Urban Forest Strategy
Case Study of Beaumaris
December 2019
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EXECUTIVE SUMMARY

Beaumaris is identified as having a distinct character which is related to the predominance of native and indigenous vegetation. Council has a number of policies and regulatory mechanisms that aim to control tree removal and management across the suburb, predominantly through the Bayside Planning Scheme and the (Vegetation Protection Overlay), and through Local Law No. 2.

In addition to character and amenity concerns, the more significant impacts of climate change are emerging as a global issue and the impacts of more extreme weather events are predicted to increase even if carbon emissions are reduced in the short term.

Adapting to climate change will be an ongoing challenge for Council and the Bayside community.

Council’s internal policies and processes play a role in determining how tree removal applications are assessed. The community (mainly property owners) also plays a role in how trees are perceived (and valued) in terms of their contribution to the amenity and character of Beaumaris, and their environmental values, particularly in relation to trees on private property. The extent to which efforts should be made to preserve trees and vegetation across all land in Beaumaris is an issue that an Urban Forest Strategy should focus on in future.

Based on the findings of this case study, it is clear that the processes of development and everyday living is having an impact on the “urban forest”, and that options to increase community awareness and the controls relating to tree protection need to be explored if tree numbers and canopy cover are to be increased into the future.

Whilst State planning policy facilitates new residential development (and therefore, it can’t be stopped), there are opportunities for Council, alongside the community, to step up efforts to maintain and enhance the urban forest across Beaumaris and Bayside.

There are opportunities to increase the presence of trees and vegetation on Council land, and there are also opportunities to raise awareness of the value of trees on private land so that future generations can enjoy the same amenity, character and environmental benefits as are present today.

This case study presents a range of actions for Council to consider, whether it be through the future development of an Urban Forest Strategy or some immediate actions for Council to consider to create some immediate outcomes.
1.0 Introduction and Purpose of this Case Study

Beaumaris is recognised as having a unique and valued character based in part on its local vegetation character, which was originally comprised of indigenous and native species of flora and fauna.

The loss (or removal) of trees and vegetation has been identified as a significant issue of concern for the local community in Beaumaris, and is an issue being experienced across other parts of Melbourne.

Trees are usually removed via the appropriate processes, being via a planning or local law permit, or neither if not required. In considering the benefits of undertaking an Urban Forest Strategy, this case study will examine those processes and determine areas for improvement. Council’s Statutory Planning and Investigations teams have been proactive on this issue and reports were presented to Council in July 2019 outlining some of the key issues that affect planning and enforcement processes, and exploring some of the solutions.

The loss of vegetation and increasing density of Melbourne’s suburbs is now recognised as a significant issue in State planning policy and there is a need to ensure that Councils plan for climate change in order to create cooler, more resilient urban areas.

This case study outlines Council’s policy framework as it relates to vegetation, climate and biodiversity at a suburb level and identifies where a future Urban Forest Strategy may add value.

1.1 Methodology

This case study assesses the state of the urban forest in Beaumaris and focusses on two distinct categories in terms of tree management and Council policy:

- **the public realm**, which is managed by Council and includes local streets, roads, parks, foreshore and conservation reserves; and
- **the private realm**, which includes predominantly residential properties and commercial properties within small activity centres.

The case study has further considered:

- **Tree Canopy**
  Tree canopy cover is one of the standard measurements to assess the state of an area’s urban forest. Tree canopy has been calculated across all of Bayside to provide a comparison with Beaumaris by analysing high resolution aerial imagery to determine the overall canopy cover for vegetation taller than 3 metres.
The analysis also identifies recent trends in terms of tree and vegetation loss and gain in order to understand what is occurring in Beaumaris, and to identify areas that can be targeted for improvement, within the public and private realm.

**Planning Controls**
An assessment of the current planning controls has been undertaken in order to understand how effective they are in preventing tree removal, which is considered to be the goal of this case study and any future study.

The predominant planning controls within Beaumaris are the Neighbourhood Residential Zone (NRZ3) and the Vegetation Protection Overlay (VPO3). The operation of these controls has been analysed, as well as the role of enforcement in ensuring that planning permits (and the endorsed landscape plans) are complied with. Measures that seek to protect trees and ensure compliance have also been explored.

**Development on Private Land**
An analysis of a sample of planning permit applications (20) has been undertaken to understand how sites are being developed in terms of the types of development occurring and the extent of tree removal. This analysis also provides an insight into how the planning and Local Law controls operate, the role of the endorsed Landscape Plan, and whether trees are adequately retained and/or protected during this process.

**Council Policies and Processes**
The following key Council policies in relation to tree management are currently under review within Council and will be influenced by the outcomes of this case study:
- Street and Park Tree Management Policy (2016); and

**Council Processes (Planning and Enforcement)**
A number of processes that sit within Council’s responsibility have been assessed and this study has identified the strengths, weaknesses, challenges and opportunities for improvement within those processes and the regulatory framework that governs the assessment of tree removal applications.

One of the key areas of Council already identified in previous reports, is the role of enforcement in making sure that planning permits (and conditions on permits) are complied with.

**Urban Tree Monitoring**
Council has initiated the Urban Tree Monitoring project which has provided inputs into this case study. The project will enable Council officers to accurately record and monitor Bayside’s tree population and will improve Council’s enforcement and monitoring capabilities.

As well as supporting Council processes, this project could also provide the necessary evidence (during a planning scheme amendment process) for
“tighter” planning controls in relation to tree removal. That evidence would also be the basis for an Urban Forest Strategy.

1.2 Why do we need an urban forest strategy?

In considering the benefits of preparing an Urban Forest Strategy, it is important to consider what is occurring across the sector in this space. *Living Melbourne: Our Metropolitan Urban Forest*, developed by Resilient Melbourne provides the following statement in relation to the ‘why’:

> More than ever before, we need nature in our cities. Melbourne is predicted to be a city of eight million people by 2051, which would make it the largest city in one of the world’s most urbanised nations. Although growth brings tremendous opportunities for innovation and economic development, it also threatens the natural environment and the many ‘ecosystem services’ it provides to Melburnians.

> These ecosystem services include clean drinking water, respite from rising summer temperatures through heat mitigation, and protection from flooding – to name just a few. There are also many broader benefits, such as improving social connection and cohesion, reducing energy costs, encouraging outdoor activity, providing shade and cooling our city, helping to build a stronger individual and collective identity and improving habitats for native species. Protecting and enhancing natural areas and habitat for flora and fauna in cities is essential for strengthening our resilience to acute shocks and chronic stresses, many of which will be exacerbated by climate change and rapid urbanisation. The time to act is now.

> Plan Melbourne highlights the importance of vegetation and the natural environment to the liveability and amenity of the metropolitan area as a whole.

*Living Melbourne: Our Metropolitan Urban Forest* considers Melbourne’s urban forest in its entirety. Some of the key challenges outlined include:

- a growing, densifying, and sprawling urban form;
- climate change;
- threats to nature;
- fragmented governance; and
- diverse community attitudes to trees and vegetation.

From a local perspective, apart from the fourth dot point, the issues are relevant to Beaumaris (and Bayside) and in particular, community attitudes are a challenge in maintaining the tree population and canopy cover.
This case study will consider whether there is merit in expanding Bayside’s already robust policy framework to include the preparation of an Urban Forest Strategy.

1.3 What are the benefits that the urban forest provides?

Resilient Melbourne’s *living Melbourne: Our Metropolitan Urban Forest* summarises the benefits of a robust ecosystem function well, as:

> Ecosystem functions are the energy and nutrient processes that take place in the animal and plant kingdoms. Examples include plant growth, decomposition of organic matter, seed dispersal, and animal reproduction. Ecosystem functions that directly increase an individual’s well-being are called ecosystem services (McDonald, 2015). Ecosystem services can be defined as ‘the components of nature, directly enjoyed, consumed, or used to yield human well-being.’ (Boyd & Banzhaf, 2006, p. 619).

Typical urban ecosystem services provided by plants and trees include:

- maintaining or improving water quality in water catchments
- assisting the treatment of urban stormwater
- lowering water tables, which reduces the risk of salinity
- flood mitigation by slowing runoff
- reducing coastal erosion and flooding through natural coastal habitats like wetlands, shellfish reefs and mangroves
- sequestering carbon
- capturing airborne particulates, which improves air quality
- lowering air temperatures via transpiration
- reducing surface temperatures through shading
- improving urban amenity and therefore community pride of place
- proving cool green space for active and passive recreation
- supporting our mental health and feeling of well-being

(Source: Living Melbourne: Our Metropolitan Urban Forest)

1.4 Why are these issues relevant to Beaumaris?

This case study seeks to identify issues specific to Beaumaris from the perspective of tree and vegetation loss, primarily a result of new residential development.

In terms of how the suburb is developing, Beaumaris is similar to other parts of Bayside and indeed, other parts of Melbourne. The residential zones (in this case, the Neighbourhood Residential Zone Schedule 3) allow for new development that complies with the provisions of the zone. The suburb is also affected by the
Vegetation Protection Overlay Schedule 3 (VPO3), which seeks to prevent the loss of native and particularly indigenous vegetation incurred by development, as well as retaining the amenity, aesthetic character and habitat value of vegetation within the area and promoting the regeneration and replanting of indigenous species.

Council’s analysis suggests that tree and vegetation removal occurs as part of many new developments, as properties are being developed with greater site coverage, thereby reducing the space in which new trees can be planted and allowed to grow (or mature).

Our urban areas are comprised of hard surface areas as a result of buildings, roads and public spaces, which are in turn comprised of materials with varying ability to either reflect or absorb heat from the sun. The urban heat island effect is the build-up of heat in urban areas, as the materials used in urban development absorb and retain heat generated during the hotter summer months.

As tree canopy decreases and we continue to have a warmer climate, the consequences of an urban heat island effect increases. In relation to climate change and the urban heat island effect, Living Melbourne: Our Metropolitan Urban Forest acknowledges:

**Climate Change**
*Climate research continues to show that maximum and minimum temperatures are rising in Australia. Such changes will expose Melburnians to more frequent and intense droughts, fires, heatwaves, extreme rainfall, and coastal inundation. Climate change makes the urban forest more susceptible to pests and diseases, thus increasing the frequency of tree death, further reducing canopy cover.*

*Australia’s climate has warmed by an average of approximately 1°C since 1910. With this has come an increase in the duration, frequency and intensity of heatwaves, increase in extreme fire weather, a decline in April–October rainfall, and rising sea levels, which amplify the effects of high tides and storm surges. These trends are expected to continue.*

**Urban Heat Island Effect**
*Heatwaves have taken more human lives than any other natural hazard in Australia since European settlement, and are projected to increase in frequency, duration and intensity over coming decades.*

*In Melbourne, deaths begin to rise when the mean daily temperature reaches 28°C, with hospital admissions for heart attack increasing by 10.8 per cent when the mean daily temperature reaches 30°C. When the average temperature is higher than 27°C for three consecutive days, hospital
admissions increase by 37.7 per cent. This suggests that even a small reduction in temperature during a heatwave will reduce the numbers of deaths. One of the most effective ways to reduce temperatures is to provide shade trees.
2.0 Existing Policy Framework

There are a number of Council strategies covering various themes and topics, which are related to the purpose of this case study and the need to protect, retain and enhance Bayside’s urban forest.

Bayside’s strategies can be grouped by theme in order to understand their broad connection with the themes of resilience, climate change and the urban forest. Each theme has direct or indirect links to the need to plan for climate change impacts such as more extreme weather events (heatwaves, flooding) which could have significant impacts on the Bayside community in future. These strategies include:

Health and Wellbeing:
- *Wellbeing for all Ages and Abilities Strategy 2017-21*
- *Healthy Ageing Action Plan 2017-2021*
- *Healthy Community Action Plan 2017-2021*

Planning and Housing Growth:
- *Housing Strategy 2012*
- *Neighbourhood Character Review 2011*

The Economy and Business Activity:
- *Retail, Commercial and Employment Strategy 2016*
- *Economic Development Strategy 2014*
- *Bayside Tourism Strategy 2013*

Mobility, Access and Participation:
- *Integrated Transport Strategy 2018-28*
- *Bayside Walking Strategy 2015*

The Environment, Sustainability and Public Spaces:
- *Bayside Climate Change Strategy 2012*
- *Environmental Sustainability Framework 2016*
- *Bayside Biodiversity Action Plan 2018-2027*
- *Bayside Coastal Management Plan 2014*
- *Open Space Strategy 2012*
- *Bayside Tree Strategy 2011*

The relevance of each of these strategies can be summarised by listing the broad benefits of maintaining a healthy urban forest, and are expanded upon at Attachment 1.
2.1    Regulatory Framework

Tree and removal vegetation removal is “governed” by these two regulatory mechanisms which sit within two different legal frameworks, being the:

- *Planning and Environment Act 1987*; and
- *Local Government Act 1989*.

Council’s policy framework translates through to the Bayside Planning Scheme and Council’s Local Law No. 2.

This case study will explore options to strengthen the criteria and permit requirements as well as other aspect of the Bayside Planning Scheme relating to how residential blocks are developed.

Other mechanisms such as tree bonds are also discussed for both public and private land, and further measures to ensure that trees are protected during the development/construction process.

The role of Council’s Investigations team has recently been highlighted as a major factor in ensuring that replacement trees and landscaping are properly executed after a permit is issued for development.

2.3    Planning framework

**Plan Melbourne and the Victorian Planning Provisions (VPPs)**

*Plan Melbourne* is implemented through the VPPs which provides the overarching state planning policies for all municipalities. *Plan Melbourne* specifically identifies climate change as a significant planning issue and Direction 6.4 is directly relevant to the purpose of this case study. *Plan Melbourne, in relation to the need for both climate change mitigation and adaptation, stages:*

> Climate change is an economic, social, environmental and public health issue. Climate modelling shows that Victoria is becoming hotter and drier, facing more periods of extreme heat (days over 35°C) and drought, reductions in annual rainfall and increases in intense rainfall events, and an increased risk of extreme weather events such as flood and bushfire.

> Vulnerable groups—such as the elderly, the chronically ill and low-income households—are more likely to be affected by the economic and social impacts of climate change, including rising food prices and increased demand for essential services.
Adapting to a changing climate is about taking deliberate steps to manage and mitigate these potential impacts.

Australians are among the highest emitters of greenhouse gases, per capita, in the developed world—refer to Figure 3. Taking steps to transform Melbourne into a low-carbon city is both necessary and an opportunity. That’s why Victoria aims to reduce greenhouse gas emissions to net zero emissions by 2050—an initiative that will create a low-carbon economy, generate new jobs, drive innovation within new and traditional industries, and improve the city’s liveability.

(Source: Plan Melbourne - DELWP)

Within Plan Melbourne, Principle 4 ‘Environmental resilience and sustainability’ is to:

Protecting Melbourne’s biodiversity and natural assets is essential for remaining a productive and healthy city. There is an urgent need for Melbourne to adapt to climate change and make the transition to a low-carbon city.

Bayside Planning Scheme
Planning Policy Framework (PPF) Clauses:
- Clause 13 – Environmental Risks and Amenity
- Clause 13.01 – Climate Change Impacts
- Clause 13.01s – Natural hazards and climate change
- Clause 13.01s – Coastal inundation and erosion

State policy seeks to minimise the impacts of natural hazards and adapt to the impacts of climate change through risk based planning. To achieve this, a number of strategies are outlined which primarily seek to consider the risks associated with climate change in planning and management decision making processes, identify at-risk areas using the best available data and climate change science, and directing population growth to low risk locations. It is important to ensure that Council develops adaptation response strategies for existing settlements in risk areas to accommodate change over time, and ensure that planning controls allow for risk mitigation or risk adaptation strategies to be implemented.

Local Planning Policy Framework
- Clause 21.04 – Environmental and Landscape Values
- Clause 21.04-1 – Biodiversity (refers to the importance of tree canopy and vegetation)
- Clause 21.05 – Environmental Risks
• Clause 21.05-2 – Climate Change (is currently only related to flooding and sea-level rise and could be expanded)

Council’s policy framework echoes the sentiment of the State sections, ensuring that local areas are prepared in relation to climate change, and recognising the strong relationship between vegetation character and Bayside’s amenity.

Clause 22 will soon be relocated in the new format planning scheme which is being implemented through a future planning scheme amendment process, a process that all Councils in Victoria will be undertaking in the near future.

It should be noted that the Bayside Planning Scheme currently lacks an ESD policy (which other Councils have implemented) and there has been speculation that DELWP will implement a state wide ESD policy in the near future. An ESD policy would have a positive influence on development proposals in terms of energy efficiency and water conservation.

The Bayside Planning Scheme also lacks a policy relating to tree conservation and it is recommended to investigate this option as an outcome of undertaking an Urban Forest Strategy.

**Neighbourhood Residential Zone Schedule 3**

The NRZ3 is the predominant zone across Beaumaris which provides generally for recognising areas of predominantly single and double storey dwellings, and managing and ensuring that development respects the preferred neighbourhood character, heritage, environmental or landscape characteristics. The NRZ3 limits the height and site coverage of residential development to 2 storey/9 metres and 50%. A permit is required for two or more dwellings on a lot or development on lot less than 300m².

**Vegetation Protection Overlay (VPO3)**

The VPO3 seeks to prevent the loss of native and particularly indigenous vegetation, retain the amenity, aesthetic character and habitat value of Australian native vegetation and indigenous vegetation and promote the regeneration and replanting of indigenous species in the Beaumaris and Black Rock area.

Under the provisions of the VPO3:

> A permit is required to remove, destroy or lop any vegetation native to Australia.

*This does not apply to:*

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

**Significant Landscape Overlay (SLO1)**

The SLO1 applies to a small area of Beaumaris (in addition to the VPO) which recognises the significance of the area to which it applies, as:

*The high level of vegetation cover and bushland character of these two streets (Coral Avenue and Point Avenue) have influenced building style and form, as well as position on site and front boundary treatment. The distinct landscape characteristics of this area make it significant and unique within the local area. The landscape character contributes to the context and setting of the remnant indigenous bushland of heritage significance in the coastal reserve area in Beach Road, accessed via Coral Avenue and Point Avenue.*

The overlay has some similar provisions to the VPO in terms of the requirements for vegetation removal but also has a strong emphasis on the natural (bushland) character of the area.

**Clause 52.17 – Native Vegetation**

Clause 52.17 of the Bayside Planning Scheme seeks to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation by applying the three step approach, being avoid, minimise and offset.

A permit is required to remove, destroy or lop native vegetation, including dead vegetation, unless the specified exemptions are met.

A specified application requirement is that development must comply with the application requirements specified in the *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment, Land, Water and Planning, 2017).
3.0 Community Attitudes and values

3.1 Community Attitudes

Council undertakes ongoing research and engages with the community on a range of issues in order to understand community attitudes on general and particular matters, to inform Council’s approach to addressing areas of concern.

Through the comprehensive community engagement exercises Council has undertaken in recent years, it is clear that the community strongly values trees for their character and environmental values. There can be a tension between tree protection and the development rights and aspirations of individual property owners. There are also many situations where trees are perceived as a threat, hazard or nuisance, or simply block scenic views.

It is not only trees that the community values, but the overall landscape character. Council regularly receives enquiries about the changing landscape character of Bayside, with new developments often removing much of the landscaping of a site, whether they be trees, shrubs or general gardens that have contributed to the amenity of neighbourhoods.

It is recognised that further community consultation will need to occur as part of any future Urban Forest Strategy that further explores the balance between tree protection and facilitating applications for tree removals.

3.2 Bayside Community Plan 2025

The following are aspirations set out in the Bayside Community Plan:

Open Space
Tree canopy continues to increase in public open space. Bayside will be a better place when:

- The right trees are planted in public spaces so they don’t need to be removed because of property damage.
- The use of chemicals to control weeds is minimised.
- Mature trees and garden landscapes are protected and enhanced.

Environment
Protection against the loss of trees and vegetation is a growing concern, especially for communities that live closer to developing areas. With an understanding of climate change, the community is aware of the importance natural vegetation and the tree canopy play in preventing soil erosion, providing habitats for animals and decreasing the temperatures in the suburbs and urban areas.

Bayside’s bushland and heathland reserves are protected and enhanced. Bayside will be better when:

- Indigenous planting is increased along the foreshore and public areas.
New developments retain established trees and plant new trees. Bayside will be a better place when:

- Mature trees and garden landscapes are protected and enhanced.

Whilst Council can continue to monitor this, the reality that Council will not be regulating individual gardens at a high level needs to be recognised, with an appropriate balance struck between ensuring trees are protected, and providing too much regulation in the space.

3.3 Senior Citizens / Persons with a mobility Impairment

Senior citizens, people who have a mobility impairment and other vulnerable members of the community are often more challenged when it comes to tree maintenance and hazards or risks posed by trees.

Some of the specific issues being encountered by older people and people with a mobility impairment are:

- Difficulty in undertaking tree maintenance due to physical constraints;
- Related to above, trip hazards from falling debris;
- Restricted wheelchair access; and
- Understanding Council policy and accessing assistance in relation to tree removal.

It is important to recognise the issues faced by more vulnerable members of the community, particularly given the aging population in Bayside, and potentially provide assistance so that tree removal can be avoided. The benefits of retaining trees usually outweighs the short-term reason for removing them, however there needs to be a detailed engagement exercise undertaken to understand the options how Council can better support vulnerable residents to ensure trees are retained where possible.

3.4 Approvals processes

As part of Council’s ongoing operations, Council has received feedback in relation to the complexity of the framework to manage vegetation. Opportunity exists to ensure that processes are streamlined and clear so that applicants have an understanding of the process and increase the level of customer satisfaction. It is noted that improvements continue to be made through Council’s ongoing operations, however a more coordinated approach across the different areas of Council may result in an increased customer satisfaction.
Opportunities and Actions

- Ensure the overall principal of tree retention and enhancement is embedded in Council’s policy and strategy framework, including its vegetation related decision making procedures.
- Simplify current Council policies relating to tree management and removal to ensure their ease of access for all members of the community.
- Increase awareness of Council’s policies on trees and climate change adaptation and the role of the urban forest to ensure the importance is understood.
- Provide information to all developers/property owners in the form of a fact sheet on tree protection during construction processes.
- Investigate the issues facing older and more vulnerable members of the community in terms of trees, hazards and their maintenance, and explore options for assisting older people and people with special needs (to minimise the need to remove trees).

Image 1 | Street trees in front of private residence (providing afternoon shade)
4.0 Beaumaris context

4.1 History and Vegetation Character

When Beaumaris was developed, commencing in the 1950s, many people were attracted by the natural setting, indigenous vegetation, sandy tracks and interesting architecture. Many early residents were artists, writers and architects.

Beaumaris’ most unifying and distinguishing characteristic is its indigenous vegetation communities, represented by the bushland reserves that exist within the suburb. Indigenous vegetation in Beaumaris is highly valued by the community, and retention is encouraged under current planning controls for vegetation that apply throughout the suburb. Modern housing development in the area is resulting in less area being available for the existence and planting of indigenous vegetation in private yards. This places greater emphasis on protecting and enhancing Beaumaris’ characteristic indigenous vegetation as part of our open spaces, including the bushland reserves.

(Bayside Open Space Strategy, 2012)

Image 2 | Trees and vegetation on a private property
4.2 Population and dwelling growth

Like most of the suburbs across Bayside, Beaumaris is experiencing a moderate level of dwelling growth, accompanied also by a moderate increase in population, year by year. Figures 1, 2 and 3 are taken from Bayside’s profile.id page prepared by ID Consulting.

In 2018, the estimated resident population was 13,885, which is an increase of 1,385 people (from the usual resident population) since 2011. There was also a moderate increase in the number of dwellings across the suburb, increasing from 4,952 to 5,209 (+257). That equates to an increase of approximately 51.5 dwellings per year over a five year period, which is comprised of a mix of dwelling types (single, dual occupancy, townhouses, apartments).

The average household size also increased from 2.61 to 2.66 persons per household, which partly explains the more significant increase in population compared to the increase in the number of dwellings, taking into account the average household size.

**Figure 1 | Population change in Beaumaris, 2011-2016**

<table>
<thead>
<tr>
<th>Population</th>
<th>2016</th>
<th>2011</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Greater Melbourne</td>
</tr>
<tr>
<td>Estimated Resident Population</td>
<td>13,885</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Enumerator Population</td>
<td>12,766</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Usual Resident Population</td>
<td>13,151</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

**Figure 2 | Dwelling changes in Beaumaris, 2011-2016**

<table>
<thead>
<tr>
<th>Dwellings (Enumerated)</th>
<th>2016</th>
<th>2011</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Greater Melbourne</td>
</tr>
<tr>
<td>Total dwellings</td>
<td>5,205</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Occupied private dwellings</td>
<td>4,791</td>
<td>92.0</td>
<td>90.7</td>
</tr>
<tr>
<td>Population in non-private dwellings</td>
<td>17</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Average household size (persons per dwelling)</td>
<td>2.66</td>
<td>--</td>
<td>2.61</td>
</tr>
</tbody>
</table>
4.3 Age Structure

Figure 3 | Age Structure in Beaumaris, 2011-2016

Overall, 23.2% of the population was aged between 0 and 17, and 27.6% were aged 60 years and over, compared with 21.7% and 19.0% respectively for Greater Melbourne.

The major differences between the age structure of Beaumaris and Greater Melbourne were:
- A larger percentage of 'Older workers & pre-retirees' (15.8% compared to 11.9%);
- A larger percentage of 'Empty nesters and retirees' (12.9% compared to 9.3%);
- A larger percentage of 'Seniors' (11.0% compared to 7.7%); and
- A smaller percentage of 'Young workforce' (5.0% compared to 16.3%).

From 2011 to 2016, Beaumaris's population increased by 610 people (4.9%). This represents an average annual population change of 0.96% per year over the period.

The largest changes in the age structure in this area between 2011 and 2016 were in the age groups:
- Empty nesters and retirees (60 to 69) (+284 people);
- Older workers and pre-retirees (50 to 59) (+157 people);
- Parents and homebuilders (35 to 49) (-142 people); and
- Seniors (70 to 84) (+133 people).
The statistics confirm that Beaumaris has a predominantly older and ageing population, with 27.6% of the population aged 60 and over. This statistic has implications for tree management and maintenance on private property, in terms of hazards and general maintenance that present older people with greater challenges.

This issue, whilst it presents a challenge, provides an opportunity for Council to engage with older (and vulnerable) members of the community to explore options in terms of providing assistance and to raise awareness with all members of the community to achieve a common goal – a more resilient community.
5.0 What is the state of the urban forest in Beaumaris?

This section relies on available data primarily sourced from Council’s aerial and Lidar imagery which has been analysed to understand the existing base of trees and vegetation to detect where there have been losses and gains in tree population, vegetation and canopy cover.

**What objectives are we measuring this against?**

Numerous Council strategies outline objectives, strategies, actions and aspirations in terms of:

- Protecting what already exists (tree canopy and vegetation); and
- Enhancing what exists (implying that it should be improved/increased).

The following aspects of tree and vegetation cover in Beaumaris have been analysed and, as accurately as possible, quantified:

- The percentage of tree canopy cover across Beaumaris (total land area minus the area covered by canopy as viewed two dimensionally from an aerial photo);
- The percentage of vegetation cover (total land area minus the area covered by vegetation as viewed two dimensionally from an aerial photo – trees plus all other vegetation);
- The total number of trees, categorised by height above 3m; and
- The identified trends in tree loss or gain across Beaumaris.

5.1 Tree canopy cover

Canopy cover, rather than number of trees, is regularly used as the key indicator of the quality and function of an urban forest. It is a simple measure of how much of the municipality, when viewed from above, is covered by tree canopy.

Trees with large canopies provide the greatest benefits to the community and the environment. Compared to smaller trees, large trees with spreading canopies provide more shade and cooling, have a greater visual impact, reduce larger volumes of stormwater runoff, remove more air pollutants and provide more habitat. An urban forest comprised of trees with larger canopies will provide greater benefits than an urban forest with a large number of small trees.
Table 1 | Tree Canopy Cover (vegetation over 3m)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BEAUMARIS</td>
<td>28.72%</td>
<td>29.33%</td>
<td>29.66%</td>
<td>29.44%</td>
<td>29.22%</td>
<td>28.18%</td>
<td>26.81%</td>
</tr>
<tr>
<td>BLACK ROCK</td>
<td>25.71%</td>
<td>26.23%</td>
<td>26.20%</td>
<td>26.00%</td>
<td>25.78%</td>
<td>24.71%</td>
<td>23.24%</td>
</tr>
<tr>
<td>BRIGHTON</td>
<td>22.51%</td>
<td>23.04%</td>
<td>23.25%</td>
<td>23.07%</td>
<td>22.92%</td>
<td>22.22%</td>
<td>21.25%</td>
</tr>
<tr>
<td>BRIGHTON EAST</td>
<td>24.06%</td>
<td>24.60%</td>
<td>24.84%</td>
<td>24.67%</td>
<td>24.41%</td>
<td>23.56%</td>
<td>22.44%</td>
</tr>
<tr>
<td>CHELTENHAM</td>
<td>20.88%</td>
<td>21.35%</td>
<td>21.53%</td>
<td>21.40%</td>
<td>21.19%</td>
<td>20.42%</td>
<td>19.38%</td>
</tr>
<tr>
<td>HAMPTON</td>
<td>22.51%</td>
<td>23.00%</td>
<td>23.16%</td>
<td>22.94%</td>
<td>22.71%</td>
<td>21.93%</td>
<td>20.88%</td>
</tr>
<tr>
<td>HAMPTON EAST</td>
<td>22.93%</td>
<td>23.50%</td>
<td>23.77%</td>
<td>23.55%</td>
<td>23.33%</td>
<td>22.48%</td>
<td>21.47%</td>
</tr>
<tr>
<td>HIGHETT</td>
<td>22.83%</td>
<td>23.32%</td>
<td>23.61%</td>
<td>23.42%</td>
<td>23.09%</td>
<td>22.11%</td>
<td>20.98%</td>
</tr>
<tr>
<td>SANDRINGHAM</td>
<td>25.61%</td>
<td>26.14%</td>
<td>26.48%</td>
<td>26.31%</td>
<td>26.09%</td>
<td>25.25%</td>
<td>24.10%</td>
</tr>
<tr>
<td>BAYSIDE AVERAGE</td>
<td>23.97%</td>
<td>24.50%</td>
<td>24.72%</td>
<td>24.53%</td>
<td>24.30%</td>
<td>23.43%</td>
<td>22.28%</td>
</tr>
</tbody>
</table>

Beaumaris has the highest percentage of canopy cover compared against the other suburbs in Bayside and is approximately 5% above the Bayside average. Black Rock is the second highest ranking suburb. For the purpose of this case study, it is difficult to ascertain whether the predominance of native and indigenous vegetation contributes to the high figures, or whether the VPO plays a significant role in protecting vegetation across those suburbs. In areas where the VPO does not apply, the Local Law regulates tree removal for all tree species.

As the data analysed is only until 2017, further analysis of 2018 and 2019 aerial imagery should be undertaken in any future Urban Forest Strategy, to establish a complete picture of the current state of the urban forest for Beaumaris and Bayside. This analysis should continue to be undertaken on a regular basis to monitor of tree numbers and tree canopy cover.

**Tree Canopy Trends across Bayside**

There is an almost identical trend which results in a peak in 2013. This appears to be caused by yearly average rainfall patterns (Figures 6 & 7). The rainfall averages across Australia vary greatly and the La Nina weather event from 2010-12 caused above average rainfall across parts of Australia, which appears to correlate with the peak in canopy cover in 2013.

*The successive La Niña events spanning 2010–12 were associated with record rainfall over much of Australia and some of the biggest floods in living memory. This followed years of severe drought in many parts of the country, and while it brought relief to many Australians, it also brought devastation to others.* (BoM website)
The Influence of Weather Conditions and Climate Change

The results highlight the influence of seasonal weather patterns but also the potential impact of global warming (climate change) on rainfall patterns which are already resulting in longer dry periods (less rainfall/increased drought conditions) with an increase in heavy storm (flooding) events. These changing conditions will have an impact on tree health and growth rates in the future (due to heat stress and other factors).

Figure 5 provides a picture of Australia’s rainfall over the past year, contributing to severe drought in some parts of the country and, combined with higher than average temperatures, bushfire conditions in NSW and Queensland.

It is difficult to ascertain how much a role that drought will play in impacting Bayside’s tree canopy, however it is important to ensure that the changing climate is considered in terms of species selection and access to water.
Figure 6 | Australian Rainfall for 2018-2019 (Source: Bureau of Meteorology)

Figure 7 | Yearly rainfall patterns (Source: Bureau of Meteorology)
5.2 Tree Count

Trees can be counted by analysing high resolution aerial imagery and LIDAR data, but there is a small degree of inaccuracy due to the complexity of overlapping tree canopies and other objects when viewed from above. This analysis provides a count of trees 3m and above.

Figure 8 | 2017 Tree count for small areas
It is evident that there has been tree loss across Bayside as a municipality, likely attributed to the number of lawfully removed, un-protected vegetation across Bayside’s suburbs. In order to ensure that Council reverses this trend, greater interventions are expected to be required than Council currently aims for.
The following diagrams illustrate the potential of the Urban Tree Monitoring Project in providing detailed data on tree numbers across small and large areas. Areas showing low tree numbers and/or a significant loss in trees over a time period, can be investigated in terms of the causes and also to explore solutions in terms of potentially increasing tree numbers and canopy in those areas.

Figure 10 | Tree counts showing land use types, 2017
Figure 11 | Tree count across small areas showing density in colour, 2017
Overall, there has been a reduction in trees over 3 metres across Beaumaris, however considering planning permit and local law information, it is expected that the majority of these have not required permission for removal, indicating that they are largely introduced species that are not indigenous to the area. Whilst not an indication of the effectiveness of the planning controls, it does provide an indication of the level of landscape character change being experienced across the suburb.
There is opportunity to address some of the neighbourhood character related landscaping outcomes through Council’s current neighbourhood character controls review, however this may not result entirely in the prevention of removal of smaller, non-indigenous or non-native vegetation.

Opportunity exists to continue to monitor vegetation loss and predict where vegetation growth is to be expected to model future outcomes relating to tree numbers.

5.4 DELWP Data on tree canopy and vegetation cover

One of the outcomes sought by Plan Melbourne, is ‘a cooler, greener Melbourne’.

DELWP are undertaking initiatives in response to climate change and the need to plan for this outcome.

*Victoria is the fastest growing state in Australia and is expected to support at least 10 million people by 2051, with 8 million living in Melbourne. The city’s growth, in combination with climate change, presents complex challenges to ensure Melbourne becomes more sustainable as it grows. Cooling and greening Melbourne, and increasing sustainability and resilience through green infrastructure, is a priority for the Victorian Government.*

*We need to plan for green infrastructure the same way we do for gray infrastructure to enhance urban amenity and quality, improve landscape connectivity and build resilience to climate change. These more liveable outcomes will be achieved by protecting existing green spaces, creating new opportunities for urban greening, improving water-sensitive urban design, greening buildings (roofs, facades and walls), and increasing permeable surfaces.*

(Source: Plan Melbourne)

Figures 13-16 illustrate changes in tree and vegetation cover from 2014-2018. Whilst the data provided by DELWP is not very detailed, it does confirm that tree (cover) has decreased across various areas of Beaumaris. A similar scenario is also occurring for vegetation cover and this is consistent with the findings of Council’s urban tree monitoring data.

The DELWP mapping shows that there has been a noticeable reduction in both vegetation cover and canopy cover across parts of Beaumaris between 2014 and 2018. The DELWP data is limited in the level of detail provided.

It is difficult to determine how significant the decline has been from the DELWP data as a change in colour on the map could range from 1-10% difference depending on the 2014 starting point. For example, if the there was a reduction of 1% from 31% to 30%, then the colour would change, and this could be triggered by just one development site. Therefore, the data is limited in its application.
The data that Council is beginning to gather and analyse employs tree counts as well as canopy cover and is considered more accurate than the data distributed by DELWP which is available online. The analysis of smaller areas will allow Council to monitor tree loss and gain in order to identify particular “problem areas”.

Overall, most of the smaller areas have only experienced minimal tree loss, taking into account that the analysis does not identify trees/vegetation lower than 3m that may have been planted as replacements and are yet to establish. Further monitoring and analysis over time can start to evaluate the success rates of replanting to replace lost trees.

**Figure 13** | 2014 Trees (% tree cover)  

**Figure 14** | 2018 Trees (% tree cover)  

**Figure 15** | 2014 Vegetation  

**Figure 16** | 2018 Vegetation
6.0 Trees and vegetation on Council Land

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.

Beaumaris has approximately 40 hectares of open space which includes parks, reserves and foreshore areas. Nature strips also comprise a significant proportion of land that accommodates trees and vegetation.

Image 3 |Trees on Council Land (Nature Strip)

6.1 Council Tree Planting

Council undertakes a yearly program of tree planting in public parks, conservation reserves and within the road reserve itself and this is undertaken as trees are removed for practical reasons such as their age or structure has declined; they are vandalised or other reasons that fall under Council’s Street and Park Tree Management Policy which is currently under review.

_Bayside City Council is committed to protecting and enhancing the benefits of urban trees and to managing tree-risk matters. Environmentally tree benefits include removal of air pollutants, carbon dioxide sequestration, rainfall interception, shading, cooling, stormwater runoff reduction and habitat provision and connectivity for native fauna. Economically, healthy and_
aesthetically pleasing open space and street trees have been demonstrated to increase property values. Urban trees also contribute to a sense of community, connect urban environments to natural areas and provide a visual connection between neighbourhoods.

Source: (Bayside) Street and Park Tree Management Policy

<table>
<thead>
<tr>
<th>Year (Financial)</th>
<th>Trees planted</th>
<th>Trees Removed</th>
<th>Category A</th>
<th>Category B</th>
<th>Category C</th>
<th>Category D</th>
<th>Unlisted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>63</td>
<td>68</td>
<td>8</td>
<td>19</td>
<td>8</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td>2010</td>
<td>339</td>
<td>82</td>
<td>14</td>
<td>34</td>
<td>20</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>2011</td>
<td>186</td>
<td>303</td>
<td>67</td>
<td>136</td>
<td>26</td>
<td>1</td>
<td>73</td>
</tr>
<tr>
<td>2012</td>
<td>437</td>
<td>196</td>
<td>77</td>
<td>77</td>
<td>14</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>2013</td>
<td>100</td>
<td>110</td>
<td>23</td>
<td>60</td>
<td>21</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2014</td>
<td>212</td>
<td>315</td>
<td>58</td>
<td>179</td>
<td>42</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>2015</td>
<td>455</td>
<td>175</td>
<td>48</td>
<td>112</td>
<td>13</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2016</td>
<td>254</td>
<td>173</td>
<td>62</td>
<td>99</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>2017</td>
<td>171</td>
<td>92</td>
<td>39</td>
<td>45</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2018</td>
<td>452</td>
<td>202</td>
<td>86</td>
<td>109</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2669</td>
<td>1716</td>
<td>482</td>
<td>870</td>
<td>165</td>
<td>16</td>
<td>183</td>
</tr>
</tbody>
</table>

Council is proactive in ensuring that tree planting counteracts any loss of trees/vegetation on Council managed land.

In the 2018/19 financial year, 452 new trees were planted on Council land in Beaumaris, whilst 202 were removed for various reasons, in accordance with Council policy.

The key issues facing tree planting on Council managed land include the following:

- Species selection and availability;
- Available space on nature strips;
- Maintenance and survival of young trees;
- Emerging climate change impacts and unpredictable weather patterns;
- Soil conditions; and
- Community attitudes to trees in front of properties (on nature strip).

**Tree Species**

A variety of native and indigenous tree species are planted on Council land each year and this is reliant on availability of species, which are grown in the Council nursery. The following are the most predominant species (1-10 from a list of over 50 species):

- Banksia marginata;
- Banksia integrifolia;
- Angophora hispida;
- Tristaniopsis laurina;
- Callistemon 'Kings Park Special';
- Eucalyptus pauciflora subsp paucif;
- Eucalyptus ovata;
- Bursaria spinosa;
- Hymenosporum flavum; and
- Eucalyptus pryoriana.

**Trees by category:**
- Category A: 1-3m
- Category B: 3-10m
- Category C: 10-15m
- Category D: 15+m

**Trees are removed for the following reasons:**
- Utility works;
- Private Development;
- Streetscape upgrade;
- Vandalism;
- Tree structurally compromised (unsafe/hazard); or
- Other (other removals in accordance with Council policy).

### 6.2 Tree maintenance

All Council tree maintenance services are delivered through the contract for Management and Maintenance of Open Space Services. This contract complies with Electric Line Clearance Regulations and defines the service levels and standards to be met including those determined by National and State legislation and industry best practice.

Tree maintenance services are delivered by Council’s Open Space Services contractor by the following methods:
- Scheduled Maintenance and Inspection Services; and/or
- Customer-initiated Maintenance and/or Inspection Service Requests.

### 6.3 Protecting trees on Council land

There are a number of ways that public Council managed trees can be impacted by private development: From the initial stages of site preparation, clearing of approved vegetation, demolition of existing buildings, which all involves vehicle movements of some kind.
Tree Protection Zones
Planning permits often require a Tree Protection Management Plan (TPMP) to be submitted to ensure that trees on Council land are protected from damage or destruction. Development should not encroach on the tree’s route system which spreads to a similar extent as the canopy above ground.

Image 3 | Tree Protection on Nature Strip

Asset Protection Bonds
An asset protection bond is sometimes required by Council to ensure that developers take the appropriate measures to protect all Council assets, including trees, and that any damage is the financial responsibility of the developer. In the case of footpaths or other built environment components, it is relatively straightforward to either repair or pay for the cost of re-construction. Trees, however, are a more sensitive and sometimes more valuable asset and if damaged may take more than a year to show signs of decline.

Tree Bonds
A number of Councils require a ‘tree bond’ to ensure that tree damage or loss as a result of buildings and works is compensated to Council. This is more practical as the cost and scale of development increases, is in proportion to the value of the tree that is sought to be protected. The Cities of Melbourne and Moonee Valley use tree bonds as a way of protecting Council owned trees during and after development. Moonee Valley also uses its policy to require a bond to protect ‘significant’ and ‘canopy’ trees on private land.
A Tree Protection Management Plan (TPMP) is usually required when development has the potential to impact Council trees and this can be accompanied by a bond, usually in the form of a cheque or bank guarantee, to the value of the tree that is being protected. In the City of Melbourne, many trees are valued at over $100,000 and the bonds are affordable only to major developers working on major projects. A similar scale of development is occurring in parts of the City of Stonnington, where the Council is also considering the use of bonds to protect Council trees.

In the residential streets of Beaumaris, a much more modest scale of development is occurring, with limited information to suggest that such an approach is appropriate for Bayside. However, there is scope to ensure that there is a compensation mechanism for Council should a tree be damaged during or after the construction of new buildings (and crossovers). This can form part of the asset protection bond already required by Council for new development, or potentially through the introduction of a bond requirement for individual trees, to the value of the tree.

**Crossovers**

Sometimes it is necessary to remove a tree on Council land for the purpose of creating a new crossover (for access to a driveway). Applications are assessed through the *Street and Park Tree Management policy*.

It is important to consider the need for a crossover and its potential impact on street trees early in the process. Some development does not require a planning permit, however, it is important to identify whether the design of a new dwelling (or dwellings) can avoid the need to remove or encroach on a street tree.

This issue might be partially addressed through a general information fact sheet on the topic of protecting trees during development. This would include information on tree protection zones for both trees on public and private land. It might also explain the tree bond process, should that be implemented by Council.

### 6.4 Biodiversity and the urban environment

Biodiversity is a vital resource and it is essential to acknowledge its importance to our lives currently and historically. This includes both its intrinsic value (i.e. species are worth protecting regardless of their value to humans) along with the range of benefits that it produces:

- Supply of ecosystem services – water, nutrients, climate change mitigation, pollination;
- Life resources – food, medicine, energy, raw materials and indigenous cultural practices;
- Improved mental and physical health and well-being;
- Landscape distinctiveness and cultural heritage;
- Direct economic benefits from biodiversity resources and added value through local economic activity and tourism; and
- Educational, recreational and amenity resources.
Open spaces in urban areas have a very important function for biodiversity as they can be some of the few remaining places where a variety of ecosystems are able to continue to exist. These areas provide a reminiscent glimpse of the vegetation that would have covered a municipality prior to European settlement. The suburbs of Beaumaris and Black Rock provide examples of areas rich in remnant indigenous vegetation, which are governed by the provisions of VPO3.

Trees and vegetation are an integral part of the natural ecosystem of the local area and preserving habitat minimises disruption to local wildlife. Opportunities should be explored to strengthen these habitats where appropriate and the Bayside Biodiversity Action Plan sets out a number of actions targeted at strengthening habitat and ecosystems. It will be important for Council to continue to monitor biodiversity outcomes as the urban forest is enhanced.

6.5 Climate change impacts

In addition to the effects of climate change, many of the trees in Beaumaris are reaching the end of their Useful Life Expectancy (ULE), which could impact on the tree canopy cover of Beaumaris (and Bayside generally) in years to come.

Planning for the decline of the tree population is important and factoring in the added effects of climate change, with heat stress and drought conditions predicted to be significant factors, will create significant issues to be addressed. These issues highlight the importance of retaining the existing tree population, rather than relying on replacement trees that take decades to mature.

6.6 Opportunities for Council Land

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.

Why Increase Tree Planting On Council Land In Beaumaris?
The removal of trees on private property has become a significant issue of concern and there are a number of avenues to address this in order to reverse the general trend and increase the tree canopy of Beaumaris over time. Tree planting and the re-establishment of vegetation on Council land is just one of the measures that can be explored, alongside measures to reduce tree removal on private land.

What Can Council Do?
The Bayside Biodiversity Action Plan sets out a number of actions that are relevant to Beaumaris in terms of vegetation and tree protection. The process of gathering data for this case study has fulfilled some of the actions listed in that plan in terms of understanding tree canopy cover and tree numbers (and trends) across Beaumaris.
Council will continue to explore all available options to increase tree canopy and vegetation cover on Council land within Beaumaris, taking into account the following constraints:

- Overhead electrical wires;
- Underground services;
- Suitable planting locations;
- Competing demands across Council land;
- Emerging climate change impacts; and
- Availability of suitable tree species.

An opportunity exists to increase the number of canopy trees planted in Council owned land, with the most prominent example being along the foreshore where in several cases, the land exists. This is, however, at odds with the values our community places in being able to view the bay from various vistas, including residential properties close to the foreshore, and it recognised that there is a tension that exists that will need to be further clarified.

It is important to ensure that infrastructure projects undertaken by Council, in relation to new footpaths, crossings or other public realm improvements retain as much vegetation as possible, particularly in activity centres and other areas where the urban heat island effect is likely to be felt. Opportunities to incorporate water sensitive urban design treatments should also be incorporated into public realm enhancements.

A report was presented to Council in November 2019 outlining the range of issues caused by power lines to street trees, particularly during storms. Power lines have impacted tree canopy over many years and the option of undergrounding cables has a range of benefits. There are also some potential issues that would need to be understood in terms of trees and their root systems, however this will need to be considered as individual projects are required to complete these tasks.
Opportunities and Actions

- Ensure that the Street and Park Tree Management Policy acknowledges the role of Council trees as part of the wider urban forest.
- Explore new opportunities for increased tree planting on Council land to achieve the objectives of the Street and Park Tree Management Policy.
- Undertake a survey of Beaumaris to update the map of sites available for planting (as shown on Council’s GIS).
- Continue to implement Council’s existing strategies in relation to tree planting opportunities.
- Review Council’s approach to tree planting and maintenance to maximise survival rates.
- Maximise opportunities to incorporate green landscaping and Water Sensitive Urban Design in Urban Design/Streetscape projects.
- Avoid the removal of trees in infrastructure projects by considering alternative design options at the preliminary stages of projects.

Image 4 | Trees and Infrastructure
7.0 Trees and Vegetation on Private Property

Image 5 | A development site in Beaumaris

7.1 Framework for governing private land

Council operates under more than one legislative framework, which regulates what can occur on private property in terms of tree removal:

- *Local Government Act* 1989, which provides for Local Laws;
- *Planning and Environment Act* 1987, which provides for Council acting as both “Planning” and “Responsible Authority”.

The Bayside Planning Scheme (operating under the *Planning and Environment Act* 1987) is considered to have more effectiveness in terms of regulating and enforcing permits issued under the Act, compared with the Local Law. The penalties for non-compliance are considerably higher than those administered under a Local Law.

7.2 What Planning Scheme Provisions apply for new development or tree removal?

In Beaumaris, a planning permit *may* be required (but is not always required) under the following provisions of the Planning Scheme (for residential development and/or tree removal):

- Neighbourhood Residential Zone (NRZ3);
- Vegetation Protection Overlay (VPO3);
and to a lesser extent, the:
- Significant Landscape Overlay (SLO1); and
- Special Building Overlay (SBO).

It is important to note that not all development requires a planning permit and not all tree and vegetation removal (indigenous, native or otherwise) requires a permit. The triggers for a permit are explained below.

Much of the vegetation that is removed as part of new development does not require a permit. As such, much of the vegetation loss is unregulated and occurs as a result of development which does not require a permit. This exemption applies to vegetation as described above, and all exotic species unless a Local Law permit is required.

Figure 17 demonstrates the different classes of vegetation and what would require a permit vs what does not:
- Red requires a planning or local law permit;
- Green being other vegetation (not requiring a permit).

**Figure 17 | Trees that require a permit on private property**

A review of permits issued under VPO3 demonstrates that Council receives a high number of permit applications (approximately 396 applications over a 5 year period) to remove or lop trees, for reasons other than new residential development.

Council’s Statutory Planners and Arborists rely on the provisions of VPO3 and in particular, the **Decision Guidelines**:

*Before deciding on an application, the responsible authority must consider:*
- The impact the proposed vegetation removal would have on:
- The character of the area.
- The presence of indigenous species in the locality.
- The appearance of development.
- The habitat quality of any remaining vegetation and the fragmentation of wildlife corridors.
- Any proposal to regenerate or plant indigenous vegetation on the site.

Importantly, applications made under the VPO require that a landscape plan detailing replacement trees be submitted as part of the application. This can be enforced at a later time if the landscaping (and tree planting) is not carried out in accordance with the permit and endorsed plans.

Under the provisions of the NRZ3, a proposal for 2 or more dwellings on a lot and/or development on a lot of less than 300m$^2$ requires a permit. Single dwellings on lots larger than 300m$^2$ do not require a planning permit but will require a building permit.

Although the NRZ does not specifically require a permit for tree removal, the ability to assess a planning application enables Council’s Statutory Planners to request replacement planting through an endorsed landscape plan, even when a permit is not required under the VPO.

The NRZ and Schedule 3 to the NRZ also specify both mandatory and discretionary requirements relating to design and layout of new development in relation to the following:
- Garden Area Requirement (25%-35% mandatory zone requirement, depending on site size);
- Site Coverage (50% in schedule);
- Permeability (default 20% in zone / none specified in schedule); and
- Landscaping (none specified in schedule).

The schedule to the NRZ provides some opportunities to strengthen the requirements around permeability and landscaping that would further enable the planting of trees and favourable site conditions to ensure their ongoing health and survival.

The mandatory Garden Area Requirement was introduced in March 2017, which theoretically provides more space for landscaping on a suburban lot. However, the Garden Area Requirement includes swimming pools and outdoor decks, which undermines the potential to plant canopy trees in these outdoor spaces. As such, it can be challenging to ensure that the landscaping and greening outcomes Council is seeking to deliver are genuinely provided, when decked areas can be counted as garden area.

Figure 18 illustrates the effect of the Garden Area Requirement, however, the siting and setbacks will differ from site to site.
Were those garden areas at the rear of the property to comprise decks and a pool in lieu of green space, it can meet the requirement for garden area without the opportunity for greater landscaping outcomes.

7.3 What types of development are occurring in Beaumaris?

Beaumaris generally has larger lots (over 500m2) and new development consists of the following types of development:

- Single dwellings;
- Dual occupancy (2 dwellings);
- Units;
- Townhouses;
- Apartments; and
- Extensions to dwellings

The general trend across Beaumaris is for smaller houses, built in the early to middle part of the last century, to be replaced by either larger houses, or with two or more dwellings on a lot. This trend is being experienced across Bayside and many suburbs across Melbourne.

The trends associated with urban infill development have resulted in greater site coverage, reduced permeability and the loss of trees and vegetation on a site by site basis. Whilst Council has set amounts within the Schedule to the NRZ3 in relation to site coverage (50%), there is no requirement specified in relation to permeability or landscaping.

The assessment and issuing of planning permits (in circumstances where a permit is required) involves an assessment from a Council Arborist. All applications require a landscape plan to be submitted as part of the permit process and these are guided
by Council’s Landscape Guidelines. The Landscape Guidelines are not an incorporated or reference document in the Scheme and cannot be given weight in that circumstance.

7.4 Planning Permit analysis

An analysis has been undertaken of 17 planning permit applications for the last five years. The trends occurring in Beaumaris are relatively typical of what is happening across other suburbs in Bayside in terms of the types of development occurring and tree removal that occurs as a result of development.

The difference is that Beaumaris and Black Rock have a predominance of indigenous and native species that are regulated (in terms of their removal) by the provisions of VPO3. Proposals for new development need to have regard to the planning controls, but in most cases the VPO3 provisions do not prevent either development or some tree loss. However, replacement planting is generally required as part of an endorsed landscape plan.

Key notes from planning permit analysis:

- Almost all proposals reach close to the maximum allowed site coverage, which is to be expected, but it is the site layout in terms of front and rear setbacks that provides the biggest opportunities to plant canopy trees;
- Related to above, the minimum Garden Area Requirement provides a positive response to concerns about private open space on lots – but as discussed, swimming pools detract from the benefit of the requirement in providing space for trees and vegetation;
- Within the assessment of planning applications, smaller trees which are not protected by VPO3 or the local law are sometimes not mentioned and the value these can provide is not generally recognised;
- In order to ensure replacement planting is provided and survives, pro-active Council enforcement is required to ensure that land owners implement the requirements of their permit;
- Opportunities for significant canopy plantings should be increased, as these are often reduced in favour of smaller vegetation, which does not provide for significant shading or cooling; and
- For sites where a large number of trees are lost, they are often small trees replaced by large canopy trees, so the raw number may be misleading – the recording of tree removal could be improved to understand the actual trends in terms of the size and types of trees being removed.
The following information was extracted from the permit analysis to understand the number of trees removed that required a permit and the replacement planting.

**Table 3 | 17 Permits Assessed**

<table>
<thead>
<tr>
<th>Planning Application</th>
<th>Local Law permit issued</th>
<th>Trees Proposed for Removal</th>
<th>VPO Protected</th>
<th>Replacement Trees (Endorsed Landscape Plan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014/442</td>
<td>No</td>
<td>16</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>2014/13</td>
<td>No</td>
<td>27</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>2013/569</td>
<td>No</td>
<td>17</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2017/774</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>2014/122</td>
<td>No</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2018/542</td>
<td>No</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2018/151</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2018/250</td>
<td>No</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2016/753</td>
<td>No</td>
<td>12</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>2017/85</td>
<td>No</td>
<td>29</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>2014/457</td>
<td>No</td>
<td>12</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>2018/167</td>
<td>No</td>
<td>3</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>2014/305</td>
<td>No</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2018/159</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2017/227</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>2018/617</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>2017/761</td>
<td>No</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>
EXAMPLE 1

**SUMMARY**

This application is for the replacement of a small single dwelling with an apartment building comprising 5 dwellings and does not include the removal of VPO3 protected trees. A permit is required for 2 or more dwellings on a lot under the provisions of the NRZ. Approximately 16 trees were to be removed, while 6 new trees including 4 canopy trees would be planted. Council did not support the application as its site coverage and upper-level setbacks are non-compliant with the requirements of the Planning Scheme. An amended permit was issued by VCAT.

Importantly, the proposal does not require either a planning or local law permit for tree removal as the vegetation does not meet the threshold criteria requiring a permit. Despite this, during the planning permit process an arborist will assess the removal of trees and a landscape plan is requested, detailing the location, number and type of replacement trees and vegetation. This is typically required by way of a permit condition.

Another important element of this application is that it precedes the introduction of the mandatory “Garden Area Requirement” under the Neighbourhood Residential Zone. The site coverage and lack of permeable surfaces in this proposal would now be more difficult to achieve in order to comply with the minimum 35% that is required for a site over 650m².

Under the Schedule to the NRZ, there is no additional requirement for permeability above the minimum 20% already specified in the zone (as a discretionary requirement).
EXAMPLE 2

**19 Banksia Ave (Built)**

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>653.41</td>
<td>Delegate</td>
<td>2018/151</td>
<td>26/03/2018</td>
<td>04/2019~</td>
<td>Single</td>
</tr>
</tbody>
</table>

### Previous

**Aerial Photo**

### New

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Single</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storeys</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Site Coverage</td>
<td></td>
<td>41.0% proposed and granted</td>
</tr>
<tr>
<td>Permeability</td>
<td></td>
<td>59.0% proposed and granted</td>
</tr>
<tr>
<td>Trees Removed &amp; Replaced</td>
<td>0 proposed to be removed</td>
<td>0 Proposed/Conditioned</td>
</tr>
</tbody>
</table>

**SUMMARY**

This proposal was processed as a VicSmart application and did not require a planning permit for the use as a dwelling or for the removal of any vegetation (though no vegetation was proposed for removal). The application required a permit as the site is affected by the Special Building Overlay (SBO).

In terms of the outcome, it was a fairly bare block and no trees were removed. Site coverage was at 41% and permeability was above the minimum required at 59%. Some hard surfaces were removed as a result of the development which is considered to be a positive outcome. Sufficient space has been set aside for future tree and/or vegetation planting.

Because this was processed as a VicSmart application, there was less opportunity for a Council planner and arborist to negotiate a better outcome in terms of landscaping for the block, with limited requirements to be shown on the proposed plans.

Importantly, this proposal has been assessed since the introduction of the Garden Area Requirement which for this site (653m²) required a minimum 35% garden area. The front and rear setbacks provide the opportunity for tree planting and landscaping however due to the permit trigger being the SBO only, the link to require increased canopy trees in that location is not present.
EXAMPLE 3

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>897.31</td>
<td>Delegate</td>
<td>2018/250</td>
<td>05/06/2017</td>
<td>Unknown</td>
<td>Single</td>
</tr>
</tbody>
</table>

**Aerial Photo**

Previous

New

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Storeys</th>
<th>Coverage</th>
<th>Permeability</th>
<th>Trees Removed &amp; Replaced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1</td>
<td>47.6% proposed, 35% endorsed</td>
<td>30.8% proposed, 60% endorsed</td>
<td>5 proposed to be removed</td>
</tr>
</tbody>
</table>

**SUMMARY**

Similar to Example 2, this proposal was also assessed as a VicSmart application and was triggered by the SBO, as it was also a single dwelling replacement not requiring the removal of VPO protected trees.

Many applications propose the removal of trees that do not require a permit under the VPO. However, through the planning process, involving the advice from an arborist, a landscape plan is usually required and a condition placed on a permit to ensure this is enacted.

The significantly short timeframe for VicSmart applications can mean that there isn’t sufficient time to enable internal referrals, site inspections and ultimately an adequate assessment in terms of tree retention and proposed planting.

Despite the lack of proposed trees, the site coverage and front and rear setbacks provide opportunities for tree planting, however due to the permit trigger being related to the SBO, there is no requirement for increased landscaping to be shown on plans or required by way of permit condition.
EXAMPLE 4

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1040.51</td>
<td>VCAT</td>
<td>2014/13</td>
<td>12/02/2018</td>
<td>06/2019~</td>
<td>Townhouses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerial Photo</td>
<td></td>
</tr>
</tbody>
</table>

| Dwellings | Single | 3 Dwellings |
| Storeys   | 2      | 2           |
| Site Coverage | 51.8% proposed, 49% granted |
| Permeability | 35% proposed, 49% granted |
| Trees Removed & Replaced | 27 proposed to be removed (3 x VPO3 protected) | 10 Proposed/Conditioned |

**SUMMARY**

This application was made prior to the introduction of the minimum Garden Area Requirement in March 2017 and highlights the importance of providing private open space to encourage landscaping and tree planting on development sites.

The application includes the removal of 3 trees regulated by the provisions of VPO3.

Council’s arborist raised no objection, given that suitable replacements are to be planted. A site coverage of 51.8% was originally proposed, this was adjusted to 49% following a Planning and Amenity Committee meeting and VCAT hearing.

Whilst there is a considerable increase in building footprint, there are limited opportunities for significant tree planting within the garden areas of the site, with the exception of within the setback to Beach Road.
7.5 Key findings from the Planning Permit analysis

Based on the analysis, almost every development proposal involves the removal of at least some trees and/or vegetation in order to facilitate the development.

The proposed removal of trees is usually related to:

- The site context and size/location of existing trees/vegetation;
- The number of trees (tree density) on a site;
- The nature (design) of the proposed development – generally proposing greater site coverage as the existing housing stock is often modest in size (smaller plot ratio);
- Access and development of the site requiring tree removal; and/or
- The development requires a new crossover (which involves an application to remove a tree on Council land)

The definition of a “tree” is not clearly defined for the purpose of a planning application or assessment but is usually identified on the existing conditions plan.

It is clear from the analysis that the role of the VPO is defined primarily by its “permit trigger” function for trees and vegetation that meet the VPO3 criteria. Most other vegetation does not require a permit of any kind as it usually does not meet the Local Law criteria either.

Out of the 20 permits analysed, only half involved an application to remove a VPO affected tree and as such, the permit was usually issued for two or more dwellings on a lot, not requiring a permit for tree or vegetation removal.

However, it also clear that for development that requires a planning permit under either the NRZ or VPO (or both), the permit trigger allows a statutory planning assessment that also requires a landscape plan that specifies replacement planting, as a condition on a permit.

A number of applications proposed (or were required) to provide replacement planting/landscaping even though this was not specifically required under the planning scheme, demonstrating that applications vary in terms of their outcomes. Tree planting should be encouraged for all applications through information provided to applicants.

The benefit of a permit trigger under either the NRZ or VPO is that a landscape plan is required though a condition on the permit and this can be followed up by Council’s enforcement team through the auditing of the planning permit at a later date (which has been occurring recently with a high degree of success).

Council’s Landscape Guidelines play an important role in guiding the outcomes on residential properties and could have a stronger presence in the planning scheme, potentially as a reference document.
VicSmart applications usually involve a straightforward planning assessment (in the permits assessed the SBO and Road Zone Category 1 require referrals to the associated authorities).

VicSmart applications, on the other hand, involve a short period of time that it is often impractical to request a landscape plan as part of a request for further information. This challenge needs to be addressed as VicSmart applications appear to produce poorer outcomes in terms of tree removals and replacement trees.

7.6 The Local Law and its application

Local Law No. 2 is the statutory mechanism by which the Tree Management on Private Property Policy 2015 is implemented.

The existing Local Law seeks to protect trees on private property that meet specific criteria and predominantly falls under two categories, both requiring a permit for removal:

- Significant Trees included on the Significant Tree Register; and
- Canopy trees that have a (combined trunk) circumference of 155cm measured at 1m above the ground.

Trees and vegetation not falling within these criteria are able to be removed without a Local Law permit, but may require a planning permit under the VPO3, but may not require either.

Over the past five years, 135 trees classified as a ‘Protected Tree’ were approved for removal in Beaumaris, under the Local Law (noting that replacement trees are required as part of any approval, and can be enforced if not complied with). This is summarised at Table 4.

**Table 4** | Local Law Applications/Permits

<table>
<thead>
<tr>
<th>Year</th>
<th>Applications</th>
<th>Approved</th>
<th>Refused</th>
<th>Related to new development</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018/19</td>
<td>26</td>
<td>20</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>2017/18</td>
<td>24</td>
<td>19</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>2016/17</td>
<td>42</td>
<td>34</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>2015/16</td>
<td>40</td>
<td>35</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2014/15</td>
<td>22</td>
<td>17</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>164</td>
<td>135</td>
<td>29</td>
<td>13</td>
</tr>
</tbody>
</table>

It is notable that only a small portion of these applications (13) were in conjunction with a planning or building permit application, which indicates that the trees were removed for reasons other than development in most cases.

There are a number of reasons (besides development) why residents request a permit for the removal of a tree, including the following:

- Tree location;
- Tree risk;
- Damage to property or infrastructure;
- Buildings works requiring a building permit;
- Medical condition; and
- Social criteria.

Local Law permits are not part of the Statutory Planning assessment process, but applicants are made aware that they may require a Local Law permit if a tree meets the criteria under the Local Law. Ideally, where a development proposal will involve a proposal to remove a tree protected under the Local law, this should form part of the planning application and form part of the endorsed plan, which can be enforced later under the planning permit conditions, if required.

### 7.7 Significant Tree Register

Significant Trees and their potential removal are regulated by the provisions of the Local Law. Currently, there are seven trees listed on the significant tree register in Beaumaris.

There is scope to explore the potential to apply planning scheme controls to significant trees to give them a greater level of protection, such as the Environmental Significance Overlay (ESO), as demonstrated by the Moonee Valley Amendment C149. This may have broader benefits for the municipality and will involve a review of the significant tree register in preparation for such an amendment. This will ensure that the protection of these trees is given greater emphasis as a planning permit assessment, rather than simply through the Local Law. It will also ensure that any replacement plantings required are implemented and can be enforced via a planning compliance methods, allowing Council to pursue any failure to comply through VCAT.

### 7.8 Tree protection and Compliance with Landscape Plans

**Enforcement Procedures (and Auditing)**

Rather than pursuing the implementation of landscaping bonds for private property, it is recommended (and Council has resolved) that enforcement auditing of planning permit (landscape plans) continues.

**Bayside Landscape Guidelines**

The Landscape Guidelines are a resource developed by Council for residents and developers who need to submit a landscape plan with a planning application. The Guidelines provide information about when a landscape plan is required and what needs to be included in a landscape plan.

The Guidelines apply only to trees protected by the Bayside Planning Scheme which require a planning permit to be removed and development sites that require a planning permit. A Landscape Plan is required to be submitted with a planning application under the following situations:
- Vegetation removal applications made for properties in areas protected by the Vegetation Protection Overlay (VPO3)
- Tree removal applications made for properties in areas protected by the Significant Landscape Overlay (SLO)
- Buildings and development works which may require the removal or planting or retention of vegetation under the Bayside Planning Scheme.
- Further details about what is required is provided in these Guidelines.

Despite this, they are not a document referenced or incorporated into the Bayside Planning Scheme and cannot be given weight at VCAT. It is possible to expand the application of the document to permits issued under the Local Law.

**Tree Protection Zones**

Council has been advocating for better information to be made available to builders to raise awareness of tree protection measures that should be undertaken on construction sites to ensure that trees that are required to be retained, are adequately protected.

The VBA Web-site states that:

*Building industry professionals need to ensure vegetation on building sites and adjoining properties is protected when allotments fall under a vegetation protection overlay.*

*The VBA is aware of several instances where site works have begun without relevant vegetation protection measures being put in place, resulting in significant damage to protected vegetation on and around building sites. Property owners, builders and building surveyors must comply with Victorian building legislation, the Planning and Environment Act 1987 and any relevant planning schemes or local laws when planning building work that might impact on vegetation.*

Council is currently advocating for a fact sheet to be distributed (or made available) to builders to raise awareness of the need to protect trees during construction.

**Are Landscaping/Tree Bonds an Option for Development on Private Land?**

Landscaping bonds have been investigated as a potential measure to ensure that the trees and vegetation proposed within an endorsed landscape plan are complied with.

The use of Bonds on private properties is uncommon. However, if it was considered appropriate to implement such a bond arrangement on private landscaping requirements, the mechanism required to facilitate such a process would be limited to that of a Section 173 agreement.

The use of a Section 173 agreement would place a legal obligation on the land owner to undertake replanting in exchange for the bond being returned or provided the Responsible Authority the ability to execute the works.
This process would provide a legal obligation on the land owner, however this would result in a significant financial burden on the applicant and the Responsible Authority in managing and implementing such an approach, which would be greater than the cost of the replanting required.

To facilitate this the following would be required:

- The drafting of a Section 173 agreement (approx. $2000);
- The provision of a Bond (150-200% of the value of the tree(s) cost) – A native Eucalyptus radiata (2 metre in height) costs approximately $100-200;
- Once planted and maintained the bond would need to be returned and the Section 173 agreement ended (approx. $1000).

Implementing a bond process to ensure replanting could cost the applicant approximately $3200 (non-refundable) in order to receive a refundable bond of a maximum of 200%. For a single tree which may cost $100 it would be considered to be an excessive cost imposed on an applicant, particularly given the other available options that do not present such costs.

As part of this process, Council will be required to inspect the site to ensure that planting was completed in accordance with the Section 173 agreement prior to the ending of the agreement and refunding of and bond monies. Such an inspection approach would not be dissimilar to the current auditing process which is being undertaken in a proactive manner with significant less financial burden on the applicant or administration burden on the Responsible Authority.

The benefit of the Section 173 agreement is that it provides both legal right of access to undertake the planting if the applicant fails to do so, by using the bond to complete the works. However, because the Section 173 would be imposed as a condition on a planning permit, it could be challenged at VCAT and would likely be overturned.

There is limited value in pursuing landscaping bonds for trees on private property at this stage and instead, a more efficient outcome is to continue the auditing process and seeking compliance that way, as that is what the planning system has set up to ensure compliance related outcomes are achieved.

**Tree Bonds to Protect Existing Trees on Private Land**

Tree bonds are used to protect trees on private land by relatively few Councils but that is starting to change as the importance of tree retention becomes more apparent.

The Cities of Stonnington, Moonee Valley and Boroondara have policies that require bonds for development on private property, applicable to “canopy trees” and “significant trees” in the public realm, noting that the definition of “canopy tree” found in other policies is the equivalent of “protected tree” in the Bayside *Management of Tree Protection on Private Policy*.

Several Councils are undertaking Urban Forest Strategies to address tree retention issues and modifying or creating new policies in the process. Creating a single “tree protection policy” is likely to be a more simple approach to protect trees on public and private land, and to require a tree bond for different situations under the policy.
Protecting trees on private land (via a bond) might only apply to “protected trees” and “significant trees” as specified under the Local Law, or to a VPO protected tree that is to be retained on a site where buildings and works will occur.

It is noted that there is an overlap with Council’s existing asset protection processes, and that if Council were to consider pursuing this, a more detailed cost/benefit analysis needs to be undertaken given the administrative resources required to implement such a scheme.

**Education & Awareness**

The enforcement auditing could be accompanied by the creation and distribution of fact sheets that promote and raise awareness of the benefits of retaining and/or replacing trees.

Similarly, it is important to encourage land owners to retain as much vegetation as possible on a site without compromising their ability to reasonably develop land.

Educating the community about the benefits of tree retention as well as the specifics relating to the requirements of planning scheme provisions, the Local Law and Council policies, including the Landscape Guidelines, could be of further benefit in increasing compliance rates and achieving tree retention.

The recent auditing activity that has been undertaken by Council provides evidence that a lack of awareness was one of the contributing factors towards the low compliance rates that were found through investigation.

Undertaking a proactive campaign in relation to practical ways to retain vegetation may assist in achieving a greater level of community awareness, as well as providing information as to what Council can and cannot control.

**Future Implementation – Specific Provisions That Could Strengthen Tree Protection and/or Opportunities for Landscaping**

**Neighbourhood Residential Zone (Schedule 3)**

Schedule 3 to the NRZ offers some opportunities to influence development outcomes on private property to encourage or enable areas that are set aside for private open space and tree/vegetation planting. The following elements of the schedule could be investigated in terms of changes that could provide increased opportunities for tree planting and the conditions that are suitable for trees (permeable surfaces):

- Permeability;
- Landscaping; and
- Private Open Space

As outlined previously, the introduction of the mandatory Garden Area Requirement, whilst positive in providing space on properties for landscaping (and tree planting), the fact that it includes swimming pools and decks reduces that benefit. When
combining the site coverage requirement (50%) with the Garden Area Requirement (25%, 30%, and 35% according to site size), the remainder of a site, ranging from 15% to 25% can still be used for hard surface areas like driveways and paving, which should be discouraged as much as possible.

Desired outcomes for sites include:

- Minimal tree removal (retain as much vegetation as possible);
- Reduced site coverage;
- Increased permeability;
- Reduced presence of hard surfaces; and
- Stormwater retention.

Increasing the permeability requirement and providing specific requirements in terms of landscaping could further contribute to more suitable soil conditions and water retention for tree planting and the survival rates of trees.

**Vegetation Protection Overlay (VPO3)**

It should be noted that the last piece of work relating to the VPO was undertaken in 1999, being the *City of Bayside Vegetation Character Assessment*. In order to amend the VPO3 it would be necessary to undertake a new piece of strategic work assessing the environmental and character values of Beaumaris. This document might then underpin a future planning scheme amendment. In addition to this, an *Urban Forest Strategy* might also strategically support an amendment related to Beaumaris and Bayside generally.

**Environmental Significance Overlay (ESO)**

Council can investigate the potential to apply the ESO to all Significant Trees, ensuring that a planning permit is required for its removal or for buildings and works within the tree’s “Tree Protection Zone” (TPZ). In order to inform a planning scheme amendment to do so, Council will need to review and potentially add to the Significant Tree Register prior to commencing an amendment.
Opportunities and Actions

Any proposed amendment to the Bayside Planning Scheme would require that there be a strategic basis to do so. Undertaking an Urban Forest Strategy would provide strategic support for an amendment relating to trees and vegetation protection/enhancement to achieve the goals outlined in the strategy.

Following the completion of an Urban Forest Strategy, the following potential actions will need to be considered in implementing the Strategy into the Bayside Planning Scheme:

**Strategic Work**
- Undertake a review of the Neighbourhood Character Study (commenced);
- Undertake a review (or new piece of work) assessing the Environmental and Biodiversity Values of Beaumaris (and other suburbs) to identify habitat areas/corridors (in accordance with the actions set out in the Biodiversity Action Plan);

**Seeking to Amend the Planning Scheme**
- Investigate potential revisions to the Schedule to the NRZ to modify parameters around permeability, landscaping and private open space;
- Revise any relevant sections of Clause 21 in relation to trees, the environment and climate change to acknowledge climate change related risks such as extreme weather events and the need build community resilience and adaptation to climate change;
- Depending on the outcomes of an Urban Forest Strategy, introduce a new policy relating to “tree protection”, “urban forest policy” or similar; and
- Investigate the potential for other planning scheme changes that strengthen the framework for tree protection.

**Opportunities for Local Law improvements**
Revise the current *Tree Management on Private Property Policy* to:
- Simplify the policy and remove surplus information relating to internal Council processes;
- Emphasise and prioritise tree retention over tree removal (strongly discourage the removal of healthy trees);
- Place the policy within the context of enhancing the “urban forest” and increasing tree canopy cover over the medium to long term;
- Consider removing aspects of the policy that favour facilitation of tree removal (such as obtaining signatures from neighbours); and
- Review the size criteria for a “protected tree” as other municipalities have varying criteria (Bayside’s criteria are more lenient).
8.0 Urban Tree Monitoring Project

Council has commenced an urban tree monitoring project which incorporates an “Urban Tree Ledger”, a software workflow that translates high resolution aerial photography into georeferenced observations of individual trees. This then allows Council to generate a map of individual trees and provide the ability to monitor each tree for presence and foliage size.

Council has already initiated this project which has informed aspects of this case study, with the monitoring tool aiming to create an accurate catalogue of all trees in Bayside. The project will provide the following benefits for Bayside in terms of tree protection (and serve as a tool for enhancing Bayside’s urban forest):

- Create a catalogue of every tree in Bayside within a GIS database;
- Monitor the presence and disappearance (loss and gain) of trees over time;
- Monitor the health of the overall urban forest across Bayside;
- Assist in the auditing of planning scheme permit conditions;
- Identify illegal tree removal activity and inform enforcement procedures; and
- Assist in statutory planning and local law assessments.

The software will continue to lead to other benefits as its role expands, including capturing data from landscape plans to model the urban forest scenario in the future, allowing Council to model impacts of vegetation at the end of its life, as well as areas where it is expected that vegetation characteristics will change.
Figure 20 | Example of tree register
9.0 Conclusion and Recommendations

It is considered that there is benefit in preparing an Urban Forest Strategy for the municipality to assist Council to guide its approach to trees, vegetation, climate change and the urban heat island affect.

Whilst Council has a robust framework in place to guide these matters, it is clear that there is opportunity to better integrate these documents to ensure that there is a consistent response.

There are a number of implementation tools that can be considered through the Planning Scheme; whether it be a local policy, the use of an overlay, or other mechanism; with further consideration to be provided through the development of a municipal Strategy.

Monitoring and Review

Following review of the various strategies, policies and procedures, it is clear that there is benefit in ensuring a coordinated approach to managing vegetation within Council. The establishment of an internal vegetation related working group may assist to provide greater monitoring and coordination of items to ensure that Council is achieving and measuring its strategic objectives.

This will ensure that there is consistency across the different parts of Council responsible in some way for trees, as well ensuring some of the longer term opportunities are delivered. This group can also oversee the effectiveness of the changes made to various aspects of Council operations to ensure that things are clear from a customer experience perspective (ensuring that the different processes for tree removal are clear and user friendly) as well as identifying opportunities for improvements.

Tree Canopy and Tree Population Analysis

The Urban Tree Monitoring Project will assist Council to monitor tree canopy cover and tree numbers into the future. An Urban Forest Strategy is considered the appropriate project to undertake further analysis of the causes of tree loss and to set a target for tree canopy cover into the future, based on further analysis and research into the trends and causes of tree canopy loss/gain.

It is recommended that Council continue to grow its tree monitoring tools to ensure that Council tracks and monitors trees, canopy cover, canopy planning and the other benefits associated with the tool.

Trees on Council Land

There are three main areas that have been analysed in this case study, in terms of the tree population on Council land:

- Tree Planting and Maintenance;
- Tree Protection; and
- Biodiversity and Conservation.
Opportunities could be explored along Beach Road which is relatively sparse in comparison to the local streets of Beaumaris, however this will need to be further explored through a robust community engagement process.

In terms of tree protection, Council does not have sufficient evidence to suggest that a bond system for protecting trees on public land is necessary. If required, this may be able to be considered as part of the development of a municipal Urban Forest Strategy if there is an identifiable trend indicating a need.

**Trees on Private Land**

The auditing of planning permits (landscape plans) has proven to be an effective method of ensuring compliance with permit conditions. Council has resolved to continue auditing permits on a 2 and 10 yearly basis to ensure compliance. Landscape plans requiring replacement planting are a critical part of the permit process and these should continue to be required through available policy mechanisms such as the planning scheme and Council policy (*Management of tree Protection on Private Property Policy*).

The current policy (*Management of Tree Protection on Private Property Policy*) addresses only the protection of trees on private property but its scope could include both public and private trees and read simply as a “tree protection policy” whether on public or private land.

It is not recommended that Council pursue landscape bonds for trees on private property as there is limited benefit in doing so, given they are relatively onerous in terms of cost and administrative (resource) implications with little demonstrated benefit. The auditing mentioned above, has proven to be an effective method of ensuring compliance with a planning permit condition (enforceable under the *Planning and Environment Act*).

Following completion of the Urban Forest Strategy, Council will need to consider the appropriate tools to implement the strategic direction into the Planning Scheme.

**Education and Awareness**

Education and awareness raising could contribute to more positive outcomes in terms of compliance with landscape plans. Easily accessible information on Council’s web-site and fact sheets relating to trees and their benefits, tree protection and Councils policies could assist in a wider campaign aimed at reducing the rate of tree removal across Bayside.

Undertaking an Urban Forest Strategy will provide an opportunity to re-frame the issue of tree removal in the broader context of climate change and the need to build resilience into Council planning for the future, and within the community.
APPENDIX 1 – Summary of current Council strategies and their relevance to an Urban Forest Strategy

A number of Council’s strategic documents outline strategies and actions that are either directly or indirectly related to fostering a healthy urban forest, noting that the implementation of many are ongoing. The list below does not include precinct based documents or the various Council policies; rather, it summarises the municipal wide strategic plans and how they may impact or influence a potential future Urban Forest Strategy. Themes such as community health, physical activity, resilience to weather events, environmental sustainability, and the local economy are all issues that an Urban Forest Strategy is seeking to address in some way, and responses to these issues are embedded in a number of existing Council strategies as outlined below.

<table>
<thead>
<tr>
<th>Council Strategy</th>
<th>Scope/Purpose of Strategy</th>
<th>Relevant Objectives/Goals</th>
<th>Relevant Actions</th>
<th>Implications for UFS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEALTH, AGEING, COMMUNITY</strong></td>
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<td></td>
</tr>
<tr>
<td>Wellbeing for all Ages and Abilities Strategy (2017-21)</td>
<td><em>The Wellbeing for All Ages and Abilities Strategy</em> is a key strategic planning tool that aims to maintain and improve public health and wellbeing at a local community level.*&lt;br&gt;The strategy sets out ways to increase the health and well-being of the entire community, particularly those with special needs and more vulnerable parts of the community (susceptible to health risks due to age, disability, etc.)</td>
<td><strong>Goal 2 – A healthy and active community</strong>&lt;br&gt;<strong>Goal 3 – Safe and Sustainable Environments</strong>&lt;br&gt;• 3.4 – Improve Environmental Sustainability&lt;br&gt;• 3.5 – Improve community resilience to extreme weather events</td>
<td>3.4 – Take action to protect and enhance the natural environment and balance appreciation and use with the need to protect natural assets for future generations.</td>
<td>The urban forest (contributing to a greener, cooler urban environment) assists in improving community resilience and community health through reducing the temperature of urban areas during summer, fostering nature and biodiversity and promoting an active lifestyle (physical activity) through parks and greener, higher amenity streets, paths and public spaces. ESD and passive heating/cooling is also an aspect of building and landscape design that is related to the urban forest and could address some of the actions outlined in these strategies.</td>
</tr>
<tr>
<td>Healthy Ageing Action Plan (2017-2021)</td>
<td><em>This action plan focuses on new or revised actions which have health and wellbeing benefits for older people. In addition to the actions outlined in this action plan, Council delivers a diverse range of operational services that support the health and wellbeing of the Bayside community. Services provided or supported by Council to assist older people include:</em>&lt;br&gt;• Assessment to determine service needs to remain independent and safe at home;&lt;br&gt;• Practical help at home such as cleaning, shopping, showering, respite, minor property maintenance and delivered meals; and&lt;br&gt;• Community activities such as socialisation groups, lifelong learning activities, transport and events.</td>
<td><strong>Goal 2 – A healthy and active community</strong>&lt;br&gt;<strong>Goal 3 – Safe and Sustainable Environments</strong>&lt;br&gt;• 3.4 – Improve Environmental Sustainability&lt;br&gt;• 3.5 – Improve community resilience to extreme weather events</td>
<td>3.4 – Deliver information sessions to senior’s groups on sustainable practices.&lt;br&gt;3.5 – Support vulnerable clients to manage during extreme heatwave events.</td>
<td></td>
</tr>
<tr>
<td>Plan</td>
<td>Description</td>
<td>Objectives</td>
<td>Sustainability Measures</td>
<td></td>
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<tr>
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<tr>
<td><strong>Healthy Community Action Plan (2017-2021)</strong></td>
<td>Promotes new or revised actions which have health and wellbeing benefits for the whole population.</td>
<td>Goal 2 – A healthy and active community &lt;br&gt; Goal 3 – Safe and Sustainable Environments &lt;br&gt; 3.4 – Improve Environmental Sustainability &lt;br&gt; 3.5 – Improve community resilience to extreme weather events</td>
<td>3.4 – Deliver training to Neighbourhood Houses, Community Centres and Sporting Clubs on sustainable practices. 3.5 – Deliver Climate Ready Program.</td>
<td></td>
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</table>

**PLANNING FOR HOUSING GROWTH AND ECONOMIC ACTIVITY (LAND USE)**

<table>
<thead>
<tr>
<th>Plan</th>
<th>Description</th>
<th>Objectives</th>
<th>Sustainability Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Housing Strategy 2012 (Community Resilience, Climate Change)</strong></td>
<td>The Housing Strategy is a comprehensive strategy that sets out the expected future growth in terms of dwellings across the municipality and describes the range of issues that housing development presents for the municipality.</td>
<td>7.3 Environmental Risks&lt;br&gt; 7.7 Ecologically Sustainable Development&lt;br&gt; 7.8 Vegetation</td>
<td>Objective 5 - Consider the impact of new developments in places likely to be affected by climate change, such as flood plains, coastal inundation and erosion. Objective 10 - Ensure developments incorporate or retain landscaping or canopy trees where appropriate. 9.22 - Develop a list of preferred trees to be included in landscaping plans for new developments.</td>
</tr>
</tbody>
</table>

Residential development (ranging from single dwelling, dual occupancy and higher density) often has an impact on trees and vegetation on private land, resulting in the loss of both. Identifying the key issues associated with development and the regulatory framework (planning scheme and local law) will be part of the scope of the UFS. ESD is one area of the Bayside PS that could be strengthened and the MSS and local policy section also inform and guide how the municipality should develop into the future and the key issues that should be addressed. |

<table>
<thead>
<tr>
<th>Plan</th>
<th>Description</th>
<th>Objectives</th>
<th>Sustainability Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retail, Commercial and Employment Strategy (2016)</strong></td>
<td>Provides policy directions on the future evolution of Activity Centre and employment lands within the City of Bayside, from an economic, employment and population (demographic) perspective.</td>
<td>Generally, the objectives and strategies are derived from an economic focus – no clear links with environmental or amenity issues.</td>
<td>Develop a modern, environmentally sustainable business precinct. Encourage developments to implement sustainable building design measures.</td>
</tr>
</tbody>
</table>

General improvements to the public realm that incorporate green landscaping presents an opportunity to strengthen the urban forest in the BBD and in Bayside’s activity centres.
The future redevelopment of larger sites also presents opportunities for tree/vegetation planting.

### Neighbourhood Character Review (2011)
- **Investigate planning policy or controls for areas that have been identified as having a significant neighbourhood character.**
- **Street tree, vegetation elements in various precincts.**
- **Protection of native and indigenous vegetation and trees in various neighbourhood character precincts.**
- **Trees and vegetation form an integral part of the neighbourhood character of an area and the urban forest strategy can assist to strengthen the discussion about the importance of trees and vegetation across the different areas of Bayside.**

### ECONOMIC DEVELOPMENT

**Economic Development Strategy (2014)**
- Provides an update of the performance and trends within the Bayside economy and identifies the policy options available to Council.
- **3.4.5 Sustainable Bayside**
  - Attract investment to the BBD by improving presentation of the area and planting more trees. Conduct events and forums to promote sustainable practices to local businesses.
- Generally, the urban forest could be strengthened across the municipality – activity centres and commercial areas tend to have a higher proportion of hard surface areas. The BBD is important for future economic activity within Bayside but is a relatively low amenity environment.

### TRANSPORT

**Integrated Transport Strategy 2018-28**
- The ITS identifies sustainable modes of transport as preferable to cars and describes the continuing growth of car ownership in
- **Goal 1 – Enabling sustainable transport choices**
- **Goal 2 – Improving local accessibility**
- Ensure that the needs of pedestrians and cyclists are considered in all transport
- Providing higher amenity environments (which are often the greener and cooler areas of

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**Neighbourhood Character Review (2011)**

**ECONOMIC DEVELOPMENT**

**Economic Development Strategy (2014)**

**Bayside Tourism Strategy (2013)**

**Integrated Transport Strategy 2018-28**
<table>
<thead>
<tr>
<th>Bayside and the problems that will inevitable arise in terms of congestion and parking issues.</th>
<th>Goal 4 – User friendly streets</th>
<th>infrastructure upgrades and street maintenance programs.</th>
<th>the municipality) promotes walking and cycling.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage more people to walk more often through the provision of inclusive, safe, comfortable and convenient facilities and the promotion of walking as a healthy and sustainable mode of transport.</td>
<td>Page 5 – Environmental Benefits of Walking</td>
<td>Promote walking by reducing the Urban Heat Island Effect.</td>
<td>Walkability is a term that implies an environment encourage and facilitate walking – higher amenity public spaces, paths and streets generally encourage more walking. Increasing trees and greenery (in nominated locations or locations currently lacking) will encourage more walking and a healthier, active lifestyle within the community.</td>
</tr>
</tbody>
</table>

**ENVIRONMENTAL SUSTAINABILITY, CONSERVATION, BIODIVERSITY**

| Bayside Climate Change Strategy (2012) | Aims to identify the risks climate change presents to Council’s services, manage its vulnerability to the impacts of climate change, and identify risks and challenges that climate change may present. | The document is relevant to the urban forest in terms of the environmental performance of buildings and assets, particularly its assessment of climate change risk and recommended strategies. Chapter 7 outlines strategies and adaptation plans. | Work with agencies to enhance and extend biodiversity corridors, prioritising those currently at high risk from climate change. Consider drought tolerant species for planning and revegetation of council-managed open spaces. Ensure mature trees managed by Council are regularly checked for health and potential hazards by qualified specialists. | Specific to Council buildings, assets and processes. |

<p>| Environmental Sustainability Framework (2016) | Provides guidance and direction for environmental planning and decision making, including the following Key Driver: <em>A changing climate – the need to act now to reduce the severity of climate change whilst also preparing for its impacts</em> | Goal 3: Resilience Developing community and ecosystem resilience for current and future climate change impacts. Goal 4: Sustainable Places Advocating and influencing for healthier ecosystems and more liveable Bayside urban areas and infrastructure. The ten themes are: biodiversity, environmental citizenship, sustainable buildings, sustainable businesses, sustainable development, sustainable procurement, | Goal 4 - Develop Urban Forest Strategy with targets for tree planting to achieve a greater tree canopy cover to reduce heat island effect, provide shade and improve overall amenity. Research indigenous plants, develop management strategies and pilot a reintroduction program. | The ESF outlines a specific action to undertake an Urban Forest Strategy to address Goals 3 and 4 within the framework. |</p>
<table>
<thead>
<tr>
<th>Bayside Biodiversity Action Plan (2018-2027)</th>
<th>The Biodiversity Action Plan sets out specific actions that are intended to protect and improve the urban and natural environments in Bayside in order to foster biodiversity.</th>
<th>3.2 Understanding Bayside’s biodiversity values for conservation, protection and management. 3.3 Managing biodiversity and threatening processes. 3.4 Improving our biodiversity knowledge</th>
<th>4 - Develop a GIS layer of biodiversity values on public land (where possible private land). 12 - Undertake a review of vegetation removal within the municipality (rate and distribution) and audit/monitor tree canopy decline over time. (suggest that there are two actions packed into one here) 14 - Develop strategies for managing significant and at-risk plant species. 35 - Updating vegetation surveys and works programs, including new mapping and categorisation of flora and fauna species. 48 - Increase tree plantings to improve shade supply and reduce the urban heat island effect.</th>
<th>This action plan outlines a number of directly relevant actions that would be included in an urban forest strategy. Understanding the trends relating to vegetation/tree loss and gain over time and its impacts on biodiversity drives the need to conserve and strengthen Bayside’s urban forest. Specific actions are outlined including increasing tree canopy cover to reduce the Urban Heat Island effect and implementing a tree monitoring system within Council to improve planning and enforcement processes and to monitor the health of Bayside’s urban forest.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayside Coastal Management Plan</td>
<td>Provides strategic direction and policy on coastal use, management and development for the whole of the City of Bayside foreshore.</td>
<td>3.6 – Managing the Coastal Environmental Process 3.6.5 – Vegetation Management Strategy</td>
<td>Prioritise conservation / restoration of native vegetation areas, including elimination of weeds. Encourage community participation in vegetation management. Allocate additional resources towards weed control, revegetation, and replacement planting.</td>
<td>The trees and vegetation located along the coastline are part of the natural coastal environment and also forms part of the urban forest. This Plan provides the long term strategic vision for managing public coastal land in Bayside. The focus of the Plan is primarily around public realm infrastructure and the development of precinct masterplans for coastal areas.</td>
</tr>
<tr>
<td>Open Space Strategy (2012)</td>
<td>Provides policy and strategy to enable Council to make decisions about how open space is used, developed, managed and maintained across the municipality.</td>
<td>Principle 4: Environmental Sustainability 2.1 Urban Heat Island Effect</td>
<td>Principle 4 - Manage and restore natural assets to maintain and enhance biodiversity and ecological processes.</td>
<td>Open spaces and vegetated area provide a number of direct benefits to the community including promoting health and</td>
</tr>
</tbody>
</table>
| Bayside Tree Strategy (2011) | Provides a framework of actions to ensure that the future public and private spaces within Bayside are well treed. | The document is highly relevant to the urban forest, particularly its objectives relating to tree inventory data and tree management. | 1.2.1 - Form partnerships with other public authorities and external stakeholders to encourage and implement initiatives to improve our urban forest.  
2.1 - Investigate the potential impacts of climate change on existing tree populations and implications for tree selection, planting and establishment.  
2.5.1 - Provide a strategic tree management framework for street and park trees.  
3.1.1 - Review tree inventory data quality and use in tree management. | The Bayside Tree Strategy is likely to be superseded by an Urban Forest Strategy that focusses on the importance of maintain and enhancing tree canopy and vegetation cover across the municipality. |
APPENDIX 2 – Summary of Urban Forest Strategies from other municipalities

A number of municipalities across Melbourne have undertaken an Urban Forest Strategy (or similar strategy) to recognise and respond to the impacts of urban development on the natural and urban environment. The scope of the strategies vary with some focussing on trees on public (Council) land and others considering the urban forest as a collective of all trees and vegetation (including soil and groundwater conditions).

In summary, an Urban Forest aims to deliver the following benefits to the community:

- An overarching framework for tree management across a municipality that aims to maintain and increase tree canopy cover

The benefits of a healthy urban forest can be summarised as follows:

- Provision of natural shade and shelter for people (reduction of temperature).
- Encourage people to spend time outdoors and interact with the community.
- Encourage pedestrian and cycling activity.
- Provision of uniform, avenue like plantings along streets encourages motorists to drive more slowly and improve street safety.
- Reduced air, water and soil pollution.
- Improved real and perceived community safety in public spaces.
- Improved mental health from exposure to natural environments.
- Effective reduction of the Urban Heat Island Effect.
- Reducing the severity of flooding by intercepting stormwater.
- Connecting biodiverse locations and provide localised habitats.
- Improved house prices and retail activity.
- Improved energy (ESD) performance in buildings

What we can take from it / use in our urban forest strategy (rough notes):

- Most urban forest strategies have focussed on the public realm because Councils have more control and opportunities to influence change.
- A number of councils (i.e. Whitehorse) produced urban forest strategies prior to completing tree inventory and urban heat mapping. These tasks are included in the strategy as short-term actions.
- A common objective amongst different councils is to identify areas with high social vulnerability and/or low tree coverage in order to direct focused planting to these areas.
- Maribyrnong, Melbourne and Moreland’s strategies make use of well-researched and referenced data to support the benefits of an urban forest strategy (however, this is now well established).
- A number of strategies use “before and after” figures to illustrate the visual effect of canopy tree planting on various types of streetscapes.
- Moreland and Melbourne have the most extensive tree inventory, mapping and management systems.
- Although Kingston does not have an urban forest strategy, it has a very extensive and well researched register of significant trees and vegetation.
<table>
<thead>
<tr>
<th>Municipality / Strategy</th>
<th>Purpose and Definition of Strategy</th>
<th>Stated Benefits</th>
<th>Goals / Actions</th>
</tr>
</thead>
</table>
| Banyule Urban Forest Strategic Plan (2014) | An urban forest is a managed population of trees, both planted and naturally occurring, which provide economic, social, environmental and ecological benefits to an urban community. Additionally, the urban forest can incorporate green roofs, vertical walls, and community gardens. Urban forests provide a myriad of benefits to urban environments. Through their economic, environmental and social impacts, urban forests are a key component of building ecological resilience in our urban areas by providing clean air and water, shelter and a sense of place and wellbeing. | - Shading for people and hard infrastructure such as roads and buildings from direct sun and UV rays during summer.  
- Lowered cooling requirements and carbon emissions.  
- Canberra’s urban forest is worth $23 million annually in 2008. This includes energy saving benefits, air pollution reduction and stormwater flow reductions.  
- Urban trees filter particulate matter and pollutants from the air and stormwater and reduce the amount of stormwater by intercepting and storing rainfall.  
- Significantly reduce the urban heat island effect and provide relief during heatwaves.  
- Tree lined streets and parks can profoundly increase property value, encourage physical activity and improve mental health and expedite medical recovery. | - Improve tree planting mortality to less than 5% after 24 months.  
- Reduce vacancy rates to less than 1 vacancy per 100 trees within 15 years.  
- Increase canopy cover on non-council land by 20% within 15 years.  
- Reduce tree removal on non-council land by 20% within 10 years.  
- Budget increase to accommodate 4000 tree planting per annum for the next 15 years. |
| Darebin Urban Forest Strategy (2013) | The urban forest is comprised of trees, shrubs and other vegetation on both public and private land. Trees are a major component of the Urban Forest and are the focus of this strategy. Trees and other vegetation are significant assets in urban areas providing environmental, health, social and economic benefits. Darebin focuses on the strategic management of the tree population in addition to the management of trees on an individual basis. | - Encourage people to choose active modes of travel, such as walking and cycling.  
- Improved physical and mental health.  
- Reduction of the Urban Heat Island Effect. Trees reduce temperatures by 2-3 degrees by providing shading and reducing evaporation.  
- Removal of pollutants from the air. The economic benefits associated with air quality improvements can be calculated using a software program (I-tree).  
- Carbon reduction through direct (accumulation and storage) and indirect (reduced power consumption) mechanisms.  
- Vegetated landscapes helps to restore more natural water transfer patterns. Water infiltration into the soil and water loss to the atmosphere is increased, while less stormwater runoff is generated and discharged to waterways. | - Develop a tree inventory within 2 years to monitor and strategically manage species diversity, age distribution and risk.  
- Increase tree canopy cover of public land by 25% within 15 years.  
- Review significant trees listed under VPO and HO.  
- Trial at least one new tree species each planting season and monitor performance. Trial trees from climates that are warmer and drier than Melbourne.  
- Conduct a pilot program that offers free plants for private land.  
- Facilitate community tree planting days. |
| Maribyrnong Urban Forest Strategy (2018) | *Urban vegetation is for cities like food is for humans.* Maribyrnong’s trees and vegetation, its urban forest, plays an important role in the overall health and liveability of the western Melbourne region. There is now a recognised need to plan and manage it to maximise social, environmental and economic benefits.

*Maribyrnong is transforming from a character of industrialisation into a thriving, multicultural and economically diverse inner city locale.* | - Encourage biodiversity by planting avenues and provide homes and a food source for birds, animals and insects.
- Increase property values and also increase shopping activity in retail areas.

| Maribyrnong Urban Forest Strategy (2018) | *Urban vegetation is for cities like food is for humans.* Maribyrnong’s trees and vegetation, its urban forest, plays an important role in the overall health and liveability of the western Melbourne region. There is now a recognised need to plan and manage it to maximise social, environmental and economic benefits.

*Maribyrnong is transforming from a character of industrialisation into a thriving, multicultural and economically diverse inner city locale.* | - Provision of natural shade and shelter for people (reduction of temperature).
- Encourage people to spend time outdoors and interact with the community.
- Encourage pedestrian and cycling activity.
- Provision of uniform, avenue like plantings along streets encourages motorists to drive more slowly and improve street safety.
- Reduced air, water and soil pollution.
- Improved real and perceived community safety in public spaces.
- Improved mental health from exposure to natural environments.
- Effective reduction of the Urban Heat Island Effect.
- Reducing the severity of flooding by intercepting stormwater.
- Connecting biodiverse locations and provide localised habitats.
- Improved house prices and retail activity.

| Maribyrnong Urban Forest Strategy (2018) | *Urban vegetation is for cities like food is for humans.* Maribyrnong’s trees and vegetation, its urban forest, plays an important role in the overall health and liveability of the western Melbourne region. There is now a recognised need to plan and manage it to maximise social, environmental and economic benefits.

*Maribyrnong is transforming from a character of industrialisation into a thriving, multicultural and economically diverse inner city locale.* | - Increase canopy cover in the public realm to 20% by 2040
- Seek gains in canopy cover on private land and at a minimum achieve no net loss
- Adapt to climate change and maximise environmental outcomes
- Raise awareness and improve advocacy
- Maximise community health and wellbeing outcomes
- Support and enhance our local biodiversity
- Streamline Council’s process and monitor progress

| Urban Forest Strategy - City of Melbourne (2012) | *The urban forest comprises all of the trees and other vegetation – and the soil and water that supports it within the municipality. It incorporates vegetation in streets, parks, gardens, plazas, campuses, river and creek embankments, wetlands, railway corridors, community gardens, green walls, balconies and roofs.*

*The goal of this strategy is to guide the transition of Melbourne’s landscape to one that is resilient, healthy and diverse, and that meets the needs of the community. Its intended outcomes are to create resilient landscapes, community health* | - The City of Melbourne is facing the significant challenges of climate change, population growth and urban heating, placing pressure on the built fabric, services and people of the city. A healthy urban forest will play a critical role in maintaining the health and liveability of Melbourne.

*The strategy aims to:*  
  - adapt our city to climate change  
  - mitigate the urban heat island effect by bringing our inner-city temperatures down  
  - create healthier ecosystems

| Urban Forest Strategy - City of Melbourne (2012) | *The urban forest comprises all of the trees and other vegetation – and the soil and water that supports it within the municipality. It incorporates vegetation in streets, parks, gardens, plazas, campuses, river and creek embankments, wetlands, railway corridors, community gardens, green walls, balconies and roofs.*

*The goal of this strategy is to guide the transition of Melbourne’s landscape to one that is resilient, healthy and diverse, and that meets the needs of the community. Its intended outcomes are to create resilient landscapes, community health* | - Increase public realm canopy cover from 22% to 40% by 2040.
- The urban forest will be composed of no more than 20% of one family, 10% of one genus, or 5% of one species.
- 90% of Melbourne’s tree population will be healthy by 2040.
- Soil moisture levels will be maintained at levels to provide healthy growth of vegetation.
- Protect and enhance a level of biodiversity that contributes to a healthy ecosystem.
and wellbeing and a liveable, sustainable city. Central to this is the vision to make Melbourne greener – to create a city within a forest rather than a forest within a city.

- become a water-sensitive city
- engage and involve the community.

We will achieve this by:

- increasing canopy cover from 22 per cent to 40 per cent by 2040
- increasing forest diversity with no more than five per cent of one tree species, no more than ten per cent of one genus and no more than 20 per cent of any one family
- improving vegetation health
- improving soil moisture
- improving biodiversity
- informing and consulting with the community.

- A New York study found that its urban forest removed 1821 metric tonnes of air pollution at an estimated value to society of $9.3 million annually. A typical mature tree can store as much as 10 tonnes of carbon.
- Tree shading can reduce overall exposure to UV radiation by up to 75%. Broad canopied trees are most effective.
- Increasing tree cover by 10% (approx. 3 shade trees per lot) saves annual heating costs by approx. 50-90% per dwelling.
- Canopy coverages protect assets such as asphalts from harmful UV rays, improving lifespans by up to 30%.
- Green spaces play a role in defining the culture and image of a city, expanding its political, economic and tourism influence.

| Urban Forest Strategy | The term urban forest refers to all trees and other vegetation in public and private spaces. It
|-----------------------|---------------------------------------------------------------------------------------------------------------|
|                       | Adding 10 more trees per average city block has the effect of making residents feel seven years
|                       | Doubling canopy cover in the public realm to 10% by 2030 (from 5%). |
| Moreland (2017) | includes street and park trees, front and backyard trees, grasslands, wetlands, nature strips, shrubs, balcony plants, and green roofs and walls. Moreland’s urban Forest Strategy will enable Council to provide a strategic approach to protecting and enhancing vegetation across the municipality while increasing tree canopy in streets and parks. Moreland’s landscape is under pressure from a growing population, urban densification and climate change. This has resulted in a significant decline in vegetation and tree canopy on private land and requires a strong response to protect existing trees and to enhance amenity and liveability through the planting of new canopy trees. younger or $10,000 richer annually. 11 more trees in a city block decreases cardio-metabolic conditions comparable to an increase in annual personal income of $20,000 or being 14 years younger. - Less reported cases of obesity and hypertension compared with residents living in areas with fewer trees. - Built up areas with high levels of vegetation experience 50% lower crime levels and a 10% increase in tree cover has been associated with a 12% decrease in crime. - Urban stormwater runoff is much higher from asphalt (62%) than from surfaces with tree pits (20%) or turf (<1%). - A 10% increase in vegetation cover can reduce average air temperatures by 2.5 degrees during a heatwave. - Treed streetscapes can increase adjoining property values by an average of 20-30%. - Consumers can spend an addition 9% on an item in retail developments that include street trees. Street trees can increase business income by 20%. - Doubling canopy cover across Moreland to 29% by 2050 (from 14%). - Street tree population should be no more than 40% of one family, no more than 15% of one genus, and no more than 5% of one species by 2040. - Planting of 7,258 new trees on Council land, including 941 new planting sites. - Establish a significant tree and vegetation register that identifies eligible trees and vegetation for protection. - Switching from the currently common genus Callistemon to the more effective Genera Platanus and Ulmus can be 90% more effective for canopy cover. - Develop a tree protection strategy including a review of best practice of other metropolitan councils which have planning overlays that protect vegetation. - Ensure urban forest database, processes and reports are publically accessible online. |
| Stonnington Urban Forest Strategy (2018) | Urban forests are a significant element of the character, identity and liveability of cities, which are generally dominated by buildings, infrastructure and other hard surfaces. Trees provide a visual relief from the built form and a sense of seasonality and connection to nature often lacking in urban areas. The Urban Forest Strategy has been developed to help enable the protection and enhancement of the urban forest in the face of the many challenges that effect urban trees. The Strategy provides clear direction for Council and the community on tree management in both the public and private realm. Benefits and existing research are not discussed in detail. However, considerable attention is given to explain the cause and impact of the urban heat island effect. - Increase canopy cover (no target specified). - No more than 30% of one family, no more than 20% of one genus, and no more than 10% of one species. - Planting of 2000 new trees each year on public land, of which half (1000) are replacement plantings. - Ensure 90% of the urban tree population is healthy (currently 94%). |
| Whitehorse Urban Forest Strategy (2018) | Whitehorse aspires to be a healthy, vibrant, prosperous and sustainable community supported by strong leadership and community partnerships.  

The Council will "continue to sustainably manage, enhance and increase trees and vegetation in Council’s streetscapes, parks and gardens, with species that enhance neighbourhood character, support biodiversity and adapt to a changing climate."

The Urban Forest Strategy will guide how trees will be management in the urban environment. The strategy will also serve as an education tool to assist residents to understand the vision, policies and actions relating to Whitehorse’s tree population. | - Trees reduce the overall concentration of greenhouse gas in the atmosphere. Shading from trees can reduce surface temperatures by 20 degrees, reduce wind speed and reduce glare.
- Shading from trees can substantially reduce air conditioner use, decreasing energy costs.
- Trees capture rainfall and intercept runoff, reducing flooding and stormwater management costs, and decrease the flow of polluted water into waterways.
- Access to greenery promotes physical activity, reduces stress, and improve the overall quality of life. These factors can help prevent chronic diseases related to sedentary lifestyles.
- Urban vegetation slows heartbeats, lowers blood pressure, and relaxes brain wave patterns. Children with a view of nature at home score higher on self-discipline tests.
- Homes landscaped with trees are worth 5-15% more than homes without trees, homes on tree-lined streets may be worth 25% more.
- People linger and shop longer when trees are present.
- Target canopy cover of at least 30% by 2030.
- Explore planning and local law requirements which facilitate greater protections of trees. A target minimum of one new tree adjacent to every newly developed property, including both edges for corner blocks.
- Conduct a tree inventory in order to better understand diversity, canopy contribution, health and life expectancy.
- Purchase and maintain a tree management system to facilitate greater efficiency and more scientific management of the urban forest. | - Increase canopy cover in Yarra by 25% by 2040 (from 17% to 21.25%).
- Develop a 10 year Priority Planting Plan to direct planting to areas of need. Including urban heat hotspots, social vulnerability and / or pedestrian activity zones.
- Planting between 400-800 street and park trees per year with the right tree in the right location and a focus on canopy trees.
- Establish an internal asset / tree management working group to regularly discuss potential impacts and opportunities for asset planning integrations by other asset management programs.
- Include tree inventory data in Council’s asset management system to calculate life-cycle of

| City of Yarra Urban Forest Strategy (2017) | The urban forest is made up of all trees and plants in Yarra, including in streets and parks, in front and back yards, and along Yarra’s extensive waterways. There are 20,854 public street trees and a great many more park and private trees in the City of Yarra. Together they provide a 17% tree canopy cover over the municipality.

The aim of this strategy is to provide a clear charter for the future custodianship of Yarra’s street and park population. The vision, objectives and action plan will provide high-level direction to help guide decision making at planning and operation levels over the next 10 years. | - See Maribyrnong | - Increase canopy cover in Yarra by 25% by 2040 (from 17% to 21.25%).
- Develop a 10 year Priority Planting Plan to direct planting to areas of need. Including urban heat hotspots, social vulnerability and / or pedestrian activity zones.
- Planting between 400-800 street and park trees per year with the right tree in the right location and a focus on canopy trees.
- Establish an internal asset / tree management working group to regularly discuss potential impacts and opportunities for asset planning integrations by other asset management programs.
- Include tree inventory data in Council’s asset management system to calculate life-cycle of

|        |        | - Increase canopy cover in Yarra by 25% by 2040 (from 17% to 21.25%).
- Develop a 10 year Priority Planting Plan to direct planting to areas of need. Including urban heat hotspots, social vulnerability and / or pedestrian activity zones.
- Planting between 400-800 street and park trees per year with the right tree in the right location and a focus on canopy trees.
- Establish an internal asset / tree management working group to regularly discuss potential impacts and opportunities for asset planning integrations by other asset management programs.
- Include tree inventory data in Council’s asset management system to calculate life-cycle of |
new trees into recurrent maintenance programs, including drainage and street cleaning.
- Work with other local governments and stakeholders to support urban forest principles (i.e. Resilient Melbourne).
- Refer all development applications that may impact on public trees to the tree team for comment. Ensure creation of new trees in large developments.

Living Melbourne – Our Metropolitan Urban Forest

Living Melbourne: our metropolitan urban forest is a bold new strategy for a greener, more liveable Melbourne. It presents a vision of international significance in its massive scale, its outstanding collaboration, and its use of new and innovative mapping technology...

Made up of all the trees, shrubs, grasses, soil and water on public and private land across metropolitan Melbourne, our urban forest protects human health, nurtures abundant nature and strengthens natural infrastructure...

Living Melbourne aims to create a profound shift in the way we think about, build, grow and value Melbourne. Until recently, cities have existed in conflict with nature. Increasingly, around the world, people understand that the success and long-term viability of cities depend on them being able to live alongside nature. This is neatly expressed in Melbourne through the concept of our urban forest.

Typical urban ecosystem services provided by plants and trees include:
- maintaining or improving water quality in water catchments
- assisting the treatment of urban stormwater
- lowering water tables, which reduces the risk of salinity
- flood mitigation by slowing runoff
- reducing coastal erosion and flooding through natural coastal habitats like wetlands, shellfish reefs and mangroves
- sequestering carbon
- capturing airborne particulates, which improves air quality
- lowering air temperatures via transpiration
- reducing surface temperatures through shading
- improving urban amenity and therefore community pride of place
- proving cool green space for active and passive recreation
- supporting our mental health and feeling of well-being

A substantial body of literature recognises the benefits of a healthy urban forest. It can provide:

- Physical health benefits by encouraging physical activity, thus lowering obesity levels and reducing the...
| V | incidence of some diseases (e.g. chronic heart disease). It is also beneficial for healing and pain relief.  
- Mental health and well-being by reducing stress. Stress reduction produces a range of positive outcomes, including to concentration and memory, impulse inhibition, aggression, stress relief, mood, self-esteem, childhood developmental behaviours, depression, cancer, and Attention deficit hyperactivity disorder (ADHD) behaviours in children. People prefer vegetated urban areas to non-vegetated urban landscapes, and their choices bring about the resultant health and well-being values.  
- Social cohesion by providing a welcoming shared space, increasing community and neighbourhood connection, and reducing levels of fear and crime.  
- Biodiversity and native species conservation through benefits for species richness, and habitat for native and threatened species.  
- Ecosystem services via cooling and improved air quality. Vegetation generally, and large trees in particular, reduce urban heat both at street and neighbourhood levels. Urban vegetation, and especially trees, capture and filter air pollutants, including ground-level ozone, sulphur dioxide, nitrogen oxides and particulate matter (Kendal, et al., 2016). |
|---|---|---|---|
APPENDIX 3 – ANALYSIS OF 17 PLANNING PERMIT APPLICATIONS

Summary of findings

The following analysis of planning permits is based on what was applied for, and what was ultimately approved, either by Council or VCAT. Council is currently undertaking auditing of all permits issued within the VPO to ensure that there has been compliance with the endorsed landscape plan, where applicable. This will be an ongoing process, as resolved by Council in July, 2019.

The development trends occurring in Beaumaris are relatively typical of what is happening across other suburbs in Bayside in terms of the types of development occurring and tree removal that occurs as a result of development.

The difference is that Beaumaris and Black Rock have a predominance of indigenous and native species that are regulated (in terms of their removal) by the provisions of VPO3. Proposals for new development need to have regard to the planning controls, but in most cases the VPO3 provisions do not prevent either development or some tree loss. However, replacement planting is generally required as part of an endorsed landscape plan.

Key notes from planning permit analysis:

- Not all development requires a planning permit and much of the vegetation removal does not require a planning or local law permit;
- Positive outcomes are achieved when a landscape plan is required as a condition on a planning permit, which is then enforceable if non-compliance occurs;
- Almost every planning application involving a dwelling or dwellings involves the removal of vegetation (in the form of trees and/or shrubs).
- The statistics on tree removal are difficult to analyse accurately as there isn’t currently a reliable system that records tree removal as part of the planning permit/assessment process, however Council is taking steps to avoid this through the urban tree monitoring project; and
- Almost all proposals reach close to the maximum allowed site coverage, which is to be expected.
<table>
<thead>
<tr>
<th>Planning Application</th>
<th>VicSmart Application</th>
<th>Address</th>
<th>Local Law permit issued</th>
<th>Trees Proposed for Removal</th>
<th>VPO Protected</th>
<th>Replacement Trees (Endorsed Landscape Plan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014/442</td>
<td></td>
<td>474 Beach Rd</td>
<td>No</td>
<td>16</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>2014/13</td>
<td></td>
<td>420 Beach Rd</td>
<td>No</td>
<td>27</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>2013/569</td>
<td></td>
<td>220 Reserve Rd</td>
<td>No</td>
<td>17</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2017/774</td>
<td></td>
<td>1 McDonald St</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>2014/122</td>
<td></td>
<td>384 Balcombe Rd</td>
<td>No</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2018/542</td>
<td>Y</td>
<td>1/1 Ozone Ave</td>
<td>No</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2018/151</td>
<td>Y</td>
<td>19 Banksia Ave</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2018/250</td>
<td></td>
<td>198 Tramway Pde</td>
<td>No</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2016/753</td>
<td></td>
<td>5 Towers St</td>
<td>No</td>
<td>12</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>2017/85</td>
<td></td>
<td>17-19 Balcombe Park Lne</td>
<td>No</td>
<td>29</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>2014/457</td>
<td></td>
<td>165-167 Tramway Pde</td>
<td>No</td>
<td>12</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>2018/167</td>
<td></td>
<td>5 Cromer St</td>
<td>No</td>
<td>3</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>2014/305</td>
<td></td>
<td>14 Point Ave</td>
<td>No</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2018/159</td>
<td></td>
<td>5 Wall St</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2017/227</td>
<td></td>
<td>6 Buxton Rise</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>2018/617</td>
<td></td>
<td>25F Bolton St</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>2017/761</td>
<td></td>
<td>10 Mariemont Ave</td>
<td>No</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL (TREES)</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>131</strong></td>
<td><strong>20</strong></td>
<td><strong>93</strong></td>
</tr>
</tbody>
</table>
### 474 Beach Road, Beaumaris (Built)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>813</td>
<td>VCAT</td>
<td>2014/442</td>
<td>08/03/2018</td>
<td>12/2018~</td>
<td>Apartment</td>
</tr>
</tbody>
</table>

**Aerial Photo**

**Summary**
The application proposed the replacement of a small single dwelling with an apartment building (5 dwellings) and does not include the removal of any VPO3 protected trees (permit required under the NRZ). Approximately 16 trees were to be removed, none of which required either a planning or local law permit, while 6 new trees including 4 canopy trees were to be planted. Council did not support the application as its site coverage and upper-level setbacks were non-compliant. An amended permit was issued by VCAT and the development has proceeded. The endorsed landscape plan included the provision of 6 trees and various shrubs and other vegetation.

### 420 Beach Road, Beaumaris (Built)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1040.51</td>
<td>VCAT</td>
<td>2014/13</td>
<td>12/02/2018</td>
<td>06/2019~</td>
<td>Townhouses</td>
</tr>
</tbody>
</table>

**Aerial Photo**

**Summary**
The application is for demolition of an existing dwelling and construction of 3 dwellings, including the removal of 3 trees protected by VPO3, and therefore requires a permit under the NRZ and VPO. None of the trees required a local law permit. Council’s arborist raised no objection, given that suitable replacements are to be planted. A site coverage of 51.8% was originally proposed, this was adjusted to 49% following a Planning Committee meeting and VCAT hearing. The endorsed landscape plan included the provision of 10 trees and various shrubs and other vegetation.
### 220 Reserve Road, Beaumaris (Built)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>833.2</td>
<td>VCAT</td>
<td>2013/569</td>
<td>12/04/2016</td>
<td>01/2018~</td>
<td>Townhouses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Storeys</th>
<th>Site Coverage</th>
<th>Permeability</th>
<th>Trees Removed &amp; Replaced</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1</td>
<td>49.84% proposed and granted</td>
<td>43.21% proposed and granted</td>
<td>17 proposed to be removed (1 x VPO3)</td>
<td>The application is for demolition of an existing dwelling and construction of 3 dwellings, requiring a permit under the NRZ and VPO. The application includes the removal of one tree protected by VPO3. Council’s arborist raised no objection, given that a suitable replacement is planted. The endorsed landscape plan included the provision of 10 trees and various shrubs and other vegetation.</td>
</tr>
<tr>
<td>3 Dwellings</td>
<td>2</td>
<td>49.84% proposed and granted</td>
<td>43.21% proposed and granted</td>
<td>10 Proposed/Conditioned</td>
<td></td>
</tr>
</tbody>
</table>

### 1 McDonald St, Beaumaris (In Progress)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>788.4</td>
<td>Delegate</td>
<td>2017/774</td>
<td>13/06/2018</td>
<td>Unknown</td>
<td>Duplex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Storeys</th>
<th>Site Coverage</th>
<th>Permeability</th>
<th>Trees Removed &amp; Replaced</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1</td>
<td>39% proposed, 38.5% granted</td>
<td>39% proposed, 46% granted</td>
<td>0 proposed to be removed</td>
<td>The application is for an additional dwelling (two dwellings on a lot) and does not include the removal of VPO3 protected trees. 4 new canopy trees are proposed to be planted in accordance with the endorsed landscaping plan. The endorsed landscape plan included the provision of 4 trees and various shrubs and other vegetation.</td>
</tr>
<tr>
<td>2 Dwellings</td>
<td>2</td>
<td></td>
<td></td>
<td>4 Proposed/Conditioned</td>
<td></td>
</tr>
</tbody>
</table>
### 1/1 Ozone Ave, Beaumaris (Built)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>527.7</td>
<td>Delegate</td>
<td>2015/542</td>
<td>07/09/2018</td>
<td>Unknown</td>
<td>Single</td>
</tr>
</tbody>
</table>

**Aerial Photo**

**Summary**

A planning permit to construct a single dwelling was required under the Special Building Overlay and the application was approved through a VicSmart process. The construction of the dwelling required the removal of two (2) palm trees located within the front yard area but for which planning permission is not required. Council's Arborist attended the site to confirm the status with regard to trees located both within the subject land and also within 3 metres of the property boundaries, given that the site is located within a VPO3. None of the trees required a local law permit.

### 384 Balcombe Road (Built)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>766.8</td>
<td>Delegate</td>
<td>2014/122</td>
<td>07/09/2018</td>
<td>06/2018~</td>
<td>Rear Addition</td>
</tr>
</tbody>
</table>

**Aerial Photo**

**Summary**

The application is for an additional dwelling and includes the removal of one tree protected by VPO3. Council's arborist raised no objection, given that a suitable replacement is planted. 4 trees were proposed as replacements. The endorsed landscape plan included the provision of 10 trees and various shrubs and other vegetation.
### 19 Banksia Ave (Built)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>653.41</td>
<td>Delegate</td>
<td>2018/151</td>
<td>26/03/2018</td>
<td>04/2019~</td>
<td>Single</td>
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</table>

**Aerial Photo**

**Previous**

**New**

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storeys</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site Coverage</th>
<th>41.0% proposed and granted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permeability</td>
<td>59.0% proposed and granted</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trees Removed &amp; Replaced</th>
<th>0 proposed to be removed</th>
</tr>
</thead>
</table>

**Summary**

A permit was required under the Special Building Overlay and the application was approved through a VicSmart process. The application does not include the removal of VPO3 protected trees. No trees are altered, although site coverage has been increased. The application did not involve or require a landscape plan, unlike applications that are considered under the NRZ or VPO.

### 198 Tramway Pde (Built)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>897.31</td>
<td>Delegate</td>
<td>2018/250</td>
<td>05/06/2017</td>
<td>Unknown</td>
<td>Single</td>
</tr>
</tbody>
</table>

**Aerial Photo**

**Previous**

**New**

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storeys</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coverage</th>
<th>47.6% proposed, 35% endorsed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permeability</td>
<td>30.8% proposed, 60% endorsed</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Trees Removed &amp; Replaced</th>
<th>0 Proposed/Conditioned</th>
</tr>
</thead>
</table>

**Summary**

The application was for a single dwelling replacement and a permit was required under the Special Building Overlay. The application was approved through a VicSmart process. The application does not include the removal of VPO3 protected trees and a landscape plan was not required through the planning permit. No trees are altered, although site coverage has been increased.
### 5 Towers St (Built)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>398.22</td>
<td>Delegate</td>
<td>2016/753</td>
<td>05/05/2017</td>
<td>06/2018~</td>
<td>Single</td>
</tr>
</tbody>
</table>

**Previous**

<table>
<thead>
<tr>
<th>Aerial Photo</th>
</tr>
</thead>
</table>

**New**

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Single</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storeys</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Site Coverage</td>
<td>54.0% proposed, 42% granted</td>
<td></td>
</tr>
<tr>
<td>Permeability</td>
<td>46.0% proposed, 44.5% granted</td>
<td></td>
</tr>
<tr>
<td>Trees Removed &amp; Replaced</td>
<td>12 proposed to be removed</td>
<td></td>
</tr>
</tbody>
</table>

**Summary**
The application is for a single dwelling replacement which involves the removal of 5 trees protected by VPO3. Council’s arborist accepted the removal of 4 trees given that suitable replacements are planted. The permit was amended to retain one tree which was deemed to be in good health. 6 replacement trees and other vegetation were required under the landscape plan.

### 17-19 Balcombe Park Lane (Permit Approved)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
</table>

**Previous**

<table>
<thead>
<tr>
<th>Aerial Photo</th>
</tr>
</thead>
</table>

**Proposed**

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Single</th>
<th>3 Dwellings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storeys</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Site Coverage</td>
<td>38.6% proposed, 37.7% granted</td>
<td></td>
</tr>
<tr>
<td>Permeability</td>
<td>33.1% proposed, 42.1% granted</td>
<td></td>
</tr>
<tr>
<td>Trees Removed &amp; Replaced</td>
<td>29 proposed to be removed, 17 affected by the VPO</td>
<td></td>
</tr>
</tbody>
</table>

**Summary**
The application is for the demolition of existing dwelling and construction of 4 dwellings and includes the removal of 17 trees protected by VPO3. However, the extent of removal was not considered appropriate and an amended permit was issued with two of the trees retained (15 trees approved for removal under the VPO provisions). 7 canopy trees and other vegetation was included and approved under the landscape plan.
### 165-167 Tramway Pde (Permit Approved)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1159</td>
<td>VCAT</td>
<td>2014/457</td>
<td>17/01/2017</td>
<td>-</td>
<td>Townhouses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerial Photo</td>
<td><img src="image1" alt="Aerial Photo" /></td>
</tr>
<tr>
<td>Dwellings</td>
<td>Single</td>
</tr>
<tr>
<td>Storeys</td>
<td>2</td>
</tr>
<tr>
<td>Site Coverage</td>
<td>45.0% proposed, 40.8% granted</td>
</tr>
<tr>
<td>Permeability</td>
<td>41.7% proposed, 43.0% granted</td>
</tr>
<tr>
<td>Trees Removed &amp; Replaced</td>
<td>12 proposed to be removed (1 affected by the VPO)</td>
</tr>
</tbody>
</table>

**Summary:** The application is for demolition of the existing dwelling and construction of four dwellings, requiring a permit under both the VPO and NRZ. The application includes the removal of one tree protected by VPO3. 14 tree and other vegetation was included and approved under the landscape plan.

### 5 Cromer St (Permit Approved)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>764.22</td>
<td>Delegate</td>
<td>2018/167</td>
<td>22/11/2018</td>
<td>-</td>
<td>Duplex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerial Photo</td>
<td><img src="image2" alt="Aerial Photo" /></td>
</tr>
<tr>
<td>Dwellings</td>
<td>Single</td>
</tr>
<tr>
<td>Storeys</td>
<td>2</td>
</tr>
<tr>
<td>Site Coverage</td>
<td>46.2% proposed, 46.3% granted</td>
</tr>
<tr>
<td>Permeability</td>
<td>46.7% proposed, 45.7% granted</td>
</tr>
<tr>
<td>Trees Removed &amp; Replaced</td>
<td>3 proposed to be removed</td>
</tr>
</tbody>
</table>

**Summary:** The application is for demolition of the existing dwelling and construction of two dwellings on a lot (dual occ.) and does not include the removal of VPO3 protected trees. 14 canopy trees and other vegetation were included and approved under the landscape plan.
### 14 Point Ave (Permit Approved)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>889</td>
<td>Delegate</td>
<td>2014/305</td>
<td>20/01/2015</td>
<td>-</td>
<td>Duplex</td>
</tr>
</tbody>
</table>

**Aerial Photo**

**Previous**

**Proposed**

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Storeys</th>
<th>Site Coverage</th>
<th>Permeability</th>
<th>Trees Removed &amp; Replaced</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1</td>
<td>42.1%</td>
<td>25.1%</td>
<td>4 proposed to be removed (all affected by VPO)</td>
<td>The application is for the demolition of the existing dwelling and construction of two dwellings (dual occ.) and includes the removal of 4 trees protected by VPO. Council’s arborist deemed that the trees are not worthy of retention and can be removed. A permit was granted for the removal of these trees given that suitable replacements are planted. 4 canopy trees and other vegetation were included and approved under the landscape plan.</td>
</tr>
<tr>
<td>2 Dwellings</td>
<td>2</td>
<td>47.0% proposed and granted</td>
<td>43.0% proposed and granted</td>
<td>4 Proposed/Conditioned</td>
<td></td>
</tr>
</tbody>
</table>

### 5 Wall St (Permit Approved)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>887.13</td>
<td>Council</td>
<td>2018/159</td>
<td>16/10/2018</td>
<td>-</td>
<td>Duplex</td>
</tr>
</tbody>
</table>

**Aerial Photo**

**Previous**

**Proposed**

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>Storeys</th>
<th>Site Coverage</th>
<th>Permeability</th>
<th>Trees Removed &amp; Replaced</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1</td>
<td>47.4%</td>
<td>52.6%</td>
<td>2 proposed to be removed (both VPO)</td>
<td>The application is for demolition of existing dwelling and construction of two dwellings (dual occ.) and includes the removal of two trees protected by VPO. Council’s arborist accepted their removal given that three large native trees are retained and two more are planted. 3 replacement canopy trees and other vegetation were included and approved under the landscape plan.</td>
</tr>
<tr>
<td>2 Dwellings</td>
<td>2</td>
<td>52.6% proposed and granted</td>
<td>52.6% proposed and granted</td>
<td>3 Proposed/Conditioned</td>
<td></td>
</tr>
</tbody>
</table>
### 6 Ruxton Rise (Permit Approved)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>461</td>
<td>Delegate</td>
<td>2017/227</td>
<td>19/12/2018</td>
<td>-</td>
<td>Single</td>
</tr>
</tbody>
</table>

**Previous**

**Proposed**

#### Aerial Photo

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>None (former RSL)</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stores</td>
<td>None</td>
<td>2</td>
</tr>
<tr>
<td>Site Coverage</td>
<td>44.2% proposed and granted</td>
<td></td>
</tr>
<tr>
<td>Permeability</td>
<td>47.1% proposed and granted</td>
<td></td>
</tr>
<tr>
<td>Trees Removed &amp; Replaced</td>
<td>0 proposed to be removed</td>
<td>6 Proposed/Conditioned</td>
</tr>
</tbody>
</table>

**Summary**
The application is for the construction of a dwelling on a lot less than 500m², which requires a permit under the NRZ. The application did not involve the removal of any VPO3 protected tree but as part of the assessment a landscape plan was required and 6 canopy trees, in addition to other vegetation, were included on the plan. One large tree from the original RSL was proposed/required to be retained.

### 25F Bolton St (Permit Approved)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>482</td>
<td>Council</td>
<td>2018/617</td>
<td>20/12/2018</td>
<td>-</td>
<td>Single</td>
</tr>
</tbody>
</table>

**Previous**

**Proposed**

#### Aerial Photo

<table>
<thead>
<tr>
<th>Dwellings</th>
<th>None (former RSL)</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stores</td>
<td>None</td>
<td>2</td>
</tr>
<tr>
<td>Site Coverage</td>
<td>49% proposed and granted</td>
<td></td>
</tr>
<tr>
<td>Permeability</td>
<td>44% proposed and granted</td>
<td></td>
</tr>
<tr>
<td>Trees Removed &amp; Replaced</td>
<td>0 proposed to be removed</td>
<td>3 Proposed/Conditioned</td>
</tr>
</tbody>
</table>

**Summary**
The application is for the construction of a dwelling on a lot less than 500m², which requires a permit under the NRZ. The application did not involve the removal of any VPO3 protected tree but as part of the assessment a landscape plan was required and 3 canopy trees, in addition to other vegetation, were included on the plan.
10 Mariemont Ave (Permit Approved)

<table>
<thead>
<tr>
<th>Site Area (m²)</th>
<th>Agent</th>
<th>Application</th>
<th>Approved Date</th>
<th>Built Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>787.93</td>
<td>Delegate</td>
<td>2017/761</td>
<td>23/08/2018</td>
<td>-</td>
<td>Duplex</td>
</tr>
</tbody>
</table>

**Previous**

- **Dwellings**: Single
- **Storeys**: 1
- **Site Coverage**: 49.3% proposed, 49.5% granted
- **Permeability**: 28.6% proposed, 28.0% granted
- **Trees**: 1 proposed to be removed

**Proposed**

- **Dwellings**: 2 Dwellings
- **Storeys**: 2
- **Site Coverage**: 49.3% proposed, 49.5% granted
- **Permeability**: 28.6% proposed, 28.0% granted
- **Trees**: 10 Proposed/Conditioned

**Summary**
The proposal is for demolition of existing and construction of two dwellings (dual occ.) and includes the removal of one tree affected by the VPO3. Council’s arborist deemed that its removal was appropriate, provided that two additional canopy trees are included in the plans, totalling 4 new trees to be planted. 10 trees and other vegetation were included and approved under the landscape plan.
APPENDIX 4 – TREE & LANDSCAPE BONDS INVESTIGATION

Introduction

There are a number of ways that Councils seek to protect trees during construction, whether the trees are on public or private land, and to ensure that if trees are damaged or destroyed there is a mechanism to ensure it is the financial responsibility of the developer/owner.

There are also measures that Councils can take to ensure that an endorsed landscape plan is properly implemented by a land owner or developer.

Tree (Protection) Management Plans

Bayside and other Councils generally require a Tree Protection Management Plan (TPMP) for trees on Council land, or within close proximity to development sites. A tree bond is a further guarantee (and incentive) for developers to ensure that appropriate measures are taken to protect both canopy and significant trees.

Figure 1 | Example of Tree Protection Zone (City of Melbourne):

<table>
<thead>
<tr>
<th>Trunk Diameter (DBH)</th>
<th>Tree Protection Zone (TPZ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10cm</td>
<td>1.2m</td>
</tr>
<tr>
<td>20cm</td>
<td>2.4m</td>
</tr>
<tr>
<td>40cm</td>
<td>4.8m</td>
</tr>
<tr>
<td>75cm</td>
<td>9m</td>
</tr>
<tr>
<td>100cm</td>
<td>12m</td>
</tr>
</tbody>
</table>

Benefits of Tree Bonds

The advantage of tree bonds is that they place the onus of proof of retention on developers, rather than the onus of proof of removal on local councils. If a tree is removed, the mechanism is already in place to monitor (the developer needs to demonstrate the tree is still there) and penalise (the financial penalty is already with the enforcing body).

However, tree bonds still do not guarantee tree protection. Some mechanisms used to impose tree bonds may be vulnerable to challenge. For example, historically in Victoria, the planning appeals body VCAT has struck out conditions imposing tree bonds, arguing that punitive planning enforcement measures should be used where trees are removed. (That is where a Section 173 agreement would have more binding legal weight).
Even where bonds can be imposed and enforced, developers may still be able to demonstrate that trees are unsafe or causing infrastructure damage, and thus need to be removed. In these circumstances, it is often hard to prove otherwise once the tree has been removed.


The following is an assessment of three options in terms of their benefit for Council from a practical point of view.

1. Tree Bonds for Council trees

In Bayside, an asset protection permit is required before starting any construction that may affect council owned assets like footpaths, roads, drains and signs. The bond which is associated with the permit, ensures that any damage is minimised and repaired without cost to Council.

An asset protection bond is generally placed on Council Assets in the majority of Councils. More recently, a number of Councils are starting to require a tree bond (through their tree protection policies) to ensure that tree damage or loss of a tree, as a result of construction, is compensated to Council for the value of the tree, or a value specified by Council. Mature trees tend to have a high value and the amount of the bond required generally reflects the value placed on the tree. An established valuation method is used by most Councils.

Tree bonds to protect a Council tree are generally required through a Council (tree protection) policy and can be applied through a Local Law, or through a condition on a planning permit. A planning permit condition carries heavier enforcement penalties if there is non-compliance, making it more effective however the use of a bond can be challenged.

Depending on how the bond amount is calculated, requiring bonds to protect Council trees becomes more practical as the cost and scale of development increases, in proportion to the value of the tree that is sought to be protected. The cities of Melbourne and Stonnington use tree bonds as a way of protecting significant Council owned trees during and after development, usually for a period of 12 months.

A TPMP is required to be submitted and accompanied by a bond, usually in the form of a cheque or bank guarantee, to the value of the tree(s) that are sought to be protected, or a value that is considered satisfactory to Council. In the City of Melbourne for example, many trees are valued at over $100,000 and the bonds are only affordable to major developers working on major construction projects. A similar scale of development is occurring in parts of Stonnington. However, bonds can be required for low-scale projects to protect trees of any value, according to a Council’s policy. The challenge then becomes determining an appropriate amount to bond the tree that both acts as a deterrent against removal but reasonably reflects the value of the tree.

Table 1 | Tree Bonds on Council Land (Other Councils)

<table>
<thead>
<tr>
<th>Council</th>
<th>Description of Policy</th>
<th>Bond type</th>
<th>Period for bond refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melbourne</td>
<td>The policy states: Where construction activities have the potential to impact public trees, a bond for the protection of the tree will be held by Council. The amount of the bond shall amount to the combined tree amenity and ecological value determined in accordance</td>
<td>Bank guarantee</td>
<td>Duration of works (refunded post-development)</td>
</tr>
</tbody>
</table>
with this policy. A bond will be held for the duration of the works, subject to an approved Tree Protection Management Plan.

<table>
<thead>
<tr>
<th>Location</th>
<th>Policy Details</th>
<th>Bond Type</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stonnington</td>
<td>As per the adopted Council policy, tree bonds can be required as a condition on a planning permit, requiring applicants to enter into a legal deed and provide a bond to a value to be determined by an arborist. Bonds are applied to any retained ‘Significant’ tree, on a multi-dwelling development site, and on any tree located within adjoining public land. A Deed is a legal agreement between the Responsible Authority and the owner / developer, which outlines the agreed requirements for holding, forfeiting and releasing the Bank Guarantee. The value of the Bank Guarantee will be calculated by applying an arboricultural formula, which considers factors such as the size, health and structure of a particular tree. (Source: Stonnington CC)</td>
<td>Bank guarantee</td>
<td>12 months</td>
</tr>
<tr>
<td>Moonee Valley</td>
<td>The policy generally applies to all significant trees and canopy trees, whether on public or private land – any development and/or works within the tree protection zone may require a bond to the amount specified by Council, dependant on an arborist and officer assessment</td>
<td>Not specified</td>
<td>12 months</td>
</tr>
<tr>
<td>Boroondara</td>
<td>The policy generally applies to all significant trees and canopy trees, whether on public or private land – any development and/or works within the tree protection zone may require a bond to the amount specified by Council, dependant on an arborist and officer assessment</td>
<td>Not specified</td>
<td>12 months</td>
</tr>
<tr>
<td>Greater Bendigo</td>
<td>The City of Greater Bendigo will impose bonds on developers and event organisers where necessary to ensure the adequate protection of all trees to be retained. The bond or bank guarantee amount will be the combined amenity, removal and replacement value determined in accordance with this policy.</td>
<td>Bond (held by Council or bank guarantee)</td>
<td>The bond or bank guarantee will be held for the duration of the works, subject to an approved Tree Protection Management Plan.</td>
</tr>
</tbody>
</table>

**Summary of Bond Mechanisms (Public trees):**

- Bond required (or may be required) as specified in a Tree Management/Protection Policy and/or specified under a Local Law or as a planning permit condition (permit conditions carry more weight as are enforceable under the Planning and Environment Act);
- Value of bond to be determined by Council, likely to include factors such as the scale and value of development, in addition to the value of the tree;
The timeframe in which bonds can be returned starts at 12 months or even on completion of development. This may depend on the scale and type of development and potential for future adverse impacts on the tree. Trees can be damaged and take a long period of time to show signs of distress or decline, which can be assessed by an arborist and needs to be considered in determining how long to retain a bond; The bond is held as a bank guarantee, not as a cash amount held by Council – this seems to be a common and practical way to receive the bond, without significant administrative burden.

2. Requiring Bonds for Tree Protection on Private Land

Some Councils require a bond to protect “canopy trees” and/or “significant trees” that are intended to be retained on private land, during any construction works that occur on the property and usually within the tree protection zone or root zone of the tree. The measure is intended to act as a deterrent to reckless activity that could endanger the tree.

Table 2 – Tree Bonds to Protect Existing Trees on Private Land (Other Councils)

<table>
<thead>
<tr>
<th>Council</th>
<th>Description of Policy</th>
<th>Bond type</th>
<th>Period for bond refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moonee Valley</td>
<td>The policy generally applies to all significant trees and canopy trees, whether on public or private land – any development and/or works within the tree protection zone may require a bond to the amount specified by Council, dependant on an arborist and officer assessment.</td>
<td>Not specified</td>
<td>12 months</td>
</tr>
<tr>
<td>Boroondara</td>
<td>The policy applies to works in the Tree Protection Zone of a Significant Tree or the Structural Root Zone of a Canopy Tree, whether those works are proposed to be undertaken pursuant to a planning permit or otherwise, the council or an authorised officer may, by notice given to the owner, require payment of a security bond to the council. This applies to the owner of private land who proposes carrying out work or if the owner engages a contractor to carry out work.</td>
<td>Not specified</td>
<td>12 months</td>
</tr>
<tr>
<td>Stonnington</td>
<td>As per the adopted Council policy, tree bonds can be required as a condition on a planning permit, requiring applicants to enter into a legal deed and provide a bond to a value to be determined by an arborist. Bonds are applied to any retained ‘Significant’ tree, on a multi-dwelling development site, and on any tree located within adjoining public land.</td>
<td>Bank guarantee and legal deed</td>
<td>12 months</td>
</tr>
</tbody>
</table>

A Deed is a legal agreement between the Responsible Authority and the owner / developer, which outlines the agreed requirements for holding, forfeiting and releasing the Bank.
*Bonds to be required to protect “canopy trees” and “significant trees” (canopy trees are also known as “protected tree” under the Bayside policy definition).

3. Requiring Bonds for Landscaping

The use of bonds for landscaping is used throughout Victoria primarily in relation to public assets. Bonds are taken to protect existing street trees or replanting, and public open space landscaping often found within subdivision applications. Bonds are typically 150-200% of the value of public works and are returned once works and any associated maintenance period has been completed or called upon if the Responsible Authority is required to undertake the works.

The use of Bonds on private properties is uncommon. However, if it was considered to implement such a bond arrangement on private landscaping requirements, the mechanism required to facilitate such a process would be limited to that of a Section 173 agreement.

Conditioning Bonds on a Planning Permit

The use of conditions for tree protection is generally effective and can be managed through the statutory planning assessment process and then through enforcement. The endorsed landscape plan forms part of the approved permit and can be enforced over a long period of time.

The Planning and Environment Act 1987 (the Act) provides the statutory framework for the management of land use and development. In doing so the Responsible Authority is able to issue planning permits where required with conditions which must be met. Under the Act there is also an enforcement framework to enable the Responsible Authority to ensure that compliance is achieved.

The planning permit must only apply conditions where there is a nexus between the requirements of the Planning Scheme and the use and/or development which approval is being sought.

Under the Vegetation Protection Overlay (Schedule 3) a planning permit is required for the removal of native and indigenous vegetation. As part of any approval it is considered appropriate to include conditions for the replacement planting to be undertaken on the site.

The use of bonds to encourage (or require) a land owner to undertake and maintain vegetation is an action which would be imposed as an additional mechanism to achieve an outcome, which is already facilitated by the Act via its enforcement provisions. As such, a bond is generally not required as the works can be enforced through compliance with the Planning Permit.

Section 173 Agreements

The use of a Section 173 agreement would place a legal obligation on the land owner to undertake replanting in exchange for the bond being returned or provided the Responsible Authority the ability to execute the works.
This process would provide a legal obligation on the land owner, however this would result in a significant financial burden on the applicant and the Responsible Authority in managing and implementing such an approach, which would be greater than the cost of the replanting required. To facilitate this the following would be required:

- The drafting of a Section 173 agreement (approx. $2000);
- The provision of a Bond (150-200% of the value of the tree(s) cost) – A native Eucalyptus radiata (2 metre in height) costs approximately $100-200;
- Once planted and maintained the bond would need to be returned and the Section 173 agreement ended (approx. $1000).

Implementing a bond process to ensure replanting could cost the applicant approximately $3200 (non-refundable) in order to receive a refundable bond of a maximum of 200%. For a single tree which may cost $100 it would be considered to be an excessive cost imposed on an applicant.

As part of this process, the Responsible Authority would be required to inspect the site to ensure that planting was completed in accordance with the Section 173 agreement prior to the ending of the agreement and refunding of any bond monies. Such an inspection approach would not be dissimilar to the current auditing process which is being undertaken in a proactive manner with significantly less financial burden on the applicant or administrative burden on the Responsible Authority.

What do other Councils do?

To ensure that there is a legal nexus between the use and development and the requirement for a bond, the Planning Permit should provide the strategic justification to support such requests. Such strategic justification would be via the inclusion of a planning policy within the planning scheme, and/or implementation of a schedule to an overlay to set out the requirement.

To provide the legal framework to implement the strategic justification, the use of a Section 173 agreement is considered the appropriate tool. This approach allows:

- The requirement to be placed on the title;
- A clear framework of the requirements and timing for the works to be completed;
- Details of the penalties to be clearly outlined; and
- Council the right to enter the site to undertake any works where the applicant/owner fails to undertake the works.

Other approaches which have no legal status under the Act include:

- Adopted Council Policies;
- Council Guidelines; and
- Council practices.

A review of Victorian Council’s has indicated different application in using bonds, and their effectiveness. These are outlined in the table below.
<table>
<thead>
<tr>
<th>Council</th>
<th>Bond Mechanism</th>
<th>Application</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whittlesea</td>
<td>Council Policy (rescinded)</td>
<td>Multi dwelling development landscape plans</td>
<td>Rescinded due to administrative and resourcing costs;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Duplication of auditing program;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Question on legality of implementing</td>
</tr>
<tr>
<td>Whitehorse</td>
<td>Section 173 Agreement</td>
<td>Private Landscaping works and maintenance</td>
<td>Has a legal framework, though has an administrative and resourcing cost</td>
</tr>
<tr>
<td>Casey</td>
<td>Council Policy</td>
<td>Public Landscape works associated with subdivision and open space</td>
<td>Relevant to greenfield development areas</td>
</tr>
<tr>
<td>Surf Coast</td>
<td>Planning Scheme Policy (Cl. 22.04)</td>
<td>A bond is required to ensure replacement planting is provided and maintained in visually prominent locations along the Great Ocean Road.</td>
<td>This is a gazetted planning scheme policy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This is applied in specific zones and overlays of visual and environmental importance.</td>
</tr>
<tr>
<td>Hobsons Bay</td>
<td>Council Policy</td>
<td>Multi dwelling development</td>
<td>Bond is used to encourage requirement and does not cover the value of works. Associated with a 6 week maintenance period.</td>
</tr>
<tr>
<td>Brimbank</td>
<td>Council Policy</td>
<td>Multi dwelling development</td>
<td>Bond is used to encourage requirement and does not cover the value of works. Associated with a 12 week maintenance period.</td>
</tr>
<tr>
<td>Manningham</td>
<td>Council Policy</td>
<td>Multi dwelling development</td>
<td>Bond is based on value of works plus a 20% additional cost. Associated with a 13 week maintenance period.</td>
</tr>
<tr>
<td>Kingston</td>
<td>Section 173 agreement</td>
<td>Private Landscaping works and maintenance</td>
<td>Has a legal framework, though has an administrative and resourcing cost</td>
</tr>
<tr>
<td>Moreland</td>
<td>Section 173 agreement</td>
<td>Private Landscaping works and maintenance</td>
<td>Has a legal framework, though has an administrative and resourcing cost</td>
</tr>
<tr>
<td>Wyndham</td>
<td>Council Policy</td>
<td>Landscaping associated with residential subdivision (greenfield development)</td>
<td>Relevant to greenfield development areas</td>
</tr>
</tbody>
</table>
4. **Summary of findings**

Overall, there is limited justification to support the introduction of tree bonds for both public and private land, as there are existing mechanisms within the *Planning and Environment Act 1987* to more effectively and efficiently enforce compliance with permits.

Council does not have data to indicate that there is a need for bonds for development on private land affecting public trees, as these can be dealt with through the planning permit asset protection processes. Bonds providing for protection of private trees on private land can be reasonably addressed through the landscaping plan approval process, with compliance with those endorsed plans able to be enforced.

It is considered that Council can continue with its proactive approach to compliance to ensure that vegetation is retained, maintained and enforced through the permit system, without relying on a bond solution where the health of a tree is assessed in a short term period following construction. The planning system allows for longer term protections through the ‘life’ of a planning permit, beyond any short term bond scheme.