



DRAFT Black Rock Urban Forest Precinct Plan 2023





Cover page: Black Rock Foreshore

Inside cover page: Black Rock House



Acknowledgement of Traditional Owners

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

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Introduction to the Precinct Plans

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

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

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

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

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

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

What is an urban forest?

The urban forest considers all the trees, shrubs, grasslands, other vegetation and the soil and water that support them. The urban forest within Bayside occurs 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:

1. Increase

Strategies:

1.1 Consider the individual needs of Bayside's suburbs and ensure that the approach to increasing canopy cover and urban forest outcomes is tailored to the conditions of each area.

1.2 Reframe Council's approach to major capital and infrastructure renewal projects as opportunities to increase urban forest outcomes.

1.3 Through the Bayside Planning Scheme, require development to provide increases to the number of canopy trees provided.

2. Healthier ecosystems

2.1 Increase the tree and vegetation canopy cover that is of a diverse range of species across Bayside.

2.2 Ensure humans and wildlife can simultaneously and safely access densely vegetated areas, streets and reserves.

3. Monitor

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

4. Maintain

4.1 Ensure the tree removal process is transparent and equitable

4.2 Reframe our planning and policy framework to give greater priority to existing trees and vegetation when siting new development and ensuring the longevity of any new trees or vegetation by ensuring it is appropriately sited nearby surrounding hard surfaces or infrastructure.

4.3 Enhance Council's ability to retain existing trees on private property through increased regulation of tree removal.

4.4 Support the maintenance and retention of trees on public land.

5. Learn and Celebrate

5.1 Increase Council's capacity to provide advice and build community sentiment to tree planting in Bayside.

5.2 Continue to build upon Council's green image and utilise this platform to advocate and partner with key stakeholders to provide greener outcomes across Bayside, metropolitan Melbourne and Victoria.

5.3 Leverage from the strengths of our network of volunteers, community groups, State Government departments, neighbouring local governments, academics and professionals to support the delivery of community education, information sharing and creating partnerships.

Key issues

Environmental challenges

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

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

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

Developmental challenges:

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

Planning permits involving vegetation removal:

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

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

Social challenges:

Older people, children, and people with disabilities:

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

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

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

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

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What will the Precinct Plans achieve?

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

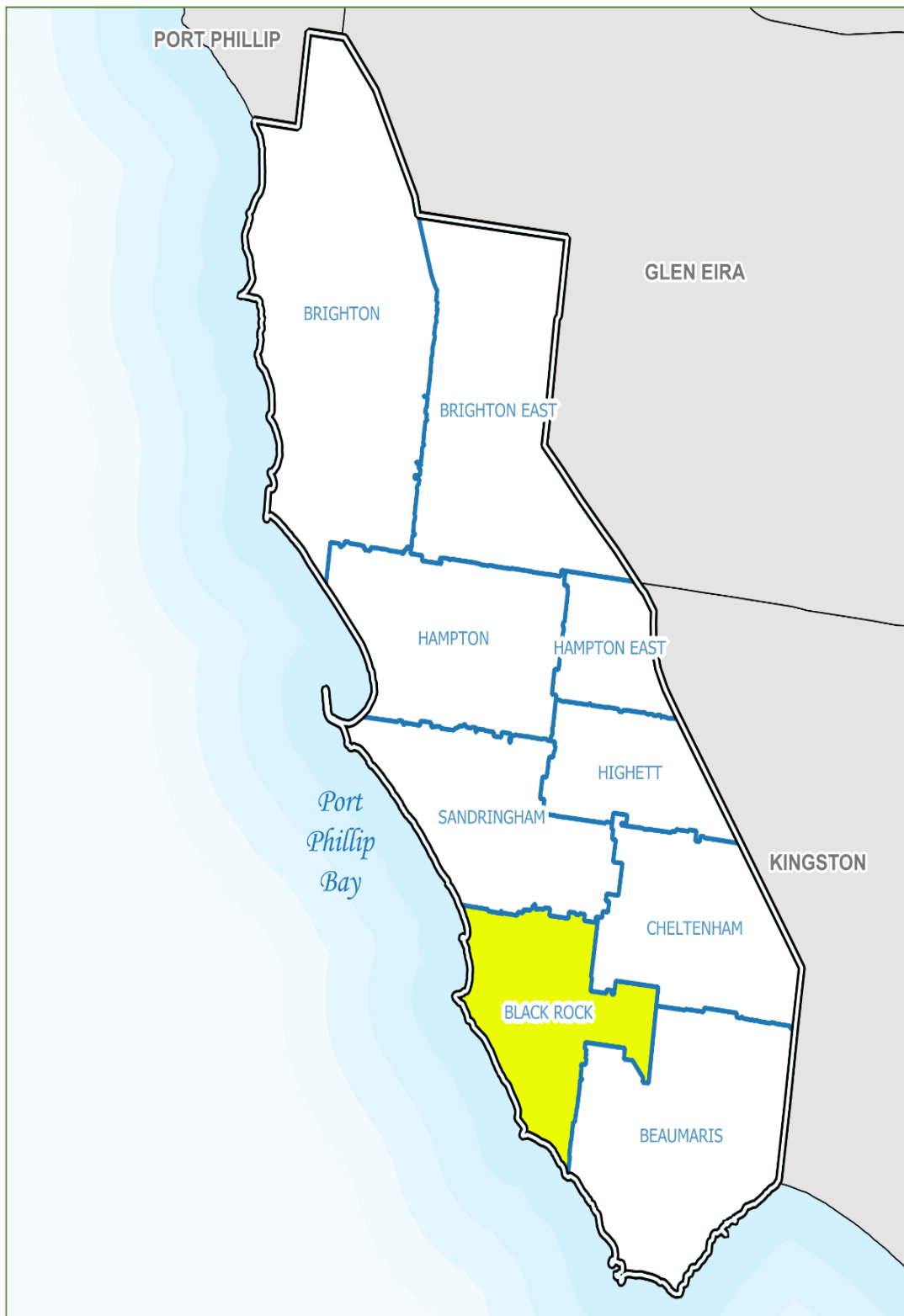
The Precinct Plans will help guide the implementation of the Bayside *Urban Forest Strategy* in Bayside and direct Council's focus to areas with low vegetation, to protect and enhance neighbourhood character and help achieve the objectives of the Bayside *Urban Forest Strategy*.


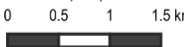
The prime objective of the Precinct Plan is to prioritise areas of greatest need, including areas with the lowest existing percentage canopy tree cover, as well as areas that are strategically located to mitigate urban heat island effects (including within major activity centres that are experiencing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

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

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

Map 1: Black Rock's location within Bayside



 <p>Bayside CITY COUNCIL</p>	<p>Legend</p> <ul style="list-style-type: none"> Suburbs Bayside LGA Boundary 	<p style="text-align: center;">N</p>  <p style="text-align: center;">0 0.5 1 1.5 km</p> <p style="text-align: center;">GDA 2020 MGA Zone 55</p>	<p><small>Disclaimer: Copyright 2022 M-Map Data - DE.WP This material may be of assistance to you, but the state of Victoria and Bayside City Council do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or consequences which may arise from your reliance on any information contained in this media.</small></p> <p><small>Created by Bayside City Council 02 November 2022</small></p>
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Suburb Profile – Black Rock

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:

Black Rock is a changing suburb, both physically and demographically. Black Rock is currently experiencing a very slow increase in population, having only increased by 264 people from 6,266 in 2016 to 6,530 in 2021. It is anticipated that the population will start to decrease in coming years, with the population forecasted to decrease to 6,032 (decreasing by 8%) by 2041.

Age structure:

By 2041, it is anticipated that 52% of residents will be above the age of 60, which is an increase from the current 33% (2021). Black Rock has an ageing population with a high percentage of empty nesters and retirees (15%) and seniors (15%).

It is expected that older populations will have greater difficulty maintaining gardens. Future housing will need to accommodate for an ageing population by providing a diverse housing typology that is adaptable for people with limited abilities.

Residential developments:

Residential development forecasts assume the number of dwellings in Black Rock will increase by an average of 9 dwellings per annum to 3,005 in 2041. In Black Rock, there is a higher percentage of medium density housing (42%) compared to Bayside (30%). This is due to a significant proportion of Black Rock being within the General Residential Zone, which is a moderate growth zone where housing development. The GRZ has a maximum building height of three storeys. Much of the residential growth within this zone takes the form of large detached dwellings, dual occupancies or townhouses.

Within the Black Rock activity centre, town houses and multi-storey apartments are more prominent, albeit there are still limited increases in development in comparison to other suburbs within Bayside. While residential development is less significant, it is still a factor impacting the availability of permeable surfaces and the ability to provide large canopy on private land.

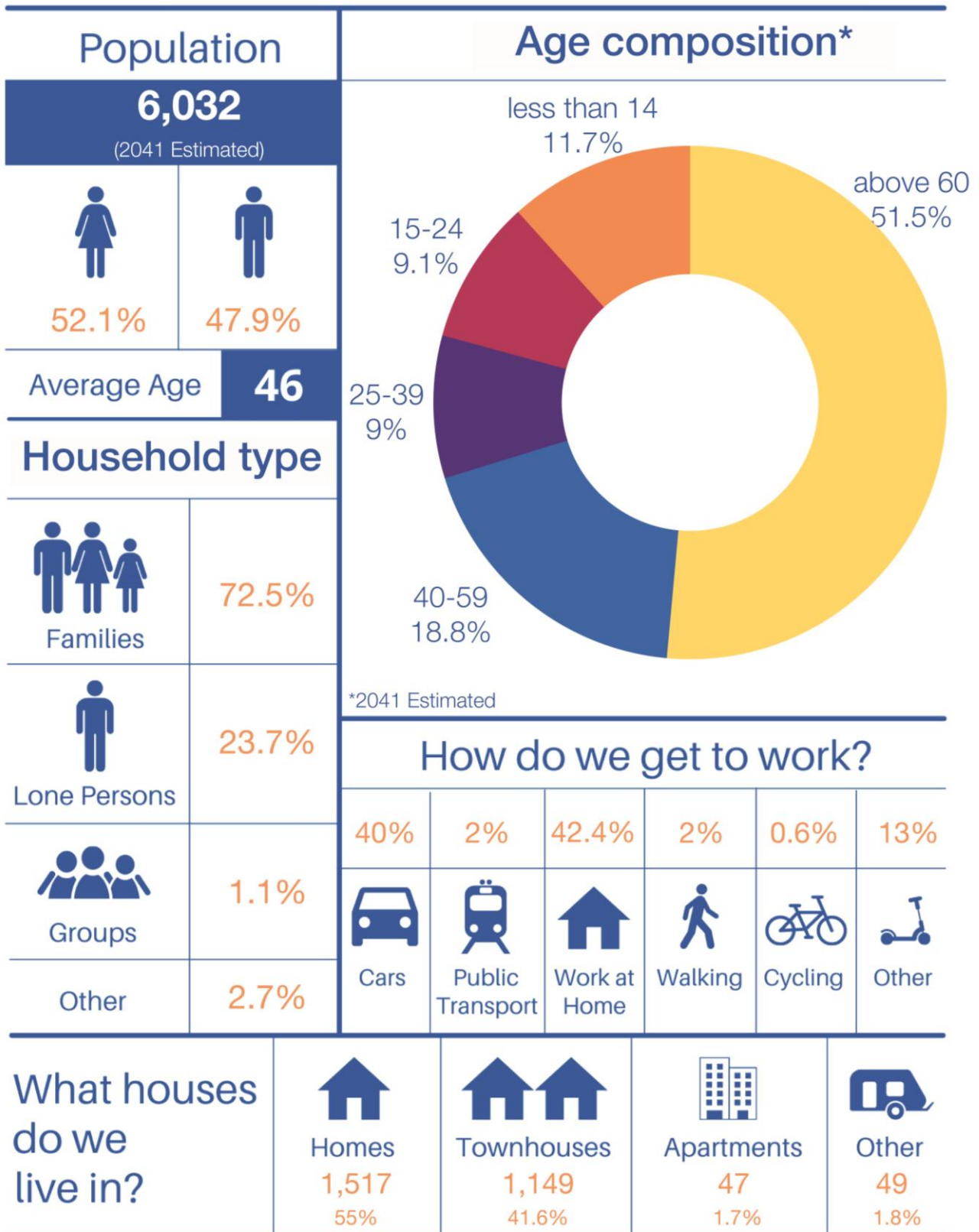
Climate change:

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

Mode of transport:

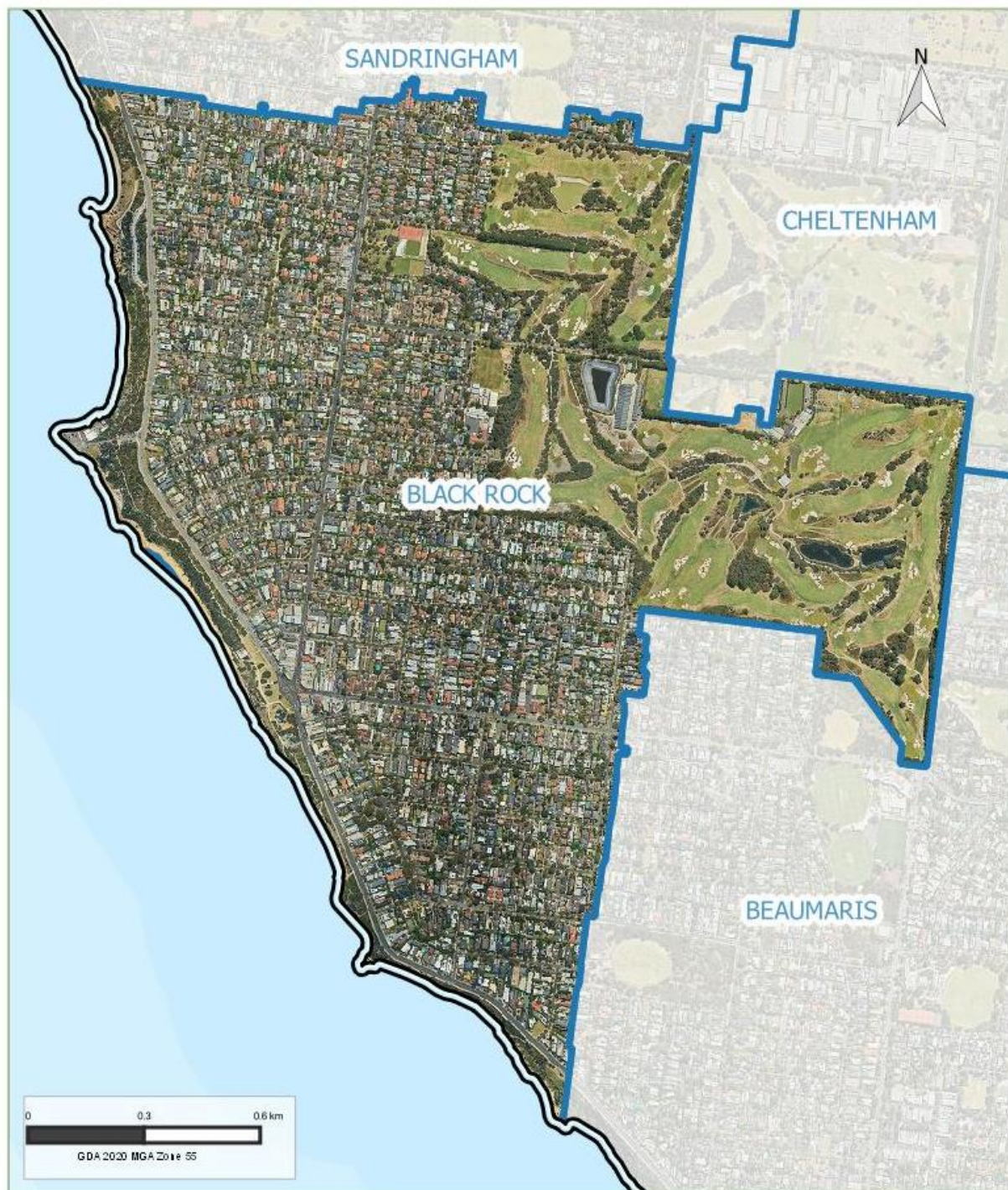
In 2016, 40% of Black Rock residents travelled to work by car compared to 49.7% in Greater Melbourne. Public transport is also limited to buses only, as there is no train station within the suburb, with the closest train stations being Southland (3.4km), Cheltenham (3.5km) and Sandringham (10km).

Black Rock Forecast for 2041



Note: Black Rock 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 Black Rock



The vision for Black Rock's urban forest:

The Black Rock urban forest will be distinctive, resilient, and harmonious, composed of a diversity of street and park trees and vegetation that will integrate the public and private realm. The well-vegetated streetscapes and coastal gardens will continue to provide ample habitat and shade.

Planning controls applying to Black Rock

VPO controls: permit removals

Black Rock is covered by the Vegetation Protection Overlay Schedule 1 (VPO1) and Schedule 3 (VPO3), which aims to protect areas of significant vegetation. VPO1 is found along the foreshore in Black Rock, and it aims to retain, protect, and enhance vegetation in coastal areas. Along the Black Rock Foreshore, remnant vegetation forms an integral component of vegetation character and overall ecosystem biodiversity. Biodiversity conservation of remnant vegetation is an essential component of responsible environment and natural resource management and is fundamental to the protection of ecosystems and environmental health. Due to the ecological importance of these species and ecosystems, VPO1 is in place to retain, protect and enhance this remnant vegetation from threats of environmental challenges, development, vandalism, and illegal tree removals.

VPO3 aims to retain the amenity, aesthetic character, and habitat value of vegetation within the area. Aside from the protection of indigenous vegetation, it also seeks to promote the regeneration and planting of vegetation in Black Rock. Permits are required to remove, destroy or lop any vegetation that is native to Australia in areas that are covered by the VPO3.

The VPO3 specifies a number of indigenous species that are of local significance, which the overlay seeks to protect. Permits are not required for the removal of vegetation and trees that are less than 2 metres high, or with a single trunk circumference of less than 0.5 metre at a height of 1 metre above ground level. Additionally, a permit is not required for pruning a tree that overhangs within 2 metres of an existing dwelling. In 2022, there were 15 requests for tree removal within the VPO3; 13 of which were approved.

As VPO1 and VPO2 apply to Council land, the threat of loss of trees and vegetation is low. VPO3 however applies to both public and private land meaning Council has less control over whether trees within the overlay are removed. The strengthening of VPO3 would therefore provide a higher level of tree canopy retention compared to VPO1 or VPO2.

Benefits of strengthening the VPO3

VPO3 currently only applies to native Australian vegetation that is over 2 metres high or have a single trunk circumference of over 0.5 metres. As stated in the *Actions of the Urban Forest Strategy*, Council aims to amend Black Rock's VPO3 protections to include non-native vegetation and reducing the vegetation size requirements to trigger a permit. The council is seeking to strengthen the Vegetation Protection Overlays to strengthen our planning decision-making when it comes to trees and siting new development. Strengthening the VPO will support our objective to maintain existing trees and enhance Black Rock's leafy character, as well as provide a range of other benefits such as relief from the urban heat island effect, filter air pollutants and support mental health.

Community feedback for VPO3

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

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

cause in the future.

Planning Zones

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

The Black Rock Village Neighbourhood Activity Centre comprises of land within the Commercial 1 Zone (C1Z), the Multi-Use Zone (MUZ) and the General Residential Zone. There are also three small neighbourhood activity centres that are between 300 – 1km north of the Black Rock Village Neighbourhood Activity Centre that provide local convenience retailing and employment for the local community and are all within the Commercial 1 Zone:

- Bluff Road and Arranmore Avenue Small Neighbourhood Activity Centre;
- Bluff Road & Love Street Small Neighbourhood Activity Centre; and
- Bluff Road and Edward Street Small Neighbourhood Activity Centre.

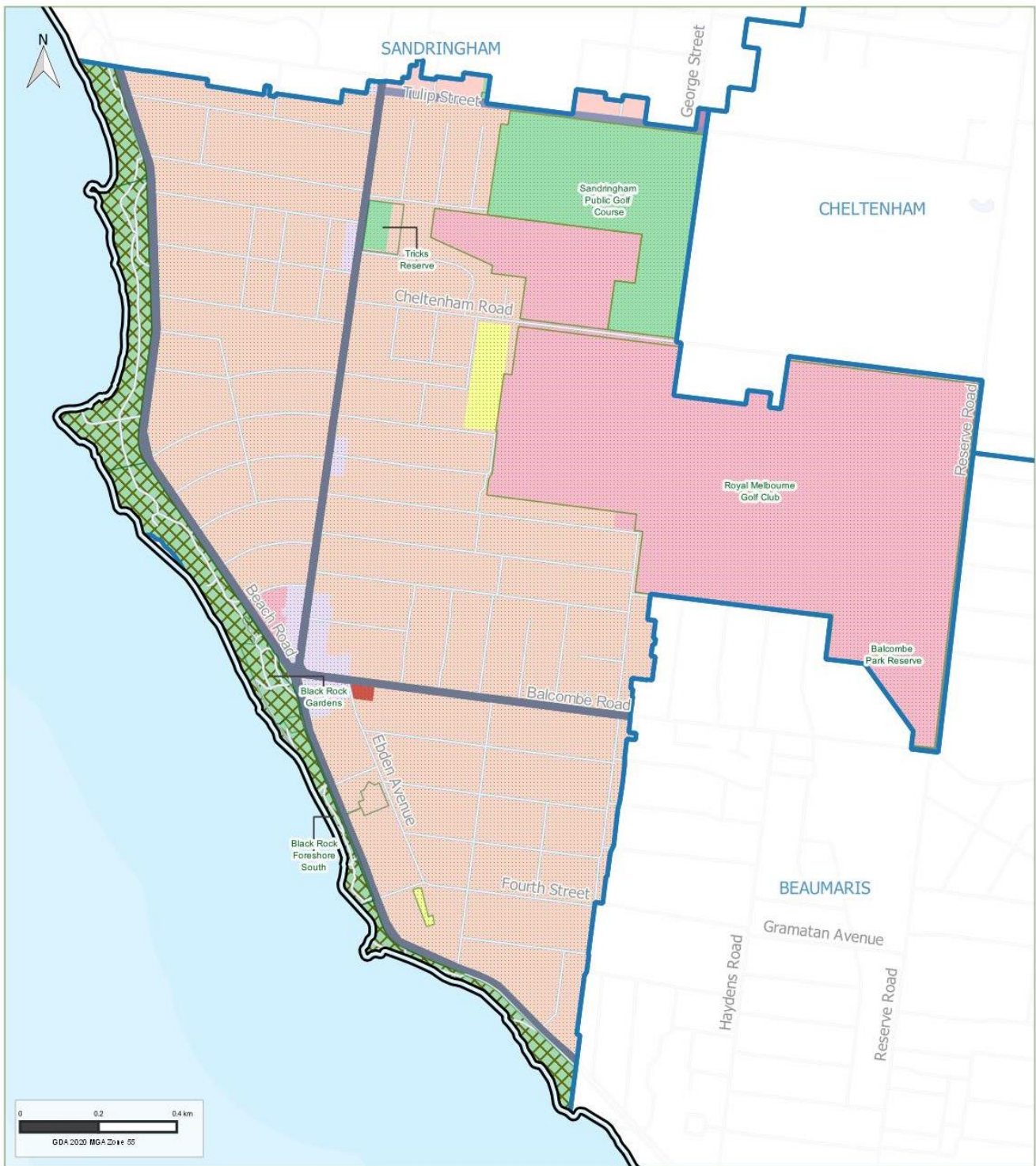
Commercial activity is discouraged outside of the above-mentioned activity centres. Land uses within the activity centres are predominantly commercial however there are various multi-storey dwellings that exist as well as detached dwellings that front Beach Road and are within the pocket of GRZ within the activity centre, west of Bluff Road.

The majority of land is residential within Black Rock, with some educational, public use and open space existing and zoned either within the public use zone (PUZ) or the public park and recreation zone (PPRZ). The Royal Melbourne Golf Club is within the General Residential Zone, despite being an open space and utilised for recreational purposes.

Neighbourhood Amenity Local Law 2021

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

Map 2: Planning Zone Controls in Black Rock



Legend

Planning Zones

- C1Z - Commercial 1 Zone
- C2Z - Commercial 2 Zone
- GRZ - General Residential Zone
- MUZ - Mixed Use Zone

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

- TRZ2 - Transport Zone 2- Principal Road Network
- TRZ3 - Transport Zone 3- Significant Municipal Road

- Planning Overlays**
- Vegetation Protection Overlay 1
 - Vegetation Protection Overlay 2

- Vegetation Protection Overlay 3
- Bay side LGA Boundary
- Suburb
- Roads

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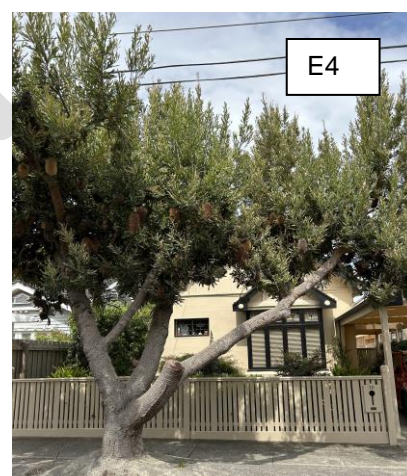
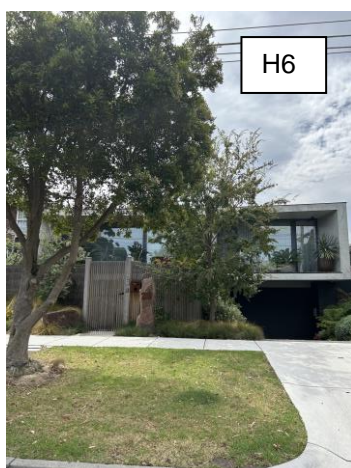
* Black Rock is covered with Vegetation Protection Overlay Schedule - 3

Black Rock Neighbourhood Character

Black Rock is a distinct suburb that continues to entice residents and visitors alike, who are attracted to the foreshore, natural landscape, post-war architecture and coastal lifestyle. As the suburb continues to grow and change, it is important that new development respects, supports and enhances the cherished characters of their surrounding neighbourhood. Clause 15.01-5L 'Bayside preferred neighbourhood character' in the Bayside Planning Scheme provides general objectives and policy guidelines for neighbourhood character precincts that have been set across the municipality.

In the coastal area of Black Rock, (E4 and H4 precincts) there is a variation in architectural style with houses being built from 1940s – 1990s and more modern contemporary styles from more recent times. The majority of dwellings on Beach Road are double storey, gaining access to ocean views. Front setbacks vary from 5 to 8 metres and side setbacks generally 1 metre on one side with 3 to 4 metre setbacks including garages and driveways to the boundary on the other. Gardens are typically modest with a mixture of exotics and some coastal native shrubs and trees.

Detached dwellings within the inland area of Black Rock (H1, H3, H6 and G1) are predominately 1950s and 1970s dwellings with dual occupancy, town house or multi-dwelling developments consisting of contemporary 1970s to 1980s dwellings dispersed throughout the precinct. Front setbacks vary from 6 to 8 metre and side setbacks are generally 1 metre on one side with 3 to 4 metre setbacks including garages and driveways to the boundary on the other. Gardens are typically well developed with a mixture of hardy evergreen and exotic shrubs, large trees, and lawn areas with a high percentage of native species.



Map 3: Black Rock Neighbourhood Character Precincts



Legend

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

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The Urban Forest of Black Rock

In Black Rock, there is approximately 16.26% of tree canopy cover and 30.19% of understorey cover (2019). The urban forest of Black Rock is already considerably large and expansive urban forest, encompassing a distinct character of native and indigenous trees and understorey planting, contributing to a highly biodiverse environment. Together with established gardens, distinctive parks, reserves and an extensive foreshore environment, Black Rock has a unique urban forest character.

History

Before European Settlement, Black Rock was inhabited by the Bunurong people of the Kulin Nation. The suburb was named after Black Rock House, a grand residence built by Charles Hotson Ebdon in 1856. The gardens associated with Black Rock House features magnificent 150 year old Moreton Bay Fig trees that were planted when the home was built. Early plantings included various *Eucalyptus* species, *Coast Banksia*, *Coastal She-oak*, *Cypress*.

The extension of the train line from Brighton to Sandringham in 1887 saw Black Rock become a popular seaside destination, as tourists were enticed by Half Moon Bay and Red Bluff. Both Half Moon Bay and Red Bluff areas needed structural works to stop wave erosion of the beaches.

In 1888, a year after the railway was extended to Sandringham, a horse tram was provided between Sandringham and Black Rock. The service was replaced in 1919 by a tram. The 1933 Victorian municipal directory described Black Rock as a 'seaside resort with sandy beaches, yacht clubs and public parks'. Residential development increased in the post war period. During this time, there was an active conservation movement which saw residents petition for the protection of native plants beside roads and heathlands.

By 1999, many more gardens in both the public and private settings were prominent within the Black Rock suburb. The streetscape was predominantly filled with native trees whilst reserves and parks contained indigenous vegetation.² There are a number of canopy trees and vegetation that have been recognised over time for their local heritage significance. In Black Rock, these include Moreton Bay Figs, Southern Mahogany Gum and garden plantings.

Contemporary issues impacting Black Rock's urban forest

There are a number of contemporary issues impacting the urban forest of Black Rock and providing cause to decline in canopy cover.

The foreshore cliffs at Black Rock between Half Moon Bay and Quiet Corner are highly erosive, this has a detrimental impact on the remnant coastal vegetation that exists along the foreshore. It is important that we continue to protect our foreshore and native vegetation from these impacts. Trees and vegetation play a vital role in mitigating coastal erosion and continued increase in planting can help protect Black Rock's foreshore, stabilise the surface and absorb water that reduces erosion caused by runoff.

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

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

- Vandalism of public and private trees is another issue contributing to tree canopy loss across Bayside. Illegal removal, lopping or poisoning of trees occurs throughout Bayside by members of the public for personal gain. A hotspot of this activity is along Beach Road where canopy trees are vandalised to gain better views of Port Phillip Bay. Another common example is the vandalism of trees due to the build up of leaf debris upon or near private property. Unpermitted removal, destruction, pruning and interference with trees and vegetation is illegal in Bayside. In an effort to deter vandals, Council has adopted a strong stance on vandalism and has installed signs and advertised on social media platforms an offering of rewards for information when an act of vandalism has occurred.



Image 1. FG Tricks Reserve



Image 2. Black Rock Foreshore Vegetation



Tree canopy cover across Black Rock and various land uses

As indicated previously in this document, Black Rock has approximately 16.26% tree canopy cover and 30.19% understorey cover (2019). Of the 16% tree canopy cover within Brighton:

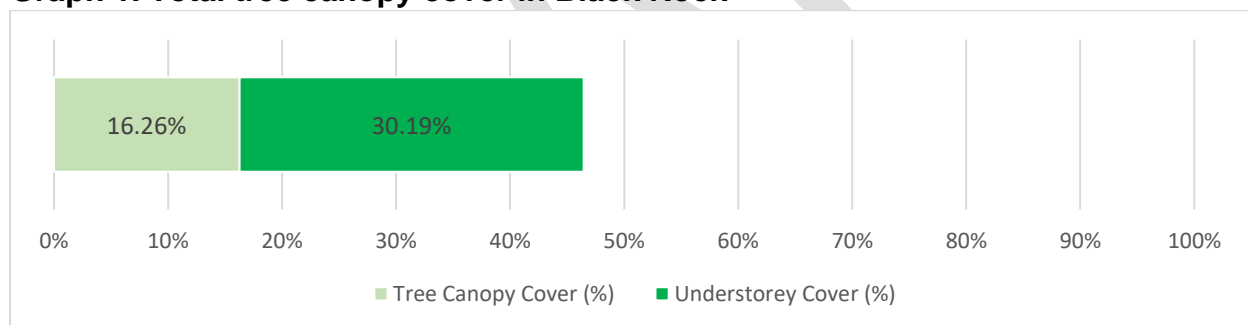
- 43.19% is located upon private residential streets and mixed-use areas;
- 33.03% is located upon open space and reserves;
- 19.04% is located upon streets;
- 3.19% is located upon 'other' areas; and
- 0.84% is located upon public use areas;

The amount of trees upon different land uses is spread quite evenly in comparison to other suburbs. The majority of other suburbs within Bayside had more than 50% of tree canopy cover within private residential and mixed use areas, in comparison to the 43.19% in Black Rock. There is room to improve canopy cover throughout all land uses, but particularly within those places that are of greatest need, which this precinct plan seeks to identify.

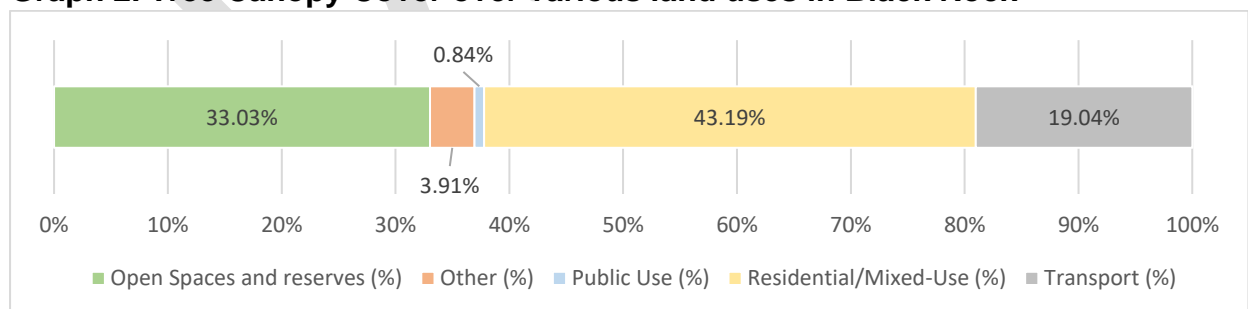
In 2022, there were 3,822 trees managed and maintained by Council throughout Black Rock, with over 3,395 street trees, 422 park trees and 5 other location-specific trees. Monitoring the age, health and useful life expectancy of these trees is important to ensuring that the council understands the local conditions, maintains tree and understorey plant populations, and effectively plans for future planting programs and strategies across Black Rock.

In Black Rock, there is approximately 16.26% tree canopy cover and 30.19% understorey cover. The suburb of Black Rock will be a major contributor towards achieving council's goal of 30% canopy cover by 2040.

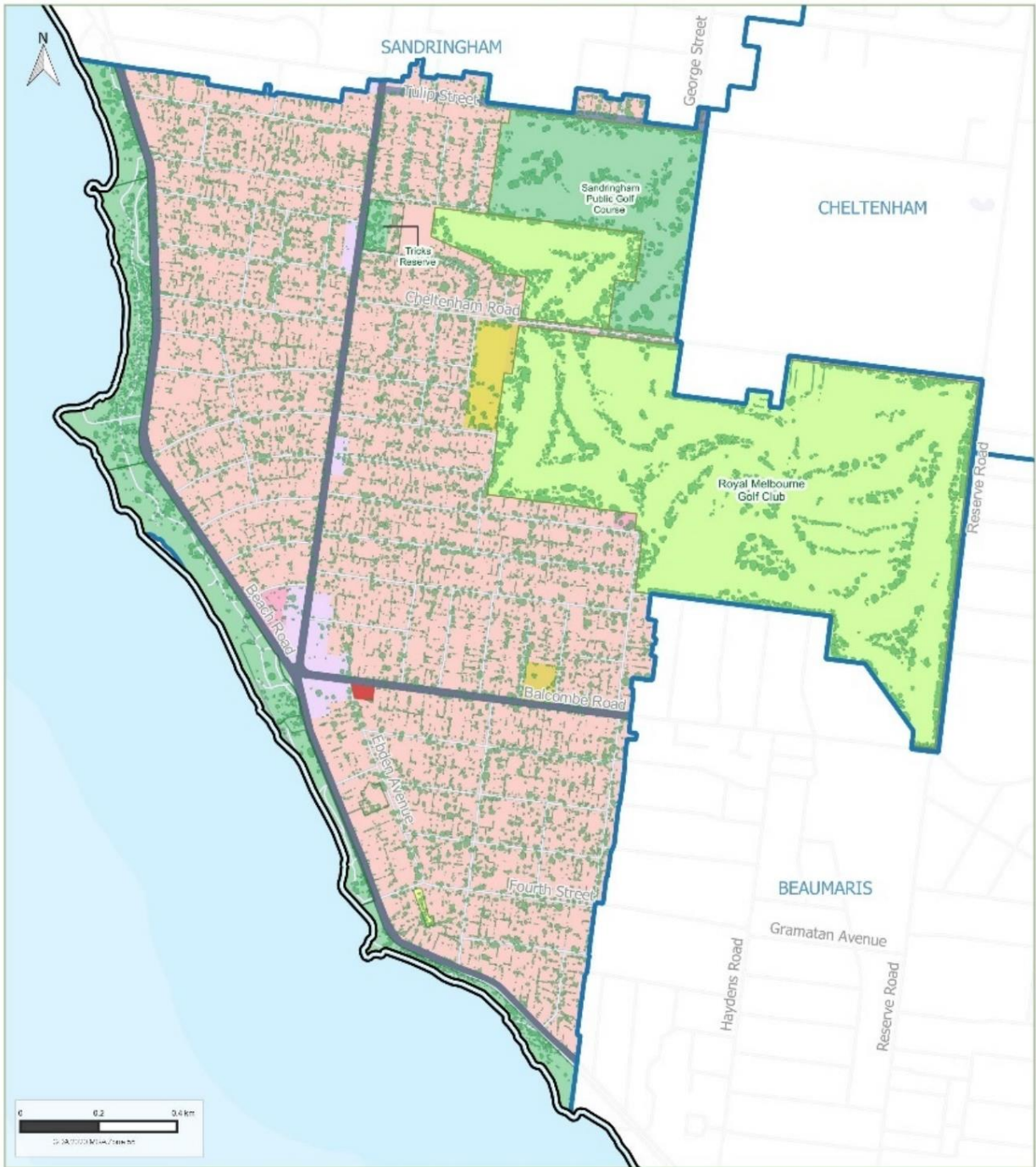
Graph 1. Total tree canopy cover in Black Rock



Graph 2. Tree Canopy Cover over various land uses in Black Rock



Map 4: Tree Canopy Cover Over Black Rock



Legend			
		Planning Zones	

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Created by: Bayside City Council
17 January 2022

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.³ 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. **Error! Bookmark not defined.**

There are approximately 5% of the council-managed trees that may not survive in Black Rock after the next 10 years. By 2040, a total of 3,948 (92%) council-managed trees will have reached the end of their useful life expectancy and may need to be replaced (Graph 3).

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).

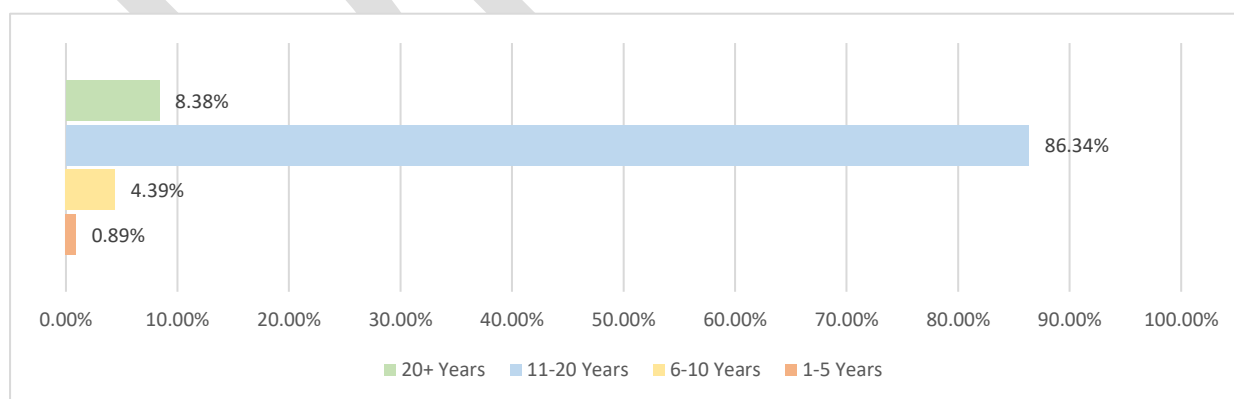
Where replacement of trees is required, new trees should be selected based on the existing surrounding vegetation, landscape character and ability to enhance habitat. Where there is a large concentration of trees required for replacement, this should be undertaken intermittently to enable varying ages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

The locations where there is a high concentration of trees that may need to be replaced in the next 10 years include FG Tricks Reserve, First Street, Gordon Crescent, St Andrews Crescent, Iluka Street and O'Connor Street (Map 5).

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

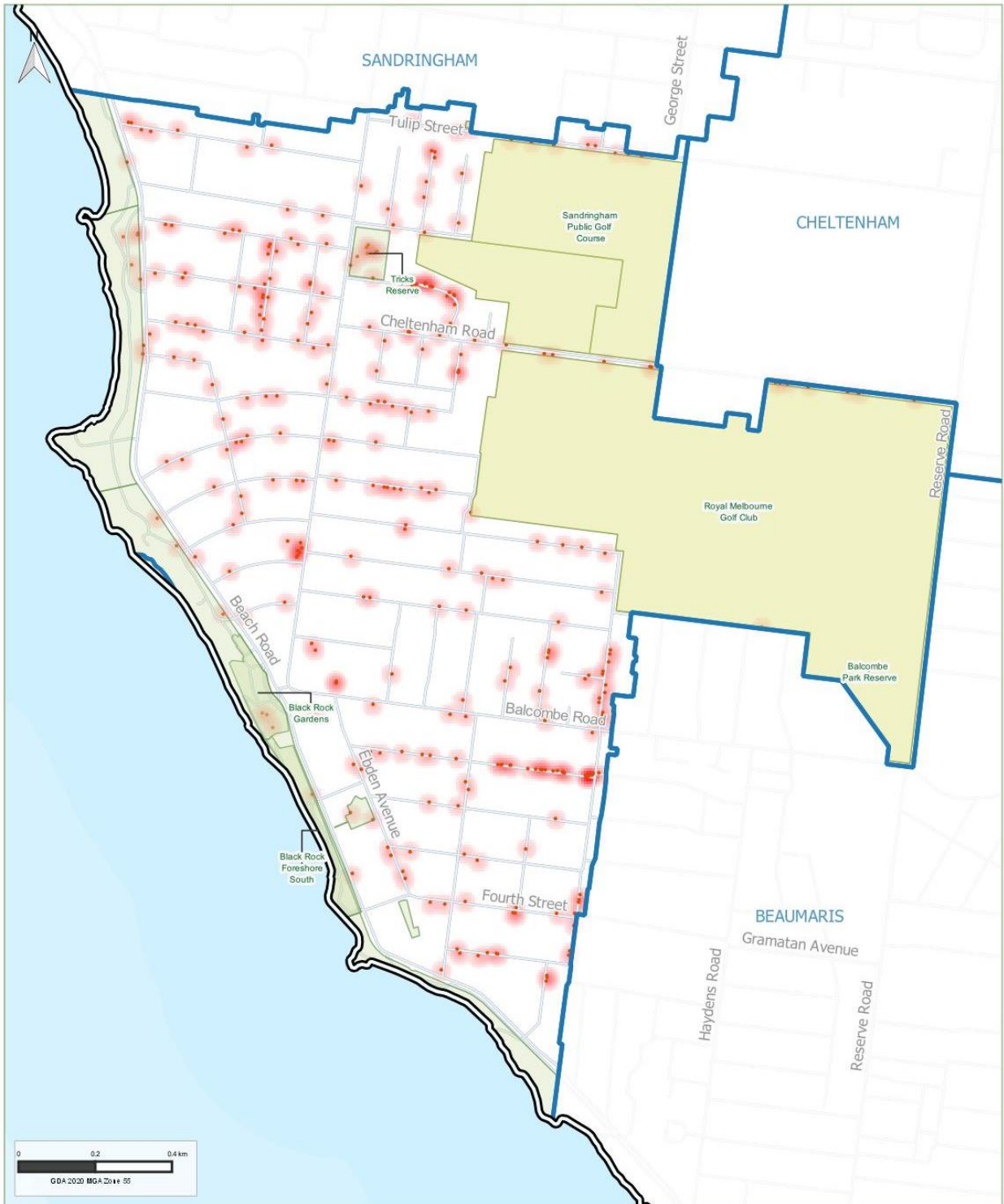
Where it has been found that trees reaching the end of their useful life still provide benefit and habitat, it should be retained as habitat tree as per the Tree Risk Assessment Tool (TRAQ).

Graph 3. Useful life expectancy of council-managed trees in Black Rock



Map 5: Location of trees with low ULE

³ 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



Legend

- Low ULE Tree
- Council Land
- Golf Club
- ▭ Bayside LGA Boundary
- ▭ Suburb
- Roads

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Created by Bayside City Council
29 December 2022

Tree health and age

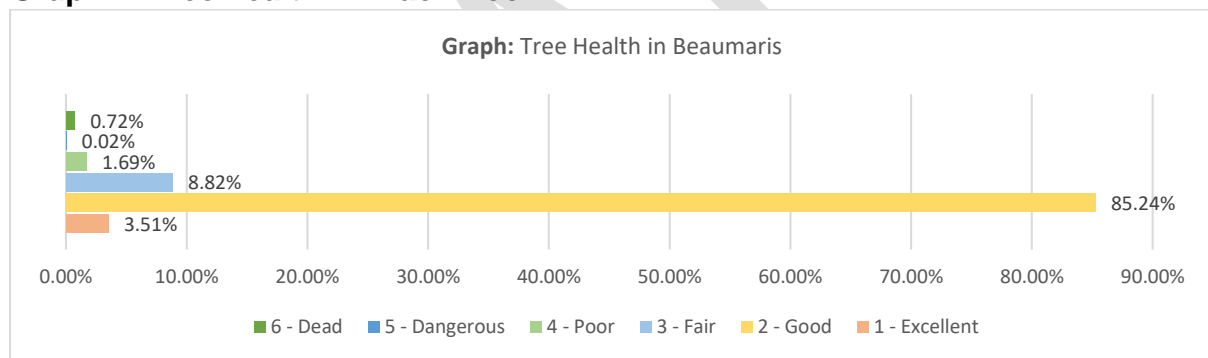
Approximately 85.24% of the council-managed street and park trees in Black Rock were classified as being in good health, while 3.51% were classified as excellent. Trees that are classified as poor, dangerous or dead make up for 2.43% of street and park trees in Black Rock.

Data on tree age and maturity demonstrates a reasonable level of diversity in the age of Black Rock’s trees. As seen in Graph 5, the highest proportions are new and semi-mature, making up 42% and 31% respectively.

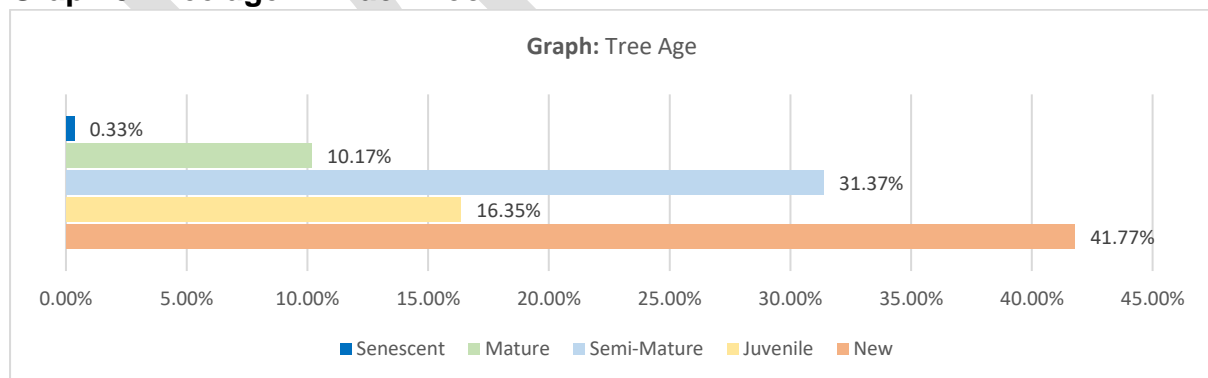
Map 6 provides the location of those trees that are in poor health, dangerous or dead. Trees that have been identified as dangerous or dead are concentrated mostly along the foreshore and vastly spread throughout the suburb’s residential streets. Street trees that are dead should be removed but dead trees on the foreshore and in parks can provide habitat for fauna. Through the continued use of the Tree Risk Assessment Tool, Council will retain those trees and vegetation that provide a service to the ecosystem.

In 2022, 85.24% of the council-owned street and park trees in Black Rock, were classified as being in good health. Trees that are classified as poor, dangerous or dead make up for 2.43%.
Through the continued use of the Tree Risk Assessment Tool, Council will retain the trees and vegetation that provide a service to the ecosystem.

Graph 4. Tree health in Black Rock



Graph 5. Tree age in Black Rock

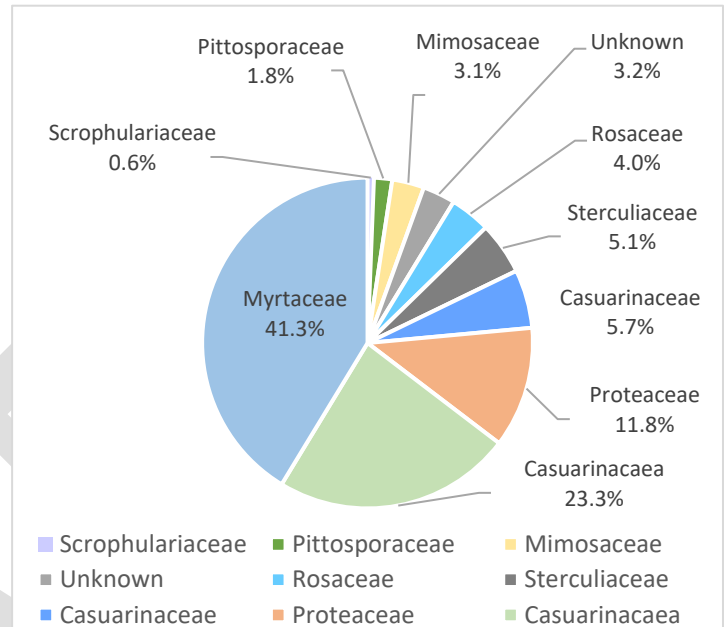
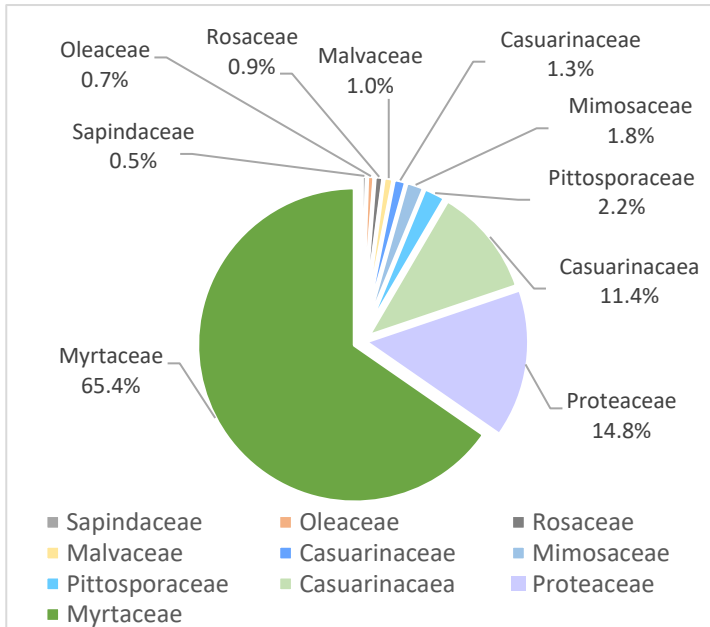


Map 6: Tree Health in Black Rock



Species diversity

A resilient urban forest has a diverse range of species from different families. As seen in graph 6 and 7, Black Rock’s Street and park trees are largely dominated by *Myrtaceae*, making up to 65% of all street trees and 41% of all park trees. The *Casuarinaceae* family follows, making up 23% of all park trees and the *Proteaceae* family making up 14.8% of all street trees. Other families make up about 20% of street trees and 32% of park trees. About 3% of council-managed trees in Black Rock are unknown species.



Graph 6. Diversity of street tree species in Black Rock

Graph 7. Diversity of park tree species in Black Rock

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 Black Rock’s streets and parks at a significantly lower percentage than the *Myrtaceae* family. The inclusion and increase of these families should be targeted through the actions and implementation of this Precinct Plan, ensuring that different types of trees align with the neighbourhood character of the surrounding locality:

- Oleaceae
- Sapindaceae
- Rosaceae
- Scrophulariaceae
- Malvaceae.

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

Currently, the Black Rock’s street and park tree population is largely dominated by the *Myrtaceae* family (*eucalyptus* etc.), making up 41% of park trees and 65% of all street trees.

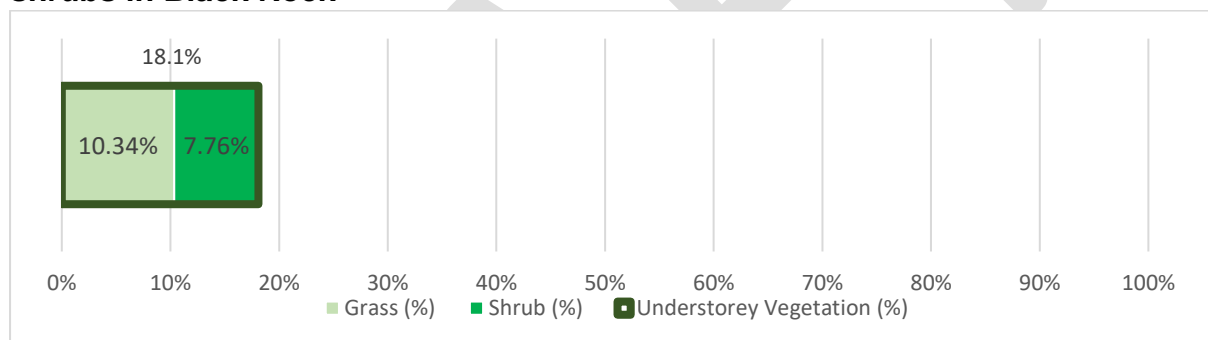
Understorey planting in Black Rock

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

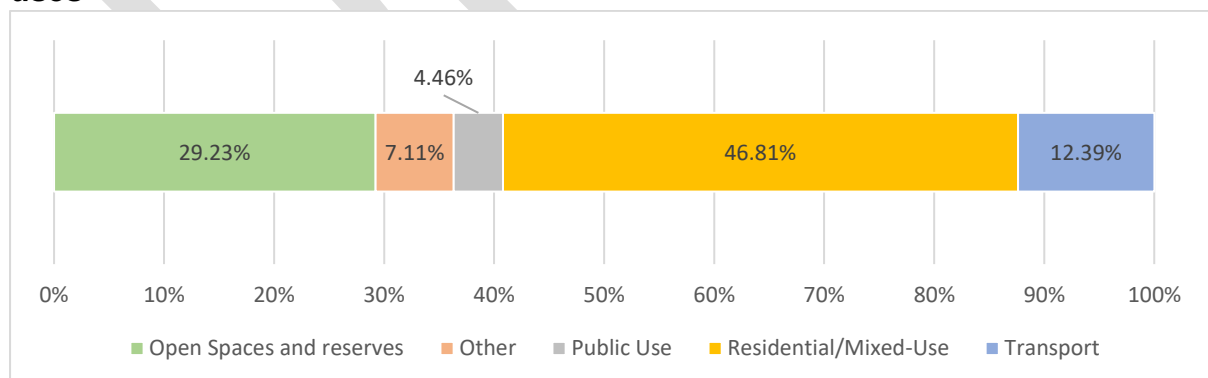
Understorey vegetation includes small trees, shrubs, herbs, grasses, mosses and lichens that occupy the vegetation layers below the canopy of taller trees.⁴ Bayside's *Urban Forest Strategy* has three major goals to ensure the increase and improvement of the urban forest and the functions it serves. 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 18.1% of understorey vegetation coverage in Black Rock, with 46.81% on residential/mixed use areas within the suburb. Open spaces and reserves then make up 29.23% of understorey cover, and 12.39% on streets. Opportunities exist to increase understorey planting upon all land uses, with particular priority within those areas that have a very low percentage of understorey planting (0-10%). These locations have been identified in Map 7 and include sections of Beach Road, Ebdon Avenue, Balcombe Road, Bluff Road and Tulip Street.

Graph 8. Percentage distribution of understorey vegetation as grass and shrubs in Black Rock

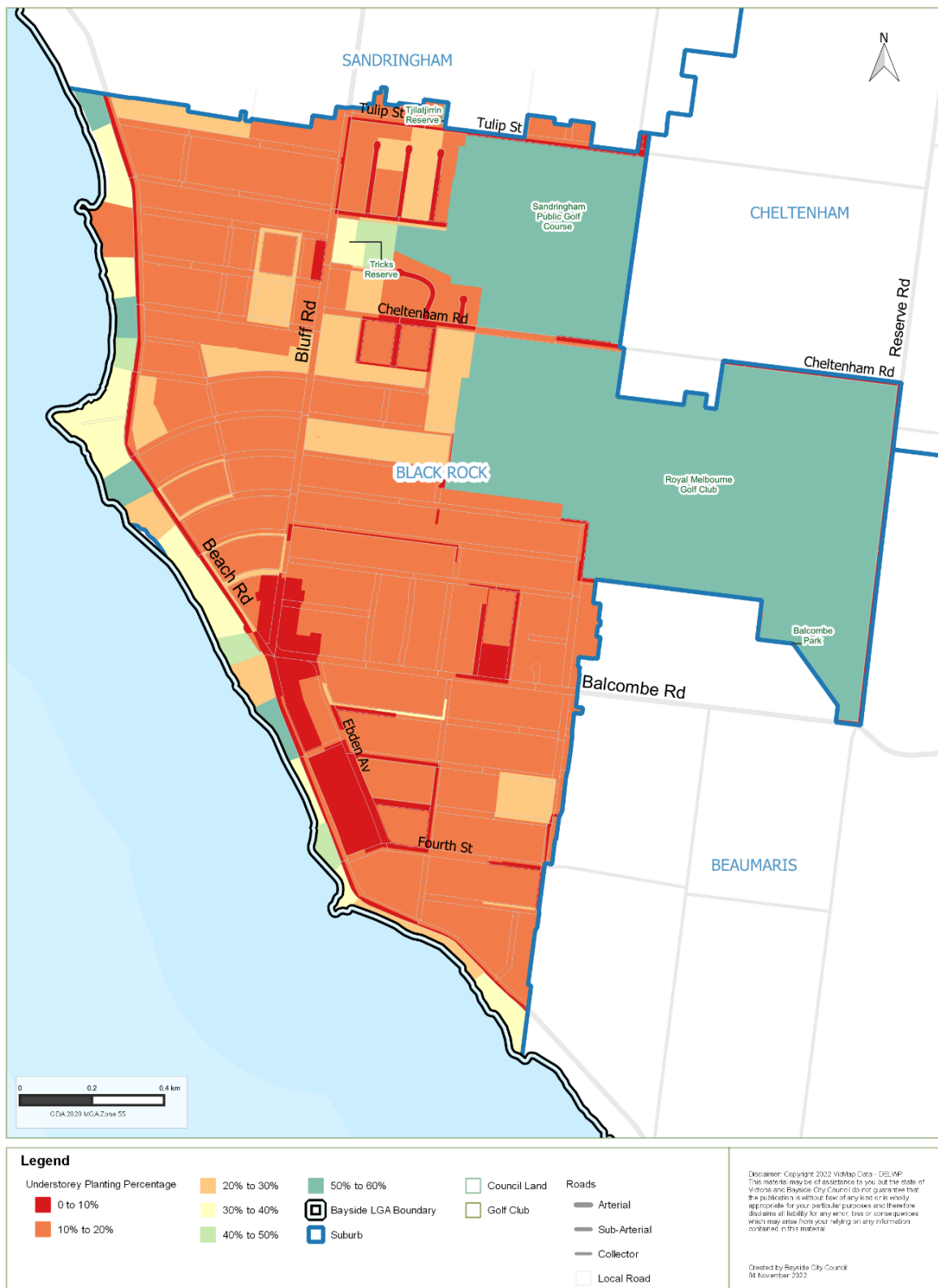


Graph 9. Percentage Distribution of understorey vegetation in different land uses



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

Map 7. Understorey planting in Black Rock



Urban Heat Island

Urban heat island effect in Black Rock

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

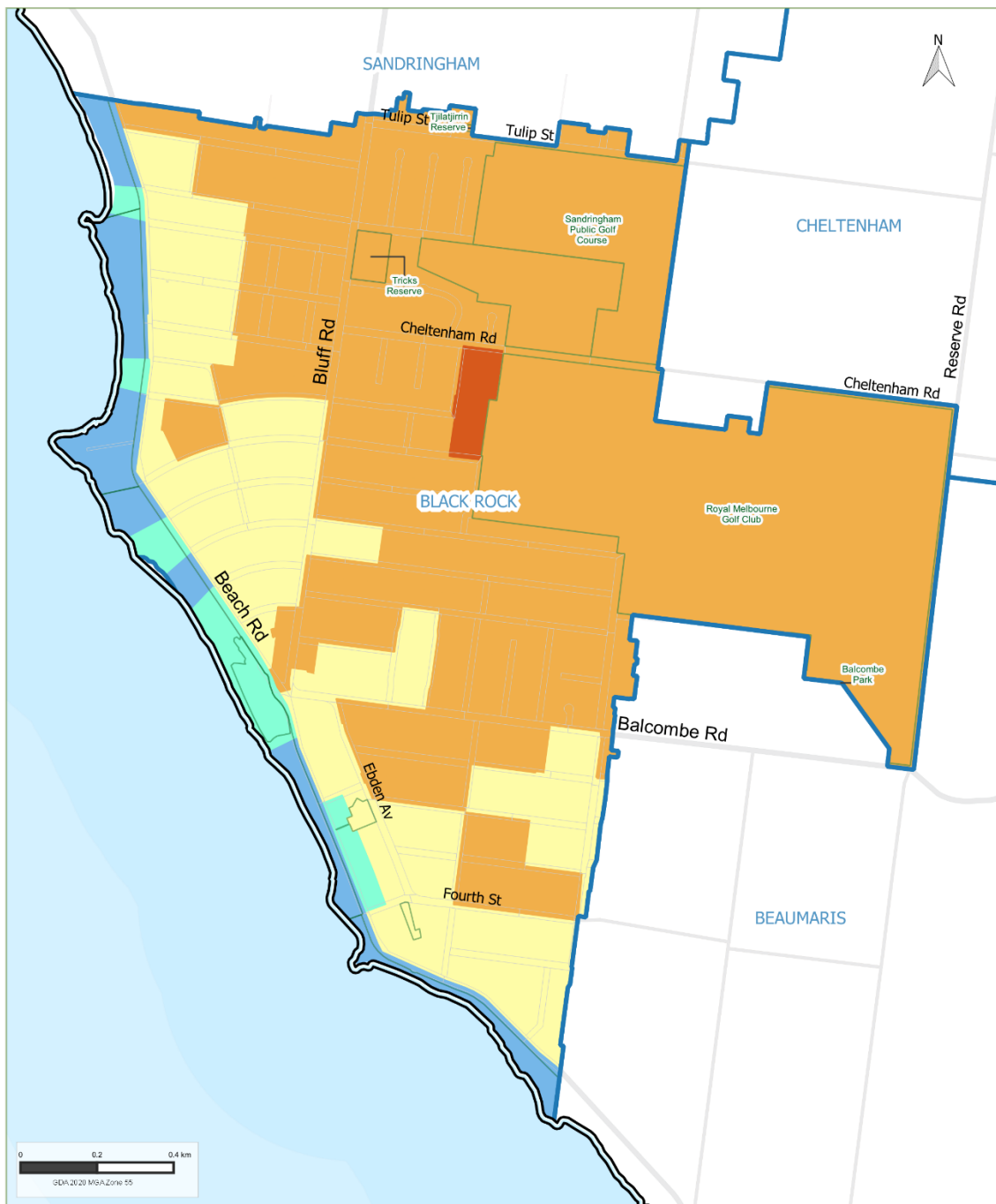
Urban heat data was captured in 2018 and provided in Map 8 below. The results are relatively moderate, with areas along the foreshore being least impacted. Areas more inland were seen to have increased temperature levels.

Council will prioritise planting on Council land that is most impacted by urban heat island effects. Potential impacts may be felt within Ferguson Street, Cheltenham Road and Arkaringa Crescent. Innovative techniques such as green roofs and walls should also be explored and encouraged in places where traditional approaches to increasing vegetation may be difficult to achieve.

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

⁵ 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



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

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04 November 2022

Biodiversity Assessment

Council undertook a desktop biodiversity assessment to inform the *Urban Forest Strategy*. The assessment area included the entire municipality, but this section will focus on Black Rock and discuss the results from the consultant's report.

The purpose of the desktop biodiversity assessment was to assess the existing ecological values present within the council area and identify key areas where biodiversity could be improved.

Strategic Biodiversity Value Score

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

56 areas with SBV scores were identified within Bayside. A review of the SBV scores mapped within the Council municipality was undertaken, with the results shown on Map 9. While the majority of Black Rock did not present a high SBV score, high conservation value was present at Red Bluff Half Moon Bay. Future planting within these areas should focus on ensuring the SBV scores modelled within these areas do not decrease, by promoting native restoration and plantings in these areas when required.

Ecological Vegetation Classes (EVCs)

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

Of the 10 EVCs modelled within Bayside, three have been identified within Black Rock, specifically the Coastal Headland Scrub / Coast Banksia Woodland Mosaic, the Heathy Woodland / Sand Heathland Mosaic and the Sedgy Swamp Woodland. The foreshore areas containing a mix of coast *Banksia* woodland and coastal headland scrub. These identified EVCs have informed the species palette in Appendix 3 of this Precinct Plan. The species palette provides guidance on species of trees and vegetation that should be planted in order to enhance the character and enhance the ecological values of the urban forest.

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

Map 9 – Biodiversity Value Score



Map 10 – Ecological Vegetation Classes in Black Rock



Legend

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

Modelled 2005 Ecological Vegetation Classes

- Coastal Headland Scrub / Coast Banksia Woodland Mosaic (EVC 919)
- Heathy Woodland / Sand Heathland Mosaic (EVC 892)
- Sedgy Swamp Woodland (EVC 707)

Planning Zones

- PPRZ - Public Park and Recreation Zone
- PUZ1 - Public Use Zone - Service and Utility
- PUZ2 - Public Use Zone - Education

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27 April 2023

Park Improvement and Habitat Linkage Plan

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

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

Conservation reserves in Black Rock

- Black Rock – South
- Red Bluff.

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

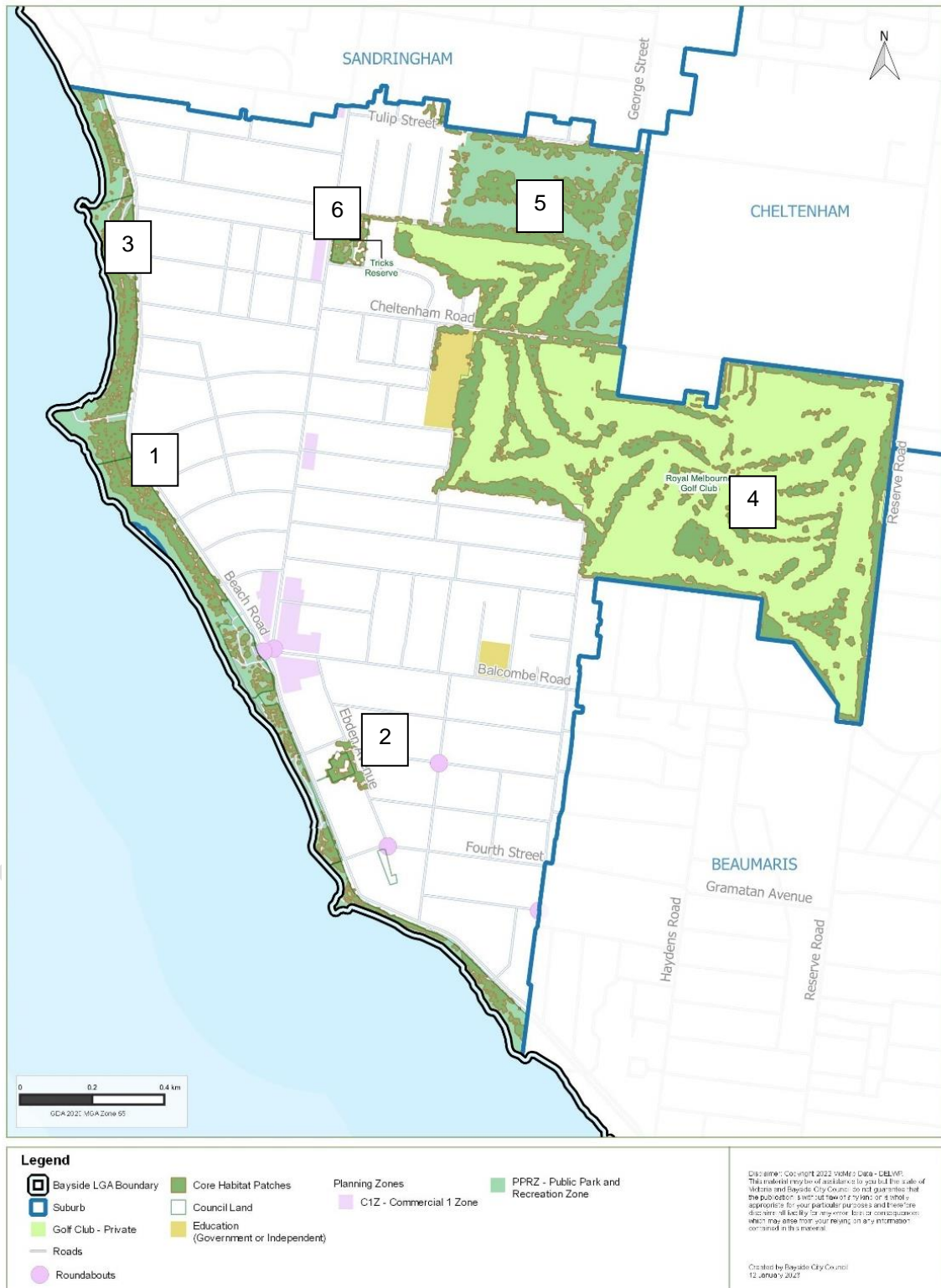
Streetscapes – Whichever possible, increase the extent of indigenous understorey vegetation in verges, nature strips, roundabouts, traffic islands and edges of carparks or other less frequented or unused areas.

Parklands – Expand on areas of existing native vegetation (both patches and individual trees) with dense understorey plantings, or identify locations for additional native plantings, to create structurally diverse ‘habitat planting zones’.

Core Habitat Patches

1. Black Rock Beach/ Foreshore
2. Ebdon Avenue (Black Rock House)
3. Red Bluff
4. Royal Melbourne Golf Course
5. Sandringham Golf Links
6. F G Tricks Reserve.

Map 10 – Core Habitat Patches



Priority Habitat Improvement Areas

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

Priority Habitat Improvement Areas identified in Black Rock are:

- Black Rock Foreshore
- Red Bluff
- Sandringham Golf Links.

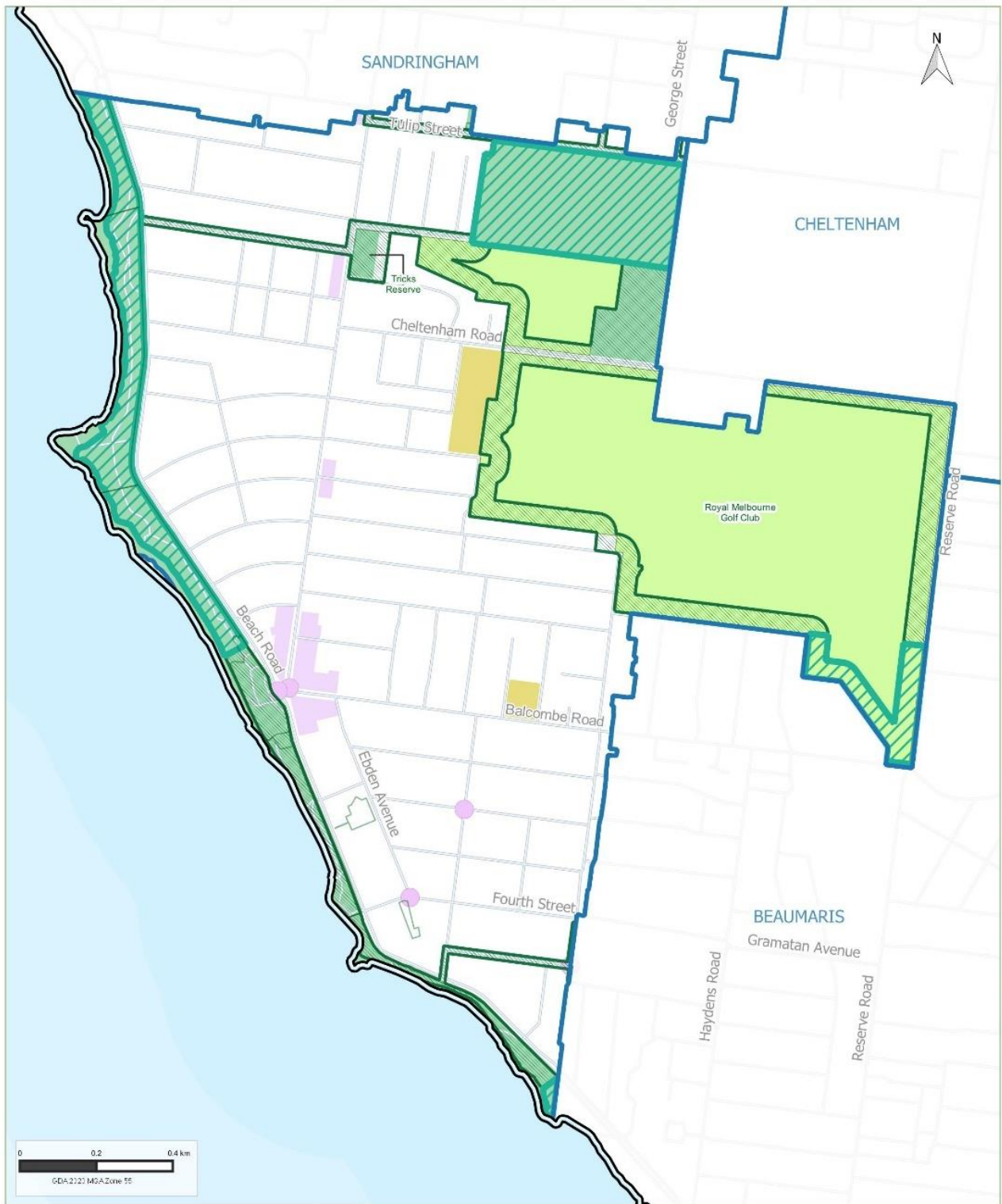
Priority Linkage Improvement Areas

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.⁷ Locations of priority linkages identified across the municipality have been restricted to public land, except for limited instances within privately owned golf courses.

- Black Rock foreshore via Eliza Street/ F G Tricks Reserve/ Fern Street
- Sandringham Golf Links via F G Tricks Reserve/ McKay Avenue/ Cheltenham Road/ Link Street/ Ardoyne Street/ Iluka Street
- Beach Road to Fifth Street.

⁷ Park Improvement and Habitat Linkage Plan, Bayside City Council (2022)

Map 11: Habitat Linkages and Improvements



Legend

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

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Created by Bayside City Council
12 January 2023

Trees on Private Land

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

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

Regulations involving trees on private land

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

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

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

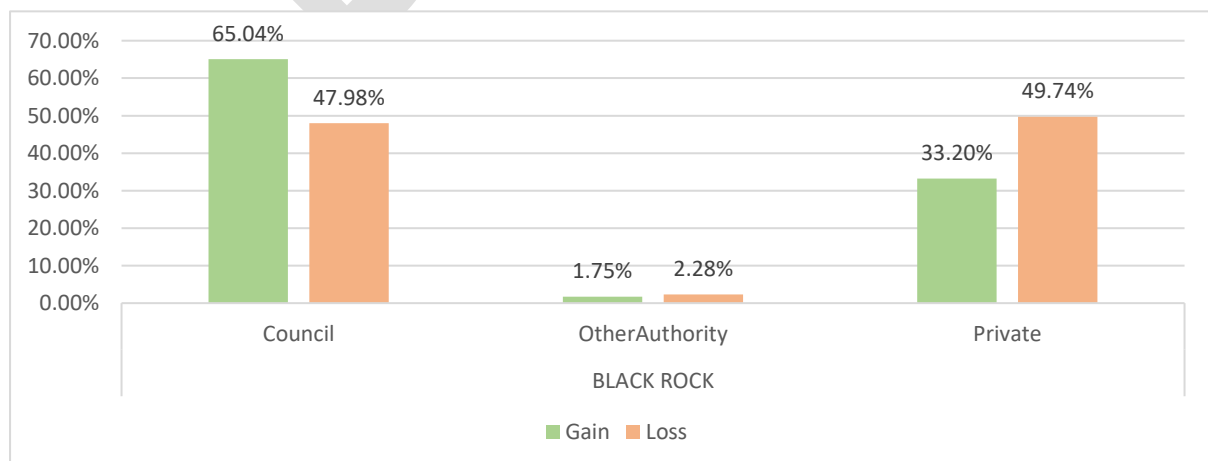
Tree loss and gain in Black Rock on private land

Map 13 shows tree canopy loss and gain in Black Rock 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

As indicated in Graph 10, while private land contributed to 33% of tree canopy gains in Black Rock, it also contributed to 50% of tree canopy losses. Conversely, council-owned land contributed 65% to tree canopy gain versus 48% of tree canopy loss. Losses and gains were calculated by comparing 2015 and 2019 canopy cover data.

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.

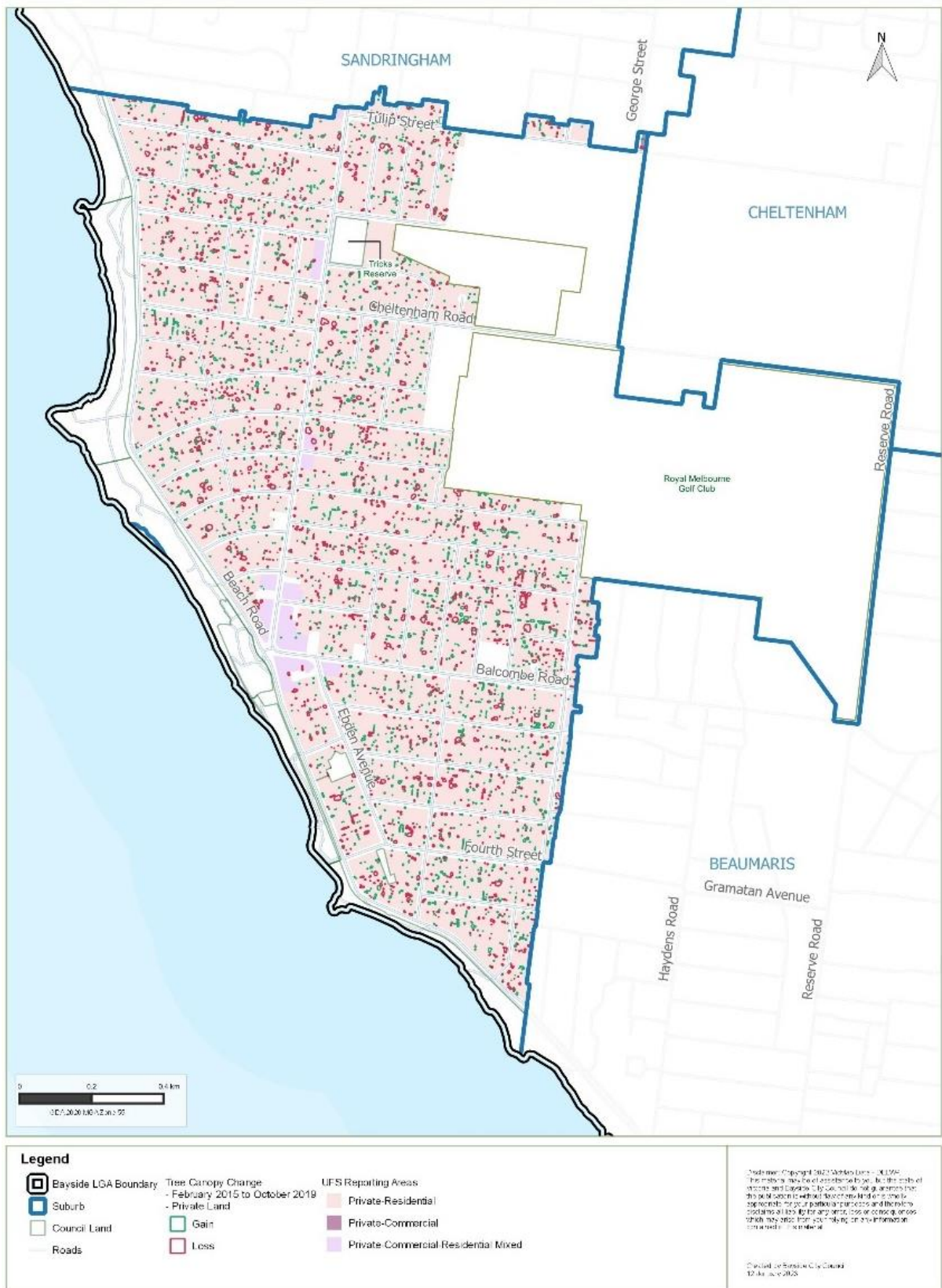
Council will also investigate opportunities to provide free tree and vegetation giveaways to residents. This will provide Council with a pathway to influence the tree and vegetation cover that exists on private land and help residents maintain the health of their trees and gardens. Bayside already has 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 have a focus on education, awareness on the benefits of vegetation, and participation in increased tree planting through various education programs.

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

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

Map 13 - Vegetation loss and gain on private land



Black Rock in Images

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



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

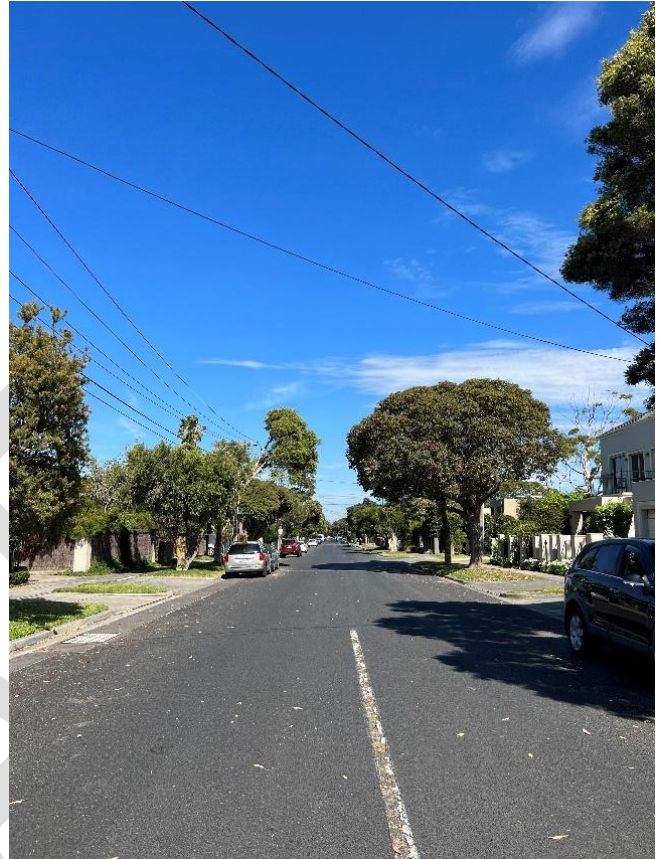


Image 7. Middleton Street, an example of a street with medium tree canopy coverage



Image 8. Cheltenham Road, an example of 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.



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

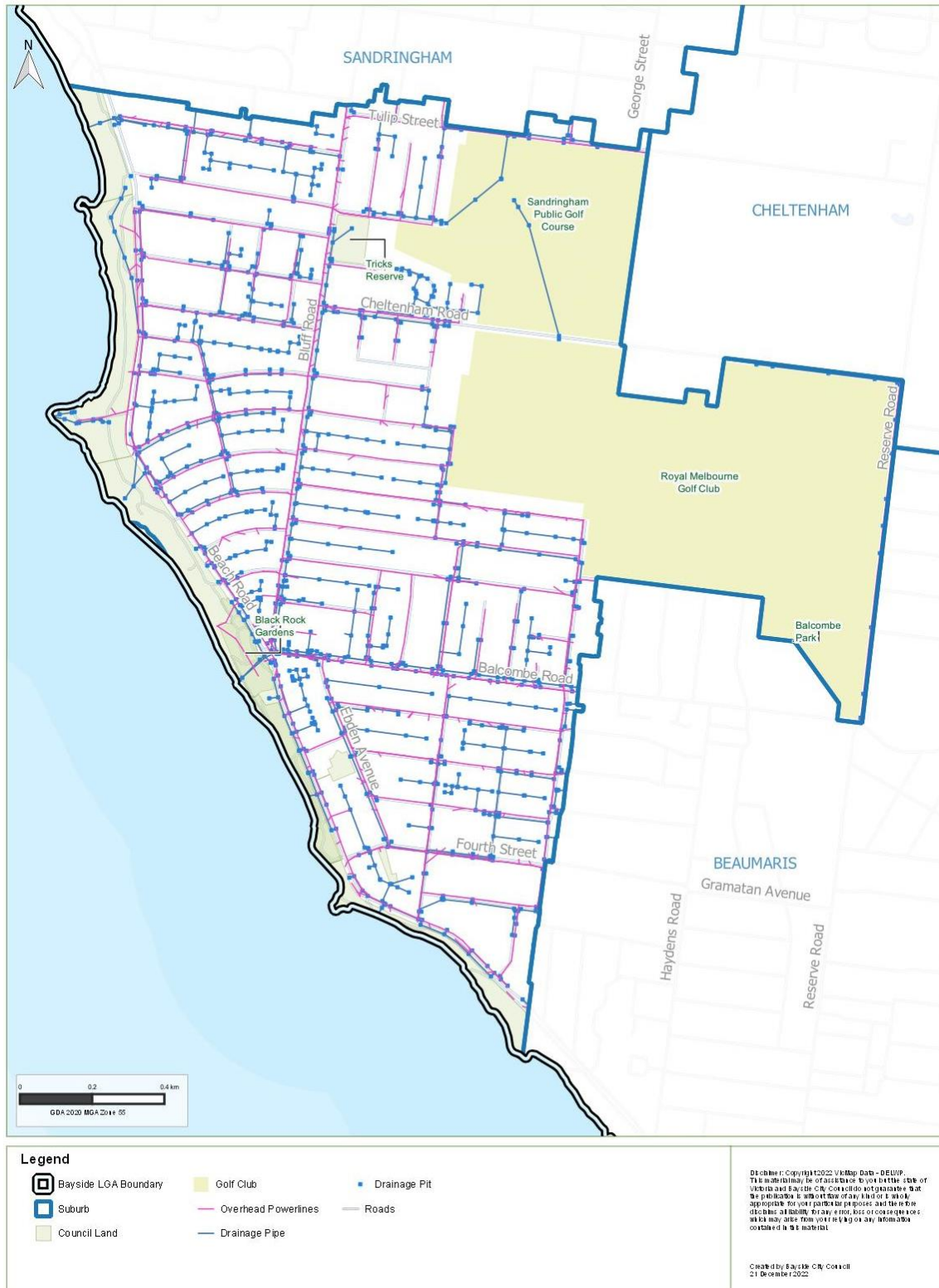
- Footpaths
- Kerb and channel
- Roadways
- Playgrounds
- Pathways
- Private infrastructure
- Public infrastructure.

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

It is also important to note that infrastructure can also be constrained due to weather events. The *Climate Emergency Action Plan 2020* requires that new infrastructure be designed to higher environmental standards and is located with consideration to future flood and storm surge risk. Existing infrastructure has to be retrofitted to reduce environmental impact and to improve resilience. It is critical to consider how each piece of new infrastructure can contribute to a more resilient built

environment. Adapting to climate change requires taking actions to lessen its adverse consequences and increase capacity to withstand the stresses and shocks associated with natural hazards and extreme weather events. Investing in climate change adaption helps to embed economic, social, and environmental resilience to protect the most vulnerable to the consequences of climate change.

Map 14 – Infrastructure servicing across Hampton



Key Opportunities

Greening Black Rock

Increasing tree canopy cover to reach 30% and vegetation cover to reach 30% across Hampton East by 2040.

Biodiverse suburb

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

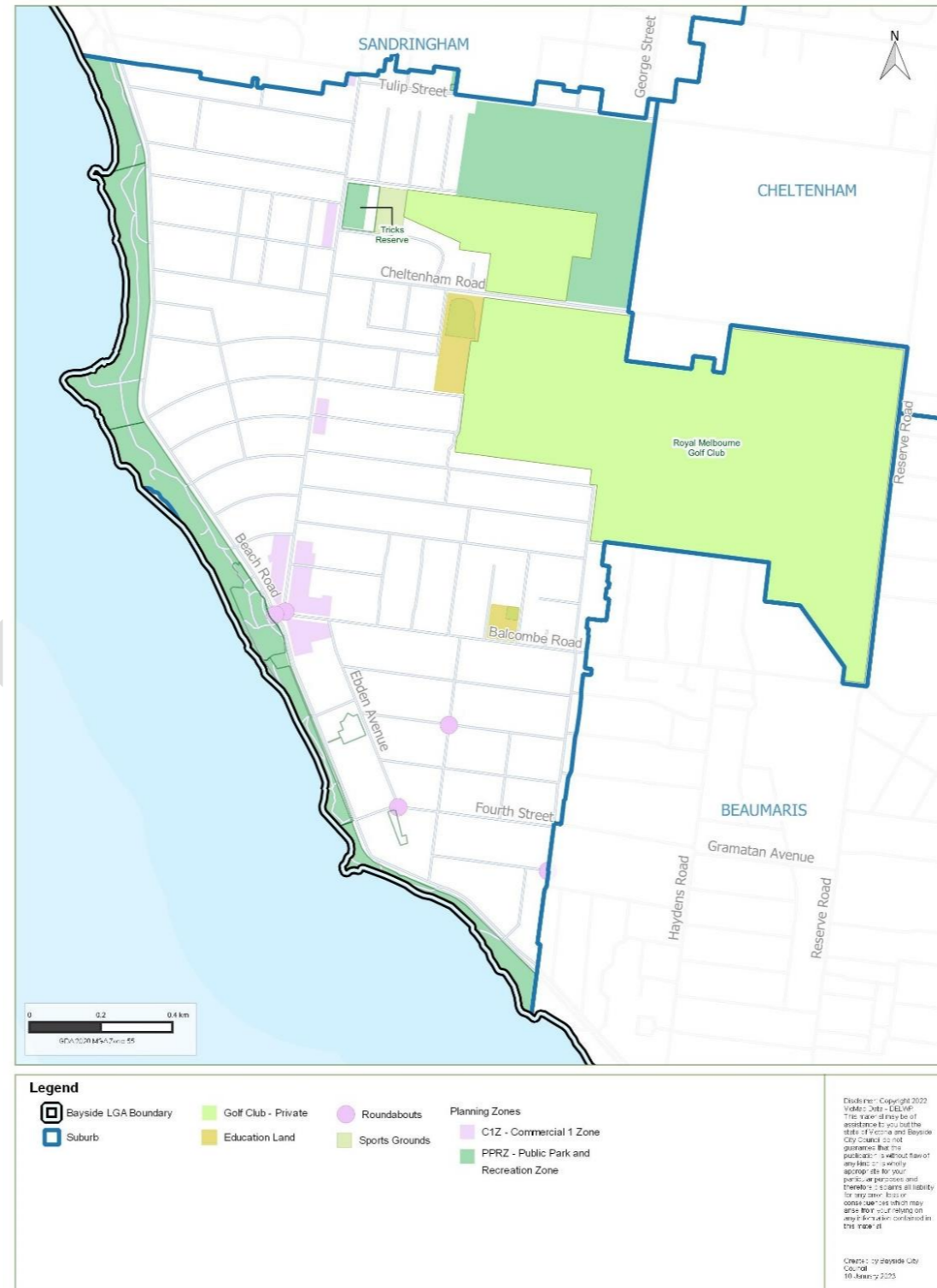
Improve monitoring and maintenance

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

Encourage residents and private owners

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

Map 16 – Key Opportunities in Black Rock



Council-owned open spaces

Black Rock has approximately 44 hectares of open space that includes parks, reserves, and foreshore areas.

Opportunities exist to increase the number of canopy trees planted in council-owned open spaces, with the most prominent example being along the foreshore and those open spaces that have been identified as core habitat patches, habitat linkage and improvement areas.

Council-owned Projects

There is a significant opportunity to increase vegetation cover in Black Rock through council-owned projects like the renewal or development of community buildings and sports clubs or road reconstruction. 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 considered to ensure sporting events can still run.

Activity Centres

There are three areas that are zoned for commercial use within Black Rock:

- Black Rock Village (Large Neighbourhood Activity Centre)
- Bluff Road and Love Street (Small Neighbourhood Activity Centre)
- Bluff Road and Arranmore Avenue (Small Neighbourhood Activity Centre)

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

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

Private Golf Course – Royal Melbourne Golf Club

Council will encourage land owner participation in greening, particularly for the private golf courses.

This will be undertaken through a coordinated urban forest communications and engagement strategy that has a focus on education, awareness of the benefits of trees.

Educational land

The council will work with other State Government departments and with private owners to increase vegetation cover on educational land. The schools within Black Rock are Black Rock Primary School and St Joseph's Private School.

Understorey planting

Where possible, planting and maintaining understorey vegetation is encouraged to assist fauna to forage over a longer period of time.

Roundabouts

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

Understorey and canopy tree planting will be prioritised on roundabouts that currently do not have vegetation such as the Fifth Street and Keating Street roundabout.

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.'

Priority Linkage Improvement Areas

- Black Rock foreshore via Eliza Street/ F G Tricks Reserve/ Fern Street
- Sandringham Golf Links via F G Tricks Reserve/ McKay Avenue/ Cheltenham Road/ Link Street/ Ardoyne Street/ Iluka Street
- Beach Road to Fifth Street.

Prioritising Trees and Vegetation in streets

Streets make up approximately 12% of the total area of Black Rock. When prioritising where to plant, it is important to focus resources in the locations that need it most. This includes consideration of where we have opportunities to plant understorey, improvement of habitat, where the highest density of people reside, and where very low canopy cover exists.

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

Planting priorities

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

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

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

How the Precinct Plan guides planting



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



Legend			
<p>Map17. Number of Trees Required to be Replaced in the Next 10 Years</p> <ul style="list-style-type: none"> 1 - 2 Trees 2 - 4 Trees 4 - 6 Trees 6 - 8 Trees 	<ul style="list-style-type: none"> 8 - 10 Trees 10 - 12 Trees 12 - 14 Trees 14 - 16 Trees 16 - 18 Trees 	<p>Map18. Street Tree Canopy % (October 2019)</p> <ul style="list-style-type: none"> Tree Canopy Cover less than 20% Tree Canopy Cover greater than 20% 	<p>Map19. Opportunities Identified by Community for Planting</p> <ul style="list-style-type: none"> Understorey Planting Tree Planting <p>Map20. Streets with High Urban Heat Island Effect</p>

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Created by Parks City Council
30 December 2022

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



Legend			
<p>Map17. Number of Trees Required to be Replaced in the Next 10 Years</p> <ul style="list-style-type: none"> 1 - 2 Trees 2 - 4 Trees 4 - 6 Trees 6 - 8 Trees 	<ul style="list-style-type: none"> 8 - 10 Trees 10 - 12 Trees 12 - 14 Trees 14 - 16 Trees 16 - 18 Trees 	<p>Map18. Street Tree Canopy % (October 2019)</p> <ul style="list-style-type: none"> Tree Canopy Cover less than 20% Tree Canopy Cover greater than 20% 	<p>Map19. Opportunities Identified by Community for Planting</p> <ul style="list-style-type: none"> Understorey Planting Tree Planting Map20. Streets with High Urban Heat Island Effect
<p><small>Disclaimer: Copyright 2022 V&A Map Data - DEWIP. This information is for general information only and does not constitute an offer of any financial product or service. It is not intended to be used as a basis for investment decisions. The publication is without any liability or responsibility for any errors, omissions or inaccuracies. The information contained herein is for general information only and does not constitute an offer of any financial product or service. It is not intended to be used as a basis for investment decisions.</small></p> <p><small>Created by Baylink City Council 30 December 2022</small></p>			

Map 19 – Opportunities Identified by Community for Planting in Black Rock

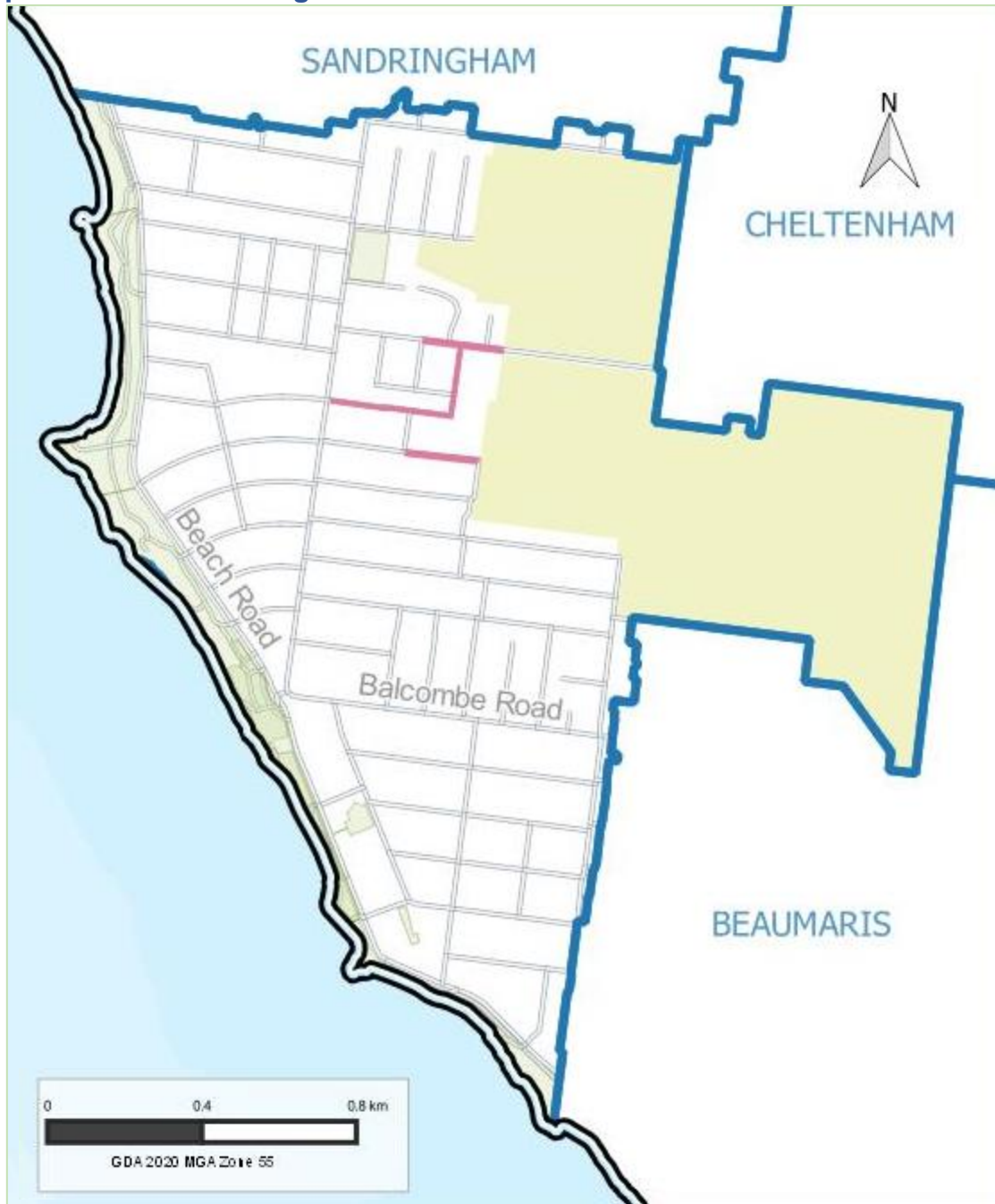


Legend			
<p>Map17. Number of Trees Required to be Replaced in the Next 10 Years</p> <ul style="list-style-type: none"> 1 - 2 Trees 2 - 4 Trees 4 - 6 Trees 6 - 8 Trees 	<ul style="list-style-type: none"> 8 - 10 Trees 10 - 12 Trees 12 - 14 Trees 14 - 16 Trees 16 - 18 Trees 	<p>Map18. Street Tree Canopy % (October 2019)</p> <ul style="list-style-type: none"> Tree Canopy Cover less than 20% Tree Canopy Cover greater than 20% 	<p>Map19. Opportunities Identified by Community for Planting</p> <ul style="list-style-type: none"> Understorey Planting Tree Planting Map20. Streets with High Urban Heat Island Effect

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Created by East Gippsland Council
30 December 2022.

Map 20 – Streets with High Urban Heat Island Effect in Black Rock



Legend			
<p>Map17. Number of Trees Required to be Replaced in the Next 10 Years</p> <ul style="list-style-type: none"> 1 - 2 Trees 2 - 4 Trees 4 - 6 Trees 6 - 8 Trees 	<ul style="list-style-type: none"> 8 - 10 Trees 10 - 12 Trees 12 - 14 Trees 14 - 16 Trees 16 - 18 Trees 	<p>Map18. Street Tree Canopy % (October 2019)</p> <ul style="list-style-type: none"> Tree Canopy Cover less than 20% Tree Canopy Cover greater than 20% 	<p>Map19. Opportunities Identified by Community for Planting</p> <ul style="list-style-type: none"> Understorey Planting Tree Planting Map20. Streets with High Urban Heat Island Effect

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30 December 2022

Implementation Plan

The following set of actions specifically identifies outcomes for trees and vegetation planting. They provide the framework for change within Black Rock 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
Create a diverse and healthy urban forest that reinforces greater outcomes for biodiversity.						
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 <i>Park Improvement and Habitat Linkage Plan</i> (Map 10 - 11), including: Priority Habitat Improvement Areas: <ul style="list-style-type: none"> Black Rock foreshore via Eliza Street/ F G Tricks Reserve/ Fern Street Sandringham Golf Links via F G Tricks Reserve/ McKay Avenue/ Cheltenham Road/ Link Street/ Ardoyne Street/ Iluka Street Beach Road to Fifth Street. Priority Linkage Improvement Areas: <ul style="list-style-type: none"> Black Rock Foreshore Red Bluff Sandringham Golf Links. Core habitat patches: <ol style="list-style-type: none"> Black Rock Beach/ Foreshore Ebden Avenue (Black Rock House) Red Bluff Royal Melbourne Golf Course Sandringham Golf Links F G Tricks Reserve. 	Open Space	Year 1 & 2	Budget allocated for 2022/23 and 2023/24 financial years.	<i>Park Improvement Habitat Linkage Plan</i> and the <i>Urban Forest Strategy Annual Reporting Program</i> .
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.
Phase 1 & 2	Create new open space, pocket parks, micro-forests in the suburb seeking new biodiversity or habitat corridors.	Investigate opportunities to seek funds to support the acquisition of land for new open spaces to connect core habitat patches.	Open Space	Ongoing	Resources required for advocacy	Number of grants / opportunities applied for.
Phase 1	Ensure humans and wildlife can simultaneously and 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
Enhance landscape outcomes and increase tree and vegetation cover to reach 30% across Brighton by prioritising areas in greatest need						
Phase 1	Increase tree and understorey cover at areas with greatest need to	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%):	Open Space	Year 1 to 5	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	Number of plants planted <i>Urban Forest Strategy Annual</i>

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
	enhance landscape outcomes, provide for heating and cooling benefits and combat climate change.	<ul style="list-style-type: none"> Tulip Street <p>In addition, investigate opportunities to increase tree and understorey cover at the following streets which have been identified as hot spots due to potential impacts from Urban Heat Island effects:</p> <ul style="list-style-type: none"> Ferguson Street Cheltenham Road Arkaringa Crescent 				<i>Reporting Program.</i>
Phase 1	Planting canopy trees and understorey vegetation on roundabouts that currently do not have vegetation to enhance landscape outcomes.	<p>Investigate opportunities to provide canopy cover and/or understorey planting at the following roundabouts (as per Map 16):</p> <ul style="list-style-type: none"> Fifth Street / Keating Street Second Street / Central Avenue roundabout Ebden Avenue / Fourth Street roundabout <p>New plantings must not affect sight lines, safety or accessibility for larger vehicles.</p>	<p>Open Space, Integrated transport team to guide and undertake road safety audit before and after planting.</p> <p>Council's contractor (Citywide) health and safety standards to be followed.</p>	Year 1 to 5	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	<p>Number of plants planted</p> <p><i>Urban Forest Strategy Annual Reporting Program.</i></p>
Phase 2	Increase utilisation of green walls and green roofs in Activity Centre area.	<p>Encourage innovative greening in Black Rock Village by educating community regarding new technology and promoting new ideas.</p> <p>Investigate opportunities to introduce mechanisms to increase green roofs and walls within Activity Centres.</p>	Development Services, Economic Development, Strategic Planning	Year 5 to 10	Economic Development team may require budget to run pilot programs.	<p>Number of plants planted</p> <p>Urban Forest Strategy Annual Reporting Program</p>
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.	<p>Number of plants planted.</p> <p>Urban Forest Strategy Annual Reporting Program.</p>
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.	<p>Number of plants planted</p> <p><i>Urban Forest Strategy Annual Reporting Program.</i></p>
Learn together, educate each other, encourage and celebrate greater care and protection of the Bayside Urban Forest						
Phase 1	Increase planting on principal public transport network that has less than 20% tree canopy cover.	Advocate to VicRoads and other authorities for increased planting on Balcombe Road, Beach Road, and Bluff Road.	Open Space, Urban Strategy, Communications and Engagement	Ongoing	No budget required.	A commitment made to plant trees on the streets maintained by VicRoads
Phase 1	Increase awareness amongst the community around the importance of vegetation through various programs and communication material.	Continue to run student and community educational programs to increase awareness around vegetation planting and protection.	Urban Strategy, Communication & Engagement	Ongoing	Budget may be required to create and implement educational programs.	Number of educational programs undertaken every year.
Phase 1 and 2	Ensure humans and wildlife can simultaneously and safely access densely vegetated areas, streets and reserves.	Advocate to VicRoads and other authorities for the undergrounding of powerlines.	Urban Strategy	Ongoing	No budget required.	Funding received and/or partnerships created.

Phase	Objective	Action	Responsibility	Timeframe	Resources required	Measure
Maintain our existing canopy cover across Black Rock and avoid any further decline where possible						
Phase 2	Ensure our urban forest is healthy and resilient.	<p>Where trees reaching the end of their useful life expectancy have been assessed and are no longer providing a benefit to the surrounding habitat, removal may be required.</p> <p>Replacement trees should be selected based on the surrounding environment, neighbourhood character (where relevant) and above and below ground infrastructure. It is noted that there are various trees potentially reaching the end of their useful life expectancy at the following locations (Map 5):</p> <ul style="list-style-type: none"> • FG Tricks Reserve • First Street • Gordon Crescent • St Andrews Crescent • Iluka Street • O'Connor Street. <p>Where it has been found that trees reaching the end of their useful life still provide benefit and habitat, it should be retained as a habitat tree as per the Tree Risk Assessment Tool (TRAQ).</p>	Open Space	Year 5 to 10	Budget and resources will be required to increase the number of trees and understorey plants to be planted.	<p>Number of replacement plants planted, and number of those trees retained for habitat.</p> <p><i>Urban Forest Strategy Annual Reporting Program.</i></p>
Phase 1 and 2	Increase Council's ability to protect trees from vandalism.	<p>Explore additional opportunities to minimise vandalism, particularly along the foreshore.</p> <p>Consider the preparation of a communications and engagement strategy targeted to private property owners and the wider community.</p>	Local Laws, Open Space	Year 1 to 3	Budget and resources will be required to explore opportunities.	Utilise engagement evaluation matrix to measure success.
Phase 2	Provide safer and cleaner streets for our residents and visitors	As tree and vegetation cover increases with time, ensure future maintenance contracts appropriately funds the clean-up of tree leaves and debris on streets and public land.	City Asset, Open Space	Year 5 to 10	Additional budget may be required for maintenance contract.	The number of requests for additional service.
Phase 1	Strengthen requirements and advocacy to maintain and increase vegetation on private land.	Prepare Planning Scheme Amendments to strengthen the protection of vegetation on private land.	Development Services, Urban Strategy	Year 1 to 5	<p>Planning Scheme Amendment process to be funded via operation budget.</p> <p>Budget may be required to prepare detailed background information.</p>	Preparation of Planning Scheme Amendments

Appendix 1: Guiding Principles and Considerations

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

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

Black Rock has a distinctive character dominated by natives and local indigenous species. Future plantings should focus on increasing the presence of indigenous species, as per the requirements of VPO3, which requires 80% of new plants to be indigenous.

Planting types and locations in streets

1. Large canopy trees

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

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

2. Constrained planting spaces

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

3. Roundabouts

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

4. Boulevards

For the boulevards, consider inter-planting with large canopy trees and shrubs to enhance the existing canopy cover. Council will be working with DELWP and VicRoads to prepare a long-term boulevard strategy. Where possible the philosophy of establishing boulevards should extend to local streets.

5. Streets and powerlines

- a.) *Residential streets.* Low voltage overhead wires are present on one side of most residential streets. Where medians exist for large canopy tree planting, small to medium trees on the side with overhead constraints should be selected, always prioritising understorey planting. Understorey planting in Black Rock with VPO3 should be indigenous species.
- b.) *Streets with small nature strip and powerlines.* In streets that have small or very small nature strips, a smaller growing tree will be considered for the powerline side of the street. In those circumstances, the trees on both sides of the street should have similar foliage and form to provide a consistent theme for the street.
- c.) *Tree pruning:* In streets where footpath trees provide the only canopy, medium to large trees that can be effectively pruned around powerlines should be selected. Street and park tree selection for trees growing under power lines will consider the species' tolerance for pruning. For example, a tree that has a natural branching habit and a good wound response to mechanical damage would be considered an appropriate tree for growing under powerlines.
- d.) *Underground powerlines:* Although overhead powerlines are typically more economical, they are susceptible to damage from windborne tree branches, debris, and high wind conditions from extreme weather.

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

Planting patterns and species choice

Black Rock's urban forest character is strongly connected to gum trees, and there will continue to be a higher population of gum trees in Black Rock. Streets, kerb out stands, roundabouts and road ends should be considered as opportunities to plant species drawn from a wider palette that are unique to that location or intersection and provide visual interest. These areas should also be considered as opportunities to create landmark feature landscapes and to support understorey planting.

6. 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.

7. 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.

8. Permeable surfaces

Impermeable surfaces such as pavements, roofing and building coverage increase the risk of flooding in urban areas. Comparatively, permeable surfaces are made of porous materials that allow stormwater to flow through, which reduces the volume of stormwater runoff that enters the drainage system. This helps improve water quality as it reduces the number of pollutants that enter waterways and habitats.

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

DRAFT





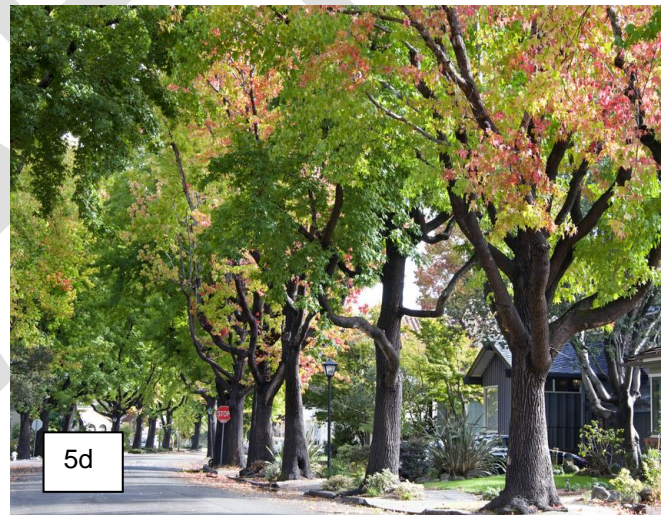
5a



5c



5b



5d



6

Appendix 2: Case Studies

The following case studies showcase high-quality landscaping that combines the use of indigenous and native vegetation and high-quality design. 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.

Importance of high-quality landscaping to contribute to the urban forest

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

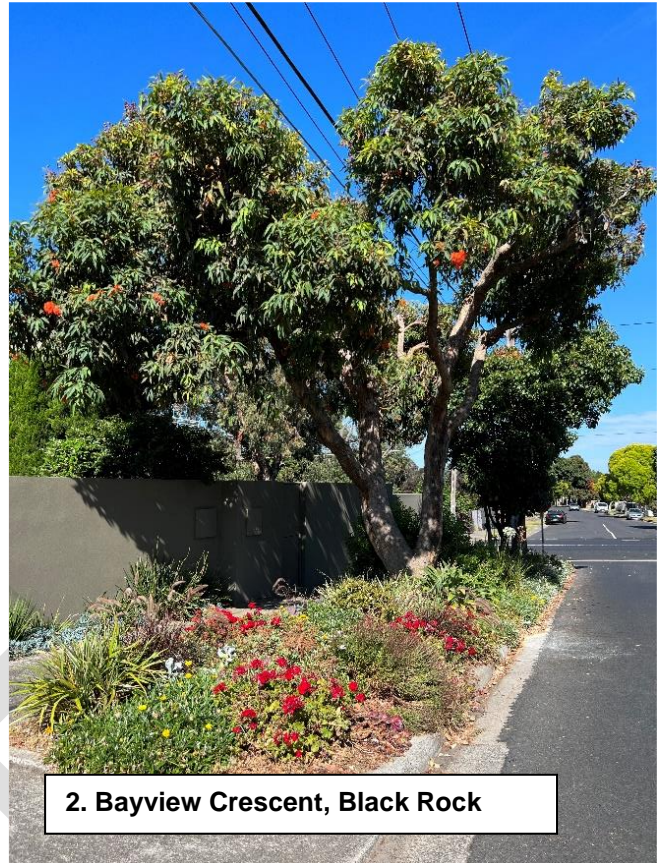
Arkaringa Crescent

The landscaping at Arkaringa Crescent provides an exceptional example of how residents can increase vegetation cover on their nature strips by introducing significant ground-cover vegetation. The case study combines native and indigenous vegetation to create a visually appealing streetscape that promotes the use of understorey plantings. The vegetation will act as a biodiversity corridor for native fauna and allow wildlife to move freely throughout Black Rock.



Bayview Crescent

The case study at Bayview Crescent provides residents with a unique and attractive landscaping example that they can utilise for their own nature strips. The case study integrates diverse types of flora including shrubs, flowers and street canopy trees, this will strengthen Black Rock's biodiversity corridor and promote connectivity for local fauna.



McGregor Avenue

The following case study showcases high-quality landscaping through the use of a diverse range of understorey plantings including grasses, shrubs and succulents. The landscape design enhances the streetscape and provides a habitat for local flora and fauna.



Appendix 3: Black Rock Species Targets and Palette

Species Targets

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

Suburb	EVCs	Target % of new Exotic Species plants	Target % of new Native Species plants	Target % of new Indigenous Species plants
Black Rock	919, 892, 707	0	20	80

Species Palette

The following species provided are of guidance only. The Ecological Vegetation Classes (EVC) that exist in Black Rock have informed the species palette as they focus on retaining and increasing native vegetation. In the suburb of Black Rock, the EVCs found are Coastal Headland Scrub/Coast Banksia Woodland Mosaic (919), Sedgy Swamp Woodland (707) and Sand Heathland /Heathy Woodland (892).⁶ By prioritising the listed species, emphasis will be given on restoring native vegetation, to replicate the original vegetation of the area.

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

When selecting tree species for planting, responsible teams should consider 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 has developed *Live Bayside Plant Bayside 2022* as a guide to inform all future planting on public and private land. Residents are encouraged to use the guide in conjunction with the Black Rock Species Palette when undertaking planting on their private properties. The *Live Bayside Plant Bayside* Guide features a selection of plants including:

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

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

General Planting List for Black Rock

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

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

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

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

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

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

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

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

Small to Medium Trees (5m - 10m)

Species name	Common name	Key
<i>Acacia implexa</i>	Lightwood	HSA
<i>Acacia mearnsii</i>	Black Wattle	HCD
<i>Acacia melanoxylon</i>	Blackwood	HWA
<i>Allocasuarina littoralis</i>	Black She-oak	HDS
<i>Allocasuarina verticillata</i>	Drooping She-oak	CD
<i>Bursaria spinosa</i>	Sweet Bursaria	HCA
<i>Leptospermum laevigatum</i>	Coast Tea-tree	CDA
<i>Melaleuca ericifolia</i>	Swamp Paperbark	HCDWA

Large Trees

Species Name	Common Name	Key
<i>Banksia integrifolia</i>	Coast Banksia	CD
<i>Eucalyptus camaldulensis</i>	River Red Gum	HA
<i>Eucalyptus melliodora</i>	Yellow Box	HA
<i>Eucalyptus ovata</i>	Swamp Gum	HW
<i>Eucalyptus pauciflora</i>	Snow Gum or White Sallee	HA
<i>Eucalyptus radiata</i>	Narrow-leaf Peppermint	HD
<i>Eucalyptus viminalis ssp. pryoriana</i>	Coast Manna-gum	HCD

Small Shrubs (50cm - 2m)

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

Medium to Large Shrubs

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

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

EVC Specific Lists

Of the 10 EVCs modelled within Bayside, three have been identified within Black Rock, the Coastal Headland Scrub/Coast Banksia Woodland Mosaic (919), Sedgy Swamp Woodland (707) and Sand Heathland /Heathy Woodland (892). The below species should be planted within the locations where these EVCs were historically present (as per Map 10).

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

Reference Location: Ricketts Point Beach Reserve

Species typical of at least part of EVC range	Common Name	Lifeform	Location
<i>Leptospermum laevigatum</i>	Coast Tea-tree	Middle Storey	Throughout
<i>Acacia longifolia</i> subsp. <i>sophorae</i>	Coast Wattle	Middle Storey	Throughout
<i>Rhagodia candolleana</i> subsp. <i>candolleana</i>	Seaberry Saltbush	Middle Storey	Coastal Areas
<i>Leucopogon parviflorus</i>	Coast Beard-heath	Middle Storey	Coastal Areas
<i>Leucophyta brownii</i>	Cushion Bush	Understorey Shrub	Coastal Areas
<i>Dichondra repens</i>	Kidney-weed	Understorey Herb	Woodlands
<i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>	Rounded Noon-flower	Understorey Herb	Coastal Areas
<i>Dianella brevicaulis</i>	Small-flower Flax-lily	Understorey Graminoid	Coastal and Heathland Areas
<i>Lachnagrostis billardierei</i> s.l.	Coast Blown-grass	Understorey Graminoid	Coastal Areas
<i>Poa poiformis</i>	Coast Tussock-grass	Understorey Graminoid	Coastal Areas
<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass	Understorey Graminoid	Throughout
<i>Ficinia nodosa</i>	Knobby Club-sedge	Understorey Graminoid	Coastal Areas
<i>Clematis microphylla</i>	Small-leaved Clematis	Climber	Throughout
<i>Tetragonia implexicoma</i>	Bower Spinach	Scrambler	Coastal Areas
<i>Senecio minimus</i>	Shrubby Fireweed	Understorey Herb	Inland sheltered sites
<i>Haloragis brownii</i>	Swamp Raspwort	Understorey Herb	Not local to BCC
<i>Sambucus gaudichaudiana</i>	White Elderberry	Middlestorey Shrub	Not local to BCC

<i>Viola hederacea</i> sensu Willis (1972)	Ivy-leaf Violet	Understorey Herb	Inland sheltered sites
<i>Lobelia anceps</i>	Angled Lobelia	Understorey Herb	Coastal Areas and Wetlands
<i>Sarcocornia quinqueflora</i>	Beaded Glasswort	Understorey Herb	Exposed Coastal Areas
<i>Hydrocotyle sibthorpioides</i>	Shining Pennywort	Understorey Herb	Inland Damp Areas
<i>Pteridium esculentum</i>	Austral Bracken	Understorey Fern	Coastal Woodlands and Inland Areas
<i>Galium australe</i>	Tangled Bedstraw	Scrambler	Coastal and Woodland Areas
<i>Banksia integrifolia</i>	Coast Banksia	Canopy Tree	Coastal and Woodland Areas
<i>Eucalyptus viminalis</i> subsp. <i>pryoriana</i>	Rough-barked Manna Gum	Canopy Tree	Woodland Areas

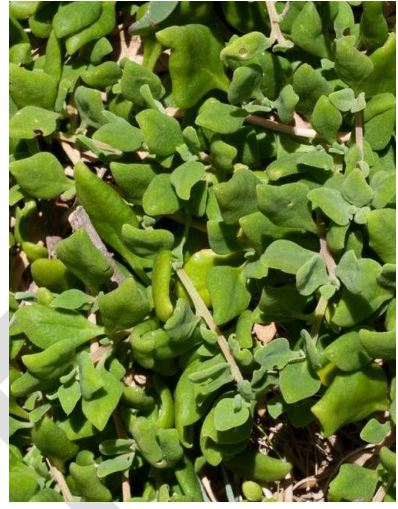
Seaberry Saltbush



Rounded Noon-flower



Bower Spinach



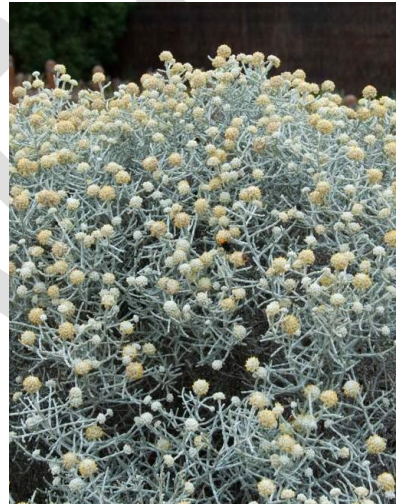
Common Wallaby-grass



Beaded Glasswort



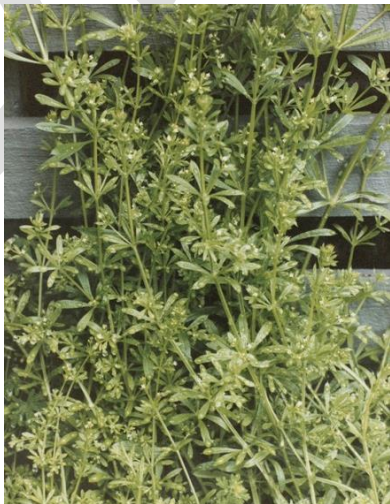
Cushion Bush



Knobby Club-sedge



Tangled Bedstraw



Coast Blown-grass



Sedgy Swamp Woodland (EVC 707)

Reference Location: Basterfield Park – modified example adjacent to the wetland

Species typical of at least part of EVC range	Common Name	Lifeform	Location
<i>Leptospermum continentale</i>	Prickly Tea-tree	Middlestorey Shrub	Throughout
<i>Villarsia reniformis</i>	Running Marsh-flower	Understorey Herb	Wetlands
<i>Epilobium billardierianum</i>	Variable Willow-herb	Understorey Herb	Damp Inland Areas
<i>Centella cordifolia</i>	Centella	Understorey Herb	Wetlands
<i>Goodenia humilis</i>	Swamp Goodenia	Understorey Herb	Wetlands
<i>Gratiola pubescens</i>	Glandular Brooklime	Understorey Herb	Wetlands
<i>Triglochin procerum</i> s.l.	Water Ribbons	Understorey Graminoid	Wetlands
<i>Lepidosperma longitudinale</i>	Pithy Sword-sedge	Understorey Graminoid	Wetland and Damp Heathland
<i>Baumea rubiginosa</i> s.l.	Soft Twig-rush	Understorey Graminoid	Wetlands
<i>Eucalyptus ovata</i>	Swamp Gum	Canopy Tree	Wooded Areas

Running Marsh-flower



Centella



Swamp Goodenia



Glandular Brooklime



Pithy Sword-sedge



Soft Twig-rush



Variable Willow-herb



Water Ribbons



Prickly Tea-tree



Sand Heathland /Heathy Woodland (EVC 892)

Reference Location: Bay Road Heathland Sanctuary

Species typical of at least part of EVC range	Common Name	Lifeform	Location
<i>Epacris impressa</i>	Common Heath	Middlestorey Shrub	Heathlands
<i>Banksia marginata</i>	Silver Banksia	Middlestorey Tree	Heathlands
<i>Leptospermum continentale</i>	Prickly Tea-tree	Middlestorey Shrub	Throughout
<i>Leptospermum myrsinoides</i>	Heath Tea-tree	Middlestorey Shrub	Heathlands
<i>Dillwynia glaberrima</i>	Smooth Parrot-pea	Middlestorey Shrub	Heathlands
<i>Platylobium obtusangulum</i>	Common Flat-pea	Understorey Shrub	Heathlands
<i>Hibbertia fasciculata</i> var. <i>prostrata</i>	Bundled Guinea-flower	Understorey Shrub	Heathlands
<i>Leucopogon virgatus</i>	Common Beard-heath	Middlestorey Shrub	Heathlands
<i>Gonocarpus humilis</i>	Shade Raspwort	Understorey Herb	Inland sheltered sites
<i>Drosera peltata</i> subsp. <i>auriculata</i>	Tall Sundew	Understorey Herb	Inland Damp Areas
<i>Gahnia radula</i>	Thatch Saw-sedge	Understorey Graminoid	Inland Damp Areas
<i>Xanthorrhoea minor</i> subsp. <i>lutea</i>	Small Grass-tree	Understorey Graminoid	Heathland and Woodland Areas
<i>Lepidosperma concavum</i>	Sandhill Sword-sedge	Understorey Graminoid	Heathlands and wetlands
<i>Hypolaena fastigiata</i>	Tassel Rope-rush	Understorey Graminoid	Coastal and Sandy Areas
<i>Schoenus brevifolius</i>	Zig-zag Bog-sedge	Understorey Graminoid	Heathlands and Wetlands
<i>Pteridium esculentum</i>	Austral Bracken	Understorey Fern	Coastal and Heathland Areas
<i>Monotoca scoparia</i>	Prickly Broom-heath	Middlestorey Shrub	Heathlands and Wooded Areas
<i>Amperea xiphoclada</i> var. <i>xiphoclada</i>	Broom Spurge	Understorey Shrub	Heathlands and Wooded Areas
<i>Gahnia sieberiana</i>	Red-fruit Saw-sedge	Understorey Graminoid	Damp Inland Areas
<i>Cassytha glabella</i>	Slender Dodder-laurel	Climber	Heathlands
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	Narrow-leaf Peppermint	Canopy Tree	Wooded Areas
<i>Eucalyptus viminalis</i> subsp. <i>pryoriana</i>	Rough-barked Manna Gum	Canopy Tree	Woodland Areas

Bundled Guinea-flower



Heath Tea-tree



Common Flat-pea



Zig-zag Bog-sedge



Tassel Rope-rush



Shade Raspwort



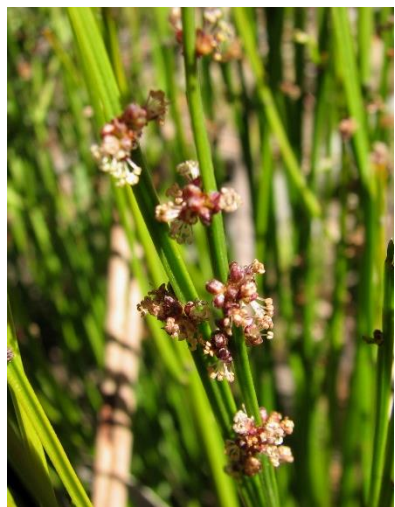
Small Grass-tree



Red-fruit Saw-sedge



Broom Spurge



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'.⁸

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.⁹

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.¹⁰

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.¹¹

Climate change adaptation is the process of adjustment to actual or expected climate and its effects.¹²

Climate change mitigation is the human intervention to reduce the sources or enhance the sinks of greenhouse gases.¹²

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.¹²

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.¹³

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.¹⁴

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.¹⁵

⁸ 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>

⁹ 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/>

¹⁰ 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>

¹¹ 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

¹² 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

¹³ Bayside Sustainable Building and Infrastructure Policy (updated 2021)

¹⁴ 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

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

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.¹⁷

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 5.¹⁸

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.¹⁹

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.²⁰

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.²¹

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.¹²

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.²²

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

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

¹⁵ 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

¹⁶ 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

¹⁷ 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

¹⁸ 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

¹⁹ 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

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

²¹ 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/>

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

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

construct a building or construct or carry out works, construct a fence, and remove, destroy or lop any vegetation.²⁴

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.²⁵

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.⁵

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.⁵

Urban Heat Island Effect: The phenomenon of dense urban areas having significantly warmer air and land surface temperatures than surrounding areas.⁵

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

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

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

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.²⁸

²⁴ 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

²⁵ 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

²⁶ 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>

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

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



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