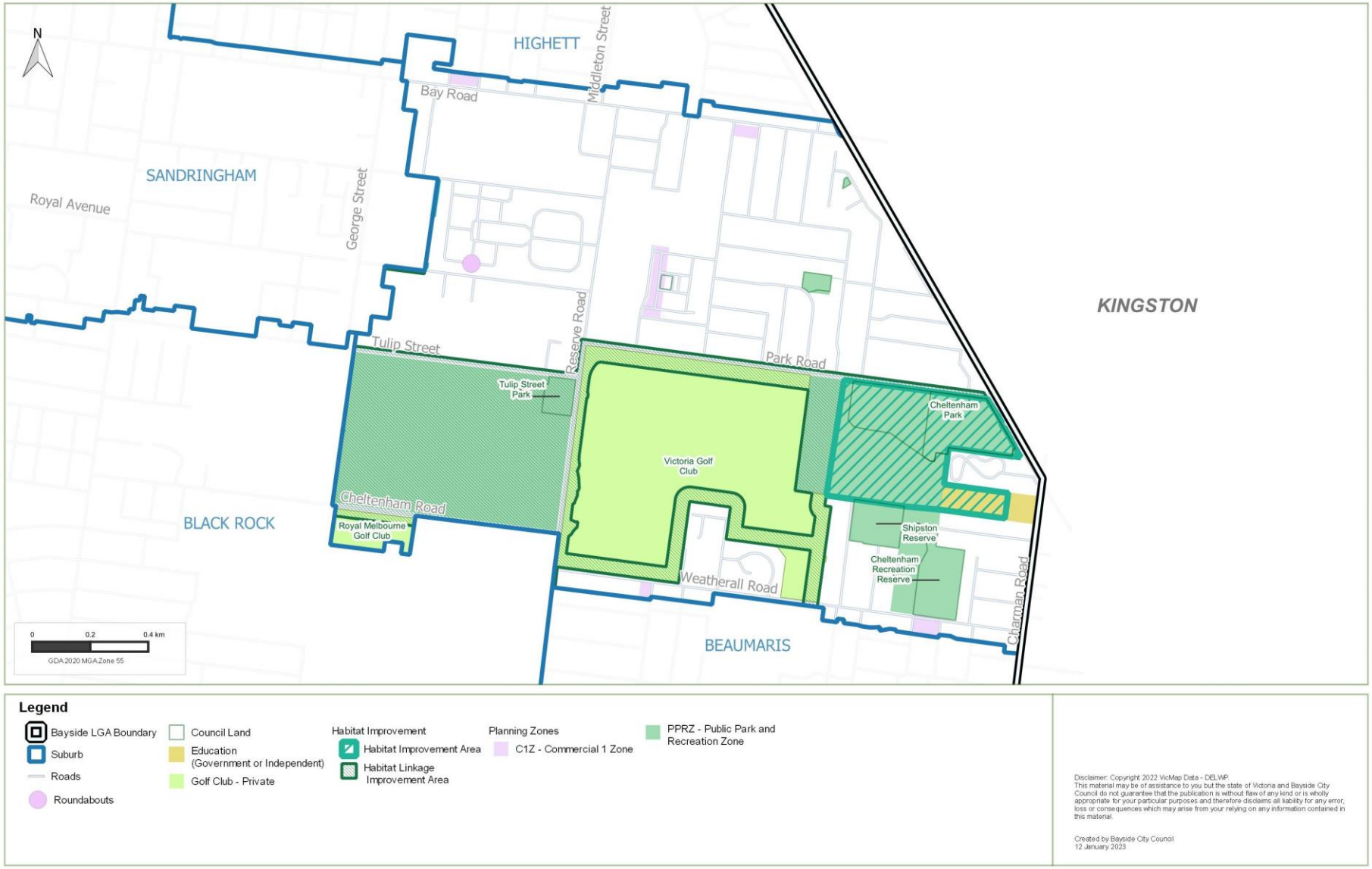
Priority Linkage Improvement Areas

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.[6] Locations of priority linkages identified across the municipality have been restricted to public land, except for limited instances within privately owned golf courses.

- Tulip Street/ Park Road
- Victoria Golf Club/ Weatherall Road.

[6] Park Improvement and Habitat Linkage Plan, Bayside City Council (2022)

Map 12: Habitat Linkage and Improvements



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 currently nine trees in Cheltenham that are on the Significant Tree Register.

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). The HO is however the only overlay that applies to selective private properties in Cheltenham (including Pennydale).

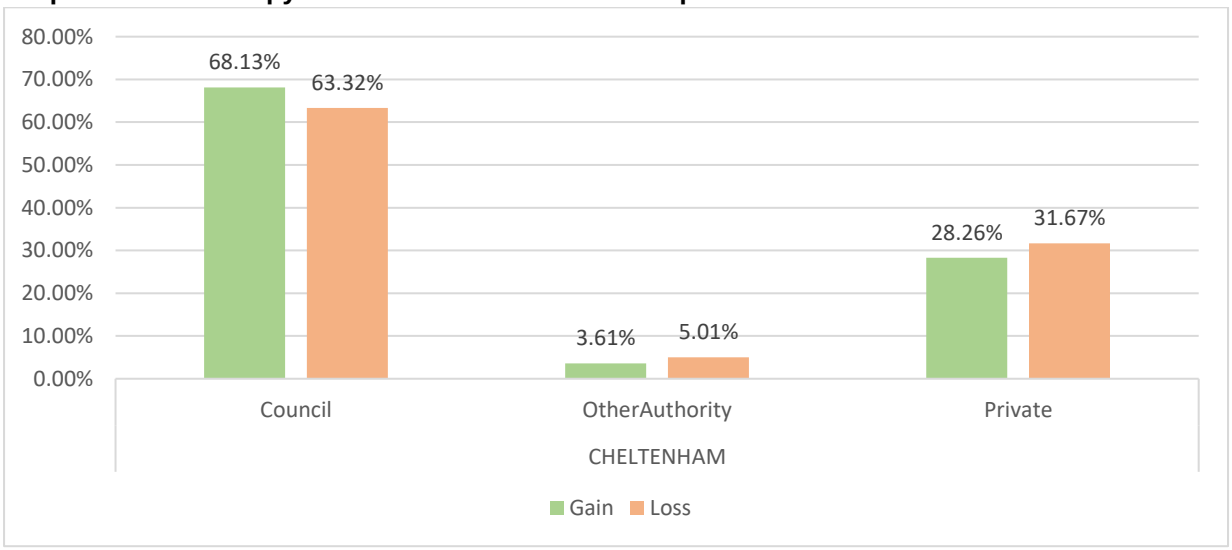
It is difficult to approximate the number of trees removed from private land each year under a planning permit as this is not separately recorded (and one application can be for multiple tree removals), let alone the extent of tree removal that is legal or illegal.

As indicated in Graph 10, while private land contributed to 19% of tree canopy gains in Cheltenham (including Pennydale), it also contributed to 25% of tree canopy losses. Council-owned land contributed 45% to tree**Image 7.**gain versus 50% of tree canopy loss. Losses and gains were calculated **Image 6.**ring 2015 and 2019 canopy cover data.

Tree loss and gain in Cheltenham (including Pennydale) on private land

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

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.

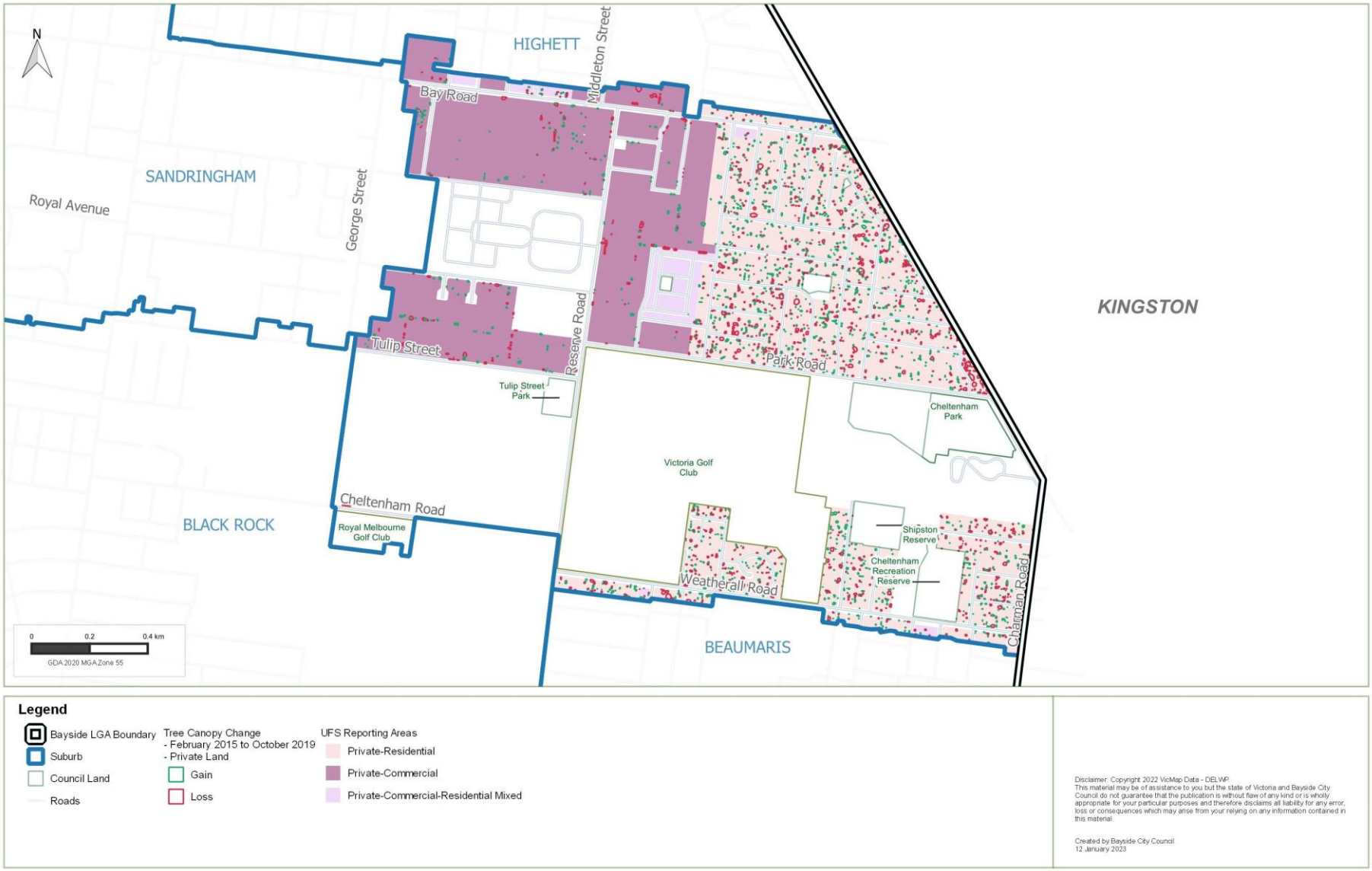
Council will also investigate opportunities to provide free tree and vegetation giveaways to residents. This will provide Council with a pathway to influence the tree and vegetation cover that exists on private land and help residents maintain the health of their trees and gardens. Bayside already has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



Cheltenham (including Pennydale) in images

The following images show examples of low, medium, and high tree canopy coverage in Cheltenham (including Pennydale).



Image 5. Charman Road, an example of a road with low tree canopy coverage

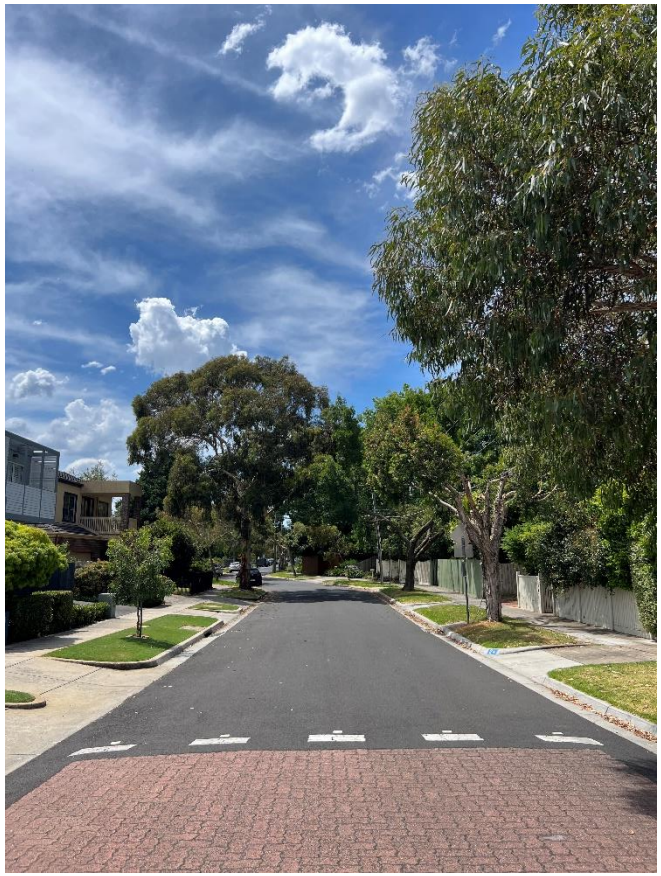


Image 6. Paul Street, an example of a street with medium tree canopy coverage



Image 7. Glebe Avenue, an exa**Image 5.**a street 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.

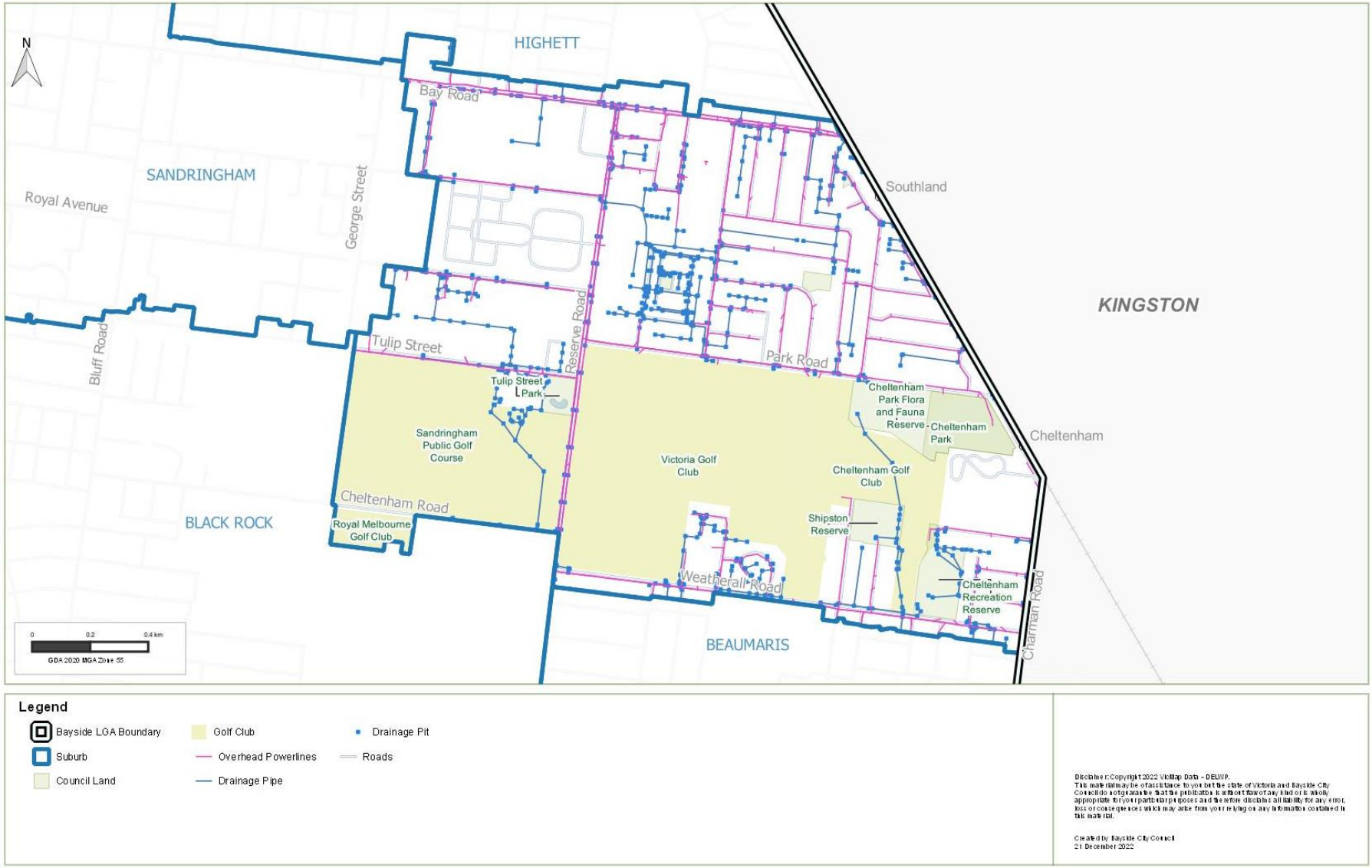
As a phase 1 action of this plan, Council will facilitate the negotiations between the residents and relevant authorities to support the undergrounding of powerlines (and other services) if there is sufficient interest in a street. Council will also advocate to VicRoads and other authorities for undergrounding the powerlines and plant vegetation on the Principal Transport Network. Map 14 identifies infrastructure that must be considered when undertaking tree and vegetation planting includes:

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

When selecting tree species for planting, Council officers consider which species will be the least destructive to underground infrastructure. Council will work with utility providers where required to ensure that infrastructure can be successfully maintained. 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 Cheltenham (including Pennydale)



Key Opportunities

Greening Cheltenham (including Pennydale)

Increasing tree canopy cover to reach 30% and vegetation cover to reach 30% across Cheltenham (including Pennydale) 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.

EnKey Directions**nts**Key Opportunities**rs**

Learn together, educate each other, encourage and celebrate greater care and protection.

Commercial (including industrial) areas

Across Cheltenham (including Pennydale) there are three areas that are zoned for commercial use. These include:

- Weatherall Road and Morey Road Small Commercial Activity Centre;
- Bay Road and Jack Road Small Neighbourhood Activity Centre
- Bay Road and Avoca Street Small Neighbourhood Activity Centre

In addition, the suburb also encompasses the majority of the **Bayside Business District** (along Bay Road). The enhancement of the amenity and appearance of this employment area is a key strategic direction outlined within the Bayside Planning Scheme.

The character and appearance of these commercial and employment centres can be improved by increasing the number of trees and vegetation cover, where appropriate. 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 and industrial 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 should be explored and encouraged to increase vegetation.

Park Improvement and Habitat Linkages

Focus on enhancing planting and enhancing habitat in the following locations:

Priority Habitat Improvement Areas:

- Cheltenham Park Flora and Fauna Reserve
- Cheltenham Park
- Cheltenham Golf Course.

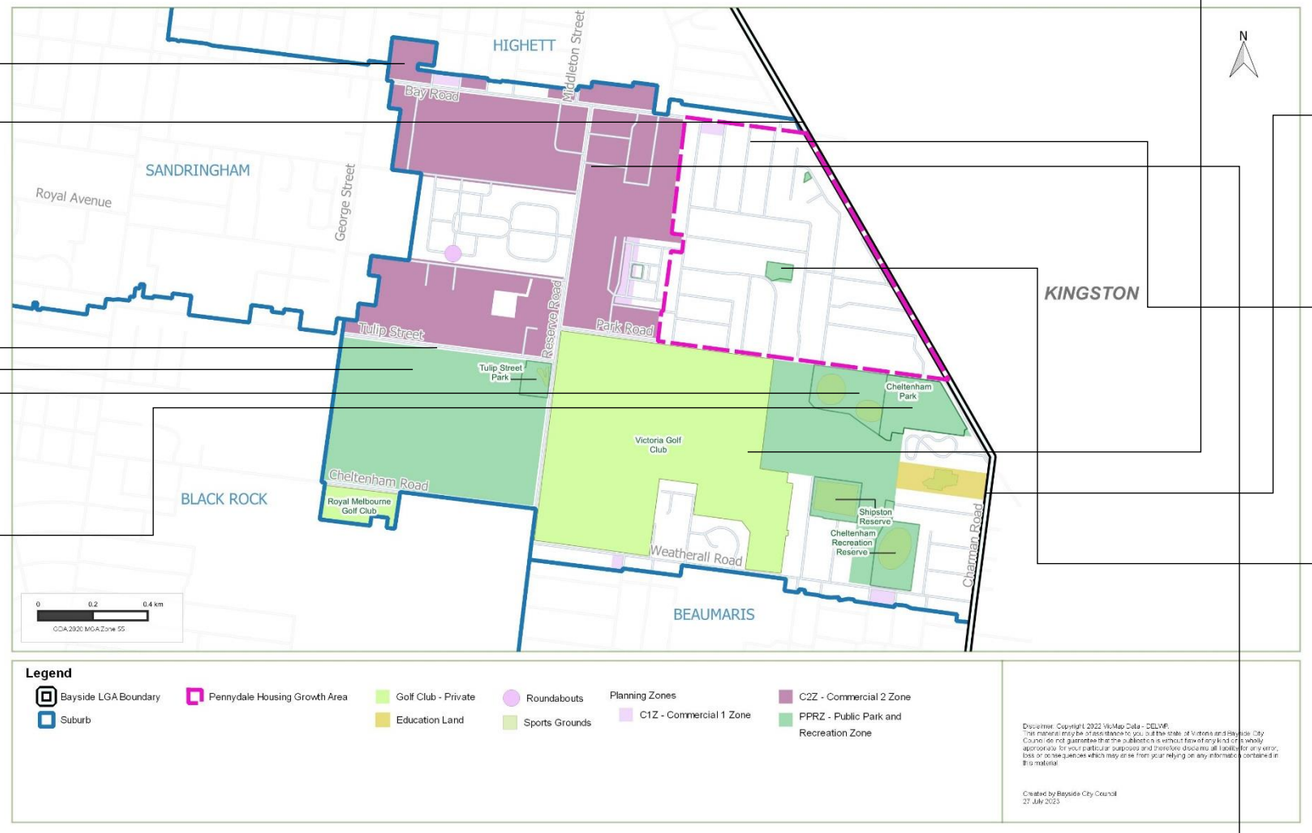
Priority Linkage Improvement Areas:

- Tulip Street/ Park Road
- Victoria Golf Club/ Weatherall Road.

Core habitat patches:

- Victoria Golf Club
- Wangara Road
- Sandringham Golf Links
- Cheltenham Golf Club
- Cheltenham Pioneer Cemetery
- Cheltenham Park
- Cheltenham Recreation Reserve
- Jack Road.

Map 15 – Key Opportunities in Cheltenham (including Pennydale)



Suburban Rail Loop and Level Crossing Removal

Suburban Rail Loop and Level Crossing Removal projects funded by State Government have seen significant upgrades to major infrastructure upon the Frankston Train line and surrounding shared user footpaths. It is important that these upgrades are provided with enhanced landscaping outcomes.

Council will seek to enhance partnerships with the Suburban Rail Loop and Level Crossing Removal authorities. Where enhanced landscaping outcomes are unable to be provided during the delivery of infrastructure, alternative methods to increase tree and vegetation cover should be sought.

Private golf course – Royal Melbourne Golf Club and Victoria Golf Club

Council will encourage the increased greening of private golf courses where possible.

Educational land

Council will work with other State government and non-State government Schools to increase tree and vegetation cover on educational land. Cheltenham Primary School is the only school within the suburb.

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 projects

There is a significant opportunity to increase and diversify tree and vegetation cover through council-owned projects like the renewal or development of community buildings and sports clubs. Each Council project has site-specific issues and opportunities that need to be considered as a 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

Understorey Planting:

- Tulip Street
- Reserve Road
- Park Road
- Chesterville Road
- Graham Road and Middleton Street

Prioritising Trees and Vegetation

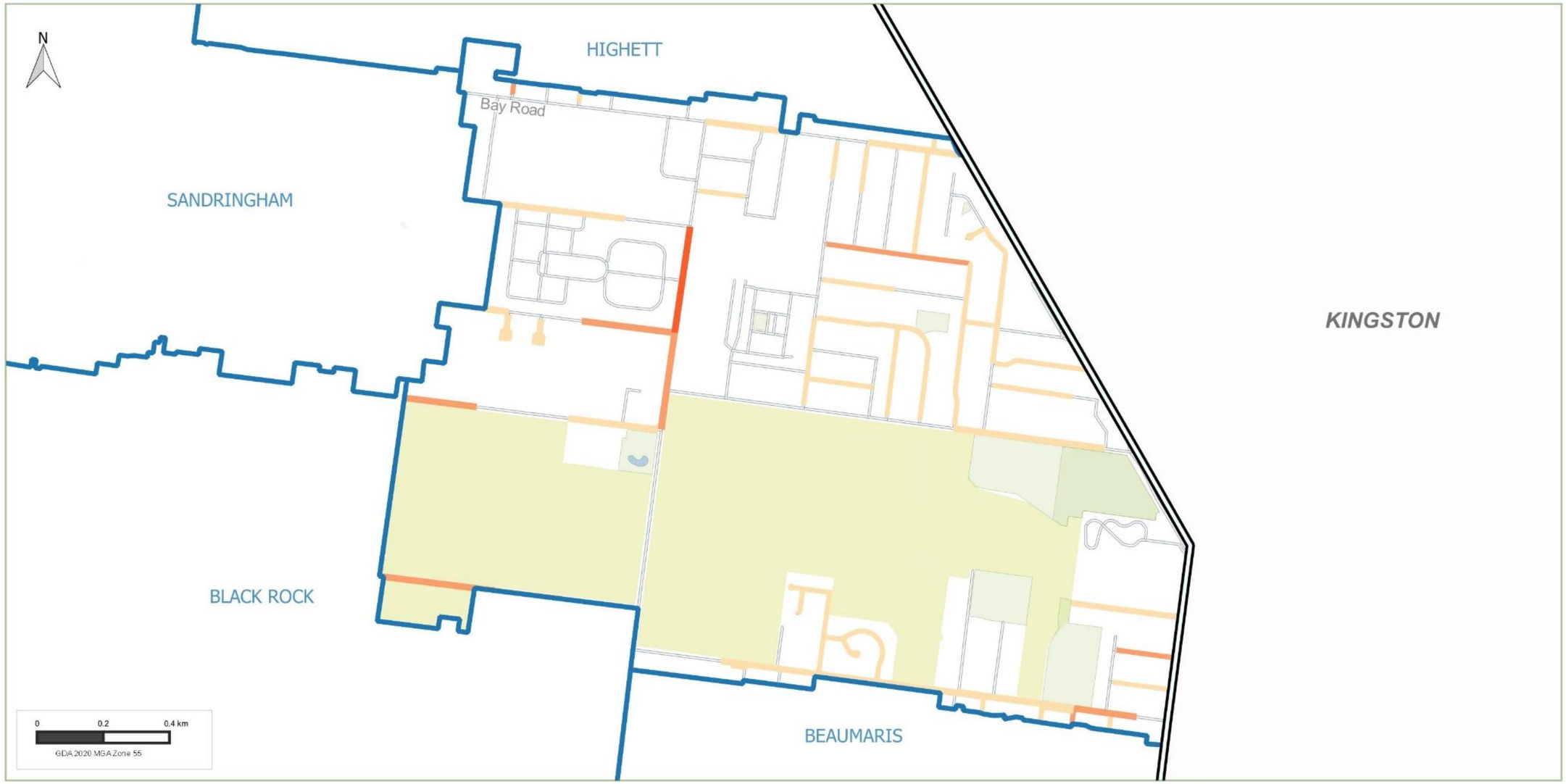
Planting will commence by focussing on habitat linkages and core habitat patches identified in the Park Improvement and Habitat Linkage plan (Action 1 of the Implementation Plan). Focus will also be given to streets that have low canopy cover.

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 Cheltenham (including Pennydale)



Legend

- Bayside LGA Boundary
- Suburb
- Council Land
- Golf Club

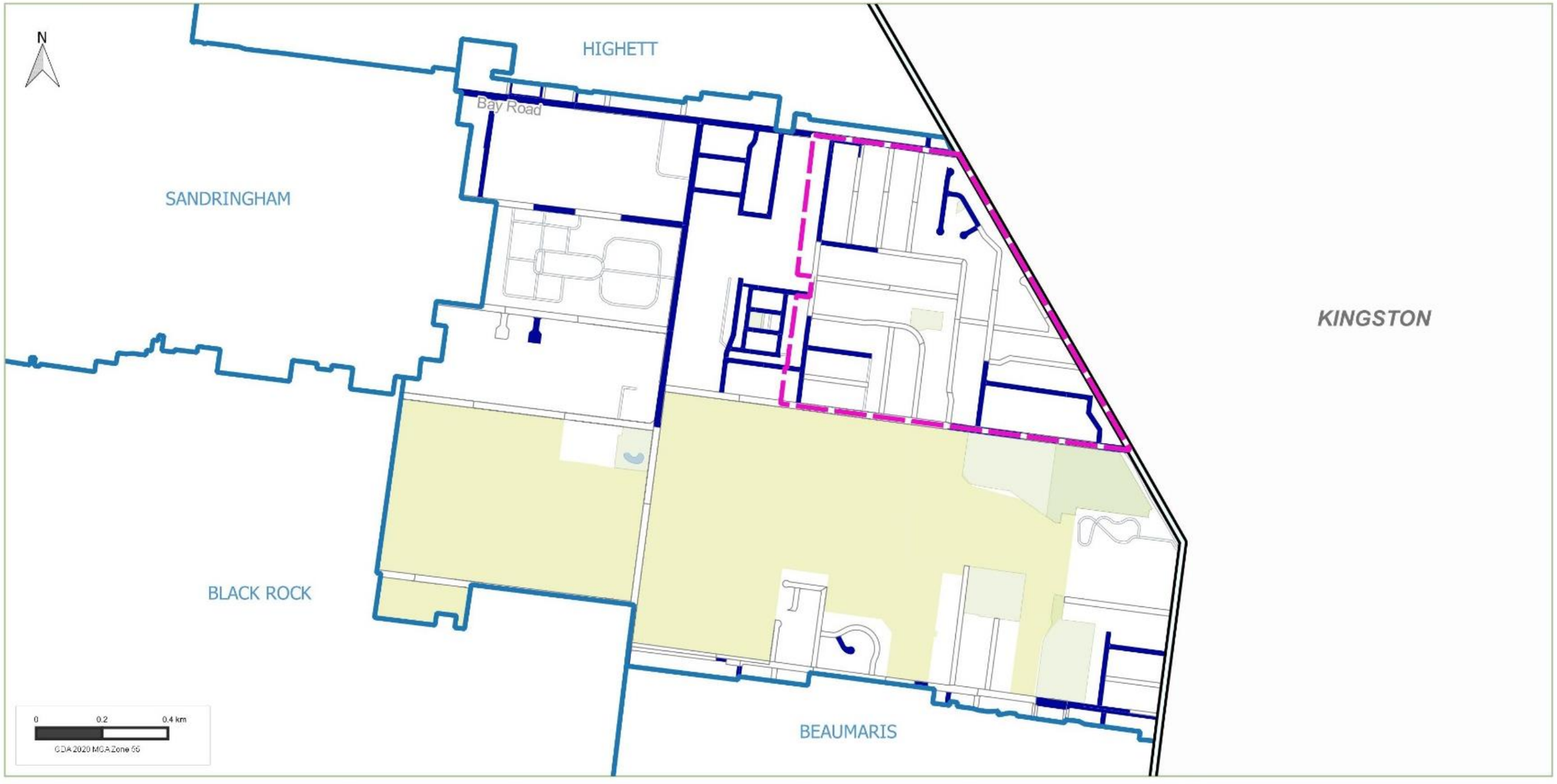
Street Tree Replacements

- 1 - 2 Trees
- 2 - 4 Trees
- 4 - 6 Trees
- 6 - 8 Trees
- 8 - 10 Trees

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Created by Bayside City Council
15 June 2023

Map 17 – Streets with less than 20% Tree Canopy Cover in Cheltenham (including Pennydale)



Legend

- Bayside LGA Boundary
- Suburb
- Pennydale Housing Growth Area
- Council Land
- Golf Club

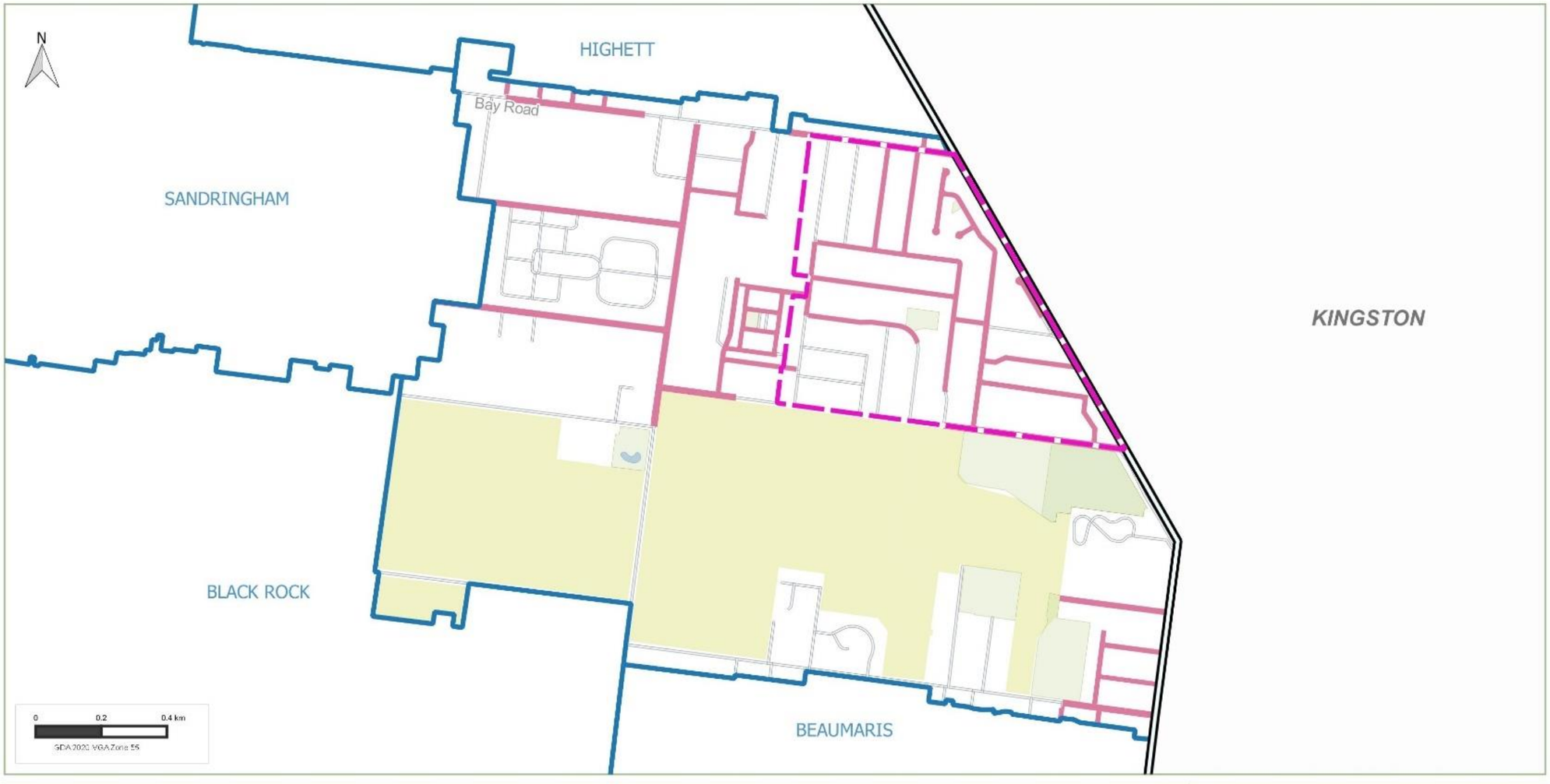
Street Tree Canopy % (October 2019)

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

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27 July 2023

Map 18 - Streets with High Urban Heat Island Effect in Cheltenham (including Pennydale)



Implementation Plan

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

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
Urban Forest Strategy Action: Opportunities for boulevard plantings and the creation of improved streetscape outcomes						
Action 1 Phase 1	Prioritise and increase planting on identified habitat and biodiversity corridors across public land to enhance habitat linkages.	Investigate opportunities to provide increased understorey planting in areas identified as part of Council's *Park Improvement and Habitat Linkage Plan* (Map 10 - 11), including: **Priority Habitat Improvement Areas:** • Cheltenham Park Flora and Fauna Reserve • Cheltenham Park • Cheltenham Golf Course. **Priority Linkage Improvement Areas:** • Tulip Street/ Park Road • Victoria Golf Club/ Weatherall Road. **Core habitat patches:** • Victoria Golf Club • Wangara Road • Sandringham Golf Links • Cheltenham Golf Club • Cheltenham Pioneer Cemetery • Cheltenham Park • Cheltenham Recreation Reserve • Jack Road.	Open Space	Year 1 & 2	Budget allocated for 2022/23 and 2023/24 financial years.	*Park Improvement Habitat Linkage Plan* and the Urban Forest Strategy Annual Reporting Program.
Action 2 Phase 1	Enhance biodiversity outcomes on private land.	Encourage private landowners to plant vegetation on nature strips within their street and provide support and tools to assist. To ensure new plants enhance habitat and biodiversity, Council officers should recommend appropriate plants listed in Appendix 3 Species Palette of this document.	Urban Strategy, Communication and Engagement	Ongoing	Budget may be required to create and implement specific engagement plans.	Utilise engagement evaluation matrix to measure success. Increased number of community members involved in activities. Increased demand from residents for vegetation outside their house.
Action 3 Phase 2	Create new open space, pocket parks, micro-forests in the suburb seeking new biodiversity or habitat corridors.	Investigate opportunities to seek funds to support the acquisition of land for new open spaces to connect core habitat patches.	Open Space	Ongoing	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, Urban Strategy	Ongoing	No budget required	Number of streets where undergrounding of powerlines has been implemented
Action 5 Phase 1	Ensure open space opportunities along the Frankston trainline are considered.	Council will advocate and explore opportunities for increased open space connectivity along the Frankston rail corridor.	Open Space, Climate, Sustainability, Waste and Transport	Ongoing	No budget required.	Confirmation that planting along the Frankston line will commence.

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
Enhance landscape outcomes and increase tree and vegetation cover to reach 30% across Cheltenham (including Pennydale) by prioritising areas in greatest need						
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%): • Tulip Street • Reserve Road • Park Road • Chesterville Road • Graham Road and Middleton Street 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: • Tulip Grove • Cheltenham Road (along Royal Melbourne Golf Club) • Shipton Reserve • Cheltenham Recreation Reserve • Cheltenham Park Reserve • Park Road	Open Space	Year 1 to 5	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	In line with the review of the Precinct Plans, a comparison should be undertaken for all streets that currently have less than 20% canopy cover.
Action 7 Phase 2	Increase utilisation of green walls and green roofs in Activity Centres.	Encourage innovative greening in Pennydale and Cheltenham moderate residential growth areas, the Bayside Business District (BBD) as well as the following small neighbourhood activity centres by promoting and piloting different greening initiatives: • Bay Road and Avoca Street Centre, Cheltenham • Bay Road and Jack Road Centre, Cheltenham • Weatherall Road Shopping Centre, Cheltenham Investigate opportunities to introduce mechanisms to increase green roofs and walls within these areas.	Development Services, Economic Development, Strategic Planning	Year 5 to 10	Economic Development team may require budget to run pilot programs.	Number of green walls implemented. Urban Forest Strategy Annual Reporting Program
Action 8 Phase 1 and 2	Reframe Council's approach to major council-owned projects, capital infrastructure renewal projects as opportunity to increase urban forestry outcomes.	Explore opportunities within road reconstruction projects to provide new tree plots as boulevard planting or in between car parking bays to enhance tree and vegetation cover upon local streets.	Project Services	Ongoing	Budget will be considered as part of the project scope.	Number of plants planted.
Action 9 Phase 1	Increase tree canopy cover by prioritising vacant tree sites.	As part of the Annual Tree Planting Program, continue to identify the current vacant sites and prioritise planting at these sites.	Open Space	Ongoing	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	Number of plants planted Urban Forest Strategy Annual Reporting Program.
Action 10 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.	Number of plants planted Urban Forest Strategy Annual Reporting Program.
Learn together, educate each other, encourage and celebrate greater care and protection of the Bayside Urban Forest						
Action 11 Phase 1	Increase planting on VicRoads that have less than 20% of tree canopy cover.	Advocate to the VicRoads and other authorities for increased planting on Nepean Highway, Edward Street, Park Road. Separately, Council will continue its advocacy to the SRLA to ensure the Authority upholds their commitment to create cool,	Open Space, Urban Strategy, Integrated Transport	Ongoing	Increase planting on State owned roads that have less than 20% tree canopy cover.	A commitment made to increase the amount of trees and vegetation planted on the streets maintained by VicRoads.

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
		green and inviting public spaces by planting at least three trees in place of any tree impacted by construction of the proposed Cheltenham SRL Station.				
Action 12 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 13 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.
Maintain our existing canopy cover across Cheltenham (including Pennydale) and avoid any further decline where possible						
Action 14 Phase 2	Ensure our urban forest is healthy and resilient.	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. Replacement trees should be selected based on the surrounding environment, neighbourhood character (where relevant) and above and below ground infrastructure. It is noted that there are various trees potentially reaching the end of their useful life expectancy at the following locations (Map 5): • Weatherall Road, MacKenzie Street, Sydney Street • Glebe Avenue, Coape Street, Llewellyn Street • Cheltenham Park Reserve (eastern section) • Park Road, Churchill Avenue, Tulip Grove • Gilford Avenue, Heather Grove, Bay Road • Cheltenham Memorial Park • Cloyne Street, Reserve Road, Beaumaris Parade • Tibrockney Street, Arnold Street, Phillip Street • Ambrose Avenue, Pallisades Bvd, Amberley Drive • Fairview Drive, Monterey Drive, Bellevue Road • Charlton Avenue, Jack Road, Luxmoore Street • Paul Street, Stuart Avenue, Olympic Avenue • Davie Avenue, Munro Avenue. Where it has been found that trees reaching the end of their useful life still provide benefit and habitat, it should be retained as a habitat tree as per the Tree Risk Assessment Tool (TRAQ).	Open Space	Year 5 to 10	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	Number of replacement plants planted, and number of those trees retained for habitat.
Action 15 Phase 1 and 2	Increase Council's ability to protect trees from vandalism.	Explore additional opportunities to minimise vandalism: • Consider the preparation of a communications and engagement strategy targeted to private property owners and the wider community.	Local Laws, Open Space	Year 1 to 3	Budget and resources will be required to explore opportunities.	Utilise engagement evaluation matrix to measure success.
Action 16 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	City Asset, Open Space	Year 5 to 10	Additional budget may be required for maintenance contract.	The number of requests for additional service.

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
Action 17 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, and where possible, expand the existing Vegetation Protection Overlay 3 In particular, ensure neighbourhood character preferred strategies and objectives for residential land within Cheltenham and Pennydale prioritise the retention of existing large trees and vegetation, and seeks enhanced landscape outcomes as part of new developments.	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-owned and managed land.

Planting in streets and parks presents a variety of challenges, and there are important principles to be utilised to overcome these challenges and increase and enhance Bayside's tree and vegetation cover. 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. Examples of the below principles being utilised in street and neighbourhood settings are also provided within this Section of the Precinct Plans.

Cheltenham (including Pennydale) has a distinctive character dominated by natives and local indigenous species, as a significant portion of the suburb is within the VPO3, which requires 80% of new plants to be indigenous species. Future plantings should continue to focus on increasing the presence of indigenous species where suitable and appropriate.

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

5. **Streets and powerlines**

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

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


1


2a


2b


2c


3

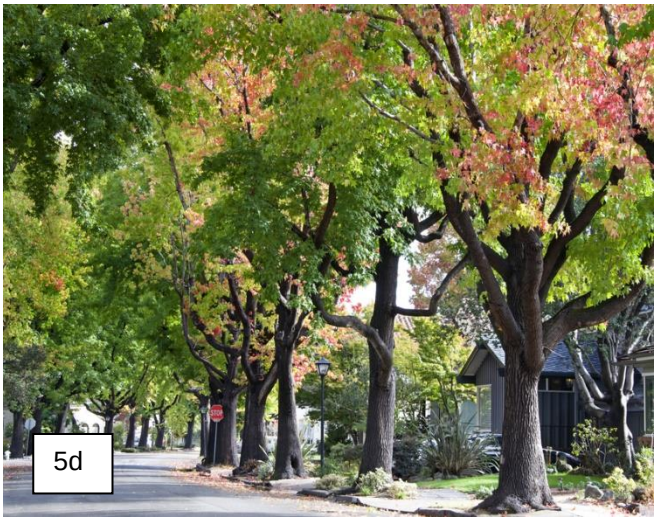

4



5a


5c


5b


5d


6

Appendix 2: Case Studies

The following case studies showcase high-quality landscaping. By incorporating the use of indigenous and native understorey plantings alongside other canopy trees, this form of landscaping demonstrates that indigenous, native and existing vegetation can be incorporated into high-quality and distinctive designs. Landscapes are the setting for many everyday recreational opportunities such as organised sport, walking or having a picnic and therefore help forge a sense of connection to place.

Ambrose Avenue

Ambrose Avenue in Cheltenham (including Pennydale) incorporates different types of understorey planting to provide a distinct and unique streetscape. Understorey planting helps to improve soil health and provide habitat for insects, birds, and small mammals. This also helps to create ecological corridors for the local biodiversity. The case study can be used as an example of how new developments can integrate understorey planting within the streetscape to increase planting and create visual interest. This example includes Indigenous grasses, shrubs and Banksia species.





1 Ambrose Avenue, Cheltenham

Wembley Avenue

This case study includes a variety of larger native bushy shrubs and grasses. This understorey planting provides habitat and grazing capabilities for local fauna.



2 Wembley Avenue, Cheltenham

Olympic Avenue

Along Olympic Avenue, there is an excellent incorporation of varying grasses and succulent between private and nature strips. Here, it is demonstrated that the property owners have understorey planted varying plantings on their property which connect to the shared naturestrip. Some of the Indigenous species include Lomandras, Carpabartus, myaporum and Natives such as the prickly teatree.





3 Olympic Avenue, Cheltenham

Olympic Avenue 2

Other examples of understorey planting in Olympic Avenue incorporate trees and native flowers and shrubs, such as correa reflexa and correa Alba. These example contributes to the neighbourhood character of the area. And show an array of diverse plantings. The residents of Olympic Avenue should feel proud of these case studies.





4 Olympic Avenue, Cheltenham

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.

City of Melbourne Streetscape Biodiversity Program

The City of Melbourne's Streetscape Biodiversity Case Study provides an example of high-quality landscaping that focuses on utilising native species to create attractive streetscapes and biodiversity corridors. The City of Melbourne collaborated with the University of Melbourne to develop and test an understorey plant palette designed to increase streetscape biodiversity in the urban environment. In 2018, the plant palette was integrated into four streetscapes within the City of Melbourne, Clowes Street, Docklands Drive, Park Street and Arden Street. The understorey plant palette focused on predominantly native species, comprising perennial herbs, grasses and shrubs that were aesthetically attractive, low maintenance and tolerant to environmental challenges like drought. The species were also selected based on what resources they could provide to birds, bees and butterflies such as pollen and nectar. Increasing understorey planting along streets is a successful and cost-effective way to improve biodiversity, amenity and function whilst creating a more ecologically connected urban landscape. The examples provided can be replicated within Bayside by council and residents to increase vegetation and provide habitat for local fauna.

Construction and growth of the Clowes Street biodiversity planting site



Original condition as a bitumen footpath (April 2017).



Plant installation (April 2018).



Post-plant installation (November 2018).



Post-plant installation (November 2019). Photo: David Hannah.

Appendix 3: Cheltenham (including Pennydale) Species Palette

Species targets

Consultation with the community has shown that residents and interested parties are not supportive of the inclusion of species planting targets. Results from the online survey show that 42% of participants oppose the targets, 27% support, 16% are neutral and 15% are not sure. 57% of the survey participants wanted to see the species targets changed, the suburbs that participants wanted to see changed the most were Brighton (63%), Brighton East (53%), Hampton East (53%) and Highett (43%).

Online survey participants were asked if they prefer native, indigenous, or exotic vegetation. participants (102 in total) prefer native vegetation with a score of 2.36, indigenous vegetation scored 2.21 making it the second preference and exotic vegetation was the last preference with a score of 1.17.

Community members that were at the Gala Day face to face engagement were asked if they supported or opposed the suburbs species targets. 21 participants provided responses to the planting targets. They supported planting targets for Beaumaris (15), Black Rock (16), Cheltenham (15), Hampton (11) and Sandringham (16). However, they opposed specific targets for Brighton (13) Brighton East (13), Hampton East, 13 and Highett (14).

The online survey asked participants about their opinion of the plan overall, 28 commented that they wanted to see increased native and indigenous planting and 4 responded to plant more exotic trees.

Survey participants were also asked when they think it is appropriate to plant exotics, 36% of participants stated that exotics should not be planted. Several of the precinct plans have high exotic species targets, this is inconsistent with community feedback around the need to stop planting exotic species and increase indigenous and native species.

Species Palette

The following species provided are of guidance only and has been informed by various academic and technical resources. The Ecological Vegetation Classes (EVC) that exist in Cheltenham (including Pennydale) have informed the species palette as they focus on retaining and increasing native vegetation. In the suburb of Cheltenham (including Pennydale), there are two EVCs found. These include the Grassy Woodland / Damp sands Herb-rich woodland (EVC 719) and the Healthy Woodland / Sand heathland (EVC 892).[5] If available, these species can be planted where soil conditions are suitable, in representation of the EVCs that were historically present within the suburb.

Eucalyptus species are another key genera across Cheltenham (including Pennydale), 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 Cheltenham's (including Pennydale) urban forest. A high diversity of plant species improves the chance of local ecosystems to survive destructive events or processes such as weed and pest animal invasion and climate change. Planting of specific species will depend on the geographic and environmental conditions, as well as the surrounding neighbourhood character.

When selecting tree and vegetation species for planting on Council-managed streets, parks and reserves, Council considers which species will be the least destructive to underground infrastructure. 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.

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 exotic plant species as part of its Annual Tree planting program, where appropriate and listed in the Street and Park Tree Selection Guide. These plant species are planted where there is an existing landscape character that provides for exotic species.

Species Palette 1 – Large Trees

INDIGENOUS TO PROVIDENCE *(Grown at nursery/within Bayside)*		Uses/traits key	Habitat Key		
INDIGENOUS *(Grown Outside Bayside)*		R - Robust and Hardy	H – Heath/Woodland		High = tolerates well without damage.
NATIVE TREES (From Australia)	**Full Sun = FS**	LM - Low Maintenance	M - Moist/Closed forest	complete range	Fair= can tolerate medium levels
EXOTIC (From outside Australia)	**Part Shade=PS**	S - Shade	C – Coast – dune scrub & woodland	acid to neutral	Moderate = tolerates somewhat with some effects in low levels
Additional Species	**Shade = FSh**	F - Feature	D – Prefers dry, well drained soils & tolerates dryness once established.	acid	Low = suffers serious damage to death if exposed
*PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY		Sh – Prefers or tolerates full shade	W – Prefers or tolerates moist soils, wetness, periodic inundation	Alkaline to neutral	**E=Evegreen** Please contact your local nursery or a horticultural professional for further advice.
Use of any of the below species is preferred but not limited to these species			A – Adaptable, growing well in most soil types		**D=Decidious** All indigenous plants provide habitat & food for local birds, insects & animals.

Species capable of reaching 9m+ and canopy spreads greater than 8m+					**EVC= Ecological Vegetation Class**		**Tolerances**											
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**
Acacia melanoxylon	Blackwood	12	8	Moderate	719, 3	SS-FS	Fair	Moderate	Moderate	Fair	High	Moderate	Acid	Jul-Oct.	Pale yellow/White	E	ADW	LM, S, R, Bird attracting, Hedging, Screening, Toxic or allergenic
Eucalyptus camaldulensis	River Red Gum	20	15	Moderate	n/a	FS	High	High	Moderate	High	High	Fair	Complete Range	Dec.	White	E	HA	LM, S, Windbreak, Erosion control, Robust, Structural, Attractive Bark, Bird-attracting, Aromatic
Eucalyptus melliodora	Yellow Box	16	12	Moderate	n/a	FS	High	Moderate	Moderate	High	Low	Low	Complete Range	Mar/Sep-Dec.	White	E	HA	LM, S, R, Fragrant flowers, Aromatic leaves, Bird-attracting
Eucalyptus ovata	Swamp Gum	10	8	Moderate	707	FS	Moderate	Low	Moderate	Moderate	High	High	Acid	Mar-Jun.	White	E	HW	LM, S, R, Attractive bark, Bird attracting, Aromatic leaves
Eucalyptus radiata	Narrow-leaved Peppermint	15	10	Moderate	892	FS	Moderate	Low	Moderate	High	Moderate	Moderate	Complete Range	Jan/Oct-Dec	White	E	HD	LM, S, R, Bird attracting, Aromatic leaves
Eucalyptus viminalis subsp.pryoriana	Manna Gum	15	12	Fast	919,719,892,3	FS	Moderate	Low	Moderate	Moderate	Moderate	Fair	Acid to Neutral	Mar-May	White	E	HCD	LM, S, R, Attractive bark, Bird attracting, Aromatic leaves
Eucalyptus cephalocarpa	Silver-leaved Stringybark	13	11	Moderate-slow	n/a	FS	Fair	Moderate	Moderate	High	Fair	Fair	Acid to Neutral	May-Jul.	Creamy-White/yellow	E	MW	R, LM, bird-attracting, aromatic leaves, shading, screeening, cut flower, bush garden
Eucalyptus leucoxylon subsp. Connata	Yellow Gum	12	10	Moderate-slow	n/a	FS	Moderate	Moderate	Moderate	High	Moderate	High	Complete range	May-Sep.	Creamy-White/yellow	E	MW	R, LM, attractive bark, bird attracting, aromatic leaves
Agonis flexuosa	Weeping Willow Myrtle	12	12	Moderate-slow	n/a	PS-FS	Moderate	Fair	Fair	High	Low	Low	Acid to Neutral	Sep-Dec.	White	E	CA	Aromatic leaves, folourful foliage, screening, shading, bush garden
Angophora costata	Smooth-barked Apple	15	12	Moderate	n/a	FS	Fair	Moderate	High	High	Low	Fair	Acid to Neutral	Dec.	Bright Cream/White	E	CHD	LM, S, R, Attractive Bark
Angophora floribunda	Rough Barked Apple	15	12	Moderate	n/a	FS	Fair	Moderate	Fair	Fair	Low	Moderate	Complete Range	Sep-Dec.	Bright Cream/White	E	HMW	LM, S, R
Corymbia Citriodora (native)	Lemon-Scented	20	12	Fast	n/a	FS	Moderate	Low	Moderate	Fair	Moderate	Moderate	Acid to Neutral	Jul-Nov.	White	E	CHD	R, LM, Aromatic leaves, attractive bark, architectural form, street tree
Corymbia eximia	Yellow Bloodwood	15	8	Moderate	n/a	FS	Fair	Moderate	Fair	High	Moderate	Moderate	Acid	Nov-Dec.	Bright White/Cream	E	HA	LM, S, R, Bird attracting
Corymbia ficifolia	Red-flowering Gum	15	12	Slow-Moderate	n/a	FS	Fair	Moderate	Fair	High	Low	Low	Complete Range	Mar	Bright Red/Oink/Orange	E	DW	LM, S, R, Bird attracting, Screening
Corymbia maculata	Spotted Gum	18	8	Fast	n/a	FS	Moderate	Moderate	Fair	Fair	High	High	Complete Range	Apr-Jun.	White	E	DA	LM, S, R, Attractive Bark, Bird attracting, Street tree
Eucalyptus baxteri	Brown Stringybark	20	10	Moderate-Fast	n/a	FS	Moderate	Moderate	Moderate	Moderate	Low	Moderate	Acid to Neutral		White			
Eucalyptus cinerea	Mealy Stringybark	12	10	Moderate-slow	n/a	FS	Fair	Fair	Moderate	High	Fair	Fair	Acid to Neutral	May-Jul.	White	E	HD	R, LM, bird-attracting, aromatic leaves, shading, screeening, cut flower, bush garden
Eucalyptus cornuta	Yate	10	10	Moderate	n/a	FS	Fair	Fair	Fair	Fair	Fair	Unknown	Acid to Neutral	Sep-Nov.	Yellow	E	CD	R, LM, attractive bark, bird-attracting, aromatic leaves, screening, shading, bush garden
Eucalyptus largiflorens	Black Box	14	12	Slow	n/a	FS	High	High	Fair	High	Moderate	Unknown	Complete range	All	White	E	MW	Screening, shelter
Eucalyptus mannifera	Red Spotted Gum	12	10	Moderate-fast	n/a	FS	Moderate	Moderate	Moderate	High	Moderate	Moderate	Complete range	Apr-Jun.	White	E	HD	R, LM, attractive bark, bird-attracting, aromatic leaves, shading, accent tree, bush garden
Eucalyptus microcarpa	Grey Box	15	10	Moderate	n/a	FS	High	Moderate	Moderate	High	Fair	Fair	Complete Range	Feb-Jul.	White	E	HD	LM, S, R, Bird attracting, Aromatic leaves
Eucalyptus nicholii	Narrow-leaved Black Pepper	14	12	Moderate	n/a	FS	Moderate	Moderate	Moderate	Fair	Fair	Fair	Acid	Apr, May-Sep.	Creamy-White/White	E	HD	attractive bark, foliage interest, bird-attracting,shading, bush garden, aromatic leaves
Eucalyptus polyanthemos subsp. vestita	Red Box	10	8	Moderate	n/a	FS	High	Low	Moderate	High	Moderate	Moderate	Complete Range	Sep-Nov.	White	E	AW	S, R, Interesting Silver Foliage, Attractive bark, Bird attracting, Aromatic leaves
Eucalyptus rubida	Candlebark Gum	9	9	Fast	n/a	FS	High	Low	Low	Fair	Moderate	Low	Complete Range	Nov-Feb.	White	E	DA	S, Feature for Large Gardens, Interesting Bark, Fauna Attracting
Eucalyptus saligna	Sydney Blue Gum	10	15	Very Fast	n/a	FS	Fair	Low	Fair	Fair	Moderate	Low	Complete Range	Jan-Apr.	White	E	MW	LM, S, R, Attractive Bark, Bird attracting
Eucalyptus scoparia	Wallangarra White Gum	12	10	Fast	n/a	FS	Moderate	Moderate	Moderate	High	Moderate	Unknown	Acid to Neutral	Dec.	White	E	HD	attractive bark and foliage, bird-attracting, aromatic, shading, accent tree, bush garden
Eucalyptus sideroxylon	Red Ironbark	15	8	Moderate	n/a	FS	High	Low	Moderate	High	Moderate	Moderate	Complete Range	May-Aug.	Red or Pink	E	DH	LM, S, R, Attractive bark, Bird attracting, Winter interest, Aromatic leaves, Screening, Accent
Eucalyptus tereticornis	Forest red gum	15	12	Fast	n/a	FS	Low	High	High	High	Moderate	Low	Acid to Neutral	Mar-May/June-Nov.	White	E	CW	S, Sheltering, Ornamental, Wildlife attracting, Large flowering period
Ficus macrophylla	Moreton Bay Fig	60	10	Fast	n/a	FS	High	Moderate	High	High	Moderate	High	Complete Range	Sept-April	reddish purple fruit	E	MCA	R,LM Attracts seed eating birds and bats.
Ficus rubiginosa	Port Jackson Fig	10	10	Moderate	n/a	FS-PS	Moderate	Moderate	Moderate	Moderate	Low	Moderate	complete range	Sep-Dec.	Yellow fruit over summer	E	C,D,A	C,A, Feature tree. Fruit eaten by birds, bats and flying foxes
Grevillea robusta	Silky Oak	20	15	Fast	n/a	FS	Moderate	High	Moderate	Moderate	Low	Low	complete range	Nov-	Orange-Red	E	D	C,D,A, Important source of food for nectar feeding birds and fruit bats and bees
Lophostemon confertus	Brush Box	13	12	Moderate-fast	n/a	FS	Moderate	Moderate	Moderate	Fair	Moderate	Fair	Acid	Sep-Dec.	White	E	CA	R, LM, attractive bark, shading, street tree, bush garden
Wollemia nobilis	Wollemi Pine	20	10	Fast	n/a	SS-FS	Fair	Low	Low	Low	Low	Low	Acid	N/A	Cones	E	MW	F, Architectural form, foliage interest, Accent tree, Container
Araucaria heterophylla	Norfolk Island Pine	20	15	Fast	n/a	FS	High	Fair	High	Fair	Moderate	Fair	Complete Range	N/A	Cones	E	CD	LM, R, Architectural form, Accent tree, Contained
Cedrus deodara	Deodar Cedar	18	15	Moderate-Fast	n/a	FS	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Complete Range	N/A	Cones	E	HD	S, Architectural form, Accent tree
Fraxinus 'Raywood'	Claret Ash	12	9	Moderate-fast	n/a	FS	Moderate	Moderate	Moderate	High	Moderate	High	Complete range	Nov-Dec.	Green	D	HW	autumn colour, clourful foliage, shading, accent tree
Fraxinus pensylvanica	Green Ash	12	10	Moderate	n/a	FS	High	Moderate	High	High	High	Unknown	Complete range	Sep-Nov,	Green	D	MW	Street tree, Good form, adaptable to site
Gleditsia triacanthos	Honey Locust	12	12	Fast	n/a	FS	Moderate	Fair	Moderate	Fair	Low	High	Complete range	Oct-Nov.	Greenish-yellow	D	HD	colourful foliage, attractive bark, autumn colour, allergenic, spiny
Liquidambar styraciflua	American Sweetgum	15	10	Moderate-Fast	n/a	SS-FS	Moderate	Low	Moderate	Moderate	High	Fair	Acid to Neutral	Oct.	Greenish-white	D	MW	aromatic leaves, autumn colour, shading, street tree, decidious
Magnolia grandiflora	Bull Bay	12	12	Moderate	n/a	PS-FS	Moderate	Low	Moderate	Moderate	Moderate	Low	Complete range	Nov-Dec.	Creamy-white	E	MW	Interesting foliage, fragrant flowers, screeening, shading
Platanus × acerifolia	London Plane	16	15	Moderate-Fast	n/a	FS	Moderate	Moderate	Moderate	Fair	Fair	High	complete range	Sept.	Green	D	HW	attractive bark, Screening, shading, street tree, decidious
Quercus coccinea	Scarlet Oak	13	12	Moderate	n/a	PS-FS	Moderate	Moderate	Moderate	Moderate	Moderate	Unknown	Acid	Sep.	Yellow-Green	D	HD	autumn colour, screening, shading, green flowers, red leaves
Quercus palustris	Pin Oak	15	12	Moderate-Fast	n/a	SS-FS	Moderate	Low	Moderate	Moderate	High	High	Complete Range	Sept.	Yellowish-Green	D	MW	S, Autumn colour, Interesting foliage, Screening
Quercus rubra	Northern Red Oak	14	12	Moderate	n/a	PS-FS	Moderate	High	Moderate	Moderate	High	Moderate	Complete range	Sep.	Reddish Green	D	HD	autumn colour, shading, screening
Schinus molle	American Pepper	12	12	Moderate-fast	n/a	FS	Fair	Low	Moderate	High	Moderate	Moderate	Complete range	Sep-Dec.	White/yellow	E	CD	Aromatic leaves, colourful fruit, interesting foliage, attractive bark
Sequoia sempervirens	Coast Redwood	20	10	Moderate	n/a	SS-FS	Moderate	Low	Moderate	Moderate	High	Low	Acid	N/A	Cones,Yellow/Brown/Green	E	MW	F, Accent tree, Architectural form
Tilia cordata cultivars	Small-leaved Linden	15	10	Moderate	n/a	FS	Moderate	Moderate	Moderate	Low	Moderate	Moderate	Complete Range	Nov-Dec.	Yellowish White	D	HW	S, Fragrant flowers, autumn colour, Architectural form, Accent tree
Ulmus glabra 'Lutescens'	Golden Wych Elm	12	12	Moderate	n/a	FS	Moderate	Moderate	Moderate	Fair	Fair	Unknown	Complete range	Sep.	Brown	D	HW	colourful foliage, shading, accent tree
Ulmus parvifolia	Chinese Elm or Lacebark	12	12	Moderate-fast	n/a	PS-FS	High	Moderate	Fair	Fair	Moderate	Moderate	Complete range	Mar-May.	Green	D	HW	attractive bark, screening, shading, street tree
Ulmus procera	English Elm	16	12	Moderate	n/a	FS	Moderate	Moderate	Moderate	Moderate	High	High	Complete Range	Sept.	Reddish-Purple	D	HD	S, Autumn colour, Architectural form
Zelkova serrata	Japanese Zelkova	14	12	Moderate-fast	n/a	FS	Moderate	Moderate	Moderate	Moderate	Moderate	Fair	Complete range	Sep-Nov.	Yellow-Green	D	HW	attractive bark, autumn colour, shading

Species Palette 2 – Medium Trees

INDIGENOUS TO PROVIDENCE *(Grown at nursery/within Bayside)*		Uses/traits key		Habitat Key																
INDIGENOUS *(Grown Outside Bayside)*		R - Robust and Hardy		H – Heath/Woodland																
NATIVE TREES (From Australia)	**Full Sun = FS**	LM - Low Maintenance		M - Moist/Closed forest		**UPL= Under Power Lines**														
EXOTIC (From outside Australia)	**Part Shade=PS**	S - Shade		C – Coast – dune scrub & woodland																
Additional Species	**Shade = FSh**	F - Feature		D – Prefers dry, well drained soils & tolerates dryness once established.																
*PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY		Sh – Prefers or tolerates full shade		W – Prefers or tolerates moist soils, wetness, periodic inundation																
Use of any of the below species is preferred but not limited to these species				A – Adaptable, growing well in most soil types																

High = tolerates well without damage.
complete range Fair= can tolerate medium levels
acid to neutral Moderate = tolerates somewhat with some effects in low levels
acid Low = suffers serious damage to death if exposed
Unknown **E=Evegreen** Please contact your local nursery or a horticultural professional for further advice.
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**													
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**
Acacia mearnsii	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
Allocasuarina littoralis	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
Allocasuarina verticillata	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
Banksia integrifolia	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
Eucalyptus ovata	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
Eucalyptus pauciflora	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
Allocasurina torulosa	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
Brachychiton populneus (Native)	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.
Brachychiton rupestris (Native)	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.
Brachychiton acerifolius	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
Melia azedarach (Native)	White cedar	10	6	Fast	n/a	FS	Moderate	High	High	High	Moderate	Moderate	Complete range	Sep-Nov	Lilac flowers	D	CDWA	R,LM,S,F, Bird and bats are attracted to the berries.
Syzygium paniculatum (Native)	Brush cherry	15	8	Voderate 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 attrafting
Syzygnium australe (native)	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.
Acer rubrum 'Brandywine'	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 - Oange to purple-red, foliage interest, Ornamental
Acer rubrum 'October Glory'	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
Acer x freemanii	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
Catalpa bignonioides	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
Celtis occidentalis	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
Fraxinus excelsior 'Aurea'	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
Jacaranda mimosifolia	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
Metrosideros excelsa	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
Pyrus calleryana 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)*				Uses/traits key			Habitat Key													
INDIGENOUS *(Grown Outside Bayside)*		**UPL=Under Power Lines**		R - Robust and Hardy			H – Heath/Woodland													
NATIVE TREES (From Australia)	**Full Sun = FS**			LM - Low Maintenance			M - Moist/Closed forest													
EXOTIC (From outside Australia)	**Part Shade=PS**			S - Shade			C – Coast – dune scrub & woodland													
Additional Species	**Shade = FSh**			F - Feature			D – Prefers dry, well drained soils & tolerates dryness once established.													
*PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY				Sh – Prefers or tolerates full shade			W – Prefers or tolerates moist soils, wetness, periodic inundation													
Use of any of the below species is preferred but not limited to these species							A – Adaptive, can grow in most soil types													

High = tolerates well without damage.
complete range Fair= can tolerate medium levels
acid to neutral Moderate = tolerates somewhat with some effects in low levels
acid Low = suffers serious damage to death if exposed
Unknown Please contact your local nursery or a horticultural professional for further advice.
All indigenous plants provide habitat & food for local birds, insects & animals.

SMALL CANOPY TREES - Species that reach 6-8metres in height and a spread of 4m @ maturity					**EVC= Ecological Vegetation Class**		**Tolerances**							**Evergreen/Deciduous**				
BOTANICAL NAME	**COMMON NAME**	**Mat. 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**
Acacia implexa	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,
Leptospermum laevigatum	Coast Tea-tree	6	3	Moderate	919, 921	FS	High	High	High	High	Moderate	Moderate	Complete Range	Aug-Oct.	White	E	CDA	R, LM, Bird-attracting, hedging, screening
Bursaria spinosa	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
Banksia marginata	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
Melaleuca squarrosa	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
Acacia pendula	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
Angophora hispida (Native)	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
Banksia grandis	Bull Banksia	8	4	Moderate	n/a	FS	High	High	High	High	Low	Low	Mild acidic to Mild alkaline		Crème, Yellow	E		
Banksia serrata	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
Callistemon viminalis (native)	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
Cupaniopsis anacardioides (native)	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
Eucalyptus viridis	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.
Geijera paviflora (naative)	Wilga	8	6	Slow	n/a	FS	High	High	Moderate	High	Low	Low	Alkaline	June-Nov	Whiate	E	DA	R,LM, ornamental, hardy species that attracts birds, butterflies, lady beetles.
Hakea spp. (native)	Hakea	6	4	Moderate to Fast	n/a	FS	Moderate	Moderate	Moderate	High	Low	Moderate	Acid	May, Jul-Oct.	various	E	CD	RF, bird and butterfly attracting,cockatoos, Iconic australian native
Hymenosporum flavum (Native)	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
Melaleuca ericifolia	Melaleuca	5	2	Moderate		FS-PS	High	Moderate	Moderate	High	High	Moderate	Acid - neutral	Aug-Nov	Cream	E		
Stenocarpus sinuatus	Firewheel tree	8	5	Slow	n/a	FS-PS	Low	Moderate	Low	High	Moderate	Low	Acid	Sep	Orange, Red	E	W	L,MF Summer flowering tree that provides nectar and shelter for birds
Taxandria juniperina (native)	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.
Tristaniopsis laurina	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
Waterhousia floribunda (native)	Weeping lilypilly	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 attrafting
Acer campestre	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
Acer negundo	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
Acer palmatum 'Atropurpureum'	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,
Acer rubrum 'Bowhall'	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
Kalomata olive	Olive	6	3	Slow-Moderate	n/a	FS	High	Fair	High	Fair	Fair	Moderate	Complete range	Sep-Nov.	White	E	DA	R, LM
Koelreuteria paniculata	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
Lagerstroemia indica	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
Olea europaea subsp. europaea	Olive	8	6	Slow-Moderate	n/a	FS	High	Fair	High	High	Fair	Moderate	Complete range	Sep-Nov.	Creamy white	E	DA	R, LM
Photinia robusta	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
Rhododendron arboreum	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 4 – Medium to Large

INDIGENOUS TO PROVIDENCE *(Grown at nursery/within Bayside)*		Uses/traits key	Habitat Key		High = tolerates well without damage.
INDIGENOUS *(Grown Outside Bayside)*		R - Robust and Hardy	H – Heath/Woodland Ri = Riparian forest (interface between land and river/stream)		
NATIVE TREES (From Australia)	**Full Sun = FS**	**UPL=Under** LM - Low Maintenance	M - Moist/Closed forest	complete range	Fair= can tolerate medium levels
EXOTIC (From outside Australia)	**Part Shade=PS**	**Power Lines** S - Shade	C – Coast – dune scrub & woodland	acid to neutral	Moderate = tolerates somewhat with some effects in low levels
Additional Species	**Shade = FSh**	F - Feature	D – Prefers dry, well drained soils & tolerates dryness once established.	acid	Low = suffers serious damage to death if exposed
*PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY		Sh – Prefers or tolerates full shade	W – Prefers or tolerates moist soils, wetness, periodic inundation	Alkaline	Please contact your local nursery or a horticultural professional for further advice.
Use of any of the below species is preferred but not limited to these species			A – Adaptable, growing well in most soil types	Unknown	All indigenous plants provide habitat & food for local birds, insects & animals.

MEDIUM TO LARGE SHRUBS	**Species that reach 2-5 metres in height**			**EVC= Ecological Vegetation Class**			**Tolerances**							Evergreen/Deciduous			
BOTANICAL NAME	**COMMON NAME**	**Mat. HEIGHT**	**Mat. CANOPY**	**Growth Rate**	**EVC**	**Sunlight**	**Wind**	**Salinity**	**Sea spray**	**Drought**	**Waterlogging**	**Compaction**	**pH Range**	**Flowering period**	**Flower colours**	**E/D**	**Habitat**	**Uses/Traits**
Acacia longifolia subsp. sophorae	Coast Wattle	4	4	Very Fast	n/a	PS-FS	High	High	High	High	Moderate	Moderate	Complete	Jun-Oct.	Pale Yellow	E	CW	R, LM, A, Bird-attracting, winter interest, screening, UPL
Acacia oxycedrus	Spike Wattle	4	3	Moderate	n/a	PS-FS	High	Moderate	Fair	Fair	High	Moderate	Acid-Neutral	Jul-Oct.	Bright Yellow	E	HWD	R, LM, A, bird-attracting, Winter features, Screening, foliage interest
Acacia paradoxa	Hedge Wattle	3	2	Moderate	719	PS-FS	High	Low	Moderate	Fair	Fair	High	Acid-Neutral	Aug	Bright Yellow	E	HCD	A,bird-attracting, winter Features, spiny or thorny
Acacia stricta	Hop Wattle	4	2	Fast	n/a	PS-FS	High	Moderate	Fair	Fair	Moderate	Low	Acid-Neutral	May-Oct.	Pale Yellow	E	HCMW	R, LM, A, Sh, architectural form, bird attracting, Screening, UPL
Alyxia buxifolia	Sea Box	2	2	Slow	n/a	PS-FS	High	High	Fair	Fair	Moderate	Unknown	Complete	Mar, Oct-Dec.	Orange to White cream at tip	E	HCD	Colourful fruit, allergenic, Screening, Hedging
Cassinia longifolia	Long-leaf Cassinia	3	2	Fast	n/a	PS-FSh	Moderate	Moderate	Moderate	Moderate	Fair	Moderate	Acid	Nov-Dec.	White	E	HMDW	Sh, Aromatic leaves, Screening, Under powerlines
Exocarpos cupressiformis	Cherry Ballart	4	3	Slow-Moderate	719, 3	PS-FS	Moderate	Moderate	Moderate	High	Moderate	Unknown	Acid-Neutral	n/a	n/a	E	HD	Screening, Under powerlines, interesting foliage, colourful
Cassinia aculeata	Common Cassinia	2	1	Moderate	719, 3	PS	Moderate	Low	Moderate	Fair	Fair	Unknown	Complete	Nov-Dec.	Creamy white/white	E	HD	A, Screening, Aromatic leaves
Indigofera australis	Austral Indigo	2	1.5	Fast	n/a	PS-FS	Moderate	High	Moderate	Fair	Moderate	Unknown	Acid-Neutral	Aug, Oct-Dec.	Pinkish/Soft Purples	E	HMW	A, interesting foliage, allergenic, Pink/Purple flowers, Screening, Shrub border
Kunzea leptospermoides	Yarra Burgan	3	2	Moderate	n/a	PS-FS	Moderate	Moderate	Low	High	Low	Low	Complete	Nov-Feb.	White	E	HWRi	A, R, Screening, Bird/Butterfly attracting
Leptospermum continentale	Prickly Tea-tree	3	2	Moderate	719, 892, 707, 3	PS-FS	High	High	High	Fair	Fair	Unknown	Acid	Oct-Dec.	White, rarely pale pink	E	HCW	A, Attractive Bark, Bird-Attracting, Screening
Leucopogon parviflorus	Coast Beard-heath	3	2	Slow	919, 921	PS-FS	High	High	High	High	Low	Unknown	Complete	Jul-Nov.	White	E	HCDW	Edible, Hedging, Screening
Myoporum insulare	Common Boobialla	5	3	Moderate	n/a	PS-FS	High	High	High	High	Fair	Fair	Complete	Jul-Oct.	White, Occasionally pale pink	E	CD	R, LM, A, bird-attracting, attractive bark,allergenic, hedging, screening, UPL, Shade
Olearia axillaris	Coast Daisy-bush	2	2	Moderate	n/a	PS-FS	High	High	High	High	Moderate	Unknown	Acid	Mar-Jul, Nov-Dec.	Cream- Greenish or crimson tinge	E	CD	Silver foliage, shrub mass, screening, shrub or mixed border
Olearia glutinosa	Sticky Daisy-bush	2	2	Moderate	n/a	PS-FS	Moderate	Moderate	High	High	Low	Low	Unknown	Nov-Feb.	Cream-white	E	CD	R, A, Long flowering, background
Ozothamnus ferrugineus	Tree Everlasting	3	2	Moderate	n/a	PS-FS	Unknown	High	High	Moderate	Low	Fair	Unknown	Nov-Feb.	White	E	MDW	R, A
Pomaderris paniculosa	Shining Coast Pomaderris	2	1.5	Moderate	n/a	PS-FS	Moderate	Moderate	High	Moderate	Moderate	Low	Unknown	Jul-Nov.	Yellow	E	HMW	R, LM, F, Screening, Attracts birds and butterflies
Solanum laciniatum	Large Kangaroo Apple	2	2	Moderate	n/a	PS-FS	High	High	Low	Low	Low	Low	Acid-Neutral	Sep-Mar.	Purple-Blue	E	HCD	R, LM, A, Sh
Viminaria juncea	Golden Spray	4	2	Fast	n/a	FS	Moderate	High	High	High	High	High	Complete	Oct-Feb.	Yellow-Orange, with red markings	E	W	R, LM, A, Sh
Xanthorrhoea thorntonii	Grass Tree	3	1.5	Slow	n/a	PS-FS	Moderate	High	High	Moderate	Low	Unknown	Unknown	Aug-Dec.	Cream-white	E	HD	R, LM,Sh
Xanthorrhoea australis	Grass Tree	3	2	Slow	n/a	PS-FS	High	Moderate	Low	High	Low	Low	Acid-Neutral	Jul-Dec.	White or cream	E	HDM	R, LM,Sh
Adenanthos cunninghamii	Albany wollybush	2	3	Moderate	n/a	FS	High		High	High	Moderate	Low	ld Acid-Mild Alkali	Mar-Oct	Red,Pink	E	CDA	R,LM,S,F, Attracts small nectar eating birds
Eriophilia longifolia	Long-leaved Eremophila	3	3	Moderate	n/a	FS	Moderate	Unknown	Unknown	High	Low	Low	Acid-Neutral	All year	Pink to brick red	E	HD	R,LM, Attracts bees and small birds, particuarly for winter flowering
Calothamnus quadrifidus	One sided bottlebrush	3	5	Fast	n/a	FS	High	Low	Low	High	Moderate	Moderate	Mild Acid-Alkaline	June-Dec	Red,White	E	CDA	R,LM, ideal hedging and screening plant, atracts birds
Chamelaucium spp.	Geralton Wax	3	3	Fast	n/a	FS/PS	Moderate	Unknown	High	High	Low	Low	Acid-Neutral	Aug-May	White,Pink,Purple	E	CD	R,LM, flowers attract nectar eating birds, butterflies
Xanthorrhoea preissii	Grass tree / Balga	3	1	Very Slow	n/a	FS	High	Moderate	Fair	High	Low	Low	Complete range	No Set time	Cream to White	E	HCD	bird and butterfly attracting,cockatoos, Iconic australian native
Grevillea spp. (N)ative)	Grevillea	2	2	Fast	n/a	FS	Moderate	High	Moderate	Moderate	Low	Low	complete range	Nov-May	Orange-Red	E	DC	R,LM,F important source of food for nectar feeding birds and fruit bats and bees
Hakea spp.	Needle bush	4	3	Moderate to Fast	n/a	FS	Moderate	Moderate	Moderate	High	Low	Moderate	Acid	May, Jul-Oct.	Red, Pink, Yellow	E	CD	RF, bird and butterfly attracting,cockatoos, Iconic australian native
Westingeria fruticosa	Coastal Rosemary	2	4	Fast	n/a	FS	High	High	High	High	Low	Moderate	Alkaline	Sep-Dec	White,Mauve	E	CD	R,LM,A, attracts birds
Escallonia Iveyi €	Escallonia	2	2	Fast	n/a	FS	High	High	High	High	Low	Low	Alkaline	Jan-Mar;Oct-Nov	White	E	CDA	LM,S,F bird attractant, scented flowers, long flowring period
Hibiscus sinensis	Hibiscus	3	3	Moderate	n/a	FS	Moderate	Moderate	Moderate	High	Low	Low	Acid-Neutral	Sep-Dec;Mar-June	Various	E	DA	R,LM,F, Flowers attract bees and small birds
Myrtus communis	Common Myrtle	5	3	Slow-Moderate	n/a	FS	Low	Moderate	Moderate	High	Low	Low	Alkaline	Sep-Dec	White	E	DA	R,LM, Bees attracted to flowers and birds attracted to the berries
Juniperus communis	Common juniper	5	4	Slow	n/a	FS	High	Moderate	High	Moderate	Low	Low	Complete	May-June	Cone - Berries	E	CDA	R,LM, attracts bees and nectar eating birds

Species Palette 5 – Small Shrubs

INDIGENOUS TO PROVIDENCE *(Grown at nursery/within Bayside)*	Uses/traits key	Habitat Key	High = tolerates well without damage.
INDIGENOUS *(Grown Outside Bayside)*	R - Robust and Hardy	H – Heath/Woodland Ri = Riparian forest (interface between land and river/stream)	complete range Fair= can tolerate medium levels
NATIVE TREES (From Australia)	Full Sun = FS	LM - Low Maintenance	M - Moist/Closed forest	acid to neutral Moderate = tolerates somewhat with some effects in low levels
EXOTIC (From outside Australia)	Part Shade=PS	S - Shade	C – Coast – dune scrub & woodland	acid Low = suffers serious damage/Could be fatal
Additional Species	Shade = FSh	F - Feature	D – Prefers dry, well drained soils & tolerates dryness once established.	Unknown Please contact your local nursery or a horticultural professional for further advice.
*PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY	Sh – Prefers or tolerates full shade	W – Prefers or tolerates moist soils, wetness, periodic inundation	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	

SMALL SHRUBS	Species that reach 50cm to 2 metres in height			EVC= Ecological Vegetation Class			Tolerances							Evergreen/Deciduous				
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	E/D	Habitat	Uses/Traits
Acacia brownii	Heath Wattle	1	1	Moderate	n/a	PS	Moderate	Moderate	Moderate	High	Moderate	Unknown	Acid-Neutral	Jun-Oct.	Yellow	E	HD	Ground cover and shrub, interesting foliage
Acacia suaveolens	Sweet Wattle	2	2	Moderate	n/a	PS-FS	Moderate	Moderate	High	High	Low	Moderate	Acid-Neutral	Apr-Sept.	Pale Yellow & White	E	HCD	R, Long flowering period, Atrractive features, Fauna attracting
Acacia ulicifolia	Juniper Wattle	1	1	Moderate	n/a	PS	Moderate	Moderate	Moderate	Moderate	Fair	Unknown	Acid	Apr-Oct.	Pale Cream	E	HCW	A, R, LM, Bird attracting, screening
Allocasuarina paradoxa	Green She-oak	1.5	1.5	Slow	3	PS-FS	High	Moderate	High	Fair	High	Moderate	Acid	Mar-Oct.	Red	E	HD	R, LM, Interesting foliage, Sh, Under powerlines, Bird attracting
Aotus ericoides	Common Aotus	1	1	Fast	n/a	PS-FSh	Moderate	Moderate	Low	Moderate	Low	Moderate	Acid-Neutral	Aug-Nov.	Gold with red & orange	E	HWD	Sh, R, LM, Ornamental
Atriplex cinerea	Coast or Grey Saltbush	2	2	Moderate	n/a	FSh-PS	High	High	High	High	Moderate	Moderate	Complete	Mar,Sep-Dec.	Red & White	E	CD	LM, R, ground cover, hedge, soil rehabilitation, erosion and stabilisation
Bossiaea cinerea	Showy Bossiaea	1	1	Fast	n/a	FS-PS	High	Moderate	Moderate	High	Low	Low	Unknown	Aug-Nov.	Gold/yellow to Red/purple brown	E	HCD	Ornamental, R, Hedge, screening, attractive, cuttings
Correa alba	White Correa	1	1	Moderate	n/a	FS-PS	High	High	High	High	Moderate	Moderate	Complete	Mar-Sep. Nov.	Pink & White	E	C	A, R, LM, Aromatic, Power lines, hedging, cover, shrub mass
Correa reflexa	Common Correa	1	1	Moderate	n/a	FS-PS	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Acid	Mar-Sep.	Green & Red	E	H	R, Sh, A, Winter aesthetic, shrub mass, bird attracting
Daviesia ulicifolia	Gorse Bitter-pea	1	50cm	Fast	n/a	FS-PS	High	Low	Moderate	High	Low	Unknown	Complete	Aug-Dec.	Red & Yellow	E	H	A, Bird attracting
Dillwynia cinerascens	Grey Parrot-pea	60cm-1.5	50cm-1.5	Moderate	n/a	FS-PS	Moderate	Low	Low	High	Low	Moderate	Complete	Jul-Nov.	Yellow & Orange	E	HD	Sh, Ornamental, floral display
Dillwynia glaberrima	Heath or Smooth Parrot-pea	1	50cm	Moderate	719, 892, 3	FS-PS	Moderate	Low	Low	Moderate	Low	Low	Acid-Neutral	Aug-Dec.	Yellow, red centre	E	HD	Sh, Attractive, cut flowers, container plant, tolerates heavy pruning
Epacris impressa	Common Heath	1	50cm	Moderate	719, 892, 3	FS-PS	Moderate	Low	Low	Moderate	Low	Low	Acid	May-Nov.	White, Pink & red	E	HCDW	A, F, R, Attractive, Cut flowers, container plant, revegetion works, nectar
Goodenia ovata	Hop Goodenia	1	1	Fast	n/a	FS-PS	High	Fair	Fair	Fair	Fair	Moderate	Complete	Aug-Feb.	Bright yellow, red centre	E	HC	A, R, LM, F, Cut flower, container plant, revegatation
Gompholobium huegelii	Common Wedge-pea	30cm-1	30cm-1m	Moderate	n/a	FS-PS	Moderate	Low	Low	Moderate	Low	Low	Acid-Neutral	Sep-Apr.	Cream to Yellow & Greenish	E	HCD	Sh, Attractive, A, F, R
Hibbertia fasciculata var. prostrata	Stalked/Bundled Guinea-flower	50cm	30cm	Moderate	892	FS-PS	High	Moderate	Moderate	High	Low	High	Complete	Sep-Dec.	Bright Yellow	E	HD	LM, A, R, F, hedge
Hibbertia riparia	Erect Guinea-flower	50cm	50cm	Moderate	719, 3	FS-PS	Fair	Low	Low	Fair	Fair	Low	Complete	Sep-Dec.	Yellow	E	HW	A, Attractive, R, LM, F
Hibbertia sericea	Silky Guinea-flower	30cm-1	60cm	Slow	n/a	FS-PS	High	High	High	High	Low	Moderate	Complete	Aug-Nov.	Bright Yellow	E	HCD	R, LM, A, F
Isopogon ceratophullus	Horny Cone-bush	20cm-60cm	50cm	Slow	n/a	FS	High	Low	Low	High	Low	Low	Complete	Sep-Nov.	Yellow	E	HCD	R, LM, A, F
Lasiopetalum baueri	Slender Velvet-bush	1	1	Moderate	n/a	FS-PS	High	Low	Low	High	Low	Low	Complete	Jun-Nov.	Pink & White	E	CD	H, A, Ornamental, Hedge, F, Screening, Bird attracting
Leptospermum myrsinoides	Heath or Silky Tea-tree	1.5	1	Moderate	719, 892, 3	FS-PS	High	Moderate	Moderate	High	Moderate	Low	Acid-Neutral	Jun-Nov.	Pink & White	E	H	A, Screen, Hedge, F, Bird attracting, Soil control
Leucophyta brownii	Cushion Bush	50cm	50cm	Moderate	919	FS	High	High	High	High	Low	Low	Complete	Dec-Feb.	Yellow, Silver, Grey-Brown	E	HCD	A, R, LM, edge defining, insect attracting
Leucopogon virgatus	Common Beard-heath	50cm	50cm	Moderate	719, 892, 3	FS-PS	High	Moderate	Moderate	High	Moderate	Low	Complete	Jul-Dec.	Pink & White	E	HCD	A, R, LM, F, Bird attracting, hedge
Monotoca scoparia	Prickly Broom-heath	30cm-1.2	30cm-1.2	Moderate	892	FS-PS	High	Moderate	Moderate	High	Moderate	Low	Complete	Mar-Jul,	Pink & White	E	HCD	A, R, LM, Screen, barrier, hedge, Soil Control
Myoporum petiolatum	Sticky Boobialla	1.5	1.5	Moderate	n/a	FS	High	High	High	High	Moderate	Low	Complete	Oct-Feb.	White	E	HCD	A, R, LM, F, Soil control
Olearia ramulosa	Twiggly Daisy-bush	1.5	1	Moderate	n/a	FS-PS	High	Moderate	Moderate	High	Moderate	Low	Complete	Sep-Nov.	Blue	E	HCD	A, R, LM, Ornamental
Rhagodia candolleana subsp. Candolleana	Seaberry Saltbush	1	2	Moderate	919, 921	FS	High	High	High	High	Moderate	Low	Complete	Sep-Feb.	Green	E	HCD	A, R, LM, soil control, habitat refuge
Ricinocarpus pinifolius	Wedding Bush	1-3	1	Moderate	n/a	FS	High	Low	Low	High	Low	Low	Acid-Neutral	Sep-Feb.	White	E	HD	A, R, LM, F, Nectar, Hedge, Screen
Sambucus guadichaudiana	White Elderberry	2	2	Moderate	919, 921	PS	Moderate	Low	Low	Moderate	High	Low	Acid-Neutral	Sep-Feb.	White	D	HMW	LM, Sh, Bird attracting
Suaeda australis	Austral Seablite	50cm	50cm	Moderate	n/a	FS	High	High	High	High	High	Low	Complete	Sep-Feb.	Green & Red	E	HCW	A, R, LM, periodic inundation, bird attracting, can make dyes with foliage
Eremophila nivea	Emu bush or Silky Ememophila	1.5	1.5	Moderat-Fast	n/a	FS	High	Moderate	High	High	Low	Low	Complete	Sep-Jan	Purple	E	CD	R,LM, Attracts birds and butterflies, tolerant of frost and responds well to pruning.
Grevillea spp.	Grevillea	1.5	1.5	Fast	n/a	FS	High	High	High	High	Low	Low	Acid-Neutral	All year	red, orange or yellow	E	CDA	R,LM, attracts bees and nectar eating birds
Philotheca myoporoides	Long-leafed Wax flower	1	1	Fast	n/a	FS	Moderate	Low	Low	Moderate	Low	Low	Acid-Neutral	Sep-Dec.	White	E	D	R,LM, attracts bees, butterflies and nectar eating birds
Prostanthera rotundifolia	Native mint bush	2	2	Fast	n/a	FS	Moderate	Low	Low	High	Low	Low	Acid-Neutral	Sep-Dec.	Purple	E	DA	R,LM, Flowers attract bees and beneficial insects to garden
Juniperus communis subsp.	Common juniper	2	4	Slow	n/a	FS	High	Moderate	High	Moderate	Low	Low	Complete	May-June	Cone - Berries	E	DC	R,LM,F, berries can attract birds
Salvia subsp.	Salvia	1	60cm	Fast	n/a	FS/PS	High	High	High	High	Low	Moderate	Acid	Sep-June	various	E	CDA	R,LM, attracts bees and nectar eating birds
Lavandula spp.	Lavendar	1	1	Fast	n/a	FS	High	Low	High	High	Low	Moderate	Alkaline	Sep-June	Lavender	E	CDA	R,LM,F, attracts bees
Choisya spp.	Mexican orange blossom	1	1.5	Fast	n/a	FS/PS	Low	Moderate	High	Moderate	Low	Low	Complete	Aug-Nov.	White	E	CDA	S,Sh, ornamental plant, can be trained to a hedge
Gardenia spp.	Gardenia	1.5	1.5	Slow	n/a	FS/PS	Low	Low	Low	High	Low	Low	Acid	Nov-May	Creamy white	E	M	F, ornamental shrub with highly frangant flowers
Rhaphiolepsis spp.	Indian hawthorn	2	1.5	Slow	n/a	FS	High	High	High	High	Low	Low	Complete	Sep-Jan	White-Pink	E	CDA	R,LM,F
Hebe buxifolia (	Hebe	1	1	Fast	n/a	FS	High	High	High	High	Low	Low	Alkaline	June-Sep	/hite,pink,blue,deep purple, crimsc	E	CD	R,LM, attracts bees and butterflies
Sedum spp.	Stonecrop	0.6	1	Fast	n/a	FS-PS	High	High	High	High	Low	High	acid to neutral	Dec-March	Yellow, orange, pink or white	CDA	Attracts	Attracts bees, butterflies

Species Palette 6 – Grasses and Tussocks

INDIGENOUS TO PROVIDENCE *(Grown at nursery/within Bayside)*
INDIGENOUS *(Grown Outside Bayside)*
NATIVE TREES (From Australia)
EXOTIC (From outside Australia)
Additional Species
*PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY
Use of any of the below species is preferred but not limited to these species

Additional Species
Full Sun = FS
Part Shade=PS
Shade = FSh

Uses/traits key
R - Robust and Hardy
LM - Low Maintenance
S - Shade Tree
F - Feature Tree
Sh – Prefers or tolerates full shade

Habitat Key
H – Heath/Woodland
M - Moist/Closed forest
C – Coast – dune scrub & woodland
D – Prefers dry, well drained soils & tolerates dryness once established.
W – Prefers or tolerates moist soils, wetness, periodic inundation
A – Adaptable, growing well in most soil types
Ri = Riparian forest (interface between land and river/stream)
We=Wetland

complete range
acid to neutral
acid

High = tolerates well without damage.
Fair= can tolerate medium levels
Moderate = tolerates somewhat with some effects in low levels
Low = suffers serious damage to death if exposed
Unknown
Please contact your local nursery or a horticultural professional for further advice.
All indigenous plants provide habitat & food for local birds, insects & animals.

GRASSES AND TUSSOCKS — EVC= Ecological Vegetation Class — Tolerances

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
Austrostipa flavescens	Coast Spear-grass	50cm	50cm	Fast	921	FS	High	High	High	Fair	Low	Moderate	Complete	Sep-Feb.	Brown	HCD	A, R, LM,
Austrostipa mollis	Soft Spear-grass	30cm	30cm	Fast	719, 921, 3	FS	High	High	High	High	Low	High	Complete	Sep-Dec.	Green or purple/Strawed	HCD	A, R, LM, F, Habitat
Austrostipa stipoides	Prickly Spear-grass	1	1	Moderate	n/a	FS	High	High	High	Fair	Moderate	Unknown	Complete	Sep-Feb.	White	HCD	A, R, LM, F, Habitat, wildflower garden, Bird attracting
Baumea rubiginosa	Soft Twig-rush	1m	Spreading	Moderate	707	FS-PS	Moderate	Moderate	Moderate	Moderate	High	Moderate	Complete	Sep-Mar.	Reddish Brown	RiWeM	A, R, LM, F, Habitat
Caesia parviflora	Pale Grass-lily	50cm	25cm	Moderate	n/a	FS-PS	Moderate	Low	Low	Moderate	Moderate	Low	Complete	Sep-Feb.	Greenish white-Blue	HM	A, LM, Ornamental, F, Habitat
Carex pumila	Strand Sedge	80cm	80cm	Moderate	n/a	FS	High	High	High	High	Moderate	High	Complete	Apr-Jul.	yellow/brown/red glumes	CDW	A, R, LM, F, Habitat
Deyeuxia quadriseta	Reed Bent-grass	15cm	40cm	Fast	719, 3	FS-PS	Moderate	Low	Low	Moderate	High	Low	Complete	Sep-May.	Pale Green/Purple	RiM	A, R, LM, F, Habitat
Dianella brevicaulis	Small-flower Flax-lilly	60cm	50cm	Moderate	919	FS-PS	Moderate	Low	Low	Moderate	Low	Low	Complete	Sep-Feb.	Blue-Purple	HM	A, LM, Ornamental, F, Habitat
Dianella laevis	Pale Flax-lily	60cm	50cm	Moderate	n/a	FS-PS	Moderate	Low	Fair	Fair	Fair	Low	Acid to Neutral	Aug-Jan.	Blue and Yellow	HM	A, LM, Ornamental, F, Habitat
Dianella longifolia	Arching Flax-lily	1.3	1m	Moderate	n/a	FS-PS	Moderate	Low	Fair	Fair	Fair	Low	Complete	Aug-Jan.	Blue to Violet	HM	A, LM, Ornamental, F, Habitat
Dianella revoluta	Black-anther Flax-lily	50cm	spreading	Fast	719, 3	FS-PS	Fair	Moderate	Moderate	Fair	Fair	Fair	Acid	Sep-Dec.	Blue or Purple	HM	A, LM, Ornamental, F, Habitat
Dichelachne crinita	Long-hair Plume-grass	20cm	30cm	Moderate	n/a	FS-PS	High	Fair	Fair	Fair	Moderate	Low	Complete	Oct-Dec.	Green to Purple	HM	A, LM, F, Habitat
Distichlis distichophylla	Australian Salt-grass	10cm	10cm	Slow	n/a	FS	High	High	High	Fair	High	High	Complete	Sep-Nov.	Green growth	CDW	A, R, LM, F, interesting foliage, Bloom in response to rain
Eragrostis brownii	Common Love-grass	20cm	20cm	Fast	n/a	FS-PS	High	Low	Moderate	Fair	Fair	Low	Complete	Sep-Apr.	Green growth	HM	A, LM, F, Bird attracting, turf, groundcover, can flower most of year
Ficinia nodosa	Knobby Club-sedge	50cm	50cm	Moderate	919	FS	High	High	High	Fair	High	High	Complete	Sep-Feb.	Brown	RiWeM	A, R, LM, F, Habitat, pond, Can flower throughout year
Gahnia radula	Thatch Saw-sedge	2	1.5	Slow	719, 892, 3	PS-FS	Moderate	Low	Moderate	Moderate	High	High	Acid to Neutral	Sep.Feb.	Brown to Black	MRi	A, R, LM, F, Habitat
Gahnia siberiana	Red-fruit Saw-sedge	1.5	2	Moderate	892	FSh-FS	High	Low	Moderate	Moderate	High	High	Acid to Neutral	Sep.Feb.	Yellow-Deep Red	MRi	A, R, LM, F, Habitat
Hypolaena fastigiata	Tassel Rope-rush	50cm	1.5	Moderate	892	FS-PS	Moderate	Low	Low	Moderate	High	Low	Complete	Aug-Dec.	Reddish Brown	MRi	A, R, LM, F, Habitat, Can flower most of year
Juncus pallidus	Rush	1	50cm	Moderate	n/a	FS-PS	High	Low	Fair	Fair	High	Fair	Acid to Neutral	Oct-Jan.	Green	E	A, R, LM, F, Habitat, bird attracting, pond, flowers most of year
Lachnagrostis billardierei	Coast Blown-grass	80cm	20cm	Moderate	n/a	FS-PS	Moderate	Low	Low	Moderate	High	Low	Complete	Sep-Nov.	Green/Purple Spikelets	MRi	A, R, LM, F, Ground cover, turf
Lepidosperma concavum	Sandhill Sword-sedge	60cm	2	Moderate	719, 892, 921, 3	PS-FS	High	High	High	Moderate	High	Fair	Complete	Sep-Feb.	Yellow	C,HRi,We	A, R,, LM, R, Groundcover
Lepidosperma laterale	Variable Sword-sedge	1.5	2	moderate	719, 3	FS-PS	Moderate	Low	Low	Moderate	High	Low	Complete	Sep-Feb.	Red to grey/brown	MRi	A, R, LM, F, Frog Habitat
Lomandra filiformis	Wattle Mat-rush	50cm	30cm	Slow	719, 3	FS-FSh	High	Moderate	Fair	Fair	High	Fair	Acid to Neutral	Oct-Nov.	Yellow	HD	A, LM, Ornamental, F, Habitat, FSh
Lomandra longifolia	Spiny-headed Mat-rush	1	1	Moderate	719, 707, 3	FS-PS	Moderate	Moderate	Fair	Fair	High	High	Complete	Aug-Feb.	Yellow, Purple centre	MRi	A, R, LM, F, Habitat, ground cover, edge.
Lomandra multiflora	Many-flowered Mat-rush	30cm	30cm	Moderate	n/a	FS	Moderate	Low	Low	Moderate	Low	Low	Complete	Jun-Nov, Jan.	Creamy Yellow	HM	A, LM, Ornamental, F, Habitat, Erosion control
Microlaena stipoides var stipoides	Weeping Grass	30cm	50cm	Moderate-Fast	719, 3	PS-FS	High	High	Moderate	Moderate	Moderate	Moderate	Acid to Neutral	Oct-Dec.	Green growth	HC	A, R, LM, Turf/lawn or groundcover
Patersonia occidentalis	Long Purple-flag	40cm	40cm	Moderate	n/a	FS	Fair	Fair	Fair	Moderate	High	Moderate	Acid	Sep-Dec.	Purple	HDW	LM, Wildlife attracting, Wildflower, Attractive foliage,
Poa labillardierei	Common Tussock-grass	50cm	50cm	Moderate	n/a	PS-FS	High	Fair	Moderate	Low	High	High	Acid to Neutral	Oct-Dec.	Golden	HC	A, R, LM, Bird attracting, Attractive, Ornamental, groundcover, erosion control
Poa poiformis	Coast or Blue Tussock-grass	50cm	50cm	Moderate-Fast	919	FS-PS	High	Fair	High	Fair	Moderate	High	Complete	Dec.	Golden	HC	A, R, LM, Bird attracting, Attractive, Ornamental, groundcover, erosion contro
Poa sieberana	Tussock-grass	30cm	30cm	Moderate-Fast	719, 3	FS-PS	High	Moderate	Moderate	High	Moderate	Moderate	Complete	Oct-Mar.	Green or Purplish	HD	R, A, Ornamental, border plant, Bird/butterfly attracting
Rytidosperma caespitosum (syn.Austrodanthonia caespitosa)	Common Wallaby-grass	40cm	40cm	Moderate-Fast	n/a	FS-PS	High	Moderate	Moderate	High	Moderate	Moderate	Complete	Oct-Dec.	White	HC	A, R, LM, Rockeries, Bird-attracting, lawn alternative
Rytidosperma geniculatum (syn.Austrodanthonia geniculata)	Kneed Wallaby-grass	15cm	15cm	Slow	921	FS-PS	High	Moderate	Fair	High	Fair	Moderate	Complete	Oct-Dec.	White	HCD	R, LM, Ornamental, Rock planting, Lawn grass, bird attracting
Rytidosperma racemosum	Clustered Wallaby-grass	20cm	20cm	Moderate-Fast	n/a	FS-PS	High	Moderate	Moderate	High	Moderate	High	Complete	Oct-Dec.	White	HCDW	A, R, LM, Feature, Revegetation, Lawn alternative, thrives in poor soil, rockeries
Rytidosperma setaceum	Bristly Wallaby-grass	60cm	40cm	Moderate	n/a	FS-PS	High	Moderate	Fair	High	Fair	Moderate	Complete	Oct-Dec.	White	HCDW	A, R, LM, Feature, Revegetation, Lawn alternative, thrives in poor soil, rockeries
Schoenus brevifolius	Zig-zag Bog-sedge	90cm	30cm	Moderate	892	FS-PS	Moderate	Moderate	Moderate	Low	High	Low	Complete	Sep-Feb.	Red-brown	WeMW	Shiny dark red-brown foliage, ornamental, bird attracting,
Spinifex sericeus	Hairy Spinifex	30cm	Spreading	Moderate	n/a	FS	High	High	High	High	Moderate	Low	Complete	Nov-Dec.	Yellow and Brown	CDW	R, LM, Bush, Groundcover
Sporobolus virginicus	Salt or Sand Couch	10cm	Spreading	Moderate	n/a	FS	High	Fair	Fair	High	High	Low	Complete	Dec-May.	Green-purple	CWeW	A, LM, coastal and low dune stabilizer
Tetrarrhena juncea	Forest wire-grass	Climber	4m	Moderate-Fast	719, 3	PS-FS	Moderate	Low	Low	High	Moderate	Low	Complete	Nov-Apr.	Purplish	WHD	A, Habitat, Climber, High management, Wombat attracting
Themeda triandra	Kangaroo Grass	50cm	50cm	Moderate	719, 3	FS-PS	High	Moderate	Fair	Moderate	Fair	Fair	Complete	Sep-Dec.	Purple-Red	HMW	A, R, LM, Accenting, wildflower
Thelionema caespitosum	Tufted Blue Lily	20cm	1.3m	Moderate	n/a	FS-PS	Moderate	Low	Fair	Moderate	Fair	Moderate	Complete	Sep-Dec.	Blue, White and Yellow	HWeW	A, Rockeries, border planting
Tricoryne eliator	Yellow Rush-lily	30cm	50cm	Slow/Difficult	n/a	FS	Moderate	Low	Low	Low	Moderate	Low	Complete	Oct-Mar.	Bright Yellow	HDW	A, ground cover, Rockeries
Triglochin striatum	Streaked Arrowgrass	10cm	20cm	Moderate	n/a	FS-PS	Moderate	High	Fair	Moderate	High	Moderate	Complete	Aug-Apr.	Dark Green	CW	Can tolerate poor drainage well, erosion protection, semi-aquatic
Xanthorrhoea minor subsp. lutea	Small Grass-tree	50cm	50cm	Slow	719, 892, 3	PS-FS	Moderate	Moderate	Moderate	Moderate	Low	Low	Complete	Dec-Feb.	White/creamy-pale yellow	HCD	A, R, LM, Ornamenetal, F, Habitat, bird attracting, architectural foliage
Knifofia uvaria	Red hot poker	90cm	90cm	Moderate-Fast	n/a	FS-PS	High	Moderate	Moderate	High	Low	Low	complete	Nov-Apr.	Various	CDA	Attracts birds, butterflies, bees
Liriope muscari	Lily turf	50cm	40cm	Moderate-Fast	n/a	FS-PS	High	High	High	High	Low	Low	Acid to Neutral	Nov-Jan	Purple	RLM	Atractive foliage, can be used as lawn substitute ground cover

Species Palette 7 – Groundcovers and Wildflowers

INDIGENOUS TO PROVIDENCE *(Grown at nursery/within Bayside)*		Uses/traits key	Habitat Key		High = tolerates well without damage.
INDIGENOUS *(Grown Outside Bayside)*	Additional Species	R - Robust and Hardy	H – Heath/Woodland	**Ri = Riparian forest (interface between land and river/stream)**	Fair= can tolerate medium levels
NATIVE TREES (From Australia)	**Full Sun = FS**	LM - Low Maintenance	M - Moist/Closed forest	**G=Grassland** complete range	Moderate = tolerates somewhat with some effects in low levels
EXOTIC (From outside Australia)	**Part Shade=PS**	S - Shade Tree	C – Coast – dune scrub & woodland	acid to neutral	Low = suffers serious damage to death if exposed
Additional Species	**Shade = FSh**	F - Feature Tree	D – Prefers dry, well drained soils & tolerates dryness once established.	Acid	Please contact your local nursery or a horticultural professional for further advice.
PLEASE NOTE THE BELOW INFORMATION IS A GUIDE ONLY		Sh – Prefers or tolerates full shade	W – Prefers or tolerates moist soils, wetness, periodic inundation	Alkaline to neutral Unknown	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		

GROUND COVERS AND WILDFLOWERS AND CLIMBERS				**EVC= Ecological Vegetation Class**			**Tolerances**										
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**
Acaena novae+RC:R[52]C-zelandiae	Bidgee-widgee	Prostrate	1m	Moderate	n/a	FSh-FS	High	High	High	Fair	High	Moderate	Complete	Sep-Dec.	Brown	CShA	R, LM, Thorns, wildflower, bush
Acrotriche serrulata	Honey Pots	30cm	1m	Moderate	719, 3	PS-FS	Moderate	Moderate	Moderate	High	Low	Moderate	Complete	May-Oct.	Greenish	HD	Fruiting, Habitat, Mixed bed use, Rockeries, Bird attracting, fragrant
Actites megalocarpa	Dune Thistle	60cm	60cm	Moderate to Fast	n/a	FS	High	High	High	Moderate	Low	Moderate	Complete	Sep-Jun.	Yellow/Pale Purple	CD	R, Coastal garden, habitat
Amperea xiphoclada var. xiphoclada	Broom Spurge	40cm	40cm	Moderate	719, 892, 3	FS	Moderate	Low	Low	High	Low	Low	acid to neutral	Sep-Feb.	Cream and brown	HMD	Rockeries and underplanting, mass planting,hedge feature, unique leaves
Apium prostratum ssp prostratum	Sea Celery	20cm	50cm	Moderate to fast	n/a	PS-FS	Fair	High	High	High	Low	Moderate	Complete	Oct-Apr	White	CW	Attractive container, ferny foliage, Cultural, habitat, native animal attracting
Arthropodium strictum	Chocolate Lily	30cm	30cm	Slow to Moderate	n/a	PS-FS	Moderate	Moderate	Moderate	Moderate	Fair	Moderate	Acid	Sep-Dec.	Purple	HA	Wildflower, fragrant, container plant, decidious, mass planting aesthetic
Astroloma humifusum	Cranberry Heath	50cm	1.5m	Slow	719, 3	PS-FS	Moderate	Fair	Fair	High	Moderate	Moderate	Acid	Apr-Sep.	Red	HD	Bird attracting, winter foliage, container plant, native bush garden
Bossiaea prostrata	Creeping Bossiaea	10cm	50cm	Slow to Moderate	719	PS-FS	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Alkaline to neutral	Sep-Dec.	Yellow/Red-brown	HD	Weed suppression, erosion control, ornamental, embankments, rockeries.
Brachycome parvula	Coast Daisy	20cm	20cm	Moderate to Fast	n/a	PS-FS	High	High	High	High	Moderate	Unknown	Complete	Sep-Dec.	Purple	CW	R, LM, Interesting foliage
Burchardia umbellata	Milkmaids	30cm	10cm	Slow to moderate	n/a	PS-FS	Moderate	Unknown	Unknown	Fair	Moderate	Unknown	Acid	Sep-Nov.	White	HDW	Decidious, Wildflower and bushgarden, container planting
Carpobrotus rossii	Karkalla	10cm	1m	Moderate to Fast	921	PS-FS	High	High	High	High	Moderate	Unknown	Complete	Sep-Dec.	Purple	CD	R, LM, interesting foliage
Centella cordifolia (S)	Centella	Prostrate	2m	Moderate	707	PS-FS	Moderate	Moderate	Moderate	Low	High	Unknown	Complete	Aug-Dec.	White/pink	C,Ri,W,M	Pond, Ornamental, wetland, bushy
Chamaescilla corymbosa	Blue Stars	10cm	10cm	Moderate	n/a	PS-FS	Moderate	Moderate	Moderate	Fair	Fair	Unknown	Complete	Aug-Nov.	Blue	HW	Wildflower/Bush Garden, container planting
Chrysocephalum apiculatum	Common Everlasting	20cm	50cm	Moderate	n/a	FS	High	High	High	High	Low	Fair	Complete	Sep-Dec.	Yellow	HD	Silver foliage, Wildflower/bushgarden, container planting
Coronidium scorpioides	Button Everlasting	30cm	30cm	Moderate	n/a	PS-FS	Moderate	Low	Moderate	High	Low	Low	Complete	Sep-Dec.	Pale/Lemon yellow	HD	Rockeries, Attracts pollinators, Resilient planting
Dichondra repens	Kidney-weed	Prostrate	indefinite	Moderate to Fast	919, 719, 921, 3	FSh-FS	Fair	Moderate	Moderate	Low	Fair	Unknown	Complete	Sep-Dec.	White/Pale yellow/Green	HCA	R, LM, Interesting foliage, Bush garden, container planting
Disphyma crassifolium subsp. Clavellatum	Rounded Noon-flower	Prostrate	1m	Moderate	919	FS	High	High	High	High	Moderate	Unknown	Complete	Oct-Dec.	Pink	CA	R, LM, Interesting foliafe, bush garden
Drosera whittakeri subsp. Aberrans	Scented Sundew	20cm	20cm	Moderate	719, 3	PS	Moderate	Moderate	Moderate	Moderate	Moderate	Unknown	Acid	Jul-Oct.	White	HM	Perennial, decidious, wildflower/bushgarden,container,fragrant,carnivorous
Drosera peltata subsp. Auriculata	Tall Sundew	80cm	20cm	Slow to Moderate	719, 892, 3	PS-FS	Fair	Fair	Fair	Fair	High	Unknown	Acid	Aug-Dec.	Pink and white	HWG	bushgarden, container planting, carniverous
Einadia nutans	Nodding Saltbush	20cm	1m	Moderate to Fast	n/a	PS-FS	High	High	High	High	Fair	Fair	Complete	Sep-Dec.	White	HCDA	R, LM, Colourful fruit
Enchylaena tomentosa	Ruby Saltbush, Barrier Saltbush	Prostrate	1m	Moderate	n/a	PS-FS	High	High	High	High	Fair	Fair	Complete	May-Sep	Red with pink fruit	CD	R, LM, Bird attracting, bush garden
Epilobium billardierianum	Variable Willow-herb	1m	70cm	Moderate	707	PS-FS	Moderate	Moderate	Moderate	Low	Fair	Unknown	Complete	Sep-Feb.	Purple/pink	RiW	Rockeries, watercourses, damp area planting
Frankenia pauciflora	Southern Sea-heath	10cm	50cm	Moderate	n/a	FS	Fair	High	High	High	Fair	Unknown	Alkaline to neutral	Jun-Oct.	Pink	CD	interesting foliage, shrubbing, hedging, container planting, bush garden
Geranium solanderi	Austral Cranesbill	20cm	30cm	Moderate to Fast	719, 3	PS	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Complete	Aug-Dec.	Pale pink/white yellow	HWA	R, Rockeries, pot plant, can grow quickly and spread in always wet soil
Gonocarpus humilis	Shade Raspwort	50cm	70cm	Moderate	892	PS	Moderate	Low	Low	Moderate	High	Moderate	Unknown	Oct-Dec.	Yellow-greeen	CHMW	Perennial herb, prostrate and sprawling
Gonocarpus micranthus	Creeping Raspwort	Prostrate	50cm	Moderate	n/a	PS-FS	Moderate	Low	Low	Moderate	High	Moderate	Unknown	Dec-Feb,	Red	W	Prostrate, ascending or erect, many branched
Gonocarpus tetragynus	Poverty Raspwort	20cm	30cm	Moderate	3	PS-FS	Moderate	Low	Low	Moderate	Moderate	Moderate	Unknown	Dec-Feb,	Reddish-pink	HA	Wirey, erect perennial herb. Good understorey below established trees
Goodenia hummilis	Swamp Goodenia	10cm	1m	Moderate	919, 707	PS-FS	Moderate	Low	Low	Moderate	High	Moderate	Unknown	Nov-Mar.	Yellow	W	dainty, little herb, good for moist sunny locations, eg besides pools
Goodenia geniculata	Bent Goodenia	10cm	50cm	Moderate	n/a	PS-FS	Moderate	Moderate	Low	Moderate	Moderate	Moderate	Alkaline to neutral	Sep-Jan.	Yellow	HA	Can be planted as colourful foreground for natives,beds, weed suppressing
Goodenia radicans	Shiny Swamp-mat	10cm	50cm	Moderate	n/a	PS-FS	High	High	High	Low	High	Unknown	Complete	Mar-Dec.	White	CW	Ornamental pond, bush garden
Gratiola pubescens	Glandular Brooklime	20cm	20cm	Moderate	707	PS	Moderate	Low	Low	Moderate	High	Moderate	Unknown	Oct-mar.	pale pink with yellow	RiW	Ornamental pond edges and rockeries, useful in waterlogged environments
Haloragis brownii (N)	Swamp Raspwort	50cm	50cm	Moderate	919, 921	PS-FS	Moderate	Low	Low	Moderate	High	Moderate	Unknown	Oct-Feb.	Reddish Brown	CRiW	watercourse edging, damp locations
Hibbertia acicularis	Prickly Guinea-flower	30cm	50cm	Moderate	n/a	PS-FS	Moderate	Low	Low	Moderate	Moderate	Moderate	Unknown	Sep-Dec.	Bright yellow	HD	Attractive planting for open soils, cottage gardens, and rockeries
Hydrocotyle laxiflora	Stinking Pennywort	40cm	1-2m	Moderate to Fast	719, 3	PS-FS	Fair	Moderate	Moderate	Moderate	Fair	Unknown	Alkaline to neutral	Oct-Dec.	Green	HDW	Wildflower/bush garden, ornamental pond
Isotoma fluviatilis	Swamp Isotoma	Prostrate	1m	Moderate	n/a	PS-FS	Moderate	Low	Low	Low	High	Unknown	Acid	Oct-Nov.	Blue	W	Ornamental pond, wildflower/bush garden, allergenic
Kennedia prostrata	Running Postman	Prostrate	1m	Moderate	n/a	PS-FS	High	Fair	Fair	High	Moderate	Unknown	Complete	Apr-Dec.	Red	HCD	Interesting foliage, bird attracting, Wildflower/Bush Garden
Lachnagrostis billardierei	Coast Blown-grass	50cm	20cm	Moderate	919	FS	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Unknown	Sep-Dec.	Straw yellow	CW	Coastal garden, erosion control, visual interest, tufted, adds texture
Lagenophora stipitata	Common Bottle-daisy	5cm	20cm	Moderate	n/a	FSh-FS	Moderate	Low	Low	Moderate	Moderate	Moderate	Unknown	Sep-Feb.	Blue	HCA	Great groundcover over bare earth, container planting, frost tolerant
Laxmannia orientalis	Dwarf Wire Lily	5cm	10cm	moderate	n/a	PS-FS	Moderate	Low	Low	Moderate	Moderate	Moderate	Unknown	Sep-Dec.	Red, Brown and White	HD	Border for dedicated remnant reserves
Lobelia anceps	Angled Lobelia	Prostrate	50cm	Moderate	919, 921	PS	Moderate	Moderate	Moderate	Moderate	Moderate	Unknown	acid to neutral	Mar-Dec.	Blue, White	HW	Ornamental pond, wetland, bush garden, allergenic
Lobelia pratioides	Poison Lobelia	Prostrate	50cm	Moderate	n/a	PS-Fsh	High	Low	Low	Low	High	Moderate	acid to neutral	Oct-May.	Blue-lilac and white	HW	Toxic. Excellent groundcover for bog, Useful in ferneries when not too dark
Opercularia ovata	Broad Stinkweed	10cm	20cm	Moderate	n/a	PS-Fsh	High	Low	Low	Low	High	Moderate	acid to neutral	Sep-Dec.	Greenish	HWA	Toxic.Excellent groundcover for bog, Useful in ferneries when not too dark
Opercularia varia	Variable Stinkweed	25cm	30cm	Moderate	719, 3	PS-Fsh	High	Low	Low	Low	High	Moderate	acid to neutral	Jun-Mar.	Green or Purple	MWH	Toxic. Unpleasant smell when cushed
Orndduffia reniformis (syn Villarsia reniformis)	Running Marsh flower	1m	1m	Moderate to Fast	707	PS-FS	Moderate	Low	Low	Low	High	Unknown	Acid	Mar-Dec.	Yellow	RiW	Ornamental pond, wetland, bush garden, allergenic
Pelargonium australe	Austral Stork's-bill	50cm	50cm	Moderate	n/a	PS-FS	Moderate	Moderate	Moderate	Fair	Low	Unknown	acid to neutral	Mar-Dec.	Pink	CA	Edging, Wildflower/bush garden, container planting
Pelargonium inodorum	Kopata	30cm	30cm	Moderate	n/a	PS-FS	Moderate	Low	Low	Moderate	Low	Low	acid to neutral	Dec-Feb.	White/pink	HA	Open border plant, needs replaceing annually, regenerates via fire
Pimelea humilis	Common Rice-flower	30cm	40cm	Moderate	n/a	PS-FS	Fair	Fair	Fair	Fair	Low	Unknown	Complete	Sep-Jan.	White	HA	Dainty, Wildflower/Bush Garden, container, allergenic, heavy pruning
Pimelea octophylla	Woolly Rice-flower	1m	50cm	Moderate	n/a	PS-FS	Moderate	Low	Low	Moderate	Low	Low	acid to neutral	Oct-Dec.	Cream-pale yellow	HD	wooly appearance,small gardens, rockeries in open soil, warm positioning
Platylobium obtusangulum	Common Flat-pea	40cm	1m	Slow to Moderate	892	PS-FS	Moderate	Moderate	Moderate	High	Low	Unknown	Acid	Sep-Dec.	Orange	HD	Wildflower/bush garden, container planting, foliage interest
Platysace heterophylla	Slender Platysace	30cm	30cm	Slow	PS	FS-PS	Moderate	Low	Low	Moderate	Low	Low	acid to neutral	Aug-Jan.	White	HDW	Shortlived, required fire to stimulate regeneration
Podotheca angustifolia	Sticky-Long Heads	30cm	30cm	Moderate to fast	n/a	FS	Moderate	Low	Low	Moderate	Low	Low	acid to neutral	Sep-Oct.	Green and yellow	HD	Shortlived, annual herb
Poranthera microphylla	Small Poranthera	10cm	30cm	Moderate	719, 3	PS	Fair	Moderate	Moderate	Fair	Moderate	Unknown	Acid	Mar,Apr,Aug-Dec.	White	CH	Wildflower/Bush garden
Pterostylis longifolia	Tall Greenhood	70cm	20cm	Moderate	719, 3	PS	Moderate	Low	Low	Moderate	Low	Low	acid to neutral	Apr-Sep.	Green	CHD	Decidious, perennial herb, underground tubers
Pteridium esculentum	Austral bracken	1.5m	1.5m	Moderate	919, 719, 892, 921, 3	PS-FS	High	Fair	Fair	High	High	Unknown	Acid	Jun-Oct.	Green	HMCDW	A, R, LM, interesting foliage, allergenic, bush garden
Sarcocornia quinqueflora	Beaded Glasswort or Samphire	Prostrate	50cm	Slow to Moderate	919, 921	FS	High	High	High	Moderate	High	Unknown	Complete	Nov-Mar.	Cream	CW	R, LM, Colourful foliage
Senecio minimus	Shrubby Fireweed	1.5m	50cm	Fast	919, 921	PS	Moderate	Low	Low	Moderate	Low	High	acid to neutral	Dec-Apr.	Pale yellow	MW	A, butterfly attracting (caterpillar food) Colonoiser for disturbed soils
Stylidium graminifolium	Grass Trigger-plant	30cm	30cm	Slow to Moderate	n/a	PS-FS	Fair	Fair	Fair	Moderate	Low	Unknown	Acid	Sep-Dec.	Pink	HDW	Container planting, Wildflower/bush garden, architectural form
Tetragonia implexicoma	Bower Spinach	Prostrate	1m	Moderate to Fast	919, 921	PS-FS	High	High	High	High	Moderate	Unknown	Complete	Aug-Dec.	Yellow	CA	Bush garden, bird attracting, fragrant flowers
Tetragonia tetragonioides	New Zealand Spinach	Prostrate	1m	Fast	n/a	FS-PS	Moderate	High	High	High	Low	Moderate	Complete	Dec-Feb.	Yellow	CA	Excellent pot herb or 'gapfiller' for groundcover
Thysanotus patersonii	Twining Fringe-lily	1m	1m	Slow to Moderate	n/a	PS-FS	Moderate	Moderate	Moderate	Fair	Moderate	Unknown	Acid	Aug-Nov.	Purple	HDW	Wildflower/bush garden, container planting, decidious
Thysanotus tuberosus	Common Fringe-lily	60cm	15-20cm	Moderate	n/a	PS	Moderate	Unknown	Unknown	Moderate	Moderate	Unknown	Acid	Oct-Dec.	Purple	HD	Decidious, Wildflower and bushgarden, container planting
Tracymene composita	Wild Parsnip	80cm-1.5m	1m	Moderate	n/a	Fsh-FS	Moderate	Low	Low	Moderate	High	Moderate	Unknown	Sep-Feb.	White	HD	Distinct flowershape, all light levels, unique flower.
Triglochin proceum	Water Ribbons	60cm	2m	Slow to fast	707	FS-PS	Low	Moderate	Low	High	High	Low	acid to neutral	Aug-Apr	greenish yellow	RiWMA	graminoid, dense spiked flowers, aquatic, ornamental pond, oxygenating
Viola hederacea	Ivy-leaf ed Violet or Native violet	10cm	1m	Moderate	919, 719, 921, 3	PS	Moderate	Moderate	Moderate	Moderate	High	Low	acid to neutral	Mar-Dec.	Purple and white	HCWSh	Wildflower/bush garden
Myoporium parvifolium	Plectranthus	0.5	1.5	Fast	n/a	FS	Moderate	Moderate	Unknown	High	Low	Low	Complete	Jan-Mar	Bluish-white	MWA	SH,A, Bird attracting
Eremophila glabra	Kalbarri carpet	0.5	2	Moderate	n/a	FS	High	Moderate	High	High	Low	Low	Alkaline to neutral	June-Sep	Yellow	CD	R,LM , winter flowering, attracts nectar eating birds and insects
Myoporium parvifolium	Creeping boobialla	0.3	3	Fast	n/a	FS	High	Moderate	High	High	Low	Low	acid to neutral	Sep-March	White	CDA	R,LM, Attracts birds
Brachyscome multifida	Cut -leaf Daisy	0.4	1	Moderate to Fast	n/a	FS-PS	Moderate	High	Moderate	High	Moderate	Moderate	Complete	All year	Pale purple	CDWA	R,LM - attracts small mammals, lizards and insects
Scaevola aemula	Fan flowers	0.35	0.8	Fast	n/a	FS	High	Low	High	High	Low	High	Complete	Sep-May	Blue-mauve	CDWA	R,LM - attracts birds and insects
Ajuga repens	Blue bugle	0.3	3	Fast	n/a	FS-PS	High	Low	Low	Moderate	Low	Moderate	Id acidic to Mild alkali	Sep-March	Blue	RLM	R,LM, Attract butterflies. Can be used as a lawn alternative in shady areas
Ophiopogon japonicus	Mondo grass	0.15	0.3	Moderate	n/a	FS-PS	High	High	High	High	Moderate	Moderate	acid to neutral	Nov-Jan	White	CDA	R,LM, can be used as a lawn alternative in low pedestrian traffic areas
Sedum spp.	Stonecrop	0.15	1.5	Fast	n/a	FS-PS	High	High	High	High	Low	High	acid to neutral	Dec-March	Yellow, orange, pink or white	CDA	Attracts bees, butterflies

Species Palette 8 – Climbers

INDIGENOUS TO PROVIDENCE *(Grown at nursery/within t*	Additional Species	Uses/traits key	Habitat Key		High = tolerates well without damage.
INDIGENOUS *(Grown Outside Bayside)*		R - Robust and Hardy	H – Heath/WoodlancRi = Riparian forest (interface between land and river/stream)		
NATIVE TREES (From Australia)	**Full Sun = FS**	LM - Low Maintenance	M - Moist/Closed forest	complete range	Fair= can tolerate medium levels
EXOTIC (From outside Australia)	**Part Shade=PS**	S - Shade Tree	C – Coast – dune scrub & woodland	acid to neutral	Moderate = tolerates somewhat with some effects in low levels
Additional Species	**Shade = FSh**	F - Feature Tree	D – Prefers dry, well drained soils & tolerates dryness once established.	acid	Low = suffers serious damage to death if exposed
*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	Please contact your local nursery or a horticultural professional for further advice.
Use of any of the below species is preferred but not limited to these species			A – Adaptable, growing well in most soil types		All indigenous plants provide habitat & food for local birds, insects & animals.

CLIMBERS				EVC= Ecological Vegetation Class		Tolerances										
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**
Billardiera mutabilis (syn. B. scandens)	Common Appleberry	1	1	Moderate	719, 3	FS	Moderate	Moderate	Moderate	Fair	Moderate	Unknown	Acid	Mar-Dec.	Green, White, Yellow	HD	A, Bird attracting
Cassytha glabella (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
Clematis microphylla var.microphylla	Small-leaved Clematis	S	S	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
Comesperma volubile	Love Creeper	Climber	indefinite	Slow	719, 3	SP-FS	Moderate	Moderate	Moderate	Moderate	Moderate	Unknown	Acid	Aug-Dec.	Blue & Purple	HCDW	A, Contrainer
Galium australe	Tangled Bedsttraw	Climber	indefinite	Fast	919, 921	PS-FS	High	Moderate	High	High	Low	Moderate	Unknown	Sep-May.	White	HCD	Scrambler, trailing, groundcover
Hardenburgia violacea	Purple Coral Pea	Climber	indefinite	Fast	n/a	PS-FS	High	Moderate	High	High	Moderate	Moderate	Unknown	Jul-Sep.	pink or white	HDG	Scrambler, Will not negatively impact plants it climbs, pruning required after flowering
Muehlenbeckia adpressa	Climbing Lignum	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
Aphanopetalum resinosum	Gum vine	Climber	3m x 3m	Fast	n/a	FSh	Low	Low	Low	High	Moderate	Low	ld Acid-Mild Alkali	Sep	Greenish yellow	MW	LM,Sh, attractive climber for shady positions, attracts native birds and insect
Hardenbergia comptoniana	Native Wisteria	Climber	indefinite	Fast	n/a	PS-FS	High	Moderate	High	High	Moderate	Moderate	Unknown	Jul-Sep.	pink or white	HDG	Scrambler. Will not negatively impact plants it climbs, pruning required after flowering
Hibbertia scandens	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
Pandorea pandorana	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.
Trachelospermum jasminoides	Chinese star jasmine	Climber	indefinite	Fast	n/a	FS-PS	Moderate	Low	Low	Moderate	Low	Low	acid to neutral	Sep-May.	White	D,W,A	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'.[7]

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.[8]

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.[9]

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.[10]

Climate change adaptation is the process of adjustment to actual or expected climate and its effects.[11]

Climate change mitigation is the human intervention to reduce the sources or enhance the sinks of greenhouse gases.[11]

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.[11]

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.[12]

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.[13]

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[7] 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

[8] 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/

[9] 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

[10] 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

[11] 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

[12] Bayside Sustainable Building and Infrastructure Policy (updated 2021)

[13] 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

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.[14]

Habitat: All the physical and biological things that collectively make up the place where a plant or animal lives.[15]

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.[16]

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 summing 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.[17]

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.[18]

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.[19]

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.[20]

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.[11]

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.[21]

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[14] 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

[15] 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

[16] 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

[17] 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

[18] 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

[19] DELWP, 'Land for Wildlife' available at: https://www.wildlife.vic.gov.au/protecting-wildlife/land-for-wildlife

[20] 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/

[21] Id community, 'Demographic Resources', Available at https://profile.id.com.au/bayside/seifa-disadvantage-small-area?WebID=10

Senescence is the process by which cells irreversibly stop dividing and enter a state of permanent growth arrest without undergoing cell death.[22]

Significant Landscape Overlay (SLO): The Significant Landscape Overlay (SLO) is a planning overlay and 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.[23]

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.[24]

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.[4]

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.[4]

Urban Heat Island Effect: The phenomenon of dense urban areas having significantly warmer air and land surface temperatures than surrounding areas.[4]

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.[2]

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.[25]

Vulnerability: Exposure to contingencies and stress, and the difficulty in coping with them. This can apply to ecosystems, trees, people, and places.[26]

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[22] CSIRO Linked Data Registry, 'Definition of Senescence', Available at http://registry.it.csiro.au/def/keyword/nature/subjects/senescence

[23] 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

[24] 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

[25] 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

[26] GreenFacts, 'Vulnerability (in ecosystems), available at: https://www.greenfacts.org/glossary/tuv/vulnerability-ecosystems.htm

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.[27]

[27] Melbourne Water, 'Introduction to WSUD', available at: https://www.melbournewater.com.au/building-and-works/stormwater-management/introduction-wsud



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