

Municipal Wide Tree Study

Part 2: Additional Analysis in Garden Suburban and Bush Suburban Character Precincts

Final Report

Whitehorse City Council

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**ETHOS
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There is an urgency to put appropriate controls into place to protect natural features, buildings and areas of historical significance to avoid further loss of the City's environmental assets.

- Clause 21.05 (Environment), Municipal Strategic Statement, Whitehorse Planning Scheme



Executive Summary

The City of Whitehorse is renowned for its lush gardens, bushy character and tree-dominated vistas. Within the municipality, there are nodes of higher density urban development and bushy, lower-density settlement, however, the area is predominantly composed of suburban development within a garden setting. There is also some incremental intensification of development in these typically suburban areas.

Trees are considered an integral aspect of character within the City of Whitehorse and are highly valued by its residents, as highlighted in work undertaken for Whitehorse's Neighbourhood Character Studies in 2003 and 2014. The Municipal Strategic Statement (MSS) notes that 'vegetation character is generally the most significant determinant of neighbourhood character'.

The Whitehorse Planning Scheme therefore places strong emphasis on environmental protection, particularly the retention, replacement and planting of canopy trees. This is given effect through the MSS, local policy, schedules to the residential zones, and a comprehensive suite of environmental and landscape overlays. Prior to 2018 vegetation protection controls were focussed on specific, heavily vegetated precincts or individual significant trees across the landscape - most of the municipality was not subject to local vegetation controls.

Significant Landscape Overlay, Schedule 9 'Neighbourhood Character Areas' was introduced in 2018 as an interim control over tree removal and buildings and works in Garden Suburban and Bush Suburban neighbourhood character areas that were not previously subject to blanket tree protection controls. The interim controls were originally intended to expire in late 2018 but have recently been extended pending the outcome of this project.

This report outlines further strategic work undertaken to justify the application of the interim SLO9 controls on a permanent basis.

Chapter 1 explains the purpose and background to this report. It sets the scene by reinforcing the importance of canopy cover to the character and liveability of Whitehorse. Canopy trees are vitally important within the City, not only for aesthetic reasons, but also for their role in reducing the urban heat island effect, providing habitat for wildlife and generally their positive effects on community health and wellbeing. Significant population growth is forecast for Whitehorse over the next 20 years and there is concern that ongoing incremental loss of canopy trees will diminish the city's character, liveability, and ecological sustainability.

Chapter 2 examines the strategic context associated with Whitehorse's tree controls, building upon the Municipal Wide Tree Study 2016 and the recently adopted Interim Urban Forest Strategy 2018. It examines the suite of planning controls available under the Victoria Planning Provisions and the option of applying a Local Law aimed at vegetation protection. It also notes recent changes to the State Planning Framework that have strengthened references to the importance of landscaping, open space and significant trees.

The re-examination of vegetation control mechanisms undertaken during the production of this report, combined with the changes to strategic context referred to above and the neighbourhood character assessments that identify the contribution of canopy trees to significant landscapes, have reaffirmed that the SLO remains the most effective tool available to Council to achieve its strategic objectives concerning canopy tree protection. The SLO is superior to all other control mechanisms as it creates a nexus between vegetation protection and built form when assessing planning permit applications. While other controls may allow for consideration of both elements, none offers the potential for vegetation and built form to be considered in a holistic manner under a single set of objectives, standards and decision guidelines.

Chapter 3 provides an overview of the suite of tree protection controls that apply in Whitehorse and focusses specifically on the interim SLO9. It examines permit application numbers and locations, stakeholder feedback, and relevant VCAT and planning panel decisions. It finds that the introduction of SLO9 has resulted in a substantial increase in the number of applications to remove, destroy or lop trees within the City of Whitehorse. This is not unexpected.

SLO9 applies across an expansive area of the municipality, therefore differing from the pre-existing SLOs (1-8) that apply to more tightly defined precincts. In order to ensure a balanced approach to vegetation protection SLO9 therefore sets a higher threshold before a planning permit is required than the pre-existing SLOs. That is, some trees that require a planning permit for removal in SLOs 1 to 8 may not require a permit within SLO9.

In response to stakeholder feedback and recent VCAT decisions, Chapter 3 goes on to examine ways to maintain the core objectives of SLO9 while both clarifying its operation and reducing the number of permits likely to be triggered. This approach is intended to support the application of vegetation controls in a strategic manner across the municipality by

applying more detailed and stringent controls in areas where vegetation protection is at the highest priority; compared to a 'lighter touch' in areas where vegetation protection and infill development priorities must be balanced. A number of recommendations are therefore made to clarify the operation of SLO9 relative to local policy; and to create additional exemptions in order to reduce the administrative burden on both Council and residents.

Chapter 4 examines the Whitehorse Planning Scheme's parallel policy objectives of housing growth and vegetation protection for the purpose of determining whether the two may be reconciled. It seeks to reach a conclusion as to whether the introduction of a permanent SLO9 would have a negative impact on housing growth projections. A risk assessment undertaken as part of the project found that the greatest risk of impact on housing growth was in the Residential Growth Zone but that this risk was mitigated by exemptions that limit tree protection appropriately to front setback areas, where they have greatest impact on the character of the streetscape.

Chapter 4 also includes a detailed review of the dominant tree species in the Bush Suburban and Garden Suburban Character

Precincts and confirms that these precincts are appropriately defined and that canopy trees do make a substantial contribution to character. It recommends that SLO9 is not split into two separate schedules as this would serve only to add complexity to the planning provisions. The area to which SLO9 is applied is already subject to all three residential zones and multiple zone schedules. In many respects the SLO9 provisions operate in a manner that could be regarded as supplementary to the zone provisions. The zones therefore provide sufficient guidance about the development and neighbourhood character aspirations for each of these areas without the need for further definition through SLO schedules.

Chapter 4 concludes by examining the potential impact of SLO9 on residential development capacity, using the development capacity assessment undertaken as part of the Whitehorse Housing and Neighbourhood Character Review 2014. It concludes that the retention of SLO9 should not have an unreasonable impact on the City's capacity to accommodate projected population and dwelling growth. Further, while a net loss of the canopy cover that is provided on private land is anticipated in areas identified for substantial change, there is potential to enhance canopy

cover elsewhere to account for this. The Council's Interim Urban Forest Strategy (UFS) recognises the contribution that tree planting in the public realm makes to the municipality's total tree canopy cover, and there is potential to enhance canopy cover on private land by encouraging tree planting in minimal change areas where there is currently lower canopy cover.

The report makes the following recommendations:

Modify the MSS to strengthen its emphasis on tree canopy protection and enhancement, and include reference to the UFS and its 30% tree canopy target.

Amend the MSS (Clause 21.05 'Environment') to:

- Provide support for the application of a permanent SLO9; and
- Exclude land within SLO9 from the minimum lot size policy that applies to other SLO schedules.

Amend the Tree Conservation Policy (Clause 22.04) to:

- Strengthen the references to canopy trees in the Policy Basis section;
- Strengthen the objectives to ensure that new development provides sufficient space for new and replacement trees;

- Clarify the relationship between vegetation controls and ResCode planting requirements by:
 - Prioritising tree retention over planting requirements;
 - Placing emphasis on achieving equivalent canopy through offset planting;
 - Allowing zone tree planting requirements to be taken into account when calculating offsets.
- Refine the provisions relating to buildings and works near existing trees to provide for a minimum setback of 3m in SLO9 rather than the 4m that applies to SLOs 1-8;
- Refine the provisions relating to tree regeneration to provide for a minimum area of 35m² in SLO9 rather than the 50m² that applies to SLOs 1-8.

Amend SLO9 to:

- Strengthen the landscape character objective to include reference to replacement trees;
- Introduce new vegetation removal exemptions providing for the removal, destruction or lopping without a permit of:
 - Trees located less than 3 metres

from the wall of a dependent person's unit, dwelling or garage attached to a dwelling (aligning the provision with the local policy setback requirement);

- Trees located less than 3 metres from an in-ground swimming pool
- Environmental weeds, as defined by the City of Whitehorse, as they are invasive, have little to no ecological value and are consistently supported for removal (including additional species Cape wattle (*Paraserianthes lophantha*) and Box Elder (*Acer negundo*))
- Trees around public utilities including power lines and other services, including those within easements.
- Street trees in line with Council's Street Tree Policy.
- Add a note clarifying that the exemption provisions do not authorise the removal, destruction or lopping of trees required by existing planning permits.
- Add a table containing a list of environmental weed species.
- Add a provision to allow approved planning permits granted prior to the introduction of the interim SLO9 controls on 8 February 2018 to be exempt from the tree removal trigger.

Amend the planning scheme maps and associated schedules to remove the area-based VPO schedules 2 and 4 from properties (as per Amendment C196) as they would duplicate tree controls for these areas.

Refer to Appendix E for draft amendment documents that incorporate these recommendations.

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Terms and Abbreviations

Abbreviation	Term	Detail
CWG	Council Working Group	Project team within Whitehorse City Council
DDO	Design and Development Overlay	Victoria Planning Provision, overlay for urban design, including built form and trees
DELWP	Department of Environment, Land, Water and Planning	Victoria State Government Department
ESO	Ecological Significance Overlay	Victoria Planning Provision, overlay for vegetation with ecological significance
EVC	Ecological Vegetation Class	Standard unit for classifying vegetation types in Victoria
GRZ	General Residential Zone	Victoria Planning Provision, zone typically for residential uses
HO	Heritage Overlay	Victoria Planning Provision, overlay for heritage places, which may include vegetation
LPPF	Local Planning Policy Framework	The (former) LPPF is made up of the Municipal Strategic Statement (MSS) and Local Planning Policy (LPP). The LPPF will soon form part of the integrated Planning Policy Framework (PPF)
MSS	Municipal Strategic Statement	A component of the Whitehorse Planning Scheme which establishes the strategic framework for the municipality and provides the broad local policy basis for making decisions under the planning scheme
MUZ	Mixed Use Zone	Victoria Planning Provision, zone typically for mixed-use residential and commercial uses
NCA	Neighbourhood Character Area	An area of land in a residential zone that has been categorised in the Whitehorse Neighbourhood Character Study as either Bush Environment, Bush Suburban or Garden Suburban.
NRZ	Neighbourhood Residential Zone	Victoria Planning Provision, zone typically for lower density residential uses
POS	Private Open Space	An area of land in a residential development set aside for privately-accessible open space
PPN	Planning Practice Note	Documents prepared by DELWP to provide ongoing advice about the operation of the Victoria Planning Provisions (VPP) and planning schemes
RGZ	Residential Growth Zone	Victoria Planning Provision, zone typically for higher density residential uses
SLO	Significant Landscape Overlay	Victoria Planning Provision, overlay typically used to protect landscapes of aesthetic significance

Abbreviation	Term	Detail
SPOS	Secluded Private Open Space	An area of Private Open Space (POS) which is also secluded from surrounding uses and overlooking
SRZ	Structural Root Zone	An area around a tree trunk that must be protected to ensure stability
STAR	Scheduled Tree Area Requirement	The area required for establishment of a new tree, as noted in the Tree Conservation Local Policy at Clause 22.04 of the Whitehorse Planning Scheme. An area of 35m ² with a minimum dimension of 5m.
STPR	Scheduled Tree Planting Requirement	The landscaping requirement contained in most schedules to residential zones in the Whitehorse Planning Scheme. Commonly two (2) trees per dwelling or 1 tree per site.
SULE	Safe Useful Life Expectancy	A measure of a tree's life expectancy based on age, health, condition, safety and location
TMP	Tree Management Plan	Appendix 2 of the Whitehorse Urban Forest Strategy 2018 (UFS). Considers risk management and assessment methodology of trees.
TPA	Tree Planting Area	As part of the new concept introduced by this report (refer to Appendix F), this is an individual area for the establishment of a canopy tree, comparable to a STAR (see above) but not necessarily constrained by one set of measurements.
TPAR	Tree Planting Area Requirement	A new concept introduced by this report (refer to Appendix F) which relates tree planting and area requirements to canopy coverage targets set out in the Interim Urban Forest Strategy 2018.
TPZ	Tree Protection Zone	An area around a tree trunk that should be protected from urban development to ensure the tree is not lost
UFP	Urban Forest Plan	Appendix 1 to the Whitehorse Urban Forest Strategy 2018 (UFS), guides how trees will be managed in the urban environment.
UFS	Urban Forest Strategy	The Whitehorse Urban Forest Strategy 2018. Contains the Urban Forest Plan (UFP) and Tree Management Plan (TMP). Sets the target for 30% municipal-wide canopy tree coverage by 2030.
VIF16	Victoria in Future 2016	The official state government projection of population and households in Victoria, covering the period from 2011-2051 (and to 2031 for smaller areas).
VPP	Victoria Planning Provisions	Comprehensive set of planning provisions in Victoria, used as a state-wide reference in the construction of planning schemes.

INTRODUCTION

1.0

1.0 Introduction

1.1 Purpose

Council's overriding aim is to strategically justify the application of permanent canopy tree protection provisions under Schedule 9 to the Significant Landscape Overlay (SLO9) to the majority of privately owned residential land in the City of Whitehorse.

The key objectives guiding this project are to:

- Strengthen the strategic framework supporting canopy tree retention in the City of Whitehorse;
- Demonstrate that canopy tree protection will not unduly impact housing capacity; and
- Minimise the administrative burden of the new provisions and ensure they make appropriate use of the Victoria Planning Provisions (VPPs).

Building on the *Whitehorse Municipal Wide Tree Study 2016*, this project seeks to analyse the potential issues and reinforce the strategic justification for these controls, by:

- Reinforcing the importance of canopy trees to the character of Whitehorse.
- Building an historical argument regarding the development of the area and any history of vegetation protection within the area.
- Undertaking a landscape assessment to demonstrate the importance of canopy trees and which species make the most significant contribution in different areas.

- Reinforcing the many benefits of canopy trees in an urban environment.
- Modelling the potential effect of tree retention on the ability to develop different lots and create various housing typologies.
- Ensuring that Whitehorse can continue to more than adequately cater to projected housing needs.
- Investigating the relative impact of State reforms on housing capacity in comparison to vegetation retention, such as minimum garden area requirement.
- Examining the use of alternative VPPs to achieve the desired outcome.
- Looking for opportunities to rationalise other scheme provisions.
- Exploring opportunities to vary the application of the planning provision to counter the perception of a 'one-size-fits-all', blanket approach.
- Redrafting the planning provision to expand on exemptions.

The project was undertaken by Ethos Urban with the assistance of Ecology and Heritage Partners in undertaking the Landscape Assessment.

1.2 Whitehorse

The City of Whitehorse typifies Melbourne's eastern subregion, known for its lush gardens, bushy character and tree-dominated vistas. Within the municipality, there are nodes of higher density urban development and bushy, low-density settlement, however, the area is predominantly composed of suburban developments within a garden setting. There is also some incremental intensification of development in these typically suburban areas.

Trees are considered an integral aspect of character within the City of Whitehorse and are highly valued by its residents, as highlighted in work undertaken for Whitehorse's Neighbourhood Character in 2003 and 2014. The Municipal Strategic Statement (MSS) notes that 'vegetation character is generally the most significant determinant of neighbourhood character'.

What is a canopy tree?

A tree is defined by the International Society of Arboriculture as:

"a woody perennial usually having one dominant trunk and a mature height greater than 5 meters."

In urban environments, trees become modified and it may be more common for them to have

more than one dominant trunk. If a tree is capable of reaching a mature height of 5 metres or greater, it is technically classified as a tree.

The definition of a Canopy Tree in Whitehorse was considered at length in the Options and Recommendations Report for the **Whitehorse Municipal Wide Tree Study 2016**. There are a variety of definitions deriving from arboriculture, ecology and character perspectives.

Other Councils in metropolitan Melbourne have provided a range of definitions for canopy trees via the permit requirements in schedules to the SLO and/or the Vegetation Protection Overlay (VPO). These definitions often specify a minimum height, trunk width or canopy spread and are not defined by their exotic or native status.

Bayside City Council categorises canopy trees through minimum height and spread dimensions for small, medium and large canopy trees. These range from 8 - 15 metres in height and with a 6 - 10 metre canopy spread. Smaller canopy trees are noted as being more appropriate for areas where soil volume is restricted, while large canopy trees are better suited to the public realm where infrastructure constraints do not apply.

Analysis of Whitehorse's six (6) neighbouring municipalities shows that canopy trees are defined as having a height between 5 - 12 metres, with most SLO and VPO provisions specifying a height of 5 metres (parts of Banyule, Knox, Maroondah) or 6 metres (parts of Nillumbik and Manningham). The VPO5 in Banyule is the highest and specifies canopy trees as those with a minimum height of 12 metres, however this is reflective of vegetation in the local area, which is typified by an 'overstorey' of taller Substantial Trees.

Canopy trees with a height of at least 5 metres will, in most cases, provide a visible canopy above the roofline of a single storey house and the ground level of most buildings with two or more storeys.

The specification of a canopy tree's minimum girth varies considerably across neighbouring municipalities. The most common is a trunk circumference of 0.5 metres measured at a height of 1 metre from ground level. This commonly correlates with a minimum height of 5 or 6 metres.

The interim SLO9 permit requirements, in effect, define canopy trees in Whitehorse as trees with a minimum height of 5 metres and/or a minimum trunk circumference of 1 metre measured 1 metre from ground level.

Originally, the interim controls were requested with a trigger for trees with a minimum trunk circumference of 0.5 metres for consistency with similar triggers in other schedules to the SLO in Whitehorse. This was changed by the Department of Environment, Land, Water and Planning (DELWP) when the interim controls were approved to be a minimum trunk circumference of 1 metre at implementation.

The control has since been in place for approximately 12 months and, as expected, Council's permit application data has shown a significant increase in the number of applications received in relation to trees. Community concern in relation to the need for permit applications and arborist reports for individual trees is noted. In part, the concern is due to the interim SLO9 being relatively simplistic and lacking the complexity of a permanent control such as circumstances where a tree might be exempt from the need for a planning permit.

In comparison to the findings of the Municipal Wide Tree Study 2016, the trigger for trees with a minimum trunk circumference of 1 metre reflects the large and mature trees which give Whitehorse its character. It is considered the trigger of 1 metre is appropriate given the 'blanket' application of SLO9 over Bush

Suburban and Garden Suburban Neighbourhood Character Areas (NCAs). In comparison, requesting that the trigger be reduced to a minimum trunk circumference of 0.5 metres would significantly increase the number of small applications received, and capture more than the intended canopy trees that give Whitehorse its character.

Canopy Cover in Whitehorse

Canopy cover is a term used to measure and describe the combined area of canopy spread over land when viewed from above, often expressed as a percentage of the land. When a tree is destroyed, lopped or removed, it can contribute to a loss of canopy cover. As trees mature and spread, they contribute to increasing the canopy cover.

Upper tree canopy covers a significant proportion of residential land in the City. The Whitehorse Municipal Wide Tree Study 2016 determined that municipality-wide canopy coverage was between 22 - 26% using software called 'i-Tree'. This software identified trees using satellite imagery and did not consider tree height. Ground-truthing was used to confirm that samples of trees were correctly identified (refer to Whitehorse Municipal Wide Tree Study 2016 for detailed methodology). The Interim

Report: Urban Vegetation Cover Analysis (Eastern Region) prepared by DELWP estimates 20.9% of the municipality was covered by tree canopy above 3 metres in height when it was surveyed in 2014.

The trees throughout and the garden character in parts of Whitehorse are also a major contributor to the liveability of the municipality.

Canopy trees are vitally important within the City, not only for aesthetic reasons, but also for their role in reducing the urban heat island effect, providing habitat for wildlife and generally their positive effects on community health and wellbeing. These benefits are well-documented in the Whitehorse Municipal Wide Tree Study 2016 and have been referenced by the Whitehorse Interim Urban Forest Strategy 2018 (UFS), which sets the goal of achieving a municipality-wide minimum of 30% canopy coverage to unlock these benefits.

The landscape in Whitehorse has two generally distinctive suburban areas: the west, which has a more formal landscape dominated by exotic species; and the east, which can be described as bushy and has a more informal character with a strong presence of native species.

Throughout the municipality, the Whitehorse Neighbourhood Character Study 2014

emphasises that canopy trees are an integral part of the landscape and neighbourhood character. Without the presence and dense distribution of these canopy trees, Whitehorse would not have the Bush Suburban or Garden Suburban NCAs. The subsequent work by Ecology & Heritage Partners as part of this project reinforces that canopy trees are a significant part of the landscape and neighbourhood character, including the mix of species observed (refer to Section 4.5).

The SLO is the only tool within the VPPs that can protect canopy trees for their collective aesthetic value and relate to their contribution to neighbourhood character (refer to Section 2.5).

In 2014, Whitehorse was recorded as having 20.9% municipality-wide canopy coverage, comparable to the neighbouring urban municipalities of Knox (20.3%) and Maroondah (24.3%). Maroondah City Council in particular uses the SLO extensively to protect canopy trees in urban areas throughout the municipality. In a metropolitan context, Whitehorse has one of the highest canopy coverage areas in Melbourne, and based on this benchmark the application of municipality-wide tree protection provisions through the SLO is considered appropriate (refer to Section 4.5).

Direction 6.4 of Plan Melbourne seeks to make Melbourne cooler and greener to mitigate the potential impacts of the urban heat island effect. This further emphasises the need to collectively protect canopy trees.

Threats to Canopy Cover

Development and works can significantly impact the health and structure of trees via direct and indirect root damage. Direct damage occurs when cutting through roots for trenching and site cuts, which reduces the ability of a tree to absorb water and nutrients. If structural roots are destroyed, then the stability of the tree may also be compromised (Quigley 2002). Indirect damage occurs through various activities, such as soil compaction, adding fill above the natural ground level and creating a non-permeable surface (e.g. buildings, driveways, footpaths). All these actions greatly reduce or prevent water, nutrients and air from reaching the roots, which can lead to stress, branch dieback and even death. The results of these activities can take months or even years to become evident in the tree's crown (Harris et al. 2003).

In terms of establishing new trees, their growth potential will similarly relate to the amount of impermeable planting area available.

The Vision 2020 Plan was recently published and seeks to create 20% more green space in Australia's urban areas by the year 2020.

As part of the Vision 2020 Plan, a report entitled 'Where should all the trees go?' published by RMIT and CAUL Hub researchers notes that the Whitehorse Local Government Area did not see a significant change in shrub and tree canopy cover, however this was based on shrub and tree cover changes in a 3-year period between 2013-2016, which is not considered enough time to demonstrate the impact of development on canopy cover.

Development Pressure

The Estimated Resident Population of Whitehorse in 2017 was 173,233 and is forecast to grow to 207,424 by 2036 averaging more than 1,800 persons per annum. In 2016, 66,636 dwellings housed these residents. This number is forecast to grow to 83,694 dwellings by 2036, averaging more than 850 dwellings per annum.

The greatest proportion of dwelling growth will be in the Box Hill Activity Centre, which is forecast to nearly triple in size between 2016

and 2036 (190.8%), and the surrounding suburb of Box Hill, which will nearly double in size in the same time period (97.8%).

The number of dwellings across the whole municipality is forecast to grow by 25.6%. Other than Box Hill and its Activity Centre, there are a number of suburbs that are forecast to experience dwelling growth higher than the municipality overall. These include Burwood East (44.4%), Blackburn (31.6%) and Nunawading (26.3%).

Given increasing pressures for development on the existing residential areas in Whitehorse, there is concern for the ongoing incremental loss of canopy trees which will diminish the city's character, liveability, and ecological sustainability.

Notwithstanding this, there are expansive suburban areas of Whitehorse that will experience more limited change and where vegetation cover is less well established. There is potential to enhance vegetation cover in these areas, and likewise the opportunity to carefully and strategically plan for retention and replacement of trees as well as future tree planting in developing areas.

STRATEGIC CONTEXT 2.0

2.0 Strategic Context

2.1 Local Planning Policy Provisions

The Local Planning Policy Framework (LPPF) in the Whitehorse Planning Scheme has specific policies that seek the protection of vegetation and trees. Clause 22.04 (Tree Conservation) contains detailed policies that seek to create a link between environmental and housing policies, highlighting the significance of trees and vegetation for the neighbourhood character in Whitehorse. A detailed summary of the strategic context in Whitehorse was conducted as part of the *Whitehorse Municipal Wide Tree Study 2016*, and this report builds on this work by considering how the strategic context has changed since 2016.

Amendment C191

Amendment C191 sought to implement municipal-wide interim controls via Schedule 9 to the Significant Landscape Overlay (SLO9), to guarantee protection for trees while permanent controls associated with Amendment C196 was being prepared and progressed. The interim controls may be considered a simplified version of the desired tree protection provisions, with a view to refine these through an amendment to apply the controls on a permanent basis.

The interim controls implemented with Amendment C191 came into effect and were gazetted on 8 February 2018, and were initially in effect until 31 December 2018, they have since been extended and are now in effect until 30 June 2019.

This current study aims to undertake further strategic work to justify the application of the interim controls associated with Amendment C191 on a permanent basis.

Amendment C191:

- Applied the SLO on an interim basis to all residential land in the municipality not currently included in the SLO, including those areas covered by the Vegetation Protection Overlay (VPO);
- Updated the planning scheme maps on an interim basis, as appropriate;
- Amended the Schedule to Clause 61.03 to update the maps applying to the Whitehorse Planning Scheme; and
- Listed a new reference document in the Schedule to the SLO – *Municipal Wide Tree Study Options and Recommendations Report June 2016*.

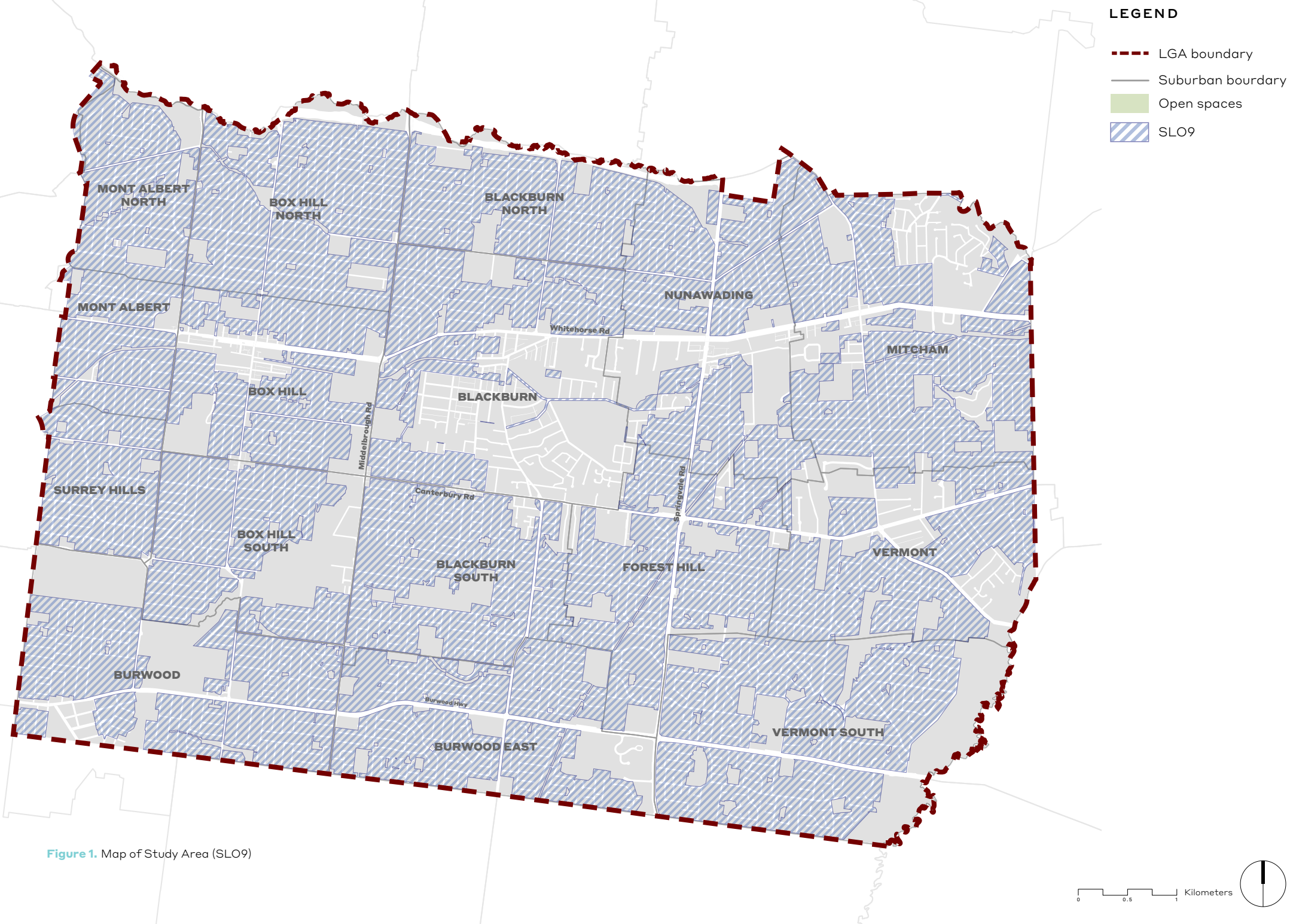
The *Whitehorse Municipal Wide Tree Study 2016* noted the need for additional planning controls to consider:

- Site coverage and setbacks in zone/overlay schedules;
- Private open space requirements;
- Existing SLO provisions; and
- Definition of canopy tree.

Amendment C196

Amendment C196 was prepared to implement the *Whitehorse Municipal Wide Tree Study 2016*. It sought to:

- Apply the SLO9 to all residential land in the municipality not currently included in the SLO (Refer to Figure 1), including those areas covered by the VPO;
- Update the planning scheme maps as appropriate;
- Amend the Municipal Strategic Statement (MSS) and LPPF to strengthen the discussion about the various roles and values of vegetation within the municipality, including supporting biodiversity, significant landscapes, cultural heritage, sustainability, neighbourhood character, local amenity, erosion control, local climate and ecologically sustainable development;
- Amend Clause 21.05 (Environment) to:
 - Strengthen the importance of tree preservation and regeneration in Whitehorse; and
 - Include additional objectives about protecting and enhancing tree canopy cover.
- Amend Clause 22.04 (Tree Conservation) to:
 - Strengthen Whitehorse's objectives to enhance the tree canopy cover



across the municipality. This will detail the importance that all substantial trees make to the vegetation cover, as well as the importance and differences between exotic and native vegetation and how they contribute to neighbourhood character in different ways (circumference versus height); and

- Include a definition of a canopy tree that the extended SLO will apply to;
- Amend the Schedule to Clause 61.03 to update the maps applying to the Whitehorse Planning Scheme;
- List a new reference document in the Schedule to the SLO – *Municipal Wide Tree Study Options and Recommendations Report June 2016*; and
- Remove Schedule 2 and Schedule 4 from the VPO and from the properties where it currently applies.

This Amendment for permanent controls did not proceed, pending the further analysis and justification contained within this report.

Amendment VC148 (July 2018)

Amendment VC148 implemented a wide range of significant reforms to the Victoria Planning Provisions (VPPs) as part of the Smart Planning Program, including:

- Clause 15 (Built Environment and Heritage)

- 15.01-1 (Urban Design) has stronger references to sustainability and liveability, and a strategy to ensure development provides landscaping that supports the amenity and attractiveness of the public realm, indicating that vegetation should be provided in front and side setbacks and be visible from the street.
- 15.01-3 (Subdivision Design) includes a strategy amended from “creating open spaces” to “creating landscaped streets and a network of open spaces”, placing more emphasis on vegetation links, corridors and provision in front and side setbacks where visible from the street.
- 15.01-5 (Neighbourhood Character) amended a strategy that formerly sought for development to respond to landscape character, and now seeks to also respond to the local environment and significant vegetation, it therefore increases the emphasis to be placed on the protection of vegetation at a local level and of individual significant trees that contribute to the landscape character.
- VicSmart application classes and requirements were relocated from Clauses 90 to 95 to the Residential Growth Zone (RGZ), General Residential Zone (GRZ), Neighbourhood Residential Zone (NRZ), Environmental Significance Overlay (ESO), VPO and SLO. The VicSmart provisions were not changed and

continue to apply to the removal, destruction or lopping of one (1) tree assessed under Clause 59.06 (Remove, Destroy or Lop a Tree). A consequence of this VicSmart provision has been multiple applications for removal of single trees on a property.

Amendment VC110

Amendment VC110 was gazetted on 27 March 2017 and implemented the recommendations of the Managing Residential Development Advisory Committee. This included changes to the Mixed Use Zone (MUZ), Township Zone (TZ), RGZ, GRZ and NRZ. Notably, the amendment introduced a mandatory maximum building height to the RGZ, GRZ and NRZ. It also introduced the new concept of ‘garden area’ to the VPPs and provided minimum garden area requirements to the GRZ and NRZ. Subsequently, Amendment VC143 (May 2018) improved the definition and operation of the minimum garden area requirement and made allowances for local content in a Schedule to the RGZ to identify an area as exempt from the minimum garden area requirements. Refer to Table 1. The current definition of garden area is:

Any area on a lot with a minimum dimension of 1 metre that does not include:

a) a dwelling or residential building, except for:

- an eave, fascia or gutter that does not exceed a total width of 600mm;

- a pergola;
- unroofed terraces, patios, decks, steps or landings less than 800mm in height;
- a basement that does not project above ground level;
- any outbuilding that does not exceed a gross floor area of 10 square metres in area; and
- domestic services normal to a dwelling or residential building;

b) a driveway; or

c) an area set aside for car parking.

The introduction of garden areas and the minimum garden area requirements in the GRZ and NRZ have the potential to support canopy tree planting. It is important to consider how the new minimum garden area requirements in the GRZ and NRZ interact with the interim SLO controls.

Table 1 – Mandatory Maximum Building Height and Minimum Garden Area Requirements

	RGZ	GRZ	NRZ
	Discretionary	Mandatory	
Height (metres)	13.5	11	9
Height (storeys)	-	3	2
Garden Area % (400 - 500m ² lots)	-	25%	25%
Garden Area % (501 - 600m ² lots)	-	30%	30%
Garden Area % (above 650m ² lots)	-	35%	35%

2.2 Urban Vegetation Cover Analysis

The Interim Report: Urban Vegetation Cover Analysis (Eastern Region) prepared by the Department of Environment, Land, Water and Planning (DELWP) provides a summary of canopy coverage throughout municipalities in Melbourne's eastern region and includes Whitehorse, based on data collected in 2014.

It notes that Whitehorse has a total tree canopy coverage of 20.9%, which is defined by canopy tree height, starting at 3 metres, (see Table 2 below). The Eastern region has the highest overall vegetation cover in all of the study areas considered (26.5% cover of all trees above 3 metres in height). The geographical distribution of tree canopy cover is displayed in Figure 2. Comparing this figure with zone and overlay maps shows that, in broad terms, areas with lowest canopy cover tend to be non-residential, while the areas with highest cover include land covered by long-term SLOs.

Table 2 – Whitehorse Tree Canopy Cover

Tree Height	Area (ha)	Percentage
3 to 10m	915	14.2%
10 to 15m	284	4.4%
15m plus	142	2.2%
TOTAL	1,341	20.9%

Source: Interim Report: Urban Vegetation Cover Analysis Eastern Region (DELWP 2018)

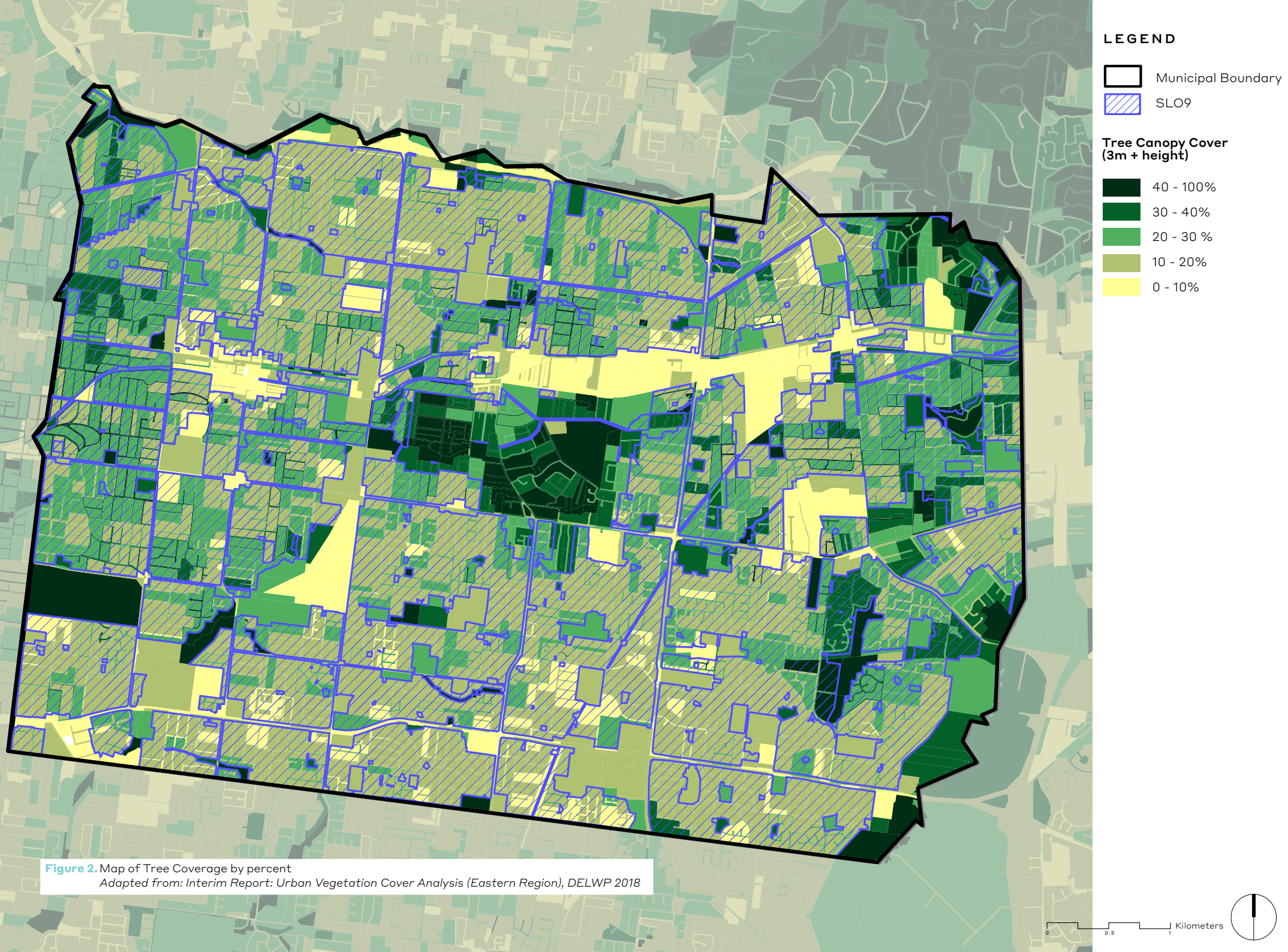
It is noted that approximately two-thirds of the Whitehorse tree canopy falls under 10 metres in height, hence adding support for the 5 metre height trigger in the proposed SLO.

It is noteworthy that the 3 metre benchmark for this analysis is lower than the 5 metre threshold for a planning permit under SLO9. This means that a proportion of the vegetation identified by the analysis is not protected by the SLO9.

The Whitehorse Municipal Wide Tree Study 2016 estimated the municipality-wide canopy cover to be between 22-26%. This was determined by i-Tree software that identified trees from aerial imagery, and was able to differentiate between trees, grass, bushes, scrub etc. This estimate does not take tree height into consideration and may have captured trees less than 3 metres in height, which could, in part, account for the discrepancy between the two estimates.

On this basis, it is evident that the number of canopy trees greater than 5 metres in height will likely be less than 20.9% (once trees between 3 - 5 metres in height are removed).

Consultation with RMIT University has indicated that it is possible to modify the thresholds used in the Urban Vegetation Cover Analysis data such that the minimum canopy height reflects the minimum height of 5 metres as per canopy



2.3 Whitehorse Urban Forest Strategy

tree definition of this study. It is recommended that work be undertaken in conjunction with DELWP and RMIT to determine the area of canopy coverage in Whitehorse for all trees above 5 metres in height, to demonstrate a more realistic estimate of canopy tree coverage through the lens of what SLO9 is seeking to protect and enhance.

The Whitehorse Interim Urban Forest Strategy 2018 (UFS) is the parent document which, in addition to the strategy, contains the Urban Forest Policy 2018 (UFP) and the Tree Management Plan (TMP). These documents are designed to be complementary to each other but also function as mutually exclusive components. The UFS was presented at Council's Ordinary Meeting on 20 August 2018. The Council unanimously endorsed the UFS, adopted the UFP, noting this supersedes the Streetscape Policy and Strategy 2002, and noted the TMP. The Strategy identifies its scope as all trees in the municipality, irrespective of origin, location or ownership, and therefore includes trees in the private realm currently under the interim SLO9.

The main link between this Strategy and SLO9 is that Council is setting a municipality-wide minimum target for 30% canopy tree cover by 2030. Council-owned land accounts for approximately 10% of the municipality and therefore a large proportion of tree cover will be required in the private realm in order to achieve this goal. The UFS notes the introduction of minimum garden area requirements in residential zones provide an opportunity for the Planning Scheme to be leveraged to encourage the provision of more trees in private

gardens. The development of permanent planning controls are noted in section 1.7.2, which indicates that the success of the UFS relies to some degree on the application of tree protection on private land.

An issue with reaching Council's target in the public realm is that many of Council's significant trees are 70+ years old and reaching the end of the Safe and Useful Life Expectancy (SULE). They are expected to require replacement over the next 10 years and will take time to establish. During this time, it is possible that overall canopy cover may decline before it starts to increase.

The importance of canopy tree cover is considered in terms of the benefits they provide environmentally, socially and economically. Climate change and the current lack of diversity of species are noted as significant threats to the ongoing health of Council's urban forest:

- The potential loss of trees during high temperature extremes that exceed their tolerance;
- The increased presence and/or spread of pests and diseases in changing climates; and
- The current lack of diversity of species (attributed to many Australian species being part of the Myrtaceae family) amplifying the risks from climate change as a whole species

may be affected and form a significant portion of the urban forest.

The UFP replaces the previous Streetscape Policy and Strategy 2002. To achieve Council's goal of increasing municipality-wide canopy tree cover to 30% by 2030, it sets two targets for the public realm:

- Provide a minimum of one (1) tree adjacent to each residential property (with some exceptions); and
- Replace any tree removed.

This is a no-net-loss approach which is reflected in Interim SLO9 through the following design guidelines:

- *If retention cannot be achieved, or a tree is considered appropriate for removal, consider whether the site provides adequate space for offset planting of indigenous or native trees that can grow to a mature height similar to the mature height of the tree to be removed. If it is not appropriate to select an indigenous or native tree species, the selected species should be drought tolerant.*
- *Whether the planting location of the replacement vegetation will enable the future growth of the canopy and root system of the tree to maturity.*

The TMP provides the framework for managing existing and new street trees, and importantly contains the 'Tree amenity value formula' in section 4.4.1. This formula determines a dollar value for an individual tree, and considers the following criteria:

- Species – a tree is assessed according to its known natural life span and its rate of growth in a particular environment. For example, a long-lived tree will be scored higher than a short-lived tree. Significant features to the tree will also modify how the tree is scored. Judgement regarding species factor must be made by a qualified Arborist.
- Aesthetics – the aesthetic value of a tree is determined by the impact on the landscape if the tree were removed. This category is closely tied to the locality factor.
- Locality – the locality factor is determined by the tree's geographical situation. Trees in a bushland area or important tree lined avenue score highest because of the importance of the tree to the growing environment in which the tree is located.
- Tree Condition – the tree condition value is determined by the trees' trunk, growth rate, pests and diseases, structure, canopy development and life expectancy.

The current planning framework addresses most aspects of the TMP. SLO9 requires consideration of:

- The ecological and / or arboricultural 'retention value' of a tree.
- Visual and landscape factors.

Locality is largely considered under the neighbourhood character objectives of residential zones. It is noted that these criteria do not appear to be weighted and aesthetics has the same level of importance as other factors such as species or locality.

As part of the finalisation of the Interim UFS and in any future update of the permanent SLO controls, it is recommended that the following be considered:

- The scale at which the canopy target is to be achieved is clarified, i.e. is the target to be applied across the board in all zones or based on an averaging?
- The expected contribution of private residential land be clarified in order to provide better guidance for the assessment of planning applications.

2.4 Supporting Material

Council currently has a comprehensive suite of controls and educational materials that supports tree protection and planting. Table 3 provides an overview.

Table 3 – Overview of Council's Supporting and Educational Materials

Support Material	Scope	Description
Tree Protection Overlays	SLO, VPO, ESO, HO, native, street trees	Describes the permit triggers required for removing trees within various overlays in the Planning Scheme and native vegetation provisions (Clause 52.17). Includes links to statements of tree significance (VPO), checklists for VPO and SLO, landscape guidelines and information on the importance of trees.
Landscape plans for planning applications	Focus is on residential land	Describes the permit requirement for landscape plans to accompany planning applications. Primarily focuses on residential land and associated neighbourhood character precincts. Describes the requirements of an Arborist report and links to lists of indigenous flora.
Tree removal and landscaping	Residential land	Introduced by and links to Amendment C191. Describes municipality-wide protection of trees under SLO9 and how to determine if your property is affected using online maps. Links to majority of abovementioned support material.
Whitehorse Tree Education Program	Whole municipality	Brief description of the purpose of the tree education program and the benefits of trees (environmental and aesthetic). Provides links to assist with gardening, landscaping and planning applications.
Street Trees	All road reserves	Provides a link to report a tree maintenance issue. Divides discussion into planting, pruning and removal. Links to more detailed information about planting and pruning. Does not yet link to the Urban Forest Policy or Tree Management Plan (discussed in the next section), which has recently been considered by Council.
Street Tree Planting	All road reserves	Most of the information on this page should be updated following the adoption of the Interim Urban Forest Strategy 2018. Provides information on making an individual or whole-of-street request for street tree planting and provides answers to a list of FAQs.
Street Tree Pruning	All road reserves	Describes when pruning is required to ensure safety (e.g. overhead power lines, pedestrian and vehicle safety). Notes that Council will only remove a tree if it is dead, dying or dangerous. Provides answers to a list of FAQs.
Nature strip Planting Guidelines	Residential land	Outlines the requirements to obtain a permit to plant a garden in the Council-owned nature strip in front of private property. Links to the application form and provides a list of considerations.
Weeds of Whitehorse	Whole municipality	Provides a list of known invasive weeds and describes their characteristics. Refer to Appendix A.

2.5 Appropriateness of Controls

A key objective of this Project is to ensure the interim SLO controls make appropriate use of the VPPs. The *Municipal Wide Tree Study Discussion Paper 2016* provided a detailed assessment of the VPP tools available at the time.

This section focusses on testing the appropriateness of the SLO as a tool for achieving Whitehorse's tree protection and canopy enhancement objectives. It summarises the findings of the *Municipal Wide Tree Study Discussion Paper 2016* and provides an update in response to subsequent amendments to the VPPs.

Planning Practice Note 7 (PPN07) Vegetation Protection in Urban Areas

This Planning Practice Note (PPN) “*provides guidance on how to assess the significance of vegetation in urban areas and how to protect significant vegetation through the planning scheme.*” Table 4 is a summary of the tools available to Council to protect vegetation in urban areas.

Other complementary methods include:

- Incentives and assistance programs to encourage vegetation retention;

- Information and guides to educate and improve community understanding (e.g. brochures, local newspaper, Vegetation Protection Guidelines, signage);
- Planting programs;
- Community awareness (engagement through Strategy development);
- Street planting, park and open space planting policies.

The PPN notes that in terms of enforcement, Council should focus on community education and participation, to ensure there is broad support for vegetation protection policies within the Planning Scheme and provide advice and assistance where necessary to ensure the community understands the policies in place.

The PPN expresses the importance for Council to develop a monitoring program, including the need to be clear about which parts of the Planning Scheme they wish to monitor, the indicators of performance and their performance targets. Consistency is highlighted as a key element to success, with suggestions for Councils to adopt the same or similar strategies as neighbouring municipalities to ensure best practice.

The implications of this PPN highlight that in order for a blanket SLO control to be effective, the following needs to be well established:

- The vegetation as a whole throughout the residential areas of the municipality is primarily of aesthetic or visual importance, contributing to the significant landscape and/or neighbourhood character, rather than each individual specimen needing to be considered significant or valued for ecological or cultural reasons;
- That permit requirements for buildings and works and vegetation removal are not an unnecessary burden on landowners;
- The potential to incorporate other complementary methods of vegetation protection listed above;
- Broad support from the community for the protection of vegetation and the provision of advice and assistive material for applicants;
- Monitoring programs to measure the success of vegetation protection controls (aligns with Strategic Direction 3 of the Whitehorse City Council Plan 2017-2021: Protect and enhance our open spaces and natural environments).

Council's motivation to apply tree protection controls is based on strategic work that has identified the preferred neighbourhood character for residential areas as those which are not just green and leafy, but with a built form that is subservient to canopy trees.

Application of the VPO is generally based on the existing arboricultural assessment of trees, and significant specimens with good retention value are generally included.

Similarly, application of the ESO would require strategic assessment to determine the ecological value of all canopy trees in the municipality, both individually and in overall as an ecosystem. The outcome of this study would likely conclude that many exotic species should not be protected, which could have a damaging effect in neighbourhoods where exotic canopy trees are dominant and contribute to neighbourhood character.

The Heritage Study would similarly require lengthy strategic work to determine the sociocultural value of canopy trees, and it is likely that criteria such as specimen age, prominence and location would determine how 'well-known' a specimen or patch of vegetation is to the community.

The Design and Development Overlay (DDO) can be used to reinforce respect for the existing or preferred neighbourhood character, but focuses on the built form. The *Whitehorse Municipal Wide Tree Study 2016* and this Report focus on the landscape and canopy trees, and do not consider the built form in enough detail to provide strategy justification to determine built form outcomes across the whole municipality based on vegetation.

Recent updates to the VPP have not made the SLO any less effective at protecting vegetation that contributes to character, nor have they caused any of the alternative controls discussed to be more appropriate.

The SLO therefore continues to be the best possible vegetation protection tool in the VPP to protect and enhance vegetation that contributes to the landscape and neighbourhood character. This is demonstrated by the existing tree protection controls based on contribution to the Bush Environment character precinct in the Whitehorse Planning Scheme in Schedules 3, 4, 5, 7 and 8 of the SLO.

The application of a 'blanket' SLO control, such as SLO9, is also considered an appropriate method given the context of Maroondah and Yarra Ranges. Both of these municipalities apply

the SLO extensively and form a 'blanket' control. This creates a corridor of protected trees in residential areas along the Maroondah Highway, connecting Melbourne's green and leafy eastern suburbs to the foothills of the Yarra Ranges.

The Maroondah Planning Scheme requires a permit to remove vegetation in Schedules 1 to 4 of the SLO. These schedules all highlight the important contribution canopy trees make to the character of the area.

Similar reference to the significant contribution canopy trees make to character is provided in Schedules 22 and 23 of the SLO in the Yarra Ranges Planning Scheme.

SLO9 seeks to extend the corridor of protected trees in green and leafy urban spaces into Whitehorse to recognise the importance of trees to neighbourhood character. In doing so, the SLO9 will also ensure the longevity of the eastern suburbs' connection to the foothills of the Yarra Ranges.

Alternate Approach to Managing Vegetation on Private Land

Some of the existing tree protection tools that are in effect in the State of Victoria include LPPF, zones and overlays, Section 173 agreements, native vegetation provisions and

local laws. Current approaches to managing vegetation on private land in Whitehorse include a mix of planning controls, bond payments, and educational programs.

The *Whitehorse Municipal Wide Tree Study Final Options and Recommendations Report 2016* provides an analysis of the advantages and disadvantages for each of these controls for the City of Whitehorse and determined the SLO was the most appropriate mechanism.

The potential for a local law to be used in lieu of the SLO has also been considered. A local law can be a 'blanket' control that requires permission even when no planning permit is required. They can include requirements for offset planting and pruning and be processed relatively quickly in comparison to a planning permit application.

Despite this, a local law would be entirely separate to the planning / building permit processes, and may be perceived as an unnecessarily additional or hidden requirement. The maximum penalty for breaching a local law is \$2,000 per tree, which is relatively low considering the overall cost of development, and unlikely to deter developers from 'moonscaping'.

A local law often functions as a retrospective or reactive tool, usually resulting in a fine after

a tree has been removed. While this may act as a deterrent in some cases, in a broader sense, it does not adequately allow for tree protection to be considered in the context of development decisions, does not typically enable tree replanting and does not allow for independent review of decisions.

Amongst the various tools implemented in Whitehorse, the SLO provides the only mechanism that relates neighbourhood character to vegetation management, which assists in considering the impact beyond just the trees and property boundaries. The SLO also contains the ability to trigger a permit for buildings and carrying out works, which provides greater integration and focuses on developing to a site's individual conditions.

The *Whitehorse Municipal Wide Tree Study 2016* highlights the need for a clear definition of 'canopy tree', considering that variations of its definition can exclude certain species, particularly native trees whose structure is unlike other canopy trees.

Additionally, studies also acknowledge the need to consider other factors that influence the success of tree controls, such as the effects of larger and denser built forms for new development on available space for trees, impacts from construction works, and the

replacement of trees nearing the end of their lifespan (Daniel, Morrison & Phinn 2016).

The *Whitehorse Municipal Wide Tree Study 2016* confirms that no provisions exist in the Whitehorse Planning Scheme for replacement of dying canopy trees (either due to age or construction impacts).

Case studies from different parts of the world provide evidence that the effectiveness of government vegetation controls on private land is influenced by the strength of private property rights in the different locations (Profous & Loeb 1990). Coughlin, Mendes and Strong 1988 and Landry & Pu 2009 demonstrate the implementation of a municipal-wide overlay is an effective mechanism with a noted increase in tree cover on homes built after the introduction of such a mechanism, and a general increase in awareness of tree protection.

Several of the documents reviewed acknowledge the opportunities found within private land in achieving canopy cover and biodiversity targets and include these in their action plans, such as the Whitehorse Urban Forest Strategy (City of Whitehorse 2018c), Plan Melbourne (DELWP 2017a), the State's Biodiversity Strategy (DELWP 2017b), and other research studies (Coughlin, Mendes & Strong 1988 and Daniel, Morrison & Phinn 2016).

Table 4 – Summary of tools used in Planning Schemes for vegetation protection (summarised from PPN07)

Planning Tool	Relates to	Permit Requirements	Notes
Vegetation Protection Overlay (VPO)	Significant vegetation - precincts or site specific	Vegetation (removal, destruction, lopping)	Exemptions are listed in Clause 42.02-3, including: <ul style="list-style-type: none"> Electricity lines Emergency access Focuses on the protection and enhancement of well-established vegetation where buildings and works or subdivision are not important considerations.
Environmental Significance Overlay (ESO)	Areas with ecological value (e.g. coastal, riparian, etc.)	Buildings and works (including fences) Subdivision Vegetation	If exemptions are not stated in the Schedule, all vegetation within the overlay is protected. Exemptions are listed in Clause 42.01-2. Protects vegetation that is part of a wider objective to protect the environmental / ecological significance of an area.
Significant Landscape Overlay (SLO)	Character of a significant landscape	Buildings and works (can be applied to assist in vegetation protection) Schedule to the SLO must specify permit requirement for vegetation removal	General exemptions are listed in the header provision of the SLO at Clause 42.03-3, including: <ul style="list-style-type: none"> Electricity lines Emergency access Strong links to neighbourhood character. Applies to vegetation that has aesthetic importance and makes a contribution to the broader landscape character collectively, rather than individual specimens of significance. May include permit requirements for buildings and works to assist in vegetation protection.
Heritage Overlay (HO)	Areas of natural and cultural significance	Vegetation (where tree controls apply) Buildings and works	Can include buildings, trees, gardens, parks, reserves and landscapes. It is important to include the land surrounding trees (recommended 5m) so that their canopy and root zone is also protected.
Design and Development Overlay (DDO)	Built form	Buildings and works	Can be used to reinforce respect for the landscape or neighbourhood character.
Section 173 Agreement	Can be used to manage significant vegetation	N/A	Effective if bonds are necessary.
Local Law	Identified significant trees (usually in a register)	N/A	Alternative to using the Planning Scheme. May be seen as an additional or hidden step, or increasing / duplicating regulation. Can be a 'blanket' law to protect trees of a certain size on private property. Generally required to be linked to a significant tree or vegetation study, and require comprehensive justification including community consultation to implement. Local laws are often reactive, retrospective tool (resulting in fines) rather than a proactive overlay (triggering applications) and therefore unlikely to achieve retention or replanting.

2.6 Conclusions

The *Whitehorse Municipal Wide Tree Study 2016* examined the important contribution of the tree canopy to the municipality and the way it is valued and protected by Council through a range of regulatory, advocacy and educational initiatives. Community consultation undertaken as part of the project was generally supportive of protecting existing vegetation and ensuring that new development provides enough space for the establishment of trees.

The key findings of the research and analysis included:

- Tree coverage is a vital characteristic of the greater eastern Melbourne region.
- Tree coverage is essential to the Whitehorse established garden character.
- Council policies and plans demonstrate an awareness of the importance of tree coverage, however there is an opportunity to strengthen council's position on retaining substantial trees.
- Tree protection is clearly identified as being a priority in the State Planning Policy Framework (SPPF). This is filtered down through the LPPF and planning scheme controls, however there is the opportunity to present a stronger stance on the importance of tree coverage to the City within the LPPF and through revised tree controls.

- The new residential zone schedules provide greater space for tree planting within development sites.
- The City has a high level of tree coverage, which is decreasing over time with the increase of hard surfacing and impervious surfaces.
- Areas with tree protection controls have a significantly higher proportion of ground covered by trees.
- Moonscaping is a continued threat in any areas with no controls and individual sites protected by the existing VPOs.
- There are no controls that protect the retention of newly planted/smaller trees that have the potential to be large canopy trees at maturity.

The *Municipal Tree Study Options and Recommendations Report 2016* evaluated a range of mechanisms aimed at protecting and enhancing tree cover in Whitehorse. It recommended the introduction of an expansive SLO based on the existing neighbourhood character precincts and modifications to the existing Tree Conservation local policy.

Since the adoption of the *Whitehorse Municipal Wide Tree Study 2016* there have been several important changes to the State and

local planning provisions that reinforce the importance of vegetation in an urban context, namely:

- Amendment C191 introduced SLO9 into the Whitehorse Planning Scheme on an interim basis. The interim control has recently been extended to 30 June 2019.
- Amendment VC148 implemented a number of reforms to the State Planning Framework as part of the Smart Planning program. These included the strengthening of policy statements regarding landscaping (Clause 15.01-1), open space (Clause 15.01-3) and the contribution of significant vegetation to neighbourhood character (Clause 15.01-5).
- Amendments VC110 and 143 introduced and refined garden area requirements in the GRZ and NRZ, potentially providing additional space for the planting of canopy trees.

In addition, DELWP has also released an interim report and data on urban vegetation cover conducted in 2014. This analysis concludes that Whitehorse has a total tree canopy cover of 20.9%. It is noteworthy that the data relates to trees exceeding 3 metres in height, meaning that a proportion of the identified tree cover would not be protected under SLO9, which sets a threshold for permit exemption of 5 metres.

At a local level, the adoption of the Whitehorse UFS has set a municipal-wide minimum target of 30% canopy tree cover by 2030. As Council-controlled land accounts for only 10% of the municipality, a significant proportion of additional tree cover will need to be achieved on private land. The strategy strives for a no-net-loss approach when vegetation cannot be retained and therefore aligns well with the tree protection provisions and policies found in the planning scheme. At present, however, there is no reference to the strategy within the scheme.

If Council is to achieve its aim of increasing canopy tree cover by 10% within the next decade it is going to need to do more than simply protect existing canopy trees. It must also facilitate the planting of new canopy cover across the landscape on both public and private land. This will require a range of initiatives that extend beyond planning controls. However, as planning controls are the only direct means of influencing vegetation cover on private land they must form a substantial part of the program.

The re-examination of vegetation control mechanisms undertaken during the production of this report, combined with the changes to strategic context referred to above and the neighbourhood character assessments that identify the contribution of canopy trees to

significant landscapes, have reaffirmed that the SLO remains the most effective tool available to Council to achieve its strategic objectives concerning canopy tree protection.

The SLO is superior to all other control mechanisms as it creates a nexus between vegetation protection and built form when assessing planning permit applications. While other controls may allow for consideration of both elements, none offers the potential for vegetation and built form to be considered in a holistic manner under a single set of objectives, standards and decision guidelines.

A holistic approach to balancing built form and vegetation protection objectives is important on the basis that:

- The projected long-term demand for infill housing across Melbourne suggests that it is likely to be the major driver of vegetation loss in established residential areas.
- The Whitehorse Planning Scheme aims to both increase and diversify the housing stock, while simultaneously protecting and enhancing the tree canopy.
- Poorly designed and located buildings and works, and the construction process itself, can compromise the viability of retained vegetation.
- Insufficient weight may be given to tree retention and the provision of space of planting if the two issues are separated. Combining them increases the likelihood of successful negotiation at the design stage.

2.7 Recommendations

Modify the MSS to:

- Strengthen its emphasis on tree canopy protection and enhancement; and
- Include reference to the UFS and its 30% tree canopy target.

Work with DELWP and RMIT to further develop the Urban Vegetation Cover Analysis to:

- Provide a mechanism for the ongoing monitoring of tree canopy in Whitehorse;
- Obtain data for trees with a minimum height of 5 metres so that the effectiveness of SLO9 can be better analysed.
- Use the findings and recommendations of this report to prepare a new Amendment (similar to Amendment C196) to introduce a permanent SLO9 control, subject to the refinements recommended in this report.

As part of the finalisation of the Interim UFS, it is recommended that the following be considered:

- The scale at which the canopy target is to be achieved is clarified, i.e. is the target to be applied across the board in all zones or based on an averaging?
- The expected contribution of private residential land be clarified in order to provide better guidance for the assessment of planning applications.

STATUTORY CONTROLS 3.0

3.0 Statutory Controls

3.1 Whitehorse Planning Scheme

In the Whitehorse Planning Scheme, existing tools such as local policy, residential zones and overlays are being used to manage trees through protection of established trees, provision of space for future trees, and encouraging planting of new trees. This section provides an overview of the controls currently in place.

Environmental and Landscape Overlays

The Significant Landscape Overlay (SLO), Vegetation Protection Overlay (VPO), and Environmental Significance Overlay (ESO) offer the strongest protection for trees within the municipality (refer to Figure 3).

The ESO applies to two relatively small areas of land within the municipality, reflected by two Schedules:

- Schedule 1 - 131-173 Central Road, Nunawading, containing remnant vegetation of an endangered Ecological Vegetation Class (EVC) with high retention value.
- Schedule 2 - 15 Virgillia Street, Blackburn North, a smaller area of land containing the same EVC as ESO1.

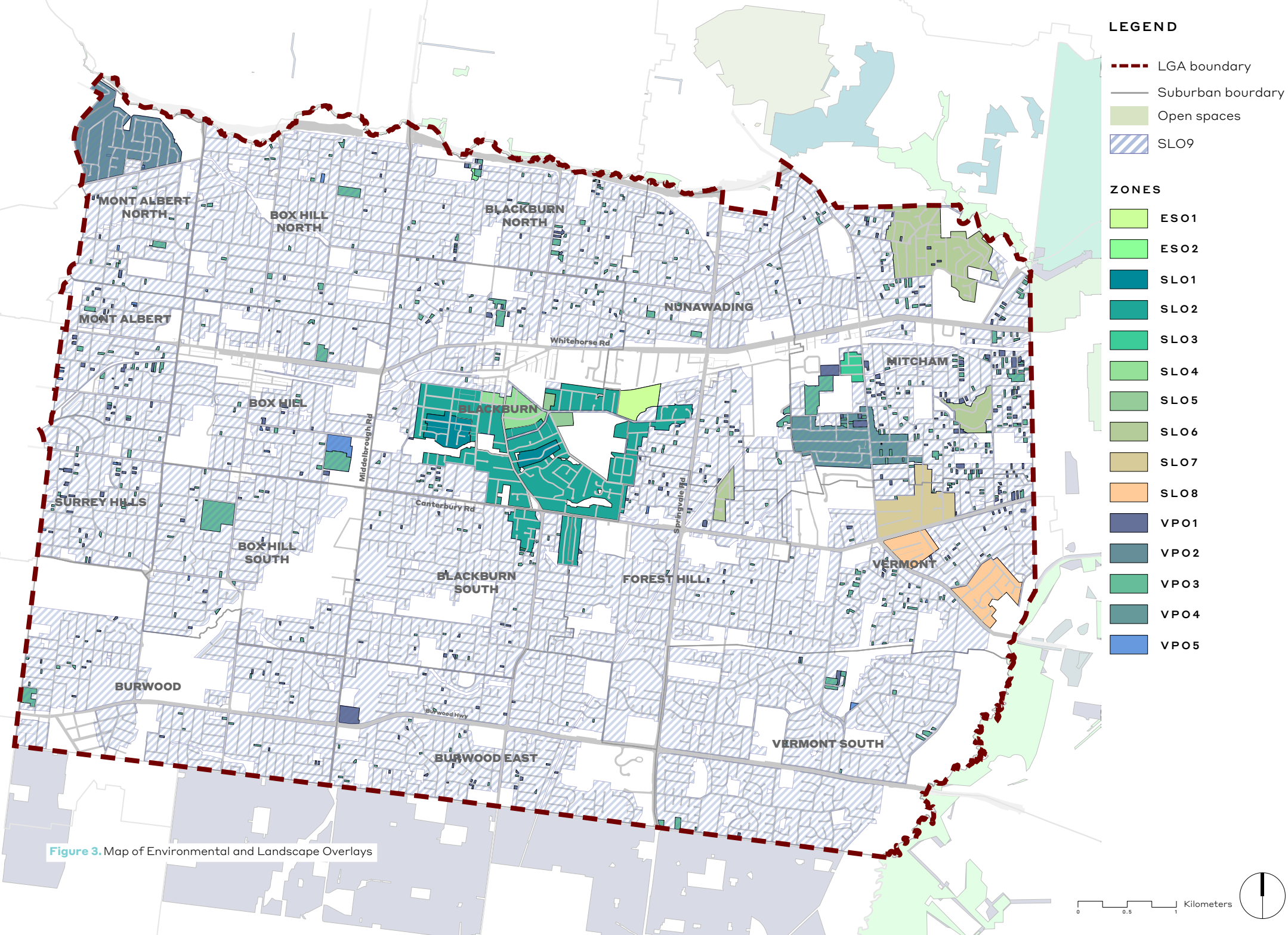
The VPO generally applies to individual properties that contain a significant exotic, native and / or indigenous tree, as identified in a register. There are five (5) Schedules to the VPO, all of which are very similar and generally apply to different areas or are the result of ongoing stages of Council's significant tree study:

- Schedule 1 - an outcome of the Significant Tree Register created in 2002.
- Schedule 2 - applies to trees in the Mont Albert North area (north of Belmore Road).
- Schedule 3 - an outcome of the Significant Tree Study conducted in 2006.
- Schedule 4 - applies to the Mitcham South Area as an outcome of the Review of Precincts in Character Areas conducted in 2008.
- Schedule 5 - an outcome of the Significant Tree Study conducted in 2016.

The request for Amendment C196 included the removal of VPO2 and VPO4, alongside the implementation of municipality-wide, permanent SLO controls. The proposed SLO9 control includes land currently covered by VPO2 and 4. SLO9 would duplicate the similar requirements of VPO2 and 4 unnecessarily if these were not removed.

With the exception of SLO9, areas affected by an SLO are concentrated in suburbs with the highest density of canopy trees: Blackburn, Mitcham, Vermont and Mont Albert North (Refer to Figure 4):

- Schedule 1 – Blackburn Area 1
- Schedule 2 – Blackburn Area 2
- Schedule 3 – Walker Estate (Mitcham)
- Schedule 4 – Blackburn Early Settlement Neighbourhood Character – Vegetation Retention
- Schedule 5 – Nominated Large Sites: 1 Lake Road, Blackburn, 57-67 Central Road, Blackburn, and 131-173 Central Road, Nunawading
- Schedule 6 – Yarran Dheran, Somers Trail, Collina Dell, and Menin Road (Mitcham)
- Schedule 7 – Vermont (Glenburnie Road and Environs)
- Schedule 8 – Vermont (South of Canterbury Road)
- Schedule 9 – Neighbourhood Character Areas (Bush Suburban and Garden Suburban)



Schedule 9 to the Significant Landscape Overlay (SLO9) - Interim Control

SLO9 (Neighbourhood Character Areas) applies to all residential land in the municipality which not already covered by a pre-existing SLO (refer to Figure 4). It is an interim control introduced by Amendment C191 and will cease to have effect after 30 June 2019.

The key elements of the landscape are described as the leafy garden and bushy character of Whitehorse, borrowing descriptions of the Garden Suburban and Bush Suburban Neighbourhood Character Areas (NCAs) from the Whitehorse Neighbourhood Character Study 2014. It should be noted that most of the Bush Environment NCA is already covered by existing SLOs.

The landscape character objective to be achieved is:

“To encourage the retention of established and mature trees and to provide for the planting of new canopy trees.”

The permit requirements outline the triggers and exemptions for a permit under SLO9.

A permit is required for buildings and works (including the construction of a front fence) within 4 metres of any vegetation that would be triggered for removal under SLO9. A permit is not required where the buildings and works are set back at least 4 metres from the base of these trees.

A permit is required to remove, destroy or lop a tree, unless:

- The tree is less than 5 metres in height **and** the tree has a single trunk circumference of 1m or less at a height of 1m from ground level;
- It is for pruning for regeneration or ornamental shaping;
- The tree is dead, dying or has become dangerous (to the satisfaction of the Relevant Authority); or
- The tree is outside the Minimum Street Setback in the Residential Growth Zone (RGZ).

The permit triggers do not address characteristics of the tree or its environment, such as species (indigenous, native, exotic, weed); existing and potential canopy spread; potential size at maturity; existing area of unencumbered open ground (e.g. presence of services, easements, hard surfaces, etc.); or location on the site (e.g. within setbacks).

The decision guidelines do consider most of these aspects, however they only apply if a permit application is triggered, they include:

- Contribution to neighbourhood and landscape character;
- Significance due to species, age, health and growth characteristics;
- Location in terms of existing vegetation and potentially forming habitat corridors;
- Location of footings in terms of the root zone of established trees;
- Compatibility of buildings and works with vegetation to be retained;
- Effect of lopping on the significance, health or appearance of a tree;
- Valid reason(s) for removing the tree and exploration of alternatives to removal;
- Provision of adequate space for offset planting of indigenous or native trees;
- Location of planted trees to be unencumbered and allow for future growth to maturity; and
- Location of planted trees in terms of existing or proposed overhead power lines, buildings, easements and existing trees.

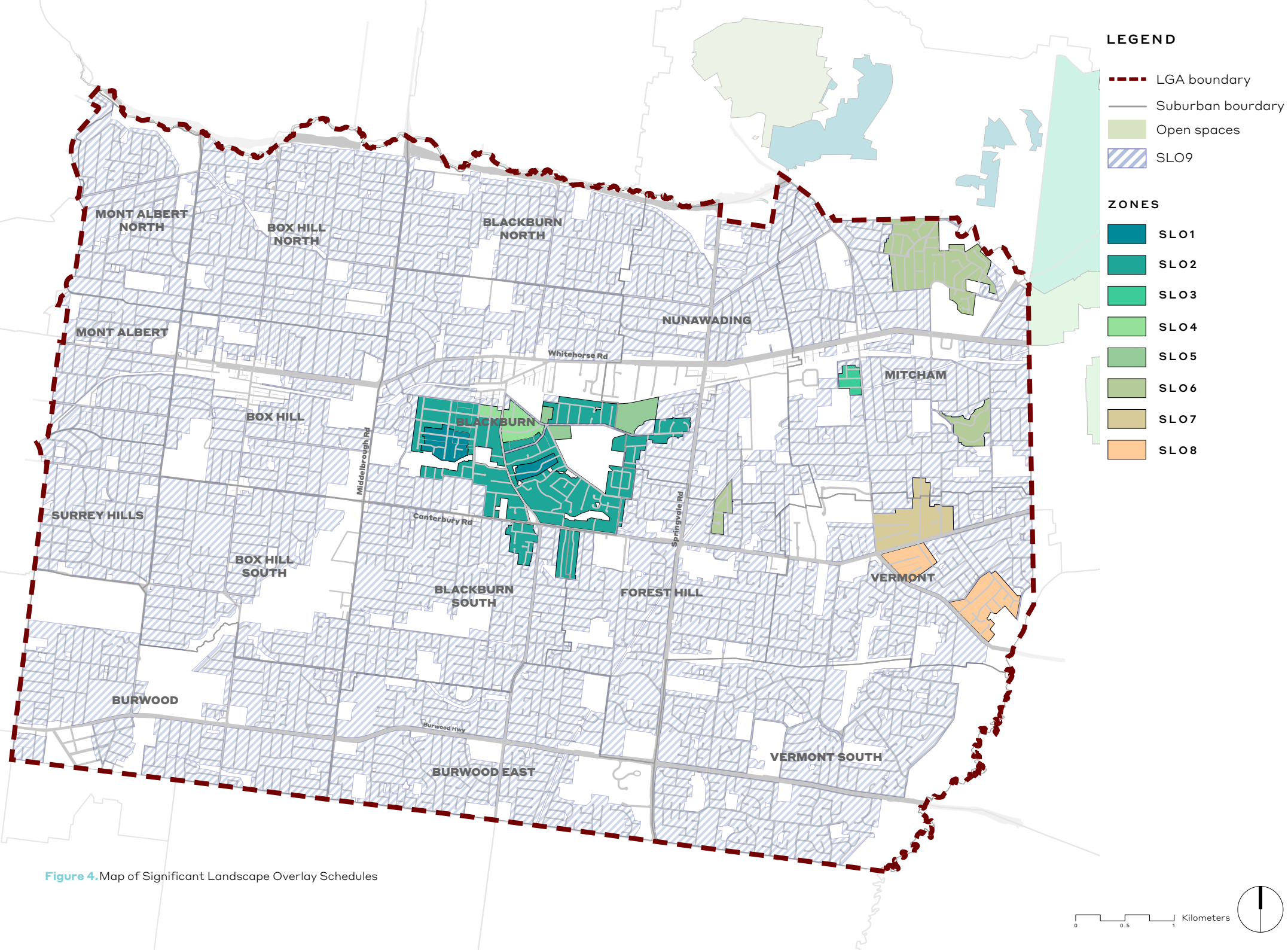


Figure 4. Map of Significant Landscape Overlay Schedules

Residential Zones

SLO9 applies to all residential land within the municipality that was not already covered by an existing SLO. This includes parts of the RGZ, General Residential Zone (GRZ) and Neighbourhood Residential Zone (NRZ), as shown on Figure 5. Each of these zones contains schedules that may modify ResCode standards. These standards apply to the development of one or more dwellings on land within the zone.

The RGZ applies to a relatively small amount of land within the municipality and contains three (3) schedules, one of which contains no local content. Of the remaining two (2) schedules, both require the planting of one (1) indigenous or native canopy tree capable of reaching a mature height of at least 8m as part of new development. A minimum area of 40m² of Private Open Space (POS) is to be provided per dwelling, 35m² of which must be at the side or rear of the building with a minimum dimension of 5m.

The Application Requirements note that plans showing existing vegetation and trees to be removed must be provided, along with proposed landscaping plans showing the tree species to be planted and noting its mature height.

The Decision Guidelines note that development should provide for the retention and/or planting of trees, where these contribute to the character of the neighbourhood.

Within the RGZ, a permit is not required under SLO9 to remove, destroy or lop a protected

tree outside the Minimum Street Setback. This ensures that vegetation protection in these areas will allow canopy trees continue to make a contribution to the streetscape and neighbourhood character without impacting growth and development potential outside the front setback.

The GRZ applies to a relatively large amount of land within the municipality and contains six (6) schedules. Of these, GRZ5 contains no local content and GRZ6 varies only the maximum building height control. The remaining four (4) schedules are:

- Schedule 1 - Established Garden Suburban Areas
- Schedule 2 - Bush Suburban Precinct 2
- Schedule 3 - Classic Garden Suburban Areas
- Schedule 4 - Garden Suburban Precinct 8

All have the same landscaping requirement for two (2) trees to be provided per dwelling, capable of reaching a mature canopy height of at least 8m (or 12m in GRZ2), of which one must be provided in an area of Secluded Private Open Space (SPOS).

POS in the GRZ is required at the same rate as the RGZ per dwelling. Minimum street setback requirements are 10m or 1m more than average in GRZ2 and GRZ3, and 12m or 3m more than average in GRZ1 and GRZ4.

Application requirements include a site plan, showing existing vegetation and vegetation to be removed, and a landscaping plan detailing species and their mature height are the same as the RGZ.

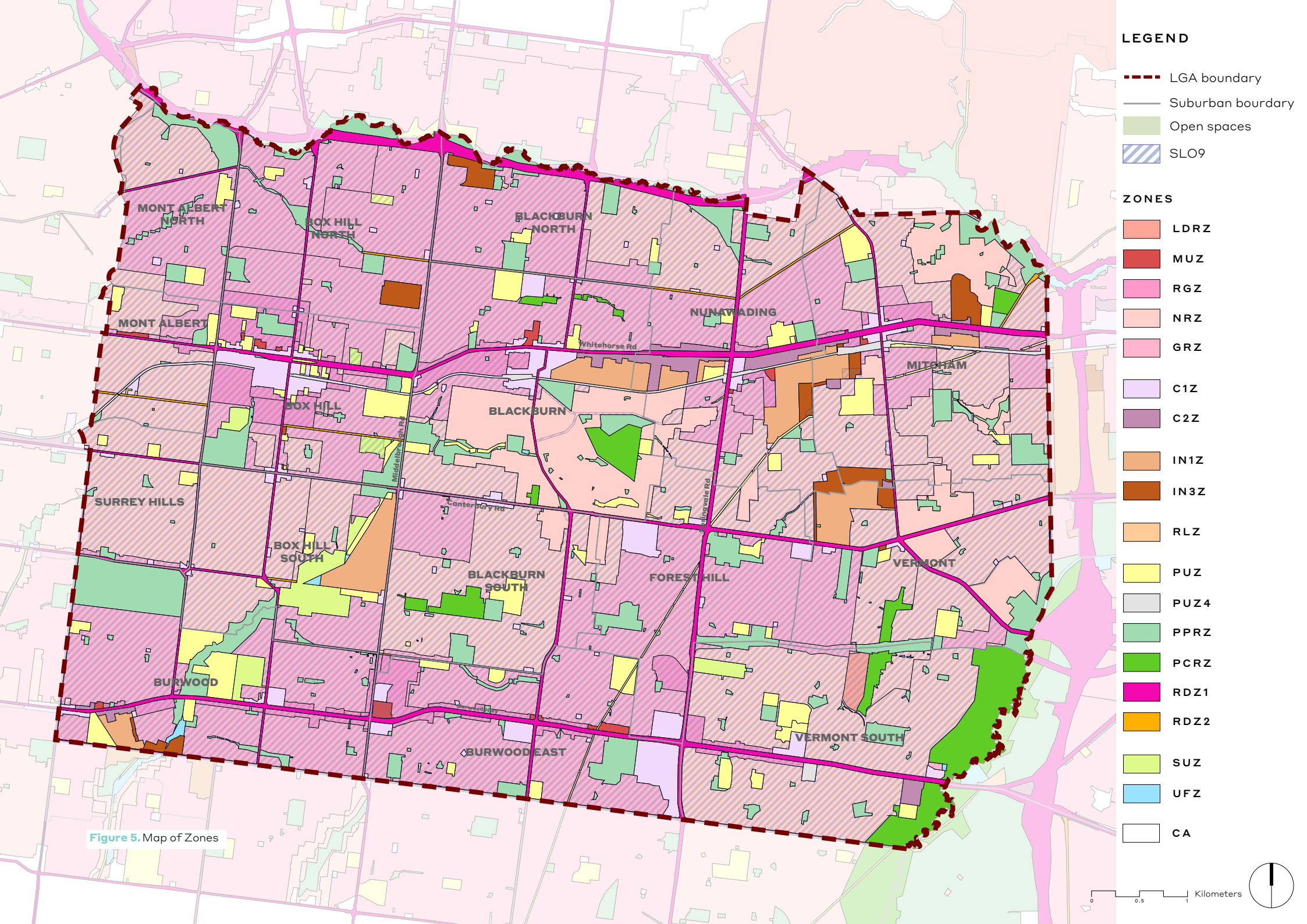
Decision guidelines include the recommendation for vegetation to be provided in the street setback to contribute to character, and for existing vegetation to be retained where it makes a contribution to neighbourhood character.

The NRZ also applies to a relatively large amount of land within the municipality and contains six (6) schedules. Of these, five (5) provide local variation to ResCode:

- Schedule 1 - Bush Environment Areas
- Schedule 2 - Formal Bush Suburban Areas
- Schedule 3 - Traditional Bush Suburban Areas
- Schedule 4 - Informal Bush Suburban Areas
- Schedule 5 - Traditional Garden Suburban Areas

The landscaping requirements of these schedules are also for 2 trees per dwelling capable of reaching 12m height at maturity (8m in NRZ5) of which one must be provided in SPOS. Minimum street setbacks are 10m or 1m more than average in NRZ4 and NRZ5 and are otherwise not specified. The required minimum areas of POS per dwelling and Application Requirements are consistent with the RGZ and GRZ.

The Decision Guidelines are the same as for the GRZ for trees to be retained and provided in the street setback where this contributes to character. Additional guidance is provided for trees to also be provided between dwellings on the same site.



LEGEND

- LGA boundary
- Suburban boundary
- Open spaces
- SLO9

ZONES

- LDRZ
- MUZ
- RGZ
- NRZ
- GRZ
- C1Z
- C2Z
- IN1Z
- IN3Z
- RLZ
- PUZ
- PUZ4
- PPRZ
- PCRZ
- RDZ1
- RDZ2
- SUZ
- UFZ
- CA

Figure 5. Map of Zones

Local Policy

The Local Policy at Clause 22.04 (Tree Conservation) refers to the areas of the Municipal Strategic Statement (MSS) that emphasise the integral part trees play in their contribution to the character of Whitehorse. The objectives of this local policy are to manage the municipality's tree canopy and ensure new development does not detract from the natural environment by finding ways for buildings and trees to coexist, and regenerate tall trees by providing adequate open space and landscaping in new development.

The performance standards for tree retention state that trees should be retained unless:

- The tree is in a location which, in the opinion of the Responsible Authority, makes it impractical to be retained.
- The structure of the tree is unsound due to any of the following:
 - Major limbs either dead or dying;
 - Major fungal or insect damage;
 - Rot;
 - Termite attack;
 - Major forks low in the trunk;
 - Any other reason to the satisfaction of the responsible authority;

- The tree has not been identified as being significant for aesthetic, ecological, cultural or historic reasons (such as those included in the VPO); or
- The species of the tree is unsuitable for the site due to any of the following:
 - It is, or will be, too big for the area where it is located;
 - It is a species known to drop limbs or block drains;
 - It is an environmental weed;
 - It is inappropriately located near power lines or other overhead services; or
 - Any other reason to the satisfaction of the responsible authority.

The effectiveness of these provisions may be problematic in some instances. For example, there is no criteria to determine what makes the location of a tree 'impractical to be retained', and this could be used to justify removal of any tree that is 'in the way' of development. It is also unclear as to whether a tree needs to be on a significant tree register or covered by a VPO to be 'identified as being significant' as this is otherwise not measured.

A number of the policy provisions are varied where an SLO applies. While these are

reasonable in relation to the pre-existing SLOs (1-8), they are unreasonable when applied to the SLO9. This is because the areas covered by SLO9 are more extensive than the other SLOs, contain smaller average lot sizes and are expected to accommodate greater growth.

In order to provide protection for existing tree roots, buildings and works should have a minimum separation distance of 3 metres from the trunk of an existing tree, however this is varied by the presence of an SLO to be 4 metres. It is noted that the SLO9 contains a permit requirement for buildings and works within 4 metres of an existing tree, which is consistent with Clause 22.04 (Tree Conservation).

The performance standards for tree regeneration (or establishment) require an area of 35m² of open ground with a minimum dimension of 5 metres, free of impervious surfaces and existing tree canopies. This is varied for land in an SLO, which requires an area of 50m² and a minimum dimension of 5 metres free of the same obtrusions to minimise competition and facilitate normal growth. The minimum area required for tree regeneration outside an SLO (35m²) can be contained within the minimum area required for POS in schedules to the residential zones (minimum area of 35m² with a dimension of 5 metres).

The very generous front setbacks (10-12 metres or 1-3 metre(s) more than average in most schedules to residential zones) also allow ample space for the planting of a canopy tree in the street setback, which is noted in many areas as making a significant contribution to neighbourhood character.

The current minimum area required for tree regeneration under Clause 22.04 (Tree Conservation) increases significantly to 50m² in SLO areas, which is larger than the 35m² minimum area of POS in most schedules to residential zones. This requirement was intended to apply to land subject to SLO1-8, which is generally characterised by lower site coverage and larger lot sizes than land subject to SLO9.

While the Local Policy considers both retention and regeneration of trees, it does not articulate and emphasise the need to prioritise retention of existing trees over the establishment of new trees.

Municipal Strategic Statement

The Whitehorse Planning Scheme contains local policy relating to canopy trees in the MSS at Clause 21.05 (Environment). The broad objective is to protect and enhance the natural environment. This is to be achieved through a number of strategies, including:

- Protection of areas with environmental significance;
- Ensuring tree removal within these areas requires permission;
- Ensuring that replanting of tall trees and indigenous vegetation is an appropriate species which enhances and retains biodiversity; and
- Ensuring that development appropriately responds to environmental constraints.

The implementation of these strategies refers to the Local Policy contained at Clause 22.04 (Tree Conservation) and encourages the planting of indigenous species where possible.

Lot sizes in areas affected by the SLO must be generally in accordance with a minimum lot size of 650m² under Clause 21.05, however the intent of this requirement was a reflection of the prevailing lot sizes on land affected by SLO1 through SLO8, rather than SLO9. Amendment C196 sought to amend this requirement for the

permanent SLO9, as it would be very difficult and constraining to enforce however it was not introduced with the interim controls of Amendment C191.

Clause 21.06 (Housing) notes that leafy canopy trees are considered one of the most significant determinants of neighbourhood character in the municipality, placing emphasis on the need for their maintenance and enhancement.

Housing location objectives describe the Limited, Natural and Substantial Change Areas in the municipality, all of which are required to reflect the preferred neighbourhood character of the area.

It is a key issue of housing design to ensure new development does not result in a loss of existing vegetation coverage and tree canopy, and encouraging development in the municipality's established areas.

3.2 Administration of SLO9

Vegetation Removal Applications

This section assesses the administrative impact of the introduction of SLO9 on Whitehorse City Council's operations. The analysis seeks to quantify advice from Council staff that the introduction of SLO9 has significantly increased the number of planning permit applications received by Council.

A precise calculation of the effect of SLO9 in terms of permit numbers is not possible because of the complexity of planning controls and the fact that an individual application may address a number of different matters.

When interpreting the following analysis it is the proportion of change that is of greater significance than the numerical change. This is because the analysis was based on word searches and as a result there is some potential for double counting (e.g. a permit for a building and tree removal may be counted twice in some of the categories).

Council provided a list of applications that contained the word 'tree' in their description, received between 1 January 2015 and 31 June 2018. The interim SLO9 control was introduced by Amendment C191 on 8 February 2018. The data was divided and analysed in two parts:

- Pre-SLO9: 1 January 2015 – 7 February 2018 (calculated to a 6-month average); and
- Post-SLO9: 8 February 2018 – 31 June 2018.

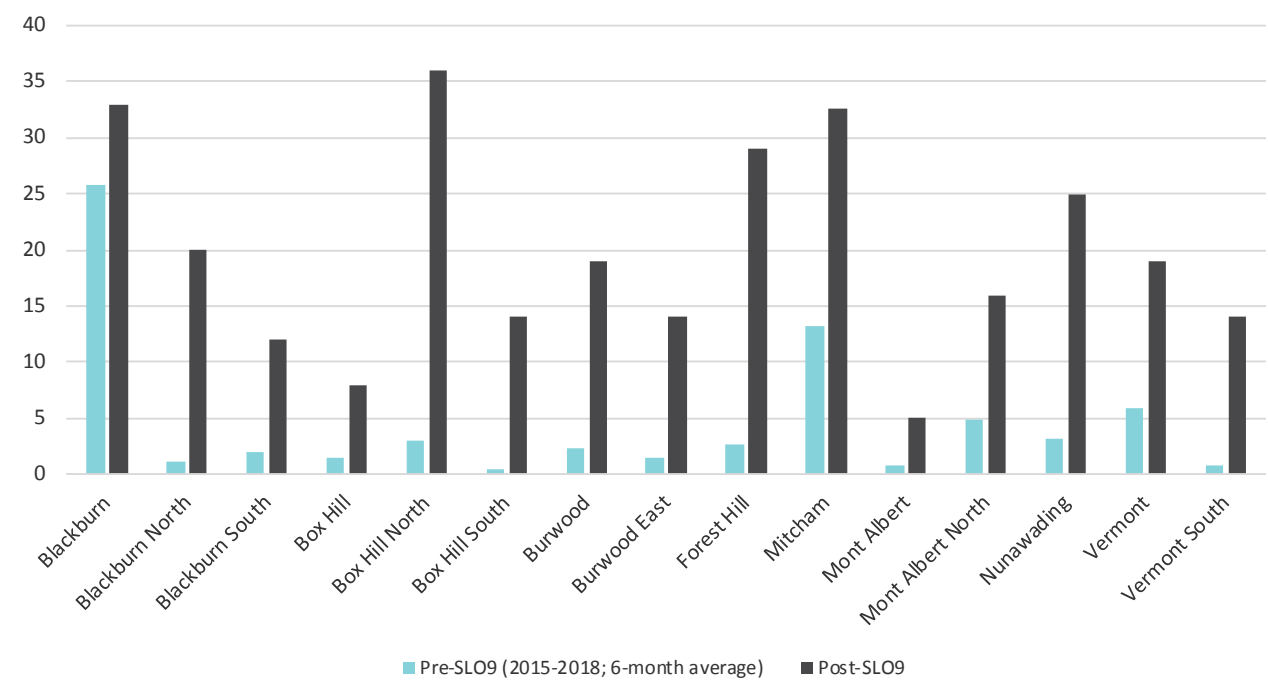


Figure 6. Quantity of Applications by Suburb

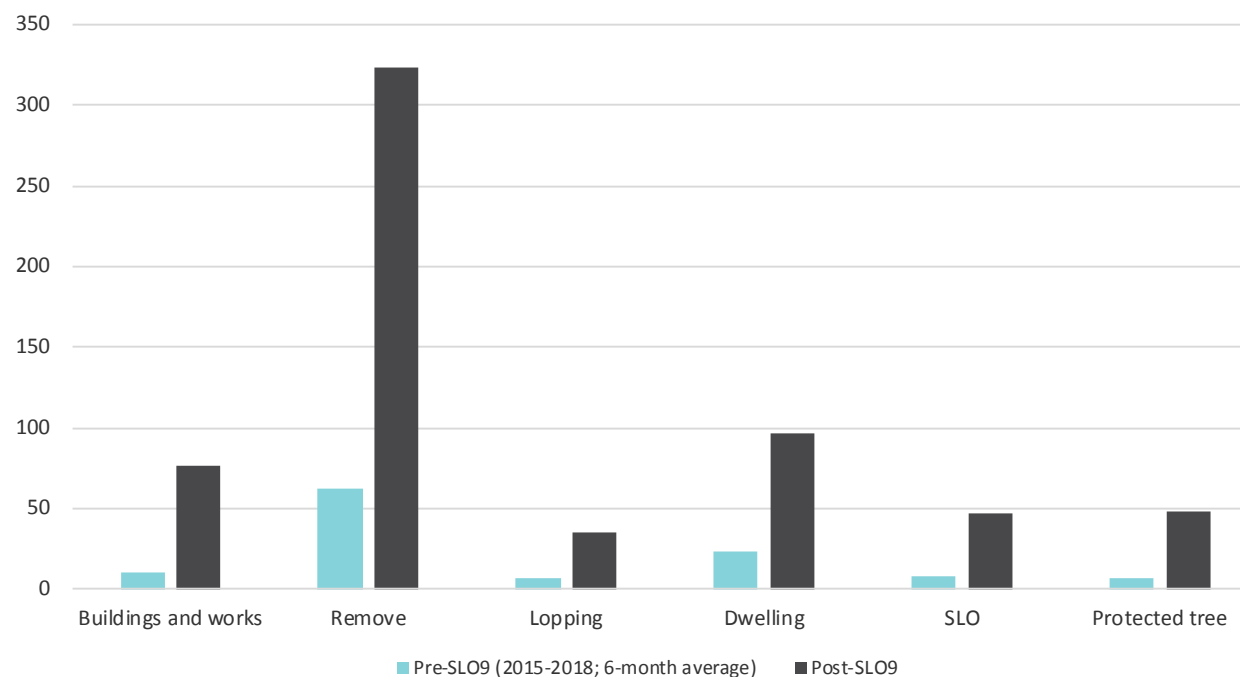


Figure 7. Quantity of Applications by Key Words

This data reveals the proportion of additional permit activity created, at least in part, by the introduced of the interim control and an increase in VicSmart applications (refer to Figure 9). The quantity of applications containing the word 'tree' has increased dramatically across the majority of suburbs since the introduction of SLO9. Suburbs with higher counts of applications between 2015-2017 were predominantly in areas that have existing SLO controls: Blackburn, Mitcham, Vermont and Mont Albert North (refer to Figure 6).

While all applications considered already contained the word 'tree', other frequently occurring key words were considered in order to determine if applications of a certain type were increasing. It is important to note that SLO9 includes permit requirements for Buildings and Works and Vegetation Removal.

As expected, the quantity applications based on key words increased significantly since the introduction of SLO9. Remove (or removal) was the most commonly occurring key word. The occurrence of key words such as buildings and works and dwellings was much less common; while lopping, SLO and protected trees were the least common (Refer to Figure 7).

The quantity of applications received according to their zone demonstrates a similar change. This is largely due to the fact that SLO Schedules 1 to 8 (pre-SLO9) generally apply to land in the NRZ with some exceptions. The introduction of SLO9 applies to all residential land in the municipality not already covered by the SLO, which is dominated by the GRZ and NRZ5. This accounts for the significant increase in the quantity of applications in the NRZ and GRZ in SLO9 areas (refer to Figure 8).

Statistics relating to the RGZ and the Low Density Residential Zone (LDRZ) are too low to reveal accurate trends, while 'Other' zones are not relevant to the introduction of SLO9. SLO9 contains an exemption for "[a] tree outside the Minimum Street Setback in the Residential Growth Zone" which may also contribute to the reason for these low statistics (refer to Figure 8). In addition, the LDRZ covers a very small residential area between Terrara Road and Bellbird Dell in Vermont South.

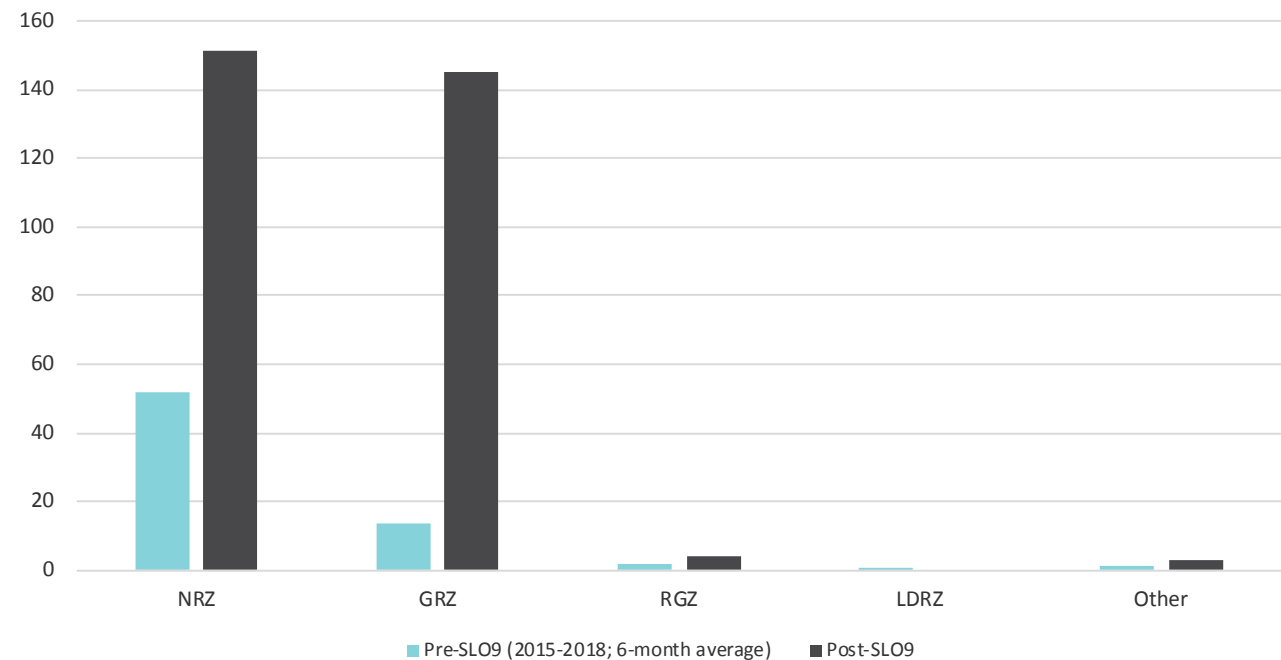


Figure 8. Quantity of Applications by Zone

VicSmart Applications

The Victoria Planning Provisions (VPP) at Clause 42.03 (SLO) triggers a VicSmart application for the removal, destruction or lopping of one (1) tree under the requirements and decision guidelines contained at Clause 59.06 (Remove, Destroy or Lop a Tree).

Council does not currently provide any local content in the Schedule to Clause 59.15 (Local VicSmart Applications). There is potential for Council to direct more applications through the fast-tracked and cheaper VicSmart process by including additional triggers, and / or to provide local information requirements and decision guidelines for Local VicSmart Applications.

There has been a significant increase in the number of VicSmart applications received since the introduction of SLO9 (refer to Figure 9), including multiple applications for individual trees on the same property with the same arborist report for all trees on the property, which is perhaps not the intent of the VicSmart trigger.

Given VicSmart is focused on the procedure of planning permit applications rather than policy, it is preferable to examine the permit triggers and exemptions of the SLO9 provision, rather than modify VicSmart process.

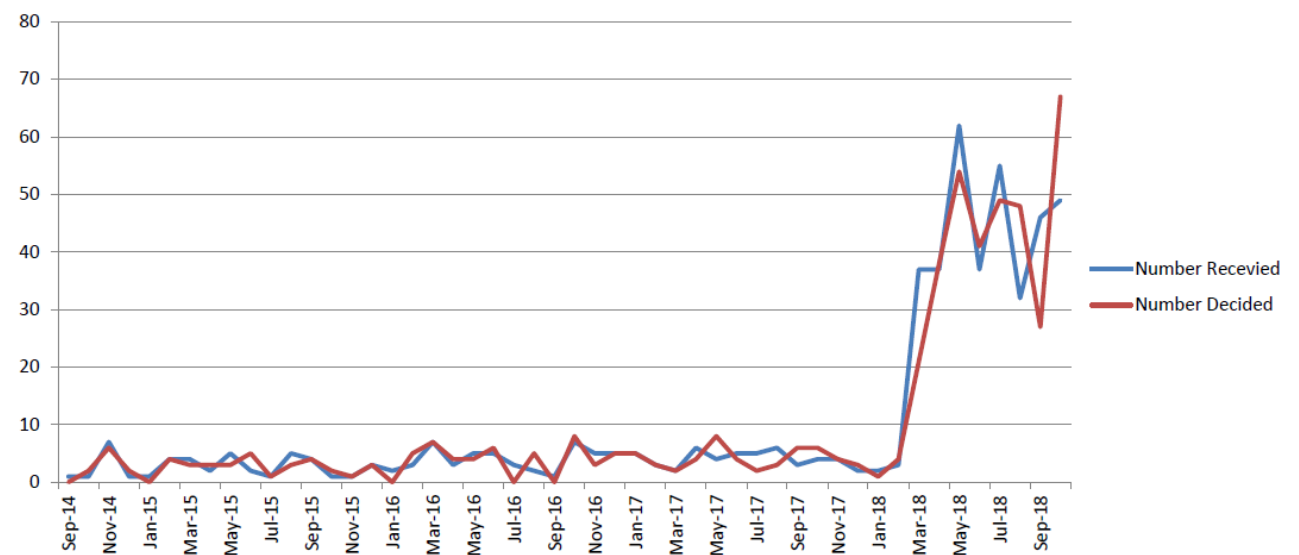


Figure 9. Number of VicSmart Tree Removal Applications (Source: Whitehorse City Council)

3.3 VCAT Cases

Given the relatively short timeframe since SLO9 was introduced to the Whitehorse Planning Scheme in February, 2018, there has not been a large volume of Victoria Civil and Administrative Tribunal (VCAT) cases dealing with SLO9. A number of findings have emerged, but not to such a degree that locational or thematic information can be examined. A discussion of relevant themes is provided below (refer to Appendix D for further detail about the cases referred to).

Permit Trigger

One of the tree removal exemption provisions is drafted such that both the height and circumference criteria must be met in order for a tree to be exempt. Initially, permit applicants were uncertain as to whether a permit was required to remove, destroy or lop a tree that meets one of these criterion and not the other.

This was considered as a question of law (Ausgood Development Pty Ltd v Whitehorse CC [2018] 690), and the Tribunal interpreted that a tree having either a height of 5 metres or more and/or a circumference of more than 1.0m requires a permit under SLO9 of the Whitehorse Planning Scheme. This result aligned with the legal advice Council sought on the same matter.

Neighbourhood Character

SLO9 is titled 'Neighbourhood Character Areas' and applies to all residential land throughout the municipality that is not subject to a pre-existing SLO. It is based on trees making a significant contribution to both neighbourhood character and landscape in Garden Suburban and Bush Suburban Neighbourhood Character Areas.

SLO9 has been effective in reinforcing and strengthening neighbourhood character objectives in relation to trees that make a significant contribution to the local neighbourhood character. In a number of VCAT cases (relating to properties in Nunawading, Mont Albert North and Mitcham) contribution to character was only a serious consideration for trees that were determined in an arborist report to have 'retention value', which relied on the physical characteristics and ecological health of the tree (Simpson v Whitehorse CC [2018] VCAT 1182; Planning Vision P/L v Whitehorse CC [2018] VCAT 1101; Brown v Whitehorse [2018] VCAT 1133).

"In an area such as the proposed location that has a SLO applied, each time a mature tree is removed from a site, the character of the area starts to change."

(Source: Planning Vision P/L v Whitehorse CC [2018] VCAT 1101)

Relationship to Residential Zone Schedules

Several residential zone schedules include a variation to the ResCode Standard that requires new trees to be planted as part of new development.

Where SLO9 also applies in relation to tree removal, the requirements for tree planting have been interpreted by the Tribunal as an additional requirement beyond the like-for-like offset planting alluded to in SLO9 (Brown v Whitehorse [2018] VCAT 1133).

Retention Value of Trees

The Tribunal has consistently supported removal of trees that were identified as environmental weeds in arborist reports, on the basis that they have no ecological retention value. The Tribunal has not given merit to the contribution weed species make from an aesthetic or landscape perspective, nor has offset planting been required (Lam v Whitehorse CC [2018] VCAT 1142).

The retention value of other trees (not environmental weeds) was also determined by an arborist report (Gaudy Pty Ltd v Whitehorse CC [2018] VCAT 788).

3.4 Panel Reports

Setbacks

The Tribunal has acknowledged that trees in the centre of a property are more difficult to retain than those along property boundaries (Kneale Liu Pty Ltd v Whitehorse CC [2018] VCAT 806). The fact that SLO9 only applies to the front setback of the RGZ reflects this. The Tribunal also noted the merits of retaining large trees in front setbacks in other zones (Z & B Investments Pty Ltd v Whitehorse CC [2018] VCAT 464).

Offsets and Landscaping

The primary objective of SLO9 is “[t]o encourage the retention of established and mature trees and to provide for the planting of new canopy trees”. The Tribunal interpreted that trees which were not identified as having ecological retention value by an arborist report did not require an offset under SLO9. In many cases, this allowed for the removal of a significant number of smaller or clustered trees even though they still make a visual contribution to the landscape character of the area (Brown v Whitehorse CC [2018] VCAT 1133).

The most relevant Panel Report since the previous study was for Amendment C181. Amendment C181 was driven by the Significant Tree Study 2015 and included a significant tree register. It sought to introduce Schedule 5 to the VPO and applied to 37 trees on 31 individual properties across the municipality. A total of eleven (11) submissions were received, four (4) of which opposed the Amendment. The Panel supported the Amendment, subject to the revisions proposed by Council following exhibition.

The Amendment was considered against the Planning Scheme and was found to support and implement the Planning Policy Framework (PPF), in accordance with the relevant Ministerial Directions and Planning Practice Note 7 (PPN07) - Vegetation Protection in Urban Areas, and was found not to interfere with any existing zones or overlays.

Three (3) main issues (other than the planning context) considered in the Panel Report were:

- Effect of trees on adjoining properties;
- Revisions to the Amendment and the Significant Tree Register; and
- Form of the Amendment.

Five (5) submissions were received in relation to the effect of trees on adjoining properties: leaf litter, falling branches, and root zones invading underground services. The Panel noted that

the VPO will only apply to the property that contains the tree, and neighbouring properties not subject to the VPO5 will not require a permit for trimming protected trees within their property boundary.

The form of the Amendment was discussed as to whether the VPO was the appropriate mechanism to protect the nominated trees under the Planning Scheme. A precedent had been set as phases 1 and 2 of the same project had already been implemented as VPO1 and 3 through Amendments C60 and C83 respectively.

The Panel noted there are four (4) main mechanisms used for protecting vegetation in the Planning Scheme listed in PPN07: VPO, SLO, ESO and the Heritage Overlay (HO). The VPO was considered appropriate as the Amendment is accompanied by a Significant Tree Register and the VPO does not contain permit triggers for buildings and works and subdivision of land.

The Panel supported the selection of the VPO as the absence of the above triggers together with the exemptions listed in the Schedule will not unnecessarily control owners of significant trees.

This is notable in consideration of a municipal-wide, permanent SLO control. As the SLO contains permit requirements for buildings and works it needs to be demonstrated that this is not an unnecessary financial burden for owners of trees.

3.5 Internal Feedback

The Panel Report associated with Amendment C57 in 2006 considered the proposed application of the SLO over a number of areas throughout the municipality.

The Panel did not agree that the SLO should be applied to land in Mont Albert North as tree coverage in this area was not as visually dominant as other areas where the SLO had already been applied, such as Blackburn.

Seemingly in contradiction, the Panel acknowledged the removal of trees that make a significant contribution to the landscape setting of the precinct should be controlled, and made recommendations for this to be via the VPO.

SLO9 differs in that it does not isolate certain areas of the municipality as having more or less significant tree-dominant landscapes, but rather acknowledges the important contribution canopy trees make to the landscape throughout the entire municipality.

Since 2006, Council and the State Government have undertaken a significant amount of strategic work to demonstrate the importance of urban greening to mitigate the urban heat island effect and the significance of canopy trees to landscape and neighbourhood character in Whitehorse, which has one of the highest canopy coverage percentages of urban LGAs in Metropolitan Melbourne.

Council Workshops

The internal stakeholders that make up the Council Working Group (CWG) were consulted during the inception meeting and formal workshop. A separate, Councillor workshop was also undertaken (refer to page 38).

A broad range of topics were discussed at these workshops. The relevant points are outlined below:

- There was some ambiguity as to how the SLO9 height and girth triggers were to be interpreted, however this has since been clarified by VCAT and confirmed by legal advice sought by Council (refer to Section 3.3).
- The high volume of applications Council has been receiving (particularly multiple VicSmart applications on the same property) and the associated arborist reports is becoming an administrative burden to assess.
- The triggers do not contain any exemptions based on tree species, and therefore weed species can trigger a permit if they are over the relevant height or trunk circumference. It is difficult to justify the cost of a permit and arborist report for these trees when Council generally supports their removal in the public realm.
- While weed species may be appropriate for exemption, there are a number of other factors to consider: the contribution weed species make to canopy cover, landscape / neighbourhood character and habitat. There may also be sociocultural preferences of individuals who wish to retain weed species on their property.
- Climate change may impact on the suitability of tree species, as some common species may no longer be viable if temperatures rise (e.g. Pin Oaks).
- The success of taller trees, particularly in multi-unit development, has been effective on paper, but in practice many are lost over the medium to long term due to inappropriate species selection for the area available; changes in owners and their preferences; and lack of ongoing private maintenance. There has been a call for more monitoring in this regard, but this is an enormous and resource-intensive task.
- Offset or tree replacement ratios are not clearly defined, but understood to be a one-for-one replacement. This may not work in practice where a number of narrow trees are clustered together and the site does not have enough space to reasonably accommodate their replacement. In these instances, one larger canopy tree may be more appropriate.

- Clause 21.05 (Environment) in the Municipal Strategic Statement contains a provision in relation to a minimum lot size (650m²) in areas covered by an SLO, and the Tree Conservation Local Policy at Clause 22.04 contains provisions in relation to building setbacks (4m) and planting areas. All of these provisions were designed to apply to SLOs 1-8. These areas are all zoned NRZ. Amendment C191 applied the same policy provisions to SLO9, which includes expansive areas of land in the GRZ where greater density of development is likely (refer to Section 3.1).

Councillor Feedback

Workshops were also held with Councillors to seek their views on implementation of SLO9 to date. The following points (emphasising and additional to those already raised by Council officers) were noted during these workshops:

- The tree control is perceived to be unnecessarily capturing a large number of smaller-scale applications.
- The tree control is financially burdensome for properties with more trees, in terms of additional application fees and the cost of arborist reports.

- The broad intent of the tree control was to prevent ‘moonscaping’ of sites before development however it was noted that moonscaping is likely to continue to some degree, irrespective of the provisions or consequences.
- A strong preference for the exemption of weed species from the permit requirements of SLO9.
- The need for location-based exemptions for trees near existing buildings and infrastructure.
- There is a need for ongoing enforcement and monitoring of trees planted, particularly as part of landscaping in new development, to ensure they reach maturity.

Community Feedback

After the Minister for Planning approved the interim controls of Amendment C191, Council distributed approximately 80,000 letters dated 21 February 2018 widely informing the community of the interim planning controls. It provided information about what the interim controls are for, where they apply, and how to determine if a permit is required under SLO9. Residents were advised to get in contact with Council or visit Council's website for more information.

While the letter did not request community feedback, sixty-seven (67) “submissions” were received. Of these, the majority took a neutral stance (40.3%) or supported the Amendment (29.9%). Only a small proportion of submissions opposed the Amendment (4.5%) and the remainder were related to other matters not directly relevant to the Amendment (25.4%).

Key themes considered by all submissions related most commonly to tree removal, protection and maintenance. The cost of permits and falling branches were considered in a number of submissions and other topics emerging less frequently included: community engagement (a lack of), new development, root encroachment, shade, land owner rights, habitat and environmental protection.

Few submissions considered a particular tree species, but of those that did the most frequent were gums (*Eucalyptus*) and tea-trees (*Melaleuca*).

While analysis of the submissions revealed that there was concern about a lack of community consultation, a significant percentage of submitters support the control. The very low rate of response to this letter (less than 1% of all letters sent) may be an indication of tacit community acceptance for the SLO provisions.

3.6 Discussion

Refining SLO9

The research and analysis done as part of this project is intended to provide a foundation for the retention of SLO9. It also provides a basis for recommending refinements to the overlay now that it has been in operation for over one year and its implications can be examined using both quantitative and qualitative evidence. This section of the report examines the findings in Chapter 3 and proposes refinements to SLO9 in response. Where these refinements have implications for the MSS and the Tree Conservation Local Policy (Clause 22.04) these are also discussed.

SLO9 operates within the context of a suite of controls that aim to protect and enhance canopy cover in Whitehorse. Each of the controls and schedules varies in terms of its objectives and application. SLO9 seeks to extend vegetation and associated built form control as a means of protecting and reinforcing the tree canopy in areas of the municipality that are not currently covered by existing SLOs but where this canopy is integral to neighbourhood character.

SLO9 applies across an expansive area of the municipality, therefore differing from the pre-existing SLOs (1-8) that apply to more tightly defined precincts. In order to ensure a balanced approach to vegetation protection, SLO9 therefore generally sets a higher threshold before a planning permit is required than the pre-existing SLOs (the only exception being a tree over 5 metres in height with a trunk less than 0.5m in girth). That is, some trees that require a planning permit for removal in SLO 1 to 8 may not require a permit within SLO9. In this regard SLO9 operates in a similar fashion to the blanket SLO provisions that apply within Maroondah City and Yarra Ranges Shire.

The approach taken in this section has been to examine ways to maintain the core objectives of SLO9 while both clarifying its operation and reducing the number of permits likely to be unnecessarily triggered. This approach is intended to support the application of vegetation controls in a strategic manner across the municipality by applying more detailed and stringent controls in areas where vegetation protection is at the highest priority; compared to a 'lighter touch' in areas where vegetation protection and infill development priorities must be balanced.

Area of application

SLO9 applies to a significant proportion of the City of Whitehorse and was intended to replace two existing controls, VPO2 and 4, to avoid overlap. SLO9 covers areas with varying landscape and built form characteristics. A question therefore arises as to whether it should be broken down into multiple schedules, each addressing more specifically the characteristics of the area to which it applies. At present the 'Statement of nature and key elements of landscape' distinguishes between the Garden Suburban and Bush Suburban Neighbourhood Character Areas (NCAs) but the same provisions and decision guidelines apply to both.

Splitting SLO9 into multiple schedules is not recommended as this would serve only to add complexity to the planning provisions. The area to which SLO9 is already subject to all three residential zones and multiple zone schedules. In many respects the SLO9 provisions operate in a manner that could be regarded as supplementary to the zone provisions. The zones therefore provide sufficient guidance about the development and neighbourhood character aspirations for each of these areas without the need for further definition through SLO schedules.

The retention of a single SLO schedule covering multiple localities is consistent with the approach taken with Yarra Ranges Planning Scheme SLO22, which applies to a number of townships in the foothills and rural areas of the municipality. A similar approach is taken in the Maroondah Planning Scheme, particularly with respect to SLO2, which protects canopy trees over a large and diverse area.

Nature and key elements of the landscape

The second paragraph of the 'Statement of nature and key elements of landscape' in the interim SLO9 describes in broad terms the multiple benefits of Whitehorse's tree cover. After describing these benefits, it concludes with the words 'increasing the wellbeing of people and liveability of neighbourhoods.' This implies that all the benefits, including provision of habitat, all support wellbeing and liveability.

It is recommended that the word 'and' be inserted before 'increasing' so that wellbeing and liveability are described as benefits of vegetation rather than as outcomes of the other benefits listed.

Landscape character objective

The landscape character objective of SLO9 is:

'To encourage the retention of established and mature trees and to provide for the planting of new canopy trees.'

It is recommended the objective be refined to refer to 'new and replacement canopy trees' to strengthen the emphasis to be placed on offset planting when tree removal is permitted.

Height and circumference

SLO9 provides an exemption from the need for a permit for the removal, destruction or lopping of a tree with:

- A tree less than 5 metres in height; and/or
- A single trunk circumference of 1.0 metres or less at a height of one metre above ground level.

Both the height and circumference tests must be met before a tree is exempt from the need for a permit.

SLO9 therefore triggers a permit for larger trees that the pre-existing Whitehorse SLOs, which do not include a height threshold, and which apply to a trunk circumference of only 0.5 metres. By further comparison, Yarra Ranges Planning Scheme SLO22 has a similar tree

circumference trigger to Whitehorse SLOs 1-8; and the four Maroondah SLO Schedules combine a 0.5 metre circumference with a 5-metre height trigger.

Even though SLO9 has more generous exemptions than these other examples, Whitehorse City Council planning permit data demonstrates a significant increase in the number of planning permits since its introduction, which is likely due to the nature of the trigger being height and/or girth. The magnitude of this increase, and stakeholder feedback about the impact of the provisions, suggest that any changes to the provisions should seek to reduce the number of permits triggered by introducing further exemptions.

Having examined the characteristics of dominant tree species throughout the SLO9 area elsewhere in this report, it is concluded that the 5 metre height and 1 metre circumference triggers both ensure that the control is targeting trees that are large enough to have an impact on neighbourhood character. On that basis it is recommended that these thresholds be retained and that alternative opportunities for further exemptions be explored.

Asset protection

Concern was raised during stakeholder feedback about the need for a permit to remove trees that may be inappropriately located relative to assets such as building foundations and in ground swimming pools. While an assessment of actual impact would need to be done on a case-by-case basis, examples do exist of exemptions where large trees in very close proximity to certain assets are exempted from the need for a planning permit.

An exemption for trees within 3 metres of dwellings, garages attached to dwellings, dependant person's units and in-ground swimming pools is recommended. A 3 metre distance would align SLO9 with the Tree Conservation Local Policy (Clause 22.04), which recommends a minimum separation distance between trees and buildings in most locations. It is also consistent with exemptions that apply to all four of the Maroondah SLOs. The Yarra Ranges SLO22 provides an exemption for trees within 2 metres of buildings.

It is recommended that the exemption be applied to trees within 3 metres of dwellings, garages attached to dwellings, dependant person's units and in-ground swimming pools. Applying the exemption more generally, to include outbuildings for example, is likely to create too wide an exemption.

Services and street trees

Councillors raised concerns about tree removal in the case of emergency, protecting powerlines, gaining access to services in easements, and the removal of street trees by Council. These types of exemptions are reasonable in order to avoid unnecessary delays and costs when providing and maintaining urban services. They align with general exemptions for buildings and works that apply elsewhere in the planning scheme.

It is recommended that the following exemption be included:

'Vegetation that is to be removed, destroyed or lopped to the minimum extent necessary:

- to maintain the safe and efficient function a utility installation;
- by or on behalf of a utility service provider to maintain or construct a utility installation in accordance with the written agreement of the Secretary to the Department of Environment, Land, Water and Planning (as constituted under Part 2 of the Conservation, Forests and Lands Act 1987)'

The above exemption would apply to all utilities, whether or not included in an easement. It replicates an exemption that exists in Clause 52.17 Native Vegetation.

Environmental weeds

VCAT has generally not attributed retention value to trees designated as Environmental Weeds. Although it acknowledged that some tree species listed as Environmental Weeds may themselves contribute to tree canopy and character, Council actively discourages their planting because of their propensity to invade and thrive in native bushland. Councillor and community feedback raised concern about the incongruity of requiring a planning permit and an arborists report to prove the need to remove tree species that Council itself is actively discouraging from being planted.

It is recommended that an exemption be created to exempt Environmental Weeds from the need for a planning permit under SLO9. All four of the Maroondah SLOs and Yarra Ranges SLO22 include exemptions for the removal of environmental weeds as defined within their respective planning schemes. In addition, State declared 'noxious weeds' are already exempted under the header provision of the SLO itself.

The Whitehorse City Council website includes a list of trees and shrubs considered to the Environmental Weeds due to their propensity to 'dominate and threaten the natural balance of the remnant indigenous flora and fauna of Whitehorse.'

- Cootamundra Wattle (*Acacia baileyana*)
- Cotoneaster (*Cotoneaster spp.*)
- Desert Ash (*Fraxinus angustifolia*)
- Hawthorn (*Crataegus monoxyna*)
- Mirror Bush (*Coprosma angustifolia*)
- Privet (*Ligustrum spp.*)
- Radiata or Monterey Pine (*Pinus radiata*)
- Sallow Wattle (*Acacia longifolia*)
- Sweet Pittosporum (*Pittosporum undulatum*)
- Willow (*Salix spp.*)

During discussions with Councillor and staff a number of other 'undesirable' species were nominated for potential exemption. These were assessed by Council staff, as outlined in Table 5 opposite:

It is recommended that the Environmental Weeds exemption should be limited to trees that are potentially invasive. Expanding the list beyond invasive species would risk opening up a debate about other tree characteristics, such as aesthetics.

It is recommended that Council's list of environmental weeds be supplemented by the invasive species identified in Table 5: Box Elder (*Acer negundo*) and Cape Wattle (*Paraserianthes lophantha*).

Table 5 – Summary of 'undesirable' species that may be considered weeds

Common Name	Botanical Name	Comments
Bangalay and Sugar Gum	<i>Eucalyptus botryoides</i> and <i>E. cladocalyx</i>	Weed threat: significant potential to spread and <i>E. botryoides</i> can hybridise with desirable eucalypt species. Value: tall canopy tree, may form hollows, high nectar load. If included in the weed list, large canopy trees could be lost.
Cape wattle	<i>Paraserianthes lophantha</i>	Weed threat: Very high, seeds remain viable in the soil for many years Value: low ornamental and habitat value and probably not too common in Whitehorse It would be worthwhile including it in the weed list to encourage its removal.
Box Elder	<i>Acer negundo</i>	Weed threat: high potential to spread in wet or shady areas or through the transport of mulch Value: low habitat value and ornamental value. Possible there are a few as street trees. Should be included in the weed list.

Trees planted under planning permits

It is recommended that the Schedule to SLO9 be amended to make it clear that the exemptions do not authorise the removal, destruction or lopping of vegetation planted in accordance with a planning permit condition or a landscape plan.

Local Planning Policy Framework

As a consequence of recommended changes to the SLO, the Local Planning Policy Framework (LPPF) will require modification in the MSS at Clause 21.05 (Environment) and the Local Planning Policy (LPP) at Clause 22.04 (Tree conservation).

Clause 21.05 (Environment) has not yet been updated to reflect additional strategic work Council has undertaken, such as the interim Urban Forest Strategy 2018, which should be referenced in the context of the municipal-wide target of 30% canopy coverage.

Similarly, the Whitehorse Municipal Wide Tree Study 2016 emphasises the importance of protecting canopy trees and a holistic approach to protecting landscapes dominated by canopy trees that make a significant contribution to neighbourhood character. At present, Clause 21.05 does not emphasise the importance of protecting vegetation and trees that contribute

to the character of Garden Suburban and Bush Suburban NCAs.

Clause 21.05 (Environment) specifies a minimum lot size of 650m² where the SLO applies. This was intended to apply to pre-existing SLOs (1-8), which apply to the Bush Environment NCA and are already characterised by larger lot sizes and lower site coverage. This provision does not translate to the Garden Suburban and Bush Suburban NCAs which are characterised by smaller lot sizes and expected to experience more growth and change as the population increases. It should also be noted that Council requested this provision be modified to apply only to the Bush Environment NCA in Amendment C196.

The Local Policy at Clause 22.04 (Tree conservation) includes an objective relating specifically to canopy trees but does not refer to them in the 'Policy Basis'. The objective "to promote the regeneration of tall trees through the provision of adequate open space and landscaping areas in new development" could be strengthened and include reference to replacement / offset trees.

The Local Policy could also be used to provide clarity to the relationship between the tree protection controls in SLO9 and the tree planting landscaping requirements of schedules

to the residential zones. This would ensure that retention of existing, mature canopy trees is prioritised over the provision of replacement trees.

The implied like-for-like replacement of trees through offset provisions is problematic in some circumstances. For instance, a group of trees may be clustered together and provide a cumulative canopy spread comparative to one larger canopy tree. In these circumstances, it is more reasonable for the provision to seek an appropriate replacement of the canopy spread, regardless of how many trees are used. This should also be considered when a cluster of trees (which are competing for space) is determined to have low retention value. The number of trees required by the landscaping provisions of most schedules to the residential zones should be included in any offset planting, rather than being considered an additional requirement.

This still forms a 'no net loss' approach, but focuses on protecting canopy and character rather than quantity of trees. Protecting the quantity of trees on the site is demonstrated through VCAT cases as being somewhat arbitrary and difficult to implement.

Similar to the minimum lot size provision of 650m² in the MSS, the Tree Conservation Policy

3.7 Conclusion

contains a provision for buildings and works to be set back a minimum of 4 metres from the trunk of existing trees in areas subject to the SLO and a minimum planting area (to establish new trees) of 50m². These provisions were also intended to apply to the pre-existing SLOs (1 - 8) due to the nature of the Bush Environment NCA and are not appropriate for the Bush Suburban and Garden Suburban NCAs due to the prevailing lot sizes, setbacks and potential for more growth and change.

Transitional Provisions

The interim SLO9 does not include any transitional provisions to address planning permits that may not have been triggered prior to the introduction of SLO9. It is recommended that a transitional provision be added to avoid applicants needing to reapply for a planning permit under SLO9 where this was not previously required.

The Whitehorse Planning Scheme places strong emphasis on environmental protection, particularly the retention, replacement and planting of canopy trees. This is given effect through the MSS, local policy, schedules to the residential zones, and a comprehensive suite of environmental and landscape overlays.

SLO9 has been introduced as an interim control over tree removal and buildings and works. Its purpose is to protect and establish mature trees due to their contribution to neighbourhood and landscape character. SLO9 applies across an extensive proportion of the municipality, covering all three of the residential zones – RGZ, GRZ and NRZ.

Most of the schedules to the GRZ and NRZ complement but operate independently from SLO9. They are complementary in that they include variations to ResCode that require expanded private open space areas and the planting of new trees. In the RGZ, on the other hand, the SLO9 includes an exemption for tree removal other than within the front setback area.

The Tree Conservation Policy (Clause 22.04) applies across the municipality and includes specific provisions that support the operation and interpretation of the SLO. However some of

those provisions, relating to minimum lot sizes, building setbacks and minimum planting areas were designed to apply to the SLOs 1 to 8 and are excessively onerous when applied to the more expansive SLO9.

The introduction of SLO9 has resulted in a substantial increase in the number of applications to remove, destroy or lop trees within the City of Whitehorse. This has been most noteworthy in well vegetated suburbs that were not previously subject to vegetation controls, such as Blackburn North, Box Hill North, Forest Hill and Mitcham. Most of these applications have been assessed through the VicSmart process; the volume of applications having increased approximately four-fold. This is beneficial in the sense that the streamlined VicSmart process also supports a simplified mechanism for achieving replacement planting to enhance canopy cover.

It is difficult to interpret whether there has been a significant increase in the number of applications for buildings and works associated with the introduction of SLO9 as there is no data available to isolate these applications. Nevertheless, there has been an increase and some of this is likely to be attributable to SLO9.

Council staff have adapted their processes and resources to cope with the increased workload and the volume of applications was not a particularly significant focus of stakeholder feedback. Aside from concerns about the principle of requiring planning permits for vegetation control, much of the feedback from Councillors, Council staff and resident submissions focussed on the adequacy of exemptions and the cost of the application process. A strong theme out of Councillor consultation was that the controls had not stopped the moonscaping of properties by developers but had inconvenienced long-term residents.

There have been a limited number of VCAT decisions dealing with aspects of the SLO9 provisions. The key points emerging from these are:

- The permit exemption requires a tree to meet both height and girth criterion, thereby triggering more permits than was originally intended;
- The contribution of individual trees to neighbourhood character is an important consideration in terms of retention value and arborists reports are the key source of evidence in this regard;

- Determining appropriate offsets for tree removal is complex in cases where multiple trees are removed or there is limited space available for replacement;
- The residential zone tree planting requirements have been interpreted as being in addition to offset planting when tree removal is proposed;
- Environmental weeds and trees of low retention value are generally supported for removal whether or not they contribute to neighbourhood character and offset planting is not required, implying that weed species should be exempt from assessment under SLO9;
- The protection of trees in the middle of lots is more difficult to achieve than those within front or rear setback areas, which was generally used to determine where trees could reasonably be retained.

Whitehorse's tree canopy is integral to the character and amenity of its residential areas. The municipality has a comprehensive suite of residential zones and vegetation protection provisions that provide clarity as to where growth is to be focussed while at the same time ensuring that vegetation cover is protected and enhanced. Those areas of Whitehorse that

have the highest proportion of vegetation cover are already protected by a range of vegetation controls. SLO9 aims to provide protection to the majority of residential areas that are not well protected but where trees are a critical part of neighbourhood character.

3.8 Recommendations

The following recommendations seek to refine SLO9 in response to the analysis and stakeholder feedback contained in this chapter. Specifically, they seek to expand exemptions to reduce the burden on Council and community, address ambiguities, and improve the efficiency of assessment. The recommendations are to:

Modify the MSS to strengthen its emphasis on tree canopy protection and enhancement, and include reference to the Urban Forest Strategy (UFS) and its 30% tree canopy target.

Amend the MSS (Clause 21.05 'Environment') to:

- Provide support for the application of a permanent SLO9; and
- Exclude land within SLO9 from the minimum lot size policy that applies to other SLO schedules.

Amend the Tree Conservation Policy (Clause 22.04) to:

- Strengthen the references to canopy trees in the Policy Basis section;
- Strengthen the objectives to ensure that new development provides sufficient space for new and replacement trees;
- Clarify the relationship between vegetation controls and ResCode planting requirements by:

- Prioritising tree retention over planting requirements;
- Placing emphasis on achieving equivalent canopy through offset planting;
- Allowing zone tree planting requirements to be taken into account when calculating offsets.
- Refine the provisions relating to buildings and works near existing trees to provide for a minimum setback of 3m in SLO9 rather than the 4m that applies to SLOs 1-8;
- Refine the provisions relating to tree regeneration to provide for a minimum area of 35m² in SLO9 rather than the 50m² that applies to SLOs 1-8;
- Clarify the circumstances under which an arborists report is required and ensure that reports, when required, address all aspects of the local policy.

Amend SLO9 to:

- Strengthen the landscape character objective to include reference to replacement trees;
- Introduce new vegetation removal exemptions providing for the removal, destruction or lopping without a permit of:

- Trees located less than 3 metres from the wall of a dependent person's unit, dwelling or garage attached to a dwelling (aligning the provision with the local policy setback requirement);
- Trees located less than 3 metres from an in-ground swimming pool
- Environmental weeds, as defined by the City of Whitehorse, as they have little to no ecological value and are consistently supported for removal.
- Trees around public utilities including power lines and other services, including those within easements.
- Street trees in line with Council's Street Tree Policy.
- Add a note clarifying that the exemption provisions do not authorise the removal, destruction or lopping of trees required by existing planning permits.
- Add a table containing a list of environmental weed species based on Council's existing list (Appendix A) and additionally including:
 - Cape wattle (*Paraserianthes lophantha*)
 - Box Elder (*Acer negundo*)

- Add a provision to allow approved planning permits granted prior to the introduction of the interim SLO9 controls on 8 February 2018 to be exempt from the tree removal trigger.

Amend the planning scheme maps and associated schedules to remove the area-based VPO schedules 2 and 4 from properties (as per Amendment C196) as they would duplicate tree controls for these areas.

Refer to Appendix E for draft amendment documents that incorporate these recommendations.

RECONCILING HOUSING GROWTH AND VEGETATION PROTECTION

4.0

4.0 Reconciling Housing Growth and Vegetation Protection

4.1 Population and Development Projections

The Victoria in Future 2016: Population and household projections to 2051 (VIF16) prepared by the State of Victoria Department of Environment, Land, Water and Planning (DELWP) outlines the State Government's most recent population forecast data. At a municipality level, data is available from 2011 and is forecast to 2031.

According to the most recent Census data, the total population in Whitehorse in 2016 was 162,078 and was projected by VIF16 to grow to 193,600 by 2031. Likewise, the total number of households in 2011 was 65,778, and was projected by VIF16 to grow to 75,300 in 2031. VIF16 also forecasts a genuine decrease in the number of persons aged under 20 years, and an increase in persons aged 65 or older. This is generally in line with Australia's ageing population.

More recent population forecasts to 2036 are provided to Council by .id consulting, updated with 2016 dwelling counts and the 2016 Estimated Resident Population, as shown in Figure 10.

These statistics forecast population growth to exceed previous estimates. The population in Whitehorse is predicted to increase to 200,726 in 2031, which will continue to grow to 207,424 by 2036. The rate of average annual change in population is forecast to slow from 1.61% in 2021 to 0.66% in 2036.

The average household size will decrease slightly from 2.6 persons in 2016 to 2.52 persons in 2036, which may reflect the common trend across Melbourne of an increasing number of single-person households.

The number of dwellings is forecast to increase to 80,494 by 2031, and further increase to 83,694 by 2036.

The population and number of dwellings in Whitehorse will continue to grow at gradually slowing rates while the average household size will decrease slightly.

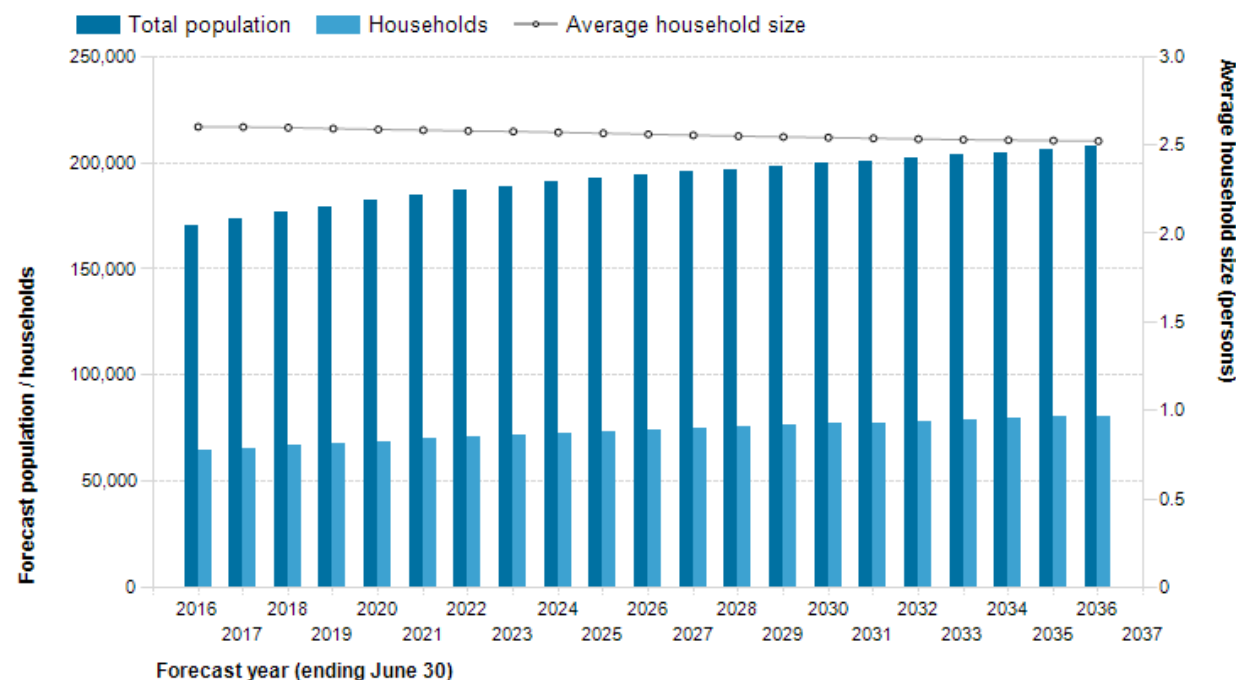


Figure 10. Forecast population, households and average household size
Source: Dwellings and development map, .id consulting (<http://forecast.id.com.au>)

4.2 Spatial Distribution of Current and Projected Development

The population and dwelling forecasts prepared by .id consulting also consider the spatial distribution of dwelling growth in Whitehorse by suburb, as shown in Table 6.

The results show that the highest proportion of dwelling growth will be in the Box Hill Activity Centre, which is forecast to nearly triple in size between 2016 and 2036 (190.8%), and the surrounding suburb of Box Hill, which will nearly double in size in the same time period (97.8%). The majority of these growth areas were not constrained by vegetation protection policy until the introduction of SLO9.

The number of dwellings in the whole municipality is forecast to grow by 25.6% to 2036. Other than Box Hill and its Activity Centre, there are a number of suburbs that are forecast to experience dwelling growth higher than the municipality overall. These include Burwood East (44.4%), Blackburn (31.6%) and Nunawading (26.3%). Vegetation protection controls have been historically applied to land in Blackburn, but the remaining suburbs were unconstrained prior to the introduction of SLO9.

Areas that will comparatively experience the lowest percentages of dwelling growth are Surrey Hills (5%), Mont Albert North (8%), Blackburn North (8.5%), Box Hill South (9.9%), Blackburn South (10.3%), Vermont (11.3%) and Box Hill North (12%).

Table 6 – Forecast dwellings and development in Whitehorse

Area	2016		2036		Change between 2016 and 2036	
	Number	Percent	Number	Percent	Number	Percent
City of Whitehorse	66,636	100.0	83,694	100.0	+17,058	+25.6
Blackburn	5,833	8.8	7,679	9.2	+1,846	+31.6
Blackburn North	2,883	4.3	3,129	3.7	+246	+8.5
Blackburn South	4,283	6.4	4,725	5.6	+442	+10.3
Box Hill	5,362	8.0	10,604	12.7	+5,242	+97.8
Box Hill North	4,947	7.4	5,543	6.6	+596	+12.0
Box Hill South	3,449	5.2	3,792	4.5	+343	+9.9
Burwood	5,018	7.5	6,199	7.4	+1,181	+23.5
Burwood East	4,122	6.2	5,951	7.1	+1,829	+44.4
Forest Hill	4,393	6.6	5,174	6.2	+781	+17.8
Mitcham	6,890	10.3	8,343	10.0	+1,453	+21.1
Mont Albert	1,994	3.0	2,404	2.9	+410	+20.6
Mont Albert North	2,323	3.5	2,509	3.0	+186	+8.0
Nunawading	4,769	7.2	6,025	7.2	+1,256	+26.3
Surrey Hills	2,112	3.2	2,217	2.6	+105	+5.0
Vermont	3,914	5.9	4,355	5.2	+441	+11.3
Vermont South	4,344	6.5	5,045	6.0	+701	+16.1
Box Hill Activity Centre	2,395	3.6	6,964	8.3	+4,569	+190.8

Source: Dwellings and development map, .id consulting (<http://forecast.id.com.au>)

Spatially managing dwelling growth influences residential amenity, transport choices, affordability, and access to employment, retail, community services and open spaces, in addition to cost of infrastructure. The location of dwelling growth also impacts the social and physical sustainability of a city.

The 2014 *Whitehorse Housing Strategy* considered the forecast housing growth for the municipality, and then identified locations suitable for different rates of housing change (substantial, natural and limited change) to direct development into areas with capacity for growth, and limit change in areas with established environmental, heritage and neighbourhood character values.

The strategy was implemented by translating the change areas into the following zones:

- Substantial Change - Residential Growth Zone (RGZ)
- Natural Change - General Residential Zone (GRZ)
- Limited Change - Neighbourhood Residential Zone (NRZ)

The Housing Strategy's Capacity Assessment identified the following projected additional supply for new dwellings in each zone in Table 6 below.

Table 7 – Whitehorse Land Supply Analysis

Whitehorse Land Supply Analysis (2014 - 2031)			
Zone	Land Area	Projected Additional Dwellings	New Dwellings per Hectare
RGZ	1,846,612.03	29,362	159.0
GRZ	20,804,993.8	27,337	13.1
NRZ	23,905,452.8	20,277	8.5
Total	46,557,058.72	76,976	-

Source: Whitehorse Housing Capacity Assessment (May 2014)

4.3 Assessing the Challenge

Council's policies of accommodating dwelling growth and maintaining the leafy character of the municipality represent policy challenges that flow through to the application of statutory controls and, ultimately, decision making. However, without a detailed survey showing the exact location, size and species of every tree throughout the residential zones of Whitehorse it is not possible to quantitatively determine the extent of this conflict on either housing capacity or tree retention rates. For example, a larger tree will require more land for retention than a smaller tree, and a tree centrally located on the lot will constrain development options to a far greater extent than a tree located within setbacks.

As detailed previously the rates of forecast growth within Whitehorse are spatially differentiated across the suburbs and zones. Similarly the tree canopy data from the Interim Report: Urban Vegetation Cover Analysis (Eastern Region) illustrated in Figures 16-18 demonstrates that existing rates of canopy cover are spatially differentiated across the municipality.

The extent of this policy challenge can be understood spatially using a 'risk assessment' approach to understand in which areas there is greater potential for tree retention to constrain development capacity, or, conversely, canopy loss.

The risk assessment approach compares the areas where development is strategically focused to areas of high canopy cover to identify the areas where these two factors combine to represent a higher risk of development constraint or existing canopy loss.

The first factor of forecast dwelling growth can be represented by the residential zones, as detailed in Section 3.1. The assessment scores the forecast dwelling growth out of a maximum of 5, which represents the higher forecast growth. As Table 6 shows the projected additional supply is relatively similar across each of the three zones, however, the land area of these zones is far greater in NRZ and GRZ than RGZ, which translates to a significantly higher rate of forecast dwellings per hectare in the RGZ and therefore development pressure on those areas. Using the new dwellings per hectare data from Table 6, the zones are assigned the following development pressure scores:

- RGZ = 5
- GRZ = 2
- NRZ = 1

These scores are applied arbitrarily to represent development potential for the purpose of this risk assessment, and do not represent any

specific statistic in relation to density. The RGZ is assigned a much higher development pressure score due to the potential for multi-storey developments which are much less likely in the GRZ and NRZ.

The second factor considered in the risk matrix is the extent of existing canopy cover. The Interim Report: Urban Vegetation Cover Analysis (Eastern Region) tree canopy data maps the existing percentage of canopy cover of each lot, and each lot is assigned the following canopy cover score:

- 40%+ = 5
- 30-40% = 4
- 20-30% = 3
- 10-20% = 2
- 0-10% = 1

(See Section 2.2 for more detailed analysis of the spatial spread of canopy cover in Whitehorse.)

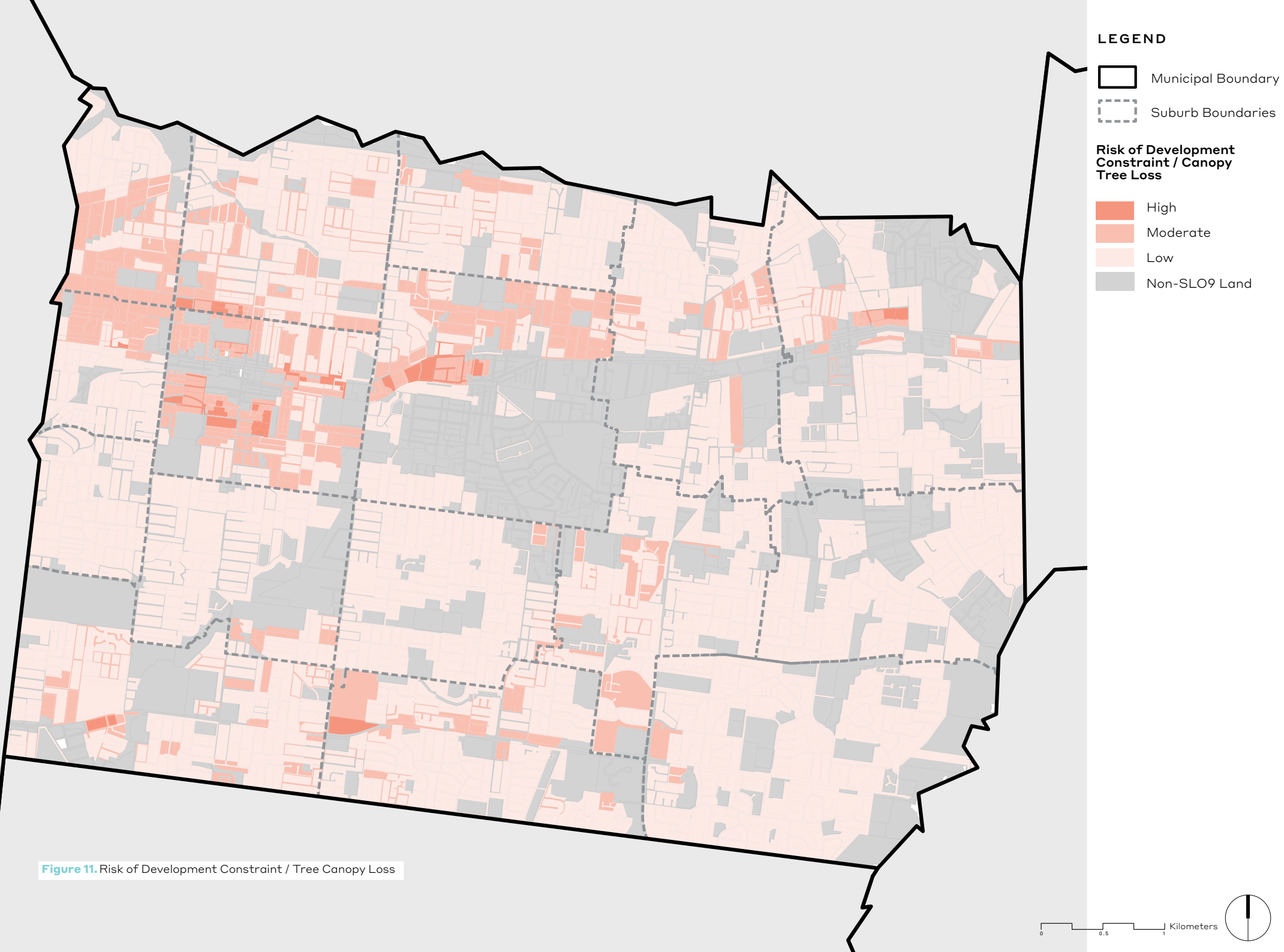
Table 7 identifies the likely level of risk for this policy conflict to either constrain development or result in loss of existing canopy. The levels of risk are calculated according to the weighted scores (see Key):

The risk assessment shows that areas of RGZ with higher existing canopy cover are at the most risk of canopy loss, noting however that trees are only required to be retained in front setbacks. The lower risk areas with the lower canopy cover lots within GRZ and NRZ reflect the relative ease with which forecast levels of residential development could be expected to be accommodated and where perhaps the greatest opportunity exists to increase tree canopy through tree planting (Refer to Figure 11).

Table 8 – Risk of Development Constraint / Existing Canopy Loss

		Zone		
		RGZ (5)	GRZ (2)	NRZ (1)
Existing Canopy Cover	40-100% (5)	25	10	5
	30-40% (4)	20	8	4
	20-30% (3)	15	6	3
	10-20% (2)	10	4	2
	0-10% (1)	5	2	1

Key	
>10	High
5-10	Moderate
<5	Low



4.4 The Importance of Vegetation in an Urban Environment

Council aims to manage and enhance existing trees, and also increase the number and variety of trees within the municipality. The rationale for this is confirmed in several documents that identify the importance of trees, the values of which are summarised as follows:

- Trees help to clean air and mitigate the impacts of the urban heat island effect. Trees are an integral aspect of climate change adaptation and sustainability (City of Melbourne 2016, City of Whitehorse 2018b & 2018c).
- Trees contribute to the health and wellbeing of residents through creation of green spaces and their environmental benefits amidst rapid urban development (City of Whitehorse 2017b & 2018a; Daniel, Morrison & Phinn 2016; and Profous & Loeb 1990). They provide opportunities to connect with nature (DELWP 2017a & City of Whitehorse 2018c).
- The provision and long-term retention of street trees maximises the benefits of their environmental and aesthetic value (City of Whitehorse 2009, 2014c & 2018a).
- Trees are an important component of the sense of place and identities of cities (City of Melbourne 2016).
- The contribution of canopy trees to the green and leafy character of residential areas in Whitehorse has been cited as a common reason why residents choose to live in the municipality (Whitehorse Municipal Tree Study 2016).
- Trees are an integral part of biodiversity protection. Ensuring that there are enough trees to protect fauna/wildlife habitats is important. A variety of tree types should also be planted to maintain or increase flora biodiversity (City of Whitehorse 2014b and DELWP 2017b). Research conducted has found that Australian cities provide unique habitats which contain several threatened flora and fauna species (Ives et al. 2016).
- Trees form an important component of landscaping for design and aesthetic purposes. Tree species within a landscape should be considered along with the full lifespan of the individual or group of trees. Native species should be planted and protected where possible (City of Whitehorse 2012, 2014b, 2014c, 2016a & 2018a).
- Landscapes have a fundamental value for the cultural practices of Traditional Owners and Aboriginal Victorians (DELWP 2017b).

4.5 Assessment of Vegetation in Whitehorse

Existing Policy

Current tree cover in Whitehorse is estimated to be between 22 - 26%, which is among the highest within the Melbourne metropolitan region (City of Whitehorse 2018c, DELWP 2018, Municipal Tree Study).

The Urban Forest Strategy (UFS) sets targets for achieving a minimum canopy cover of 30%, citing this as the threshold which allows a thriving urban forest to fully realise several environmental, public health, social and economic benefits (City of Whitehorse 2018c). The UFS is discussed further in Section 2.3 of this report.

Desktop Analysis

As part of the Landscape Assessment conducted by Ecology & Heritage Partners for this Report, a desktop analysis of the historic (1750) Ecological Vegetation Classes (EVCs) was undertaken.

Pre-colonisation, Whitehorse was largely covered by Valley Heathy Forest (EVC 127). The vegetation would have been a low, open forest to approximately 15 metres tall with a sedgy/grassy understorey and elements of small ericoid shrubs (e.g. heathers and other small and tough-leaved plants) and grass trees (DSE 2004). Common canopy trees would have been Yellow Box (*Eucalyptus melliodora*), Bundy (*Eucalyptus goniocalyx*), Silverleaf Stringybark (*Eucalyptus cephalocarpa*) and Messmate Stringybark (*Eucalyptus obliqua*) (DSE 2004). Existing vegetation within the Blackburn Lake Sanctuary and Mullum Mullum Valley is representative of what would have covered much of Whitehorse.

Several creeks and streams also dissect the landscape, which would have supported a slightly more open woodland style of vegetation. Similar to Valley Heathy Forest, the canopy trees along the creeks and streams grew to approximately 15 metres tall. Swampy Riparian

Woodland (EVC 83) occurred within many of the creeklines, with the typical canopy trees being Swamp Gum (*Eucalyptus ovata*) and Narrow-leaf Peppermint (*Eucalyptus radiata*). The understorey was characterised by large and medium shrubs such as Blackwood (*Acacia melanoxylon*), Swamp Paperbark (*Melaleuca ericifolia*) and a variety of Tea-trees (*Leptospermum spp.*). Large tussock grasses and sedges were found in the ground layer (DSE 2004). Some creeklines were dominated by Creekline Herb-rich Woodland (EVC 164), which contained the characteristic canopy tree species of Swamp Gum (*Eucalyptus ovata*) and Manna Gum (*Eucalyptus viminalis*). The understorey in these cases were dominated by a grassy/sedgy understorey with only a sparse shrub layer.

Landscape Assessment

The fieldwork component of the landscape assessment was conducted between 19 September 2018 and 3 October 2018 by Ecology & Heritage Partners and included the following process:

- When looking at a precinct, the assessment team would read through the key existing characteristics and preferred character statement (from the Whitehorse Neighbourhood Character Study 2014) for that precinct.
- The staff member would then drive through the precinct, and observe its characteristics. The focus was to record dominant canopy tree species on private property, along nature strips and within parks/reserves. Other observations included whether the overall tree canopy species were indigenous, native to Victoria, native to Australia or exotic. Comments were also made on the understorey/garden species and how they tied in to the characteristic of a precinct.
- Photos were taken of each dominant tree canopy species, many less common tree canopy species and of other points of interest (e.g. avenues of trees, typical garden species, atypical areas/streets).

- At the end of each site inspection, the assessment team would fill in a fieldwork assessment sheet with all the relevant information (a blank copy of the assessment sheet is provided in Appendix C).

The detailed results of the fieldwork component of the landscape assessment are presented in the table in Appendix B, and should be read in conjunction with Figure 12.

The landscape assessment found that the existing distribution and characteristics of canopy trees on private and public land aligned well with the preferred neighbourhood character statements and general statement found in the MSS (Clause 21.06) that:

“Trees and vegetation are considered one of the most significant determinants of neighbourhood character in the municipality, and therefore tree preservation and regeneration is of vital importance if the character of residential areas is to be maintained and enhanced.”

Bush Environment Character Precincts

In variations of the Bush Environment character precincts, vegetation is described to be one of the dominant elements in the landscape, particularly canopy trees which are native or indigenous species with informal planting patterns.

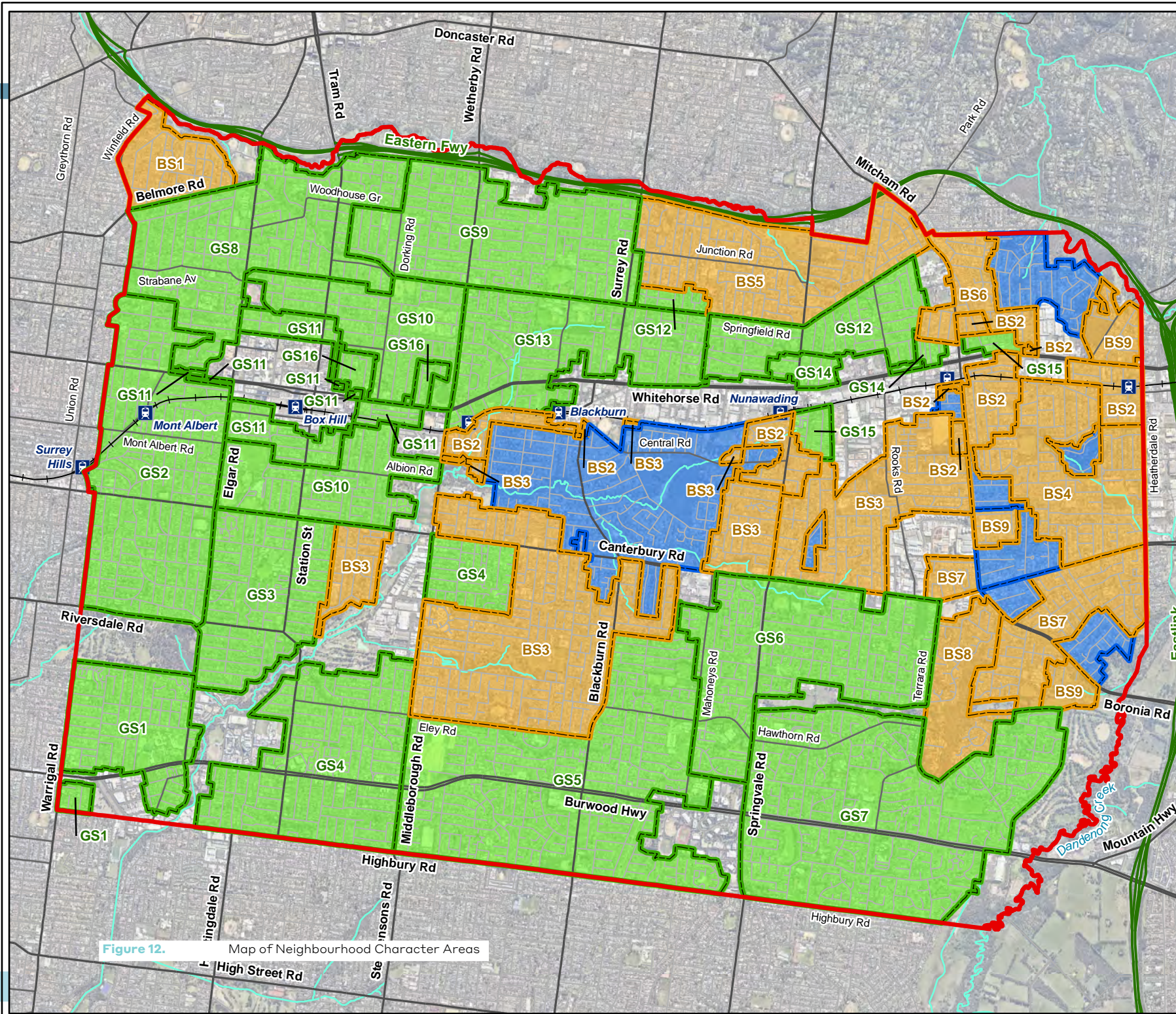
It was noted that the vegetation elements of the Bush Environment precinct fit into three (3) broad landscape categories, reflecting species makeup and dominance, however it is considered that these differences are not sufficiently substantive to warrant dividing the Bush Environment character area into multiple precincts.

The landscape assessment confirms that the vegetation in these precincts generally aligns with the Neighbourhood Character description. Bush Environment precincts are dominated by mostly native, some indigenous and few exotic and weed species.

Sugar Gums (*Eucalyptus cladocalyx*) and Smooth-barked Apples (*Angophora costata*) were the largest dominant species with an average height of 20 metres and an average Tree Protection Zone (TPZ; expressed as radius in metres) of 8.4 – 9.6 metres.

Argyle Apples (*Eucalyptus cinerea*), Red Ironbarks (*Eucalyptus sideroxylon*) and the indigenous Silverleaf Stringybark (*Eucalyptus cephalocarpa*) also made significant contributions with average heights well above five (5) metres and with TPZ radius greater than 6 metres.

The exotic species Pin Oak (*Quercus palustris*) is also dominant some areas with an average



Legend

- Study Area
- Bush Environment
- Bush Suburban
- Garden Suburban
- Railway
- Freeway
- Major Road
- Collector Road
- Minor Road
- Minor Watercourse
- BS1** Area number

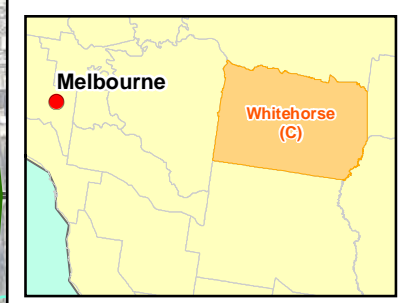
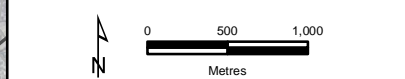


Figure 1
Whitehorse Neighbourhood Character Precincts Map
Precincts as per the Whitehorse Neighbourhood Character Study 2014



VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

11007_Fig01_PrecinctsMap_Original 10/10/2018 psorenson

Figure 12. Map of Neighbourhood Character Areas

height of 10 metres and TPZ of 8.4 metres. The weed Desert Ash (*Fraxinus angustifolia* subsp. *oxycarpa*) was also dominant in the landscape with an average height of eight (8) metres and TPZ of 7.2 metres. The desired removal of this would trigger the requirement for a permit under SLO9, however much of this precinct has been historically covered by existing SLOs.

The indigenous Australian Blackwood (*Acacia melanoxylon*) in the Bush Environment precinct has an average height of only five (5) metres and approximate average girth of 0.78 metres, meaning there are likely to be some specimens of this species that would not trigger a permit requirement under SLO9. This species generally has a narrower canopy spread.

Bush Suburban Character Precincts

Bush Suburban character precincts also describe vegetation as a dominant element in the landscape, comprising of a mix of native and exotic canopy tree species with regular spacing in roads and generally formal planting in gardens.

The landscape assessment confirms vegetation in the Bush Suburban precincts generally aligns with the Neighbourhood Character Description. Weed species in this character precinct are uncommon, and landscapes are dominated mostly by natives and some indigenous and exotic species.

The indigenous Narrow-leaved Peppermint (*Eucalyptus radiata*) makes a dominant contribution to several parts of this precinct, with average heights ranging from eight (8) to 15 metres, and average TPZ of six (6) to 7.2 metres. Exotic Pin Oaks also have a dominant occurrence in many areas of this precinct, with average heights between seven (7) and ten (10) metres, and average TPZ of six (6) to 9.6 metres.

The indigenous Australian Blackwood species in this precinct has an average height of four (4) metres and the Yellow Gum (*Eucalyptus leucoxylon*) has an average height ranging between three (3) metres and eight (8) metres, with an estimated average girth of 0.6 - 2.2 metres. Neither of these species would be consistently captured by the permit requirements of SLO9. This is also the case for some of the native Crimson Bottlebrush (*Melaleuca citrina*) and Water Gum (*Tristaniaopsis laurina*) species, and some of the exotic Ornamental Cherry (*Prunus serrulate*) and Callery Pear (*Pyrus calleryana*).

Garden Suburban Character Precincts

The variations of the Garden Suburban character type are composed of landscapes with dwellings situated within generous garden settings. Street trees are planted in formal patterns with a mix of generally exotic but including native canopy trees in front and rear setbacks and along the streetscape.

Figure 13. Narrow-leaved Peppermint (*Eucalyptus radiata*)



Figure 14.

Southern Silky Oak (*Grevillea robusta*)



The Garden Suburban precinct is the largest and most diverse neighbourhood character precinct in the municipality. It applies to many different residential neighbourhoods represented by different sub-precincts.

Overall, the vegetation identified during the landscape assessment generally aligned with the neighbourhood character descriptions, which continually emphasises the importance and dominance of canopy trees, as a whole, to the bushy garden character of the municipality. The dominant species are a mix of natives and exotics, including some indigenous and few weeds.

The largest species that have a dominant occurrence and make the most considerable contribution to landscape character in the Garden Suburban precinct vary considerably. The native Lemon-scented Gum (*Corymbia citriodora*) has an average height of 20 metres and the indigenous Narrow-leaved Peppermint has an average height of 12 metres in some areas.

The exotic Oriental Plane Tree (*Platanus orientalis*) has a dominant occurrence in some areas with an average height of 12 metres and a TPZ of 9.6 metres. The exotic Pin Oak has a dominant occurrence in many parts of this precinct with average heights between seven (7) – nine (9) metres.

The landscape assessment noted where the predominance of a tree species could warrant variations within a neighbourhood character precinct. This detail is provided in Appendix B and should be read in conjunction with Figure 12.

The dominance of a particular species is not considered significant enough to warrant a change to the neighbourhood character precinct, as there are several other criteria taken into consideration when determining the neighbourhood character precinct. This does, however, emphasise that the consistency of species also contributes to the significance of the landscape and neighbourhood character.

There are a number of exotic and even weed species which have a dominant occurrence and make a significant contribution to the landscape character which have an average height well over five (5) metres. Any environmental weed species that triggers a permit under the interim SLO9 would be permitted for removal upon analysis by an arborist on the basis of its weed status (as has been demonstrated by permit applications and VCAT cases to date).

The cost of a permit application (or VicSmart application) and preparation of an arborist report for these weed species seems to be misplaced, as offsets are often not required for trees with little or no ecological value, even though the objectives are of an aesthetic nature.

Figure 15. Weeping Bottlebrush (*Melaleuca viminalis*)



A more geographically refined control and the introduction of more exemptions, may be appropriate to protect and enhance the contribution canopy trees make to neighbourhood and landscape character throughout the municipality.

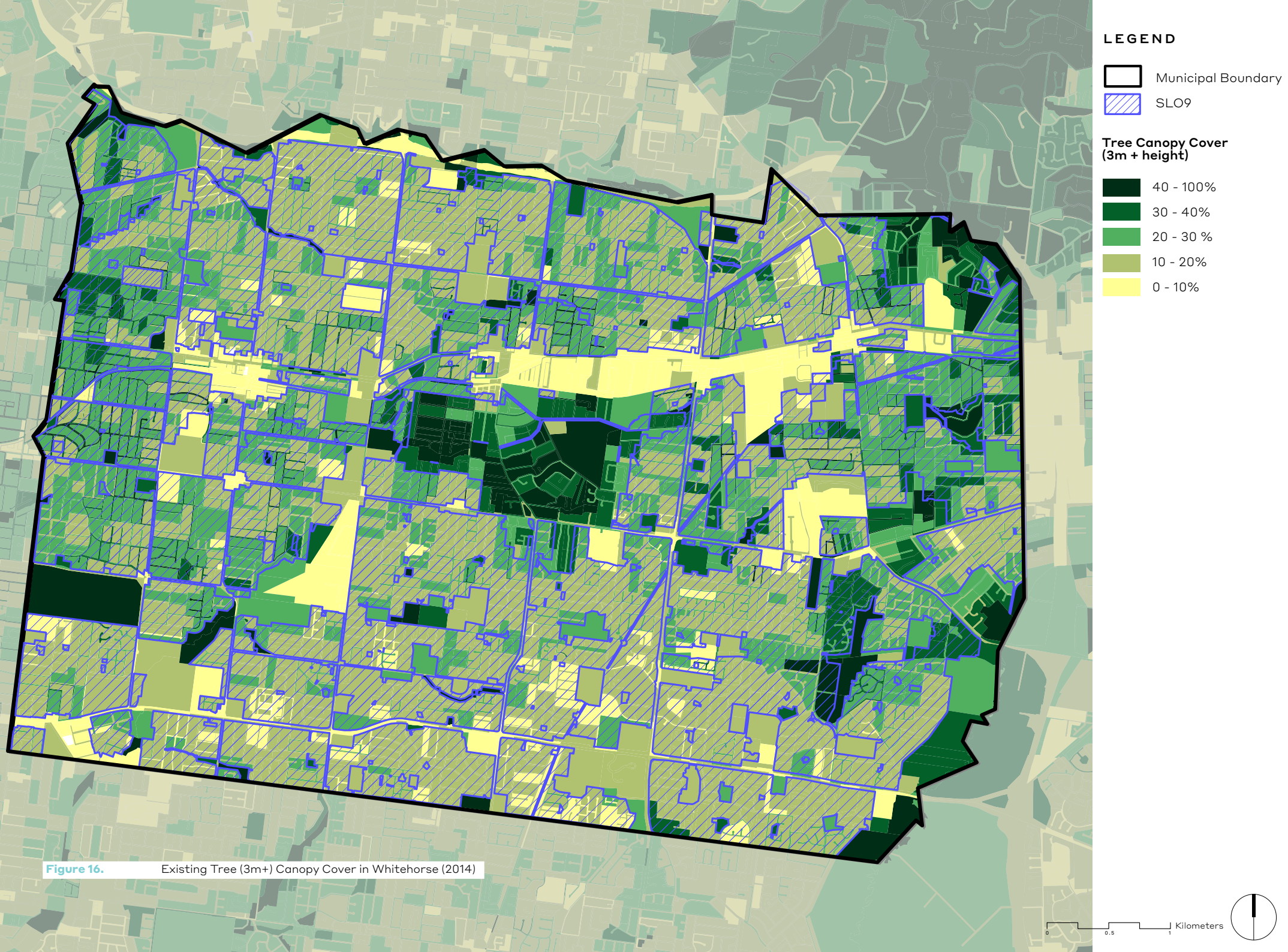
A separate suite of objectives for different character areas would alleviate some of the concerns of a ‘blanket’ control, ensuring that these objectives clearly reflect the unique characteristics of canopy trees in these areas.

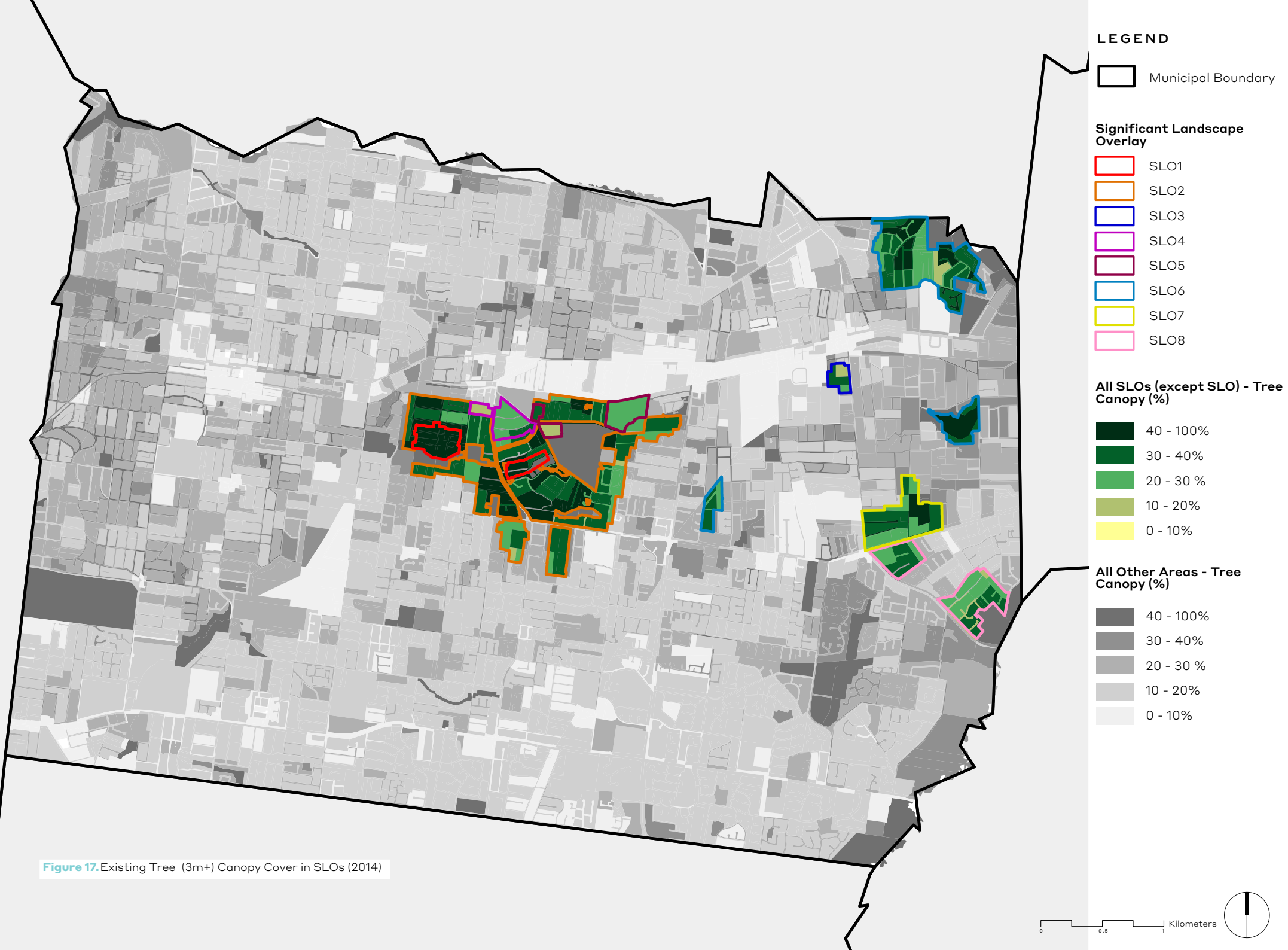
Analysis of Canopy Cover Rates in SLO9

Analysis of the tree canopy data (2014) from the Interim Report: Urban Vegetation Cover Analysis (Eastern Region) prepared by DELWP identifies a total tree canopy coverage (above 3 metres in height) of 20.9% in Whitehorse. This includes all private land in the municipality, as well as public land such as roads and parks. Knox has a slightly lower canopy coverage of 20.3%, while Monash, being closer to the CBD, has 15.2% and adjacent municipalities further away from the CBD and towards the Yarra Ranges begin to have higher canopy coverage, with Maroondah at 24.3%, Manningham at 30% and Yarra Ranges the highest with 35.1%. As noted in the discussion of this analysis in Section

Table 9 – Percentage of Lots by Canopy Cover Rate in SLO9 / Other SLOs

	SLO Area	
	SLO9	SLO1-8
Existing Canopy Cover	40-100%	3.6%
	30-40%	21.9%
	20-30%	39.8%
	10-20%	31.8%
	0-10%	50.7%
		6.5%
		0.0%





2.2, the current minimum threshold height is set at 3m, much lower than the canopy tree minimum height of 5m used in this study (and the Whitehorse Municipal Wide Tree Study 2016), and it is likely that the actual existing canopy coverage above 5m in Whitehorse is substantially less than this figure.

Notwithstanding this, the 3m threshold is still considered useful in analysing the spatial distribution of this canopy cover throughout Whitehorse. Figure 16 shows the spatial distribution of this canopy cover with relation to SLO9. Figure 17 highlights the spatial distribution of canopy cover in the other SLOs in Whitehorse, as compared to that of SLO9, which demonstrates that the areas of higher canopy cover are typically located in the more established SLOs. This is quantified in Table 9, which shows the percentage of lots within SLO9 / other SLOs that correspond with different rates of existing canopy cover. The vast majority of lots (81.8%) in SLO9 contain 10-30% canopy cover, whereas 93.5% of lots in other SLOs contain upwards of 20% cover, and 61.7% of lots contain upwards 30% cover (refer to Table 9).

The spatial distribution of canopy cover also reflects the different zones when the data is interrogated within SLO9 itself. Figure 18 shows the spatial distribution of canopy cover relative

to the residential zones. This mapping shows that areas of higher cover are typically located in NRZ areas. This is quantified in Table 10 which shows the percentage of lots within each zone that correspond with different rates of existing canopy cover.

Table 10 shows the trend across the zone is to greater rates of canopy cover from RGZ to NRZ areas. NRZ areas are predominantly bush suburban or garden suburban areas, while GRZ are mostly garden suburban. Using these canopy cover percentage intervals, the RGZ lots have an average canopy coverage of 17.9%, GRZ lots average 18.5%, and NRZ average 21.8%.

The key observation from Table 10 and Figure 18, however, is not the spatial distribution across the zones, rather the low proportion of lots that contain more than the UFS target of 30% municipal-wide canopy coverage. Only 11.2% of all lots in SLO9 have greater than 30% canopy cover, and this is considering the lower threshold of 3m canopy tree heights.

This highlights that, despite the significant contribution canopy trees make to neighbourhood character, retention alone will not achieve the 30% target of the UFS, and that greater emphasis needs to be placed on residential development achieving canopy cover through the establishment of new canopy trees.

Table 10 – Percentage of Lots by Canopy Cover Rate in Residential Zones

	Zone			
Existing Canopy Cover		RGZ	GRZ	NRZ
	45-100%	1.4%	0.6%	2.2%
	40-45%	2.9%	1.8%	2.4%
	35-40%	0.5%	1.2%	2.9%
	30-35%	3.4%	4.2%	7.4%
	25-30%	11.1%	7.5%	13.5%
	20-25%	15.9%	19.2%	22.6%
	15-20%	23.7%	30.7%	28.8%
	10-15%	23.2%	25.7%	17.0%
	5-10%	10.6%	7.7%	2.8%
0-5%	7.2%	1.4%	0.3%	

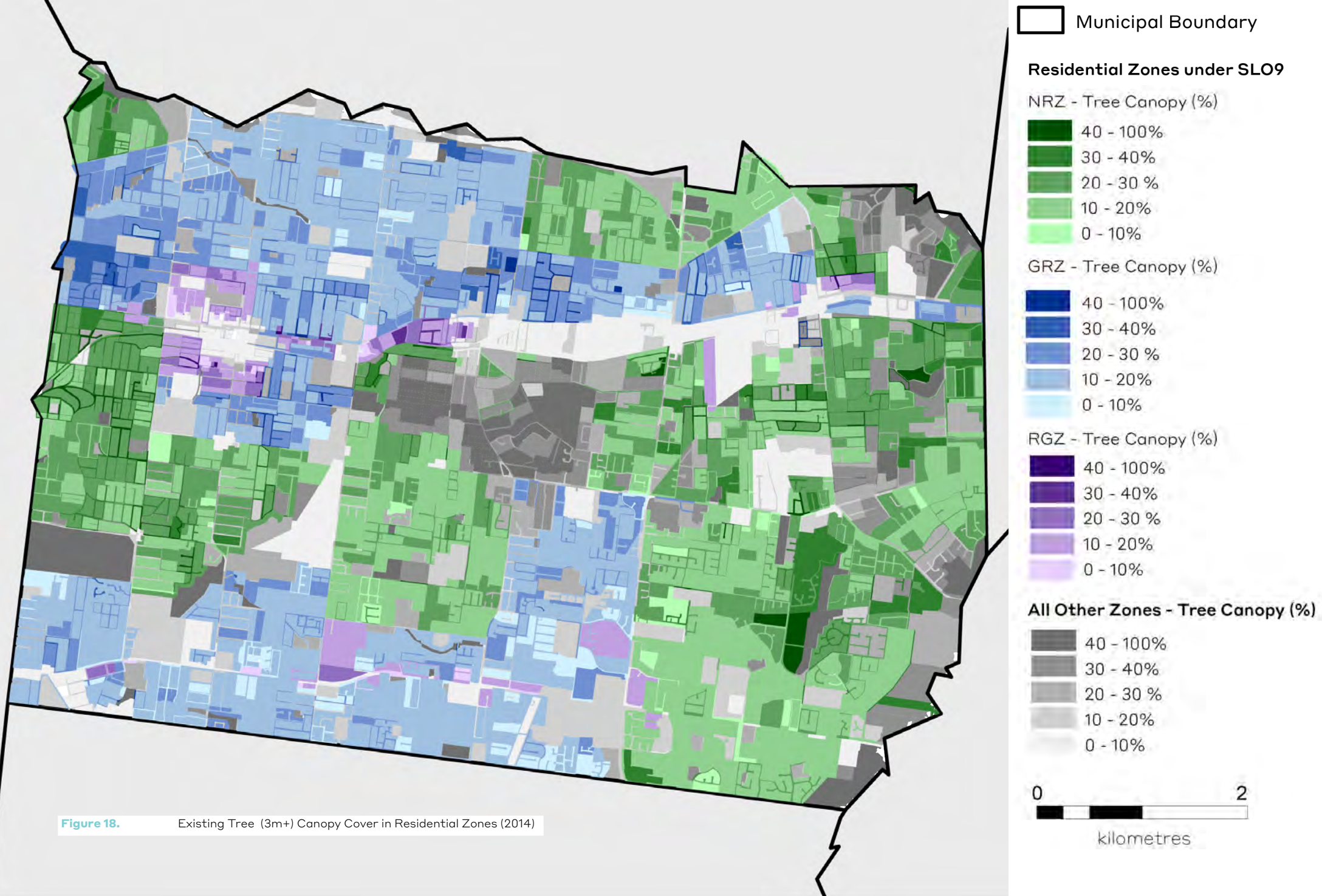


Figure 18. Existing Tree (3m+) Canopy Cover in Residential Zones (2014)

4.6 Implications for Housing Capacity

The policy objective of protecting existing substantial trees has the potential to compete with the objective of growing and diversifying housing stock within the City of Whitehorse. Vegetation protection may impact on housing growth by either preventing the construction of additional dwellings on a lot or, where additional dwellings are supported, reducing the optimal yield that may have been achieved on an unconstrained site. This balancing of competing policy objectives is one of the most challenging issues to be addressed when considering permanent tree protection controls, particularly given the significant proportion of the municipality that is affected by SLO9.

The task of estimating the potential impact of tree controls on dwelling yield is challenging for a number of reasons:

- No data exists to identify the location of existing trees that would trigger the need for a permit for their removal. It is therefore not possible to quantify how many trees or lots would be potentially affected by the controls.
- The existence of substantial trees on a lot does not necessarily imply a development constraint. Trees located in front and rear setback areas may have no impact at all, while trees in the middle of lots may have the most impact.

- A range of attributes need to be considered when assessing a tree removal application, including age, significance, health and proximity to buildings and infrastructure. These attributes need to be assessed on a case-by-case basis and the likelihood of a permit being granted cannot be readily generalised.
- The housing market is subject to consistent change with respect to product preferences, property values, project viability and regulatory context. The true impact of a single regulatory measure on development yield (other than one that prohibits development) is difficult to quantify with certainty.

Due to the above considerations the preparation of a model which seeks to estimate the impact of vegetation protection on dwelling yield cannot be pursued with any degree of accuracy. As an alternative, an assessment was made of the potential impact of the application of SLO9 on the development yield assumptions that underpinned the Whitehorse Housing and Neighbourhood Character Review 2014 to determine the potential magnitude of impact.

The Residential Assessment Methodology Report 2014 was prepared to provide evidentiary support for the housing review. The report provided Council with an estimate of the number of lots/dwellings that could be accommodated on appropriately zoned land. The purpose was not to imply that the maximum capacity could or should be achieved. Rather, it was to provide a means of determining whether the projected number of dwellings expected to be developed in Whitehorse is achievable within the planning control regime recommended by the Housing Strategy.

The report concluded that there were in the order of 82,500 additional dwellings/lots capable of being created in Whitehorse based on the zoning framework proposed by the Housing Review. This was well in excess of the 12,341 additional dwellings then projected to be constructed by 2031 (Victoria in Future 2011). The potential number of lots per change area is shown in the table overpage.

Note that a 20% 'discount' was factored in to the total to exclude lots that are unavailable to the market within the planning period. These lots may include properties held for long-term investment, dwellings that have recently been constructed or renovated, or those kept out of the market for other reasons.

Table 11 – Project No. of additional Lots / Dwellings by Change Area

Area	No. of additional Lots / Dwellings	Percentage
Neighbourhood Residential Zone (Limited Change areas)	20,266	19.6%
General Residential Zone (Natural Change areas)	27,293	26.4%
Residential Growth Zone (Substantial Change areas)	29,586	28.7%
Commercial areas and opportunity sites with structure plans or UDFs	20,862	20.2%
Neighbourhood Activity Centres	5,235	5.1%
TOTAL No. of additional Lots and Dwellings	103,242	100.0%
TOTAL minus 20%	82,594	

Source: Whitehorse Residential Assessment Methodology Report 2014

The following discussion examines each of the change areas and provides commentary as to the potential impact of vegetation controls in each.

Neighbourhood Residential Zone (Limited Change areas)

The most heavily vegetated residential areas in Whitehorse are zoned NRZ and covered by SLO schedules 1-8. The NRZ areas subject to SLO9 also have a higher canopy cover than most other residential zones.

The potential for the SLO9 to impact on development yield is influenced by the very conservative development potential assumptions applied in the capacity assessment. The capacity analysis for the NRZ areas covered by SLO9 assumed an average lot size of 320m², a maximum of 2 dwellings per lot, and that only 5% of lots would be developed for dual occupancies.

Under these conservative assumptions it is unlikely that the introduction of tree protection provisions would have any impact on the estimated dwelling yield. This is because the large average lot sizes and limited development yields are likely to provide scope to protect existing trees. Further, it is highly probable that well in excess of 5% of lots are entirely unencumbered by trees, thereby accommodating the expected number of development sites and compensating for any lots that may be undevelopable due to the presence of significant trees.

More importantly, at the time the assessment was made, the NRZ limited development potential to one additional dwelling per lot. This restriction has subsequently been removed by the State Government. This opens up greater capacity on sites that are unencumbered by existing substantial trees. On this basis it is reasonable to expect that the introduction of tree controls would have no impact on the development capacity assessment figure of approximately 20,000 additional dwellings in the NRZ.

It is noted that the 320m² minimum lot size pursued by Council in the 2014 Housing Strategy was also not approved by the Minister, making the assumptions even more conservative in the current planning environment.

General Residential Zone (Natural Change areas)

The GRZ is the only zone where a policy conflict between dwelling growth and vegetation protection has potential to be a numerically significant issue.

Areas zoned GRZ tend to be less well-vegetated than those zoned NRZ, with averages of 18.5% and 21.8% respectively. Only 15.3% of lots in the GRZ have a canopy coverage rate of 25% or more, compared to 28.4% of lots in the NRZ. This suggests that the development potential of GRZ lots is less likely to be impacted by the need to protect large trees than those in the NRZ.

The development assumptions contained within the residential development assessment methodology were that detached houses could be accommodated on a lot with a minimum area of 320m² and semi detached units on a minimum of 200m². It was also assumed that, over time, only 50% of the total number of lots would likely be developed, with the remainder maintained as detached dwellings. These are conservative development assumptions when compared to the development yields and lot sizes assessed as case studies for this project. Again, the 320m² minimum lot size pursued by Council in the 2014 Housing Strategy was not approved by the Minister, making the assumptions even more conservative in the current planning environment.

Residential Growth Zone (Substantial Change area)

SLO9 exempts from the need for a planning permit the removal of trees 'outside the Minimum Street Setback in the Residential Growth Zone.' The minimum street setback area is generally set aside for landscaping, access and services. Accordingly any applications involving the removal of trees within the street setback area will not impact upon built form or building dimensions, thereby minimising the likelihood of any impact on dwelling yield.

This is further validated by the Housing Development Data prepared by DELWP between 2005-2016 which shows that nearly half (48%) of new dwellings were within 400 metres (the walkable catchment) of an Activity Centre, which is typically in the RGZ.

Commercial areas and opportunity sites with structure plans or UDFs

SLO9 does not apply to non-residential land. The application of SLO9 is therefore assumed to have no impact on the potential dwelling yield within commercial areas.

Opportunity sites and areas were generally included within Substantial Change areas, wherein the impact of SLO9 is negligible, as discussed above.

Neighbourhood Activity Centres

The neighbourhood activity centre analysis examined commercially zoned and/or developed precincts throughout the municipality. The assessment of development potential was undertaken on a precinct-by-precinct basis. Due to the zoning and existing commercial development of these precincts the application of SLO9 is unlikely to have any impact on potential dwelling yield.

Magnitude of impact of SLO9 on residential capacity

Table 11 provides commentary on the magnitude of impact tree retention in the areas affected by SLO9 would have in each of the areas assessed in the 2014 Residential Capacity Assessment.

Analysis of Table 11 highlights that the only zone in which SLO9 may have a discernible impact on dwelling yield is the GRZ, which accounts for just over a quarter (26.4%) of potential new dwelling opportunities. There may also be negligible impact in the NRZ (19.6% of opportunities), although this may be offset by changes to the zone that allow for more than one additional dwelling on the lot. In all other areas, accounting for more than 50% of dwelling opportunities, SLO9 will have no impact on dwelling yield.

Table 12 – Project No. of additional Lots / Dwellings by Change Area

Area	Capacity in 2014 (No. and % of Lots/ Dwellings)	Comments on Impact of SLO9	Conclusion
Neighbourhood Residential Zone (Limited Change areas)	20,266 (19.6%)	<ul style="list-style-type: none"> SLO1-8 apply to most heavily vegetated areas. Conservative development assumptions applied. Zone objectives emphasise character. Changes to NRZ since 2014 have increased development potential. 	SLO9 is likely to have a negligible impact on dwelling yield. The potential impact is well within the projected additional capacity.
General Residential Zone (Natural Change areas)	27,293 (26.4%)	<ul style="list-style-type: none"> GRZ areas are generally less well vegetated than NRZ areas. Conservative development assumptions applied. Zone schedules require additional open space & tree planting. 	SLO9 is likely to have some impact on dwelling yield. The potential impact is well within the projected additional capacity.
Residential Growth Zone (Substantial Change areas)	29,586 (28.7%)	<ul style="list-style-type: none"> SLO9 exempts tree removal outside the front setback area. Zone schedule places emphasis on growth. Tree protection within front setbacks is unlikely to impact dwelling yield. 	SLO9 is unlikely to have any impact on dwelling yield.
Commercial areas and opportunity sites with structure plans or UDFs	20,862 (20.2%)	<ul style="list-style-type: none"> SLO9 does not apply to commercial and non-residential sites 	SLO9 will have no impact on dwelling yield.
Neighbourhood Activity Centres	5,235 (5.1%)	<ul style="list-style-type: none"> SLO9 does not apply to non-residential land. 	SLO9 will have no impact on dwelling yield.

The Whitehorse Housing and Neighbourhood Character Review 2014 concluded that the total residential development capacity within Whitehorse was substantially in excess of the projected growth requirements within the planning horizon of 2031. This was notwithstanding the removal of 20% of all properties from the assessment on the assumption that they will not come onto the market during that time.

It is highly improbable that the provisions of SLO9 would constrain housing growth to such a magnitude that Whitehorse would not have capacity to house forecast population growth.

It is concluded that the potential for SLO9 to impact on dwelling yield is limited to the GRZ and NRZ areas affected by the overlay. Noting the strong emphasis placed on vegetation protection within the State and local planning frameworks, the purposes of both of the zones, and the substantial capacity Whitehorse also has in other zones to accommodate projected growth, it is concluded that the introduction of SLO9 on a permanent basis will not have an unreasonable impact on housing growth objectives in Whitehorse.

4.7 Conclusions

The residential areas of Whitehorse have a strong and desirable neighbourhood character, largely influenced by the presence of canopy trees. However, the Whitehorse Planning Scheme contains parallel policy objectives of housing growth and vegetation protection which need to be balanced.

The most recent estimates continue to forecast significant population growth for Whitehorse, particularly in the Box Hill Activity Centre (and surrounding suburb of Box Hill), Burwood East, Blackburn and Nunawading.

The risk assessment undertaken as part of the project compared the development potential of each residential zone and the canopy coverage recorded by DELWP in 2014, assigning higher risk to areas with high development potential and/or high canopy coverage.

Local policy and vegetation protection controls in the Whitehorse Planning Scheme are generally supported by academic studies and literature. Recent information reinforces the need to protect and support the establishment of new canopy trees to unlock a wide range of benefits.

A detailed review of the dominant tree species in the Bush Suburban and Garden Suburban Character Precincts confirms that these Neighbourhood Character Areas are appropriately defined and that canopy trees do make a substantial contribution to character. Bush Suburban areas generally contain more native species, while Garden Suburban areas are more

diverse and contain a mix of native and exotic trees.

A number of areas are identified as having a high level of discernibly consistent canopy trees, which further emphasises the dominant contribution of canopy trees to neighbourhood character in these areas and throughout the municipality.

Splitting SLO9 into multiple schedules is not recommended as this would serve only to add complexity to the planning provisions. The area to which SLO9 is already applied is subject to all three residential zones and multiple zone schedules. In many respects the SLO9 provisions operate in a manner that could be regarded as supplementary to the zone provisions. The zones therefore provide sufficient guidance about the development and neighbourhood character aspirations for each of these areas without the need for further definition through SLO schedules.

The retention of a single SLO schedule covering multiple localities is consistent with the approach taken with Yarra Ranges Planning Scheme SLO22, which applies to a number of townships in the foothills and rural areas of the municipality. A similar approach is taken in the Maroondah Planning Scheme, particularly with respect to SLO2, which protects canopy trees over a large and diverse area.

The potential impact of SLO9 on residential development capacity was determined using the development capacity assessment undertaken as part of the Whitehorse Housing

and Neighbourhood Character Review 2014. It is expected that there will be a negligible impact to the RGZ (due to exemptions outside the front setback) and NRZ. Some potential impact on housing capacity is expected in the GRZ, however this will be well within the projected additional capacity. The lack of significant impact on housing capacity is largely due to the very conservative development assumptions made during the Whitehorse Housing Strategy 2014 and recent changes to the residential zones and VPPs.

In general, the retention of SLO9 should not have an unreasonable impact on the City's capacity to accommodate projected population and dwelling growth.

While a net loss of canopy cover on private land is anticipated in areas identified for substantial change, there is potential to enhance canopy cover by encouraging tree planting in minimal change areas where there is currently lower canopy cover.

Based on this analysis it is our view that:

- The retention of SLO9 should not have an unreasonable impact on the City's capacity to accommodate projected population and dwelling growth; and
- While a net loss of canopy cover on private land is anticipated in areas identified for substantial change, there is potential to enhance canopy cover by encouraging tree planting in minimal change areas where there is currently lower canopy cover.

RECOMMENDATIONS 5.0

5.0 Recommendations

The following is a summary of the recommendations provided throughout the report:

Strategic Context

Modify the Municipal Strategic Statement (MSS) to:

- Strengthen its emphasis on tree canopy protection and enhancement; and
- Include reference to the Urban Forest Strategy and its 30% tree canopy target.

Work with DELWP and RMIT to further develop the Urban Vegetation Cover Analysis to:

- Provide a mechanism for the ongoing monitoring of tree canopy in Whitehorse;
- Obtain data for trees with a minimum height of 5 metres so that the effectiveness of SLO9 can be better analysed.
- Use the findings and recommendations of this report to resubmit an amendment to introduce Amendment C196 to introduce a permanent SLO9 control, subject to the refinements recommended in this report

Prior to the finalisation of the Interim UFS, it is recommended that the following be considered:

- The scale at which the canopy target is to be achieved is clarified, i.e. is the target to be applied across the board in all zones or based on an averaging?

- The expected contribution of private residential land be clarified in order to provide better guidance for the assessment of planning applications.

Statutory Controls

Amend the MSS (Clause 21.05 'Environment') to:

- Provide support for the application of a permanent SLO9; and
- Exclude land within SLO9 from the minimum lot size policy that applies to other SLO schedules.

Amend the Tree Conservation Policy (Clause 22.04) to:

- Strengthen the references to canopy trees in the Policy Basis section;
- Strengthen the objectives to ensure that new development provides sufficient space for new and replacement trees;
- Clarify the relationship between vegetation controls and ResCode planting requirements by:
 - Prioritising tree retention over planting requirements;
 - Placing emphasis on achieving equivalent canopy through offset planting;

- Allowing zone tree planting requirements to be taken into account when calculating offsets.

- Refine the provisions relating to buildings and works near existing trees to provide for a minimum setback of 3m in SLO9 rather than the 4m that applies to SLOs 1-8;
- Refine the provisions relating to tree regeneration to provide for a minimum area of 35m² in SLO9 rather than the 50m² that applies to SLOs 1-8.

Amend SLO9 to:

- Strengthen the landscape character objective to include reference to replacement trees;
- Introduce new vegetation removal exemptions providing for the removal, destruction or lopping without a permit of:
 - Trees located less than 3 metres from the wall of a dependent person's unit, dwelling or garage attached to a dwelling (aligning the provision with the local policy setback requirement);
 - Trees located less than 3 metres from an in-ground swimming pool
 - Environmental weeds, as defined by the City of Whitehorse, as they have

little to no ecological value and are consistently supported for removal.

- Trees around public utilities including power lines and other services, including those within easements
- Street trees in line with Council's Street Tree Policy.
- Add a note clarifying that the exemption provisions do not authorise the removal, destruction or lopping of trees required by existing planning permits.
- Add a table containing a list of environmental weed species based on Council's existing list (Appendix A) and additionally including:
 - Cape wattle (*Paraserianthes lophantha*)
 - Box Elder (*Acer negundo*)
- Add a provision to allow approved planning permits granted prior to the introduction of the interim SLO9 controls on 8 February 2018 to be exempt from the tree removal trigger.

Amend the planning scheme maps and associated schedules to remove the area-based VPO schedules 2 and 4 from properties (as per Amendment C196) as they would duplicate tree controls for these areas.

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6.0

6.0 Bibliography

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APPENDICES

Appendix A: Current Weed Trees and Shrubs

Table 13 – Weed trees and shrubs in Whitehorse

Source: Whitehorse City Council (<http://www.whitehorse.vic.gov.au/Weed-Trees-and-Shrubs.html>)

Common name	Scientific name	Notes
Boneseed	<i>Chrysanthemoides monilifera</i>	<ul style="list-style-type: none"> Grows to 3m high Flowers: Winter Seed Set: Pods ripen early Summer
Cape Broom, Montpellier Broom	<i>Genista monspessulana</i>	<ul style="list-style-type: none"> Grows to 2.5m Flowers: spring to early summer Seed set: Pods ripen late spring into summer
Cootamundra Wattle	<i>Acacia baileyana</i>	<ul style="list-style-type: none"> Grows to 8m high Flowers mid-winter Seed set: Pods ripen spring and summer
Cotoneaster	<i>Cotoneaster</i> spp.	<ul style="list-style-type: none"> Grows to 5 m high. Flowers: Spring and Summer Seed set: Red berries in Autumn
Desert Ash	<i>Fraxinus angustifolia</i>	<ul style="list-style-type: none"> Grows to 25m high Flowers: Late winter Seed set: Summer
Flax-leaved Broom	<i>Genista linifolia</i>	<ul style="list-style-type: none"> Grows to 3m high Flowers: Spring Seed set: Pods ripen late spring into summer
Gorse, Furze	<i>Ulex europaeus</i>	<ul style="list-style-type: none"> Grows to 2m high Flowers: Winter to summer Seed set: Seed can be on a mature plant at almost anytime.

Common name	Scientific name	Notes
Hawthorn	<i>Crataegus monogyna</i>	<ul style="list-style-type: none"> Grows up to 10 m high Flowers: Spring Seed set: Red berries in Autumn
Mirror Bush	<i>Coprosma angustifolia</i>	<ul style="list-style-type: none"> Grows to 6m high Flowers: Spring to early summer Seed set: Orange berries in Summer and Autumn
Privet	<i>Ligustrum</i> spp.	<ul style="list-style-type: none"> Grows up to 10 m high Flowers: Early spring Seed set: Orange berries in Autumn and Winter
Radiata or Monterey Pine	<i>Pinus radiata</i>	<ul style="list-style-type: none"> Grows up to 4m Flowers: Winter and Spring Seed Set: Cones can release seeds anytime
Sallow Wattle	<i>Acacia longifolia</i>	<ul style="list-style-type: none"> Grows up to 8m high Flowers: Winter Seed set: Pods ripen early summer
Sweet Pittosporum	<i>Pittosporum undulatum</i>	<ul style="list-style-type: none"> Grows up to 14m high Flowers: Early Spring Seed set: Orange berries in Autumn and Winter
Willow	<i>Salix</i> spp.	<ul style="list-style-type: none"> Grows up to 25m Flowers: Late winter Seed set: Seed is rarely fertile but plants grow very easily from small branchlets taking root after being washed downstream from mature trees.

Appendix B: Landscape Assessment

Precinct	Description
BS1	This precinct area is generally dominated by exotic species along streets, predominantly medium sized Chinese Elms and Pink Oaks. Some streets entirely comprised of eucalypt species such as Yellow Gums, however not as common as exotic species. Many gardens have large to very large eucalypts within them, with gives this precinct a bushy characteristic not noted in Garden Suburban precincts. Aligns with NCA benchmark.
BS2	This precinct area is largely dominated by avenue plantings, primarily Pin Oaks, Callery Pears, Argyle Apples and Smooth-barked Apples. Streets not dominated by avenue planting generally contain a mix of natives such as Yellow Gums, Water Gums and Prickly-leaved Paperbarks. Gardens appear to be generally comprised of exotic species with large native and exotic canopy trees present throughout. Parks and reserves are predominantly dominated by large eucalypts. This precinct area generally aligns with the NCA benchmark.
BS3	This precinct area mostly dominated by Victorian natives along streets, predominantly Paperbark species, Yellow Gums and Water Gums. Other Australian native and indigenous species commonly found include the Queensland Brush Box, Smooth-barked Apple, Australian Blackwood and Narrow-leaved Peppermint. Some avenues of exotic species such as Pin Oaks, Callery Pears and Japanese Photinias exist, particularly within the western-most precinct area (i.e. west of Middleborough Road). Gardens are mostly a mixture of native and exotic species, well cultivated with occasional large eucalypts observed on private property. Eucalypts are well established and provide continuous connectivity across the landscape for fauna to move. European canopy trees are also present but not as common. Parks and reserves are mostly dominated by native species, with occasional small patches of exotic species. The vegetation strata is generally consistent across the precinct area and aligns with the NCA benchmark.
BS4	This precinct area primarily dominated by Australian native, Victorian native and indigenous species such as the Smooth-barked Apple, Red Ironbark, Yellow Gum, Water Gum and Weeping Bottlebrush. Many streets are dominated by only a few tree species, usually large eucalypts or Smooth-barked Apples. There are some avenues of exotic species, primarily Pin Oaks, however this is quite uncommon. A number of large eucalypt species occur within front and rear yards. Gardens are well established with a mix of native and exotic canopy trees. Parks and reserves are entirely comprised of healthy medium to large eucalypts and other native species. This precinct area generally aligns with the NCA benchmark.
BS5	This precinct area is mostly dominated by Australian native, Victorian native and indigenous species, with exotic species relatively uncommon as street trees. Some small avenues of Pin Oaks are observed and small streets are dominated by Callery Pears. Exotic species become slightly more common further west. Black Sheoak and Crimson Bottlebrush are more common here than in other precinct areas. Parks and reserves are almost entirely comprised of medium to large native species. Gardens contain a mixture of exotic and native canopy trees, however Smooth-barked Apples and Narrow-leaved Peppermints are particularly common in front yards.
BS6	Precinct area is generally dominated by large exotic trees such as Pin Oaks or Oriental Plane Trees, often accompanied by Queensland Brush Boxes and Prickly-leaved Paperbarks. This species composition is fairly consistent throughout the entire precinct area, except in areas north of Quarry Road where a greater diversity of tree species occur, including Australian Blackwood and Common Lilly Pilly. Most gardens generally lack large canopy trees, with the occasional large native or exotic. Parks such as Halliday Park consist primarily of large exotic species such as Pin Oaks with few natives observed. This precinct area generally aligns with the NCA benchmark.
BS7	Mix of exotic and natives throughout this precinct area, however it is predominantly dominated by Australian species. Streets are primarily comprised of small Water Gums, Willow Bottlebrushes and a mixture of medium sized eucalypts such as Red Boxes and Red Ironbarks. Larger canopy trees present include Pin Oaks, Queensland Brush Boxes, Smooth-barked Apples and Yellow Box which are relatively common throughout entire precinct. Australian species tended to be more common south of Boronia Road. Gardens contain many mixed species of canopy trees including some very large eucalypts and Smooth-barked Apples. Parks show a variety of native and exotic species with some entirely dominated by oaks. This precinct area aligns with the NCA benchmark fairly consistently.
BS8	Despite gardens generally lacking large canopy trees and being mostly dominated by established exotic vegetation, this precinct area still has a very bushy characteristic due to the majority of streets being lined with medium to large eucalypt species including Red Flowering Gums and Yellow Gums. These trees are complemented by their close proximity to Bellbird Dell Reserve. Some smaller streets are dominated by exotic species such as along Barnesdale Street, which contains Oriental Plane Trees. Surrounding parks and reserves are primarily dominated by native species. This precinct area aligns with the NCA benchmark.

BS9	There is a large variety of tree species throughout this precinct area, with some areas dominated by Australian species such as Water Gums and Red Flowering Gums, while other areas, in particular the stretch along Mitcham Road, are dominated by exotic species and avenue plantings of Callery Pears and Japanese Photinias. Gardens contain a mix of species, with many large eucalypts identified throughout this precinct area such as Red Ironbark. Antonio Park is primarily dominated by native species. This precinct area aligns with the NCA benchmark.
GS10 Sub precinct 1, southern area	This sub-precinct contains a mixture of Australian species and avenues of exotic species. The south-eastern corner is generally dominated by Smooth-barked Apples and Queensland Brush Boxes along main streets, with Water Gums and Chinese Elms common along smaller side streets. The north section of the sub-precinct contains predominantly exotic species such as Callery Pears and Chinese Elms with fewer native species. To the west of Station Street, avenues of Callery Pear and Japanese Photinia become prominent. Large Oriental Plane Trees are planted along the whole of Albion Road, with this being the only road in which this species is observed. Some medium to large eucalypt species are also sporadically scattered throughout this sub-precinct. Houses generally have small gardens with large native or exotic species such as eucalypts and oaks occasionally present. Parks and reserves display a mix of species, with Combarton Park comprised primarily of English Oaks and other exotics, while Victoria Road Play Space is primarily dominated by large eucalypts. Chinese Elm is noted to be prevalent throughout the entire sub-precinct. This sub-precinct area generally aligns with NCA benchmark, however only the south-eastern corner contains a high abundance of Australian natives such as Smooth-barked Apple and Queensland Brush Box.
GS10 Sub precinct 2, northern area	This sub-precinct area has a similar composition to GS10 sub precinct 1, however there are far fewer native species. East-west orientated streets are primarily composed of larger dominant canopy trees, with north-south orientated streets usually comprising smaller exotics such as Crepe Myrtles, Black Cherry Plums and Callery Pears. A greater abundance of Ornamental Cherry is observed in the northern section of the sub-precinct. Many streets are primarily avenue plantings composed of only a few species, often oaks. Other streets are primarily dominated by Chinese Elms, Prickly-leaved Paperbarks and Queensland Brush Boxes. Maroonah Highway is largely dominated by Queensland Brush Box along majority of road. Gardens generally have fewer large canopy trees compared to GS10 sub precinct 1. This sub-precinct area contains a much higher abundance of exotic species, however still provides a similar species composition to GS10 sub precinct 1, and generally aligns with the NCA benchmark.
GS1 Sub precinct 1, south west area	This sub-precinct is a small area that was separated out primarily due to the low amount of canopy trees along streets and within private properties. Hastings Street and Scott Grove contain no tall canopy trees and are instead dominated by Crepe Myrtle and Ornamental Cherry respectively. Gilmour Street contains an avenue of large Oriental Plane Trees, however this is the only location they are observed. Other species present along Gilmour Street and Highbury Road included Queensland Brush Boxes and Prickly-leaved Paperbarks. There are scattered native and exotic canopy trees present throughout the private properties, with the gardens primarily containing exotic species. No localised pockets of high quality vegetation are identified. This sub-precinct generally aligns with the NCA benchmark.
GS1 Sub precinct 2, north area	This precinct area is generally dominated by large eucalypts such as Brittle Gums, Australian Blackwoods and Prickly-leaved Paperbarks. East-west orientated streets generally show greater variation with species such as Queensland Brush Boxes, Common Lilly Pillies and Callery Pears being common. Some avenue plantings occur, such as Callery Pears along Iris St and Common Lilly Pillies along Loudon Road. Gardens generally remain dominated by exotic species, however large eucalypt species are present within front and rear yards. Houses in the northern section of the precinct area generally contain less large trees than those observed further south. Parks within this precinct area such as the one located at the end of Wattlebird Court comprised mostly of small to medium sized eucalypts. This sub-precinct area generally aligns with the NCA benchmark.
GS1 Sub precinct 3, south east area	This sub-precinct area is largely industrial, with a noticeably different species composition to sub-precincts GS1 sub precinct 1 and GS1 sub precinct -2. It is predominantly dominated by large Australian species with less diversity than GS1-02 observed. North-south orientated streets are generally dominated by Yellow Boxes and Narrow-leaved Paperbarks, while east-west orientated streets are generally dominated by Smooth-barked Apples and Queensland Brush Boxes. Most gardens contain medium to large sized eucalypts. No parks or other areas of high value vegetation occur, however the large number of native species should be noted. This sub-precinct generally aligns with the NCA benchmark.
GS11	This precinct contains a mix of native and exotic species, however a majority of the precinct is dominated by exotic species. Many streets comprise an avenue of a single species, predominantly large avenues of Pin Oaks, Ornamental Plane Trees and Callery Pears. Station Street is dominated by Queensland Brush Boxes. Some other streets show a variety of Australian species, mainly Narrow-leaved Paperbarks and Queensland Brush Boxes. There is a significant pocket of large Australian species present at the roundabout near Brougham Street, primarily Smooth-barked Apples and other eucalypt species. Gardens generally contain a mix of canopy species. There is some disagreement with the NCA benchmark, as a majority of streets are comprised of exotic avenue plantings, with only some small pockets of native vegetation.

GS12	A majority of the streets within this precinct area, especially around the western side, are dominated by Australian species such as Australian Blackwoods, Water Gums, Smooth-barked Apples and Black Sheoaks. Species such as Callery Pears and Pin Oaks become more common the further east in the precinct area with some avenue plantings observed. Gardens show a mixture of native and exotic canopy species, generally medium to large sized trees. Parks and reserves are predominantly dominated by large natives such as eucalypts that appear to be in good health with potential to support nests or hollows. This precinct area generally aligns with the NCA benchmark.
GS13	There is a large variety of native and exotic canopy trees observed throughout this precinct. Avenues of Pin Oaks are more common in the east side of the precinct area where they make up many north-south orientated streets. Conversely, Smooth-barked Apples and Yellow Gums are more dominant along north-south streets on the west side of the precinct area. Queensland Brush Boxes and Narrow-leaved Paperbarks are commonly distributed throughout the entire precinct area. Parks and reserves also show a lot of variation, with a mix of medium to large native and exotic species. Gardens also display a variety of canopy trees, although are not particularly common. This precinct area aligns with the NCA benchmark.
GS14	There is a mixture of species throughout this small precinct area, with exotics and Australian species generally sharing many streets, in particular Pin Oaks, Queensland Brush Boxes and Desert Ashes. Some avenues of Callery Pears and streets dominated by Paperbark species also occur. Gardens are generally comprised entirely of exotic species and mostly lack large canopy trees. The western side of Springvale Road has a higher abundance of Australian species such as Smooth-barked Apples and Yellow Gums. This precinct generally aligns with the NCA benchmark.
GS15	There is a large amount of variation within this precinct area, with no obvious species theme or continuity among street tree plantings. Harrison Street is dominated by Pin Oaks, with some Queensland Brush Boxes scattered throughout. Doncaster East Road is dominated by Queensland Brush Boxes and has two large Yellow Boxes located within a front yard. McDowall Street primarily comprises Ornamental Cherries. West Street is dominated by Common Lilly Pillies and small Water Gums. Wood Street contains almost entirely Narrow-leaved Paperbarks and Chinese Elms. Mount Pleasant Road is dominated primarily by Desert Ashes and Queensland Brush Boxes. Parks and reserves are mostly comprised of medium sized eucalypts. Gardens typically contain both exotic and native canopy trees, with some very large eucalypts observed. This precinct area aligns with the NCA benchmark.
GS16	This is a very small precinct resulting in little variation throughout. Streets are generally dominated by avenues of wholly Callery Pears, Queensland Brush Boxes or Pin Oaks. Norway Maples and Black Cherry Plums are also common along many streets throughout the precinct area. Bolton Park contains many eucalypts of various sizes. Occasional large eucalypts are also found along streets, however these are quite rare. Gardens generally contain few canopy trees and are instead dominated by small shrubs. This precinct area aligns with the NCA benchmark.
GS2	Fewer eucalypt street trees occur in this precinct area, with a greater number of avenues of large exotic species present, predominantly Pin Oaks and English Oaks. Many streets comprise mostly of single species plantings. Small side streets are generally made up of avenues of Queensland Brush Boxes, Black Cherry Plums, Prickly-leaved Paperbarks and Oriental Plane Trees. English Oaks becomes more dominant north of Canterbury Road rather than Pin Oak in many streets. Natives are generally confined to parks, reserves and private property, where medium to large eucalypts are found. Gardens are well established and contain a mix of exotic and Australian species. A slightly greater amount of variation in street trees is observed north of Canterbury Road. Private properties further north also appear to contain less large canopy trees and parks have more exotic species. This precinct area generally aligns with the NCA benchmark.
GS3	The precinct area is primarily dominated by exotic species such as avenues of English Oaks along main streets. Streets lacking large canopy trees are generally found to be dominated by Australian species such as Queensland Brush Boxes and Prickly-leaved Paperbarks (generally east-west orientated streets). Many smaller streets lack canopy trees completely and are instead dominated by exotics such as Callery Pears, Claret Ashes and Golden Ashes with other species scattered throughout in low densities. Gardens primarily comprise of exotic species with occasional large eucalypts such as White Peppermints and Yellow Boxes. Stanley Street is completely dominated by White Peppermints however, this species is generally uncommon on a wider scale. Many private properties along smaller streets do not contain any canopy trees. No significant pockets of treescapes are observed. This precinct area aligns with the NCA benchmark.
GS4	East-west orientated streets generally contain small exotic species such as Callery Pears and Crepe Myrtles, while north-south orientated streets more commonly comprise Paperbark species, Queensland Brush Boxes and Water Gums. A variety of large eucalypt species are found throughout this precinct area. Few exotic species are found throughout this precinct area, with Australian species generally dominating the landscape. Almost no large exotic canopy trees are observed. There is a slightly higher abundance of exotic species and a lower number of eucalypt species east of Middleborough Road. Gardens are generally lacking large canopy trees completely, while parks are primarily made up of large eucalypts and other natives. The precinct area generally aligns with the NCA benchmark.

GS5	This precinct is predominantly dominated by Australian species, in particular around the west side. Yellow Gums, Water Gums, Sugar Gums and Smooth-barked Apples are common throughout. Some smaller streets lack any native species and generally consist of small exotic species. A majority of canopy trees identified within gardens are exotic species and generally not very large, however some properties do contain large eucalypts in front yards. Parks and reserves are primarily comprised of medium to large native species, within some exotics scattered throughout. A few large exotic canopy trees are identified within the precinct, generally in areas north of Burwood Highway such as the avenue of Pin Oaks along Monash Grove. Callery Pears are also only identified north of Burwood Highway, while the abundance of Yellow Gums appeared to decrease. A number of trees throughout the precinct area, such as Silver Banksia, are noted to be experiencing die back, which may be an indication of poor health. This precinct area generally aligns with the NCA benchmark.
GS6	There are a large variety of Australian and exotic species throughout the entire precinct area. Larger streets such as Springvale Road and Jolimont Road are generally dominated by large eucalypt species such as Sugar Gums, including around Forest Hill Shopping Centre. Other large Australian species are scattered throughout, mainly Smooth-barked Apples, including in some front yards. Streets are generally lacking larger eucalypts and are instead typically dominated by other Australian natives such as Narrow-leaved Paperbarks, Crimson Bottlebrushes and Queensland Brush Boxes. Larger exotic canopy trees are less common but still present, such as along Hampshire Road. Some areas show a high abundance of large Australian species such as along Parkland Place, which is dominated by Smooth-barked Apples and Red Ironbarks. Smaller streets are often dominated by White Cedars or Water Gums when larger canopy trees are not present. Gardens generally contain medium to large exotic canopy trees, with some large eucalypts scattered throughout. Parks and reserves show a mix of native and exotic species of various sizes. This precinct area aligns with the NCA benchmark.
GS7	This precinct area is almost entirely dominated by Australian species, primarily large eucalypts such as Narrow-leaved Peppermints, Lemon-scented Gums and Red Ironbarks. Prickly-leaved Paperbarks and Weeping Bottlebrushes are also common throughout entire precinct. Gardens are fairly established in most areas with a mix of large native and exotic canopy trees. Parks and reserves are entirely comprised of native species, which are generally medium to large eucalypts. Some avenue planting occur, such as along Weeden Drive and Elonara Road, however this is uncommon. This precinct area generally aligns with the NCA benchmark.
GS8 Sub precinct 1, western area	This sub-precinct area is defined as all areas of GS8 located west of Elgar Road. There is a large variety of species within this sub-precinct. Some larger streets contain avenues of English Oaks, which are typically orientated east-west. Smaller east-west orientated streets are dominated by Callery Pears and Pin Oaks. The north-eastern section of the sub-precinct area is dominated by Queensland Brush Boxes along east-west orientated streets, which are often accompanied by Japanese Photinias and Prickly-leaved Paperbarks. North-south orientated streets are generally dominated by avenues of Callery Pears and Chinese Elms. Large Australian species such as Smooth-barked Apples, Red Ironbarks and Southern Mahoganys are also common in many streets throughout this sub-precinct area. English Oaks are more common throughout the southern half of the sub-precinct such as along Victoria Crescent. Gardens contain a lot of variety, with a mixture of native and exotic species canopy species observed. Parks also show a lot of variety, with some containing mixtures of exotic and native species, while others such as Gawler Chain Park are dominated almost entirely by native species. This sub-precinct area generally aligns with the NCA benchmark.
GS8 Sub precinct 2, eastern area	This sub-precinct area is defined as all areas of GS8 located east of Elgar Road. There is a very obvious change from GS8-01 to GS8-02, with a much greater abundance of native species and less avenues of exotic species in this sub-precinct. A majority of streets are dominated by medium to large sized eucalypts, which are generally Sugar Gums and Brittle Gums. Callery Pears are only found along Wimmera Street and Black Locust is only found along Edwin Street. No streets are dominated by large exotic canopy trees. Gardens generally contain exotic species and lack larger canopy trees. This sub-precinct area generally aligns with the NCA benchmark.
GS9	There is a large variety of eucalypt species present throughout this precinct area with a mix of other exotics and Australian species. North-south orientated streets are often dominated by White Peppermints and Smooth-barked Apples, while the dominant species in east-west orientated streets are often Pin Oaks and Paperbark species. Queensland Brush Boxes are common throughout the entire precinct. Some areas contain large eucalypt species such as the Blue Gums on Peter Avenue, however the majority of eucalypts are quite small and evidently recently planted. The majority of gardens lack larger canopy species with occasional eucalypts. Parks are primarily comprised of medium to large native species. This sub-precinct area generally aligns with the NCA benchmark.

Appendix C: Copy of Assessment Sheet

NCA #:

Dominant trees

Species	Average DBH (cm)	Average Height (m)	Photo #

Other trees

Species	Average DBH (cm)	Average Height (cm)	Photo #

Comments

Photo points

Photo #	Street	Direction	Comment

Comments

Appendix D: VCAT Summary

Relationship with Neighbourhood Character

The objectives and decision guidelines of SLO9 complement and interact with neighbourhood character objectives, as was noted in several VCAT cases.

In *Simpson v Whitehorse CC* [2018] VCAT 1182, the applicant wished to remove a large, deciduous exotic canopy tree (*Fraxinus excelsior*; Golden Ash) from the backyard of a proposed two-storey dwelling in Nunawading, with a strong preference for this area of Private Open Space not to be dominated by a tree. The site is in the NRZ4 of which the preferred neighbourhood character statement highlighted the important contribution mature trees make to neighbourhood character in this location. This was confirmed at a local level during the site visit. The arborist's assessment determined that this tree had retention value and the Tribunal affirmed Council's decision not to grant a permit, noting the applicant's preference for a grassy backyard was not sufficient justification to remove the tree. In this instance, the SLO9 reinforced and strengthened the neighbourhood character objectives to protect a tree that made a significant contribution to neighbourhood character.

In *Planning Vision P/L v Whitehorse CC* [2018]

VCAT 1101 in Mont Albert North, tree canopy cover was an important contribution to the preferred character of the GRZ4, which was again confirmed at a local level during the site visit and VCAT affirmed Council's decision not to grant a permit. The Tribunal noted that the removal of individual trees will erode the broader contribution of trees to the local neighbourhood character.

In *Brown v Whitehorse* [2018] VCAT 1133, concerning a site in Mitcham, the requirements for planting trees in both the NRZ3 and SLO9 are considered. Thirteen (13) trees were proposed to be removed, and five (5) new trees were shown on the proposal plans. This was in excess of the requirement for tree planting in the NRZ3, which dictated that at least four (4) canopy trees should be provided as part of the proposal for two (2) double-storey dwellings. Council issued a Notice of Decision which was appealed by an objector. The Tribunal varied Council's decision and no permit was granted. This was for a range of reasons, but among them the Tribunal determined that the proposed planting of five (5) canopy trees was not sufficient, even though it met the requirements of NRZ3, as it did not adequately consider an offset for the thirteen (13) trees being removed under SLO9, which alluded to a

like-for-like replacement. It was noted that the requirements of SLO9 are in addition to those in the NRZ3.

The decision guidelines of SLO9 state (in part):

- If retention cannot be achieved, or a tree is considered appropriate for removal, consider whether the site provides adequate space for offset planting of indigenous or native trees that can grow to a mature height similar to the mature height of the tree to be removed. If it is not appropriate to select an indigenous or native tree species, the selected species should be drought tolerant.
- Whether the planting location of the replacement vegetation will enable the future growth of the canopy and root system of the tree to maturity.
- Whether the replacement tree species and planting locations conflict with existing or proposed overhead wires, buildings, easements and existing trees

The decision guidelines are not explicit but allude to a like-for-like approach to offset planting, which would have required the proposal include thirteen (13) native trees in addition to the four (4) trees required by the NRZ3. This raises the question of reasonableness as to whether a total of seventeen (17) mature canopy trees

can comfortably fit on a site with an area of approximately 990m², when it is noted below in Clause 22.04 (Tree Conservation) that this would require an area of 850m² (85% of the site area):

The site for a new tree should be:

- *Separated by a minimum distance of 3 metres from a building*
- *In the areas included in a Significant Landscape Overlay, situated in a minimum area of 50 m² of open ground with a minimum dimension of 5 metres that is free of buildings and impervious surfaces and of other tree canopies, to minimise competition and facilitate normal growth*

Permit Requirements

The permit requirements of SLO9 are as follows:

Buildings and works

A permit is required to construct a front fence that is within 4 metres of any vegetation that requires a permit to remove, destroy or lop under the provisions of this schedule. This does not apply to the like-for-like replacement of a front fence to the satisfaction of the responsible authority.

A permit is not required to construct a building or carry out works provided the building or works are set back at least 4 metres from the base of any tree protected under the provisions of this schedule.

Vegetation removal

A permit is required to remove, destroy or lop a tree. This does not apply to:

- *A tree less than 5m in height and having a single trunk circumference of 1.0 metre or less at a height of one metre above ground level; or*
- *The pruning of a tree for regeneration or ornamental shaping; or*

- *A tree which is dead or dying or has become dangerous to the satisfaction of the responsible authority; or*
- *A tree outside the Minimum Street Setback in the Residential Growth Zone.*

Note: Pruning of a tree is defined as removing branches (or occasionally roots) from a tree or plant using approved practices, to achieve a specified objective such as for regeneration or ornamental shaping. Lopping is defined as the practice of cutting branches or trunks between branch unions or internodes.

It is noted that there has been some ambiguity as to how the permit requirements are being interpreted within Council. The exemption is drafted such that both the height and circumference criteria must be met in order for a tree to be exempt. However, it is not clear if a permit is required for a tree that meets one of these criteria and not the other.

This was considered as a question of law in *Ausgood Development Pty Ltd v Whitehorse CC* [2018] 690, concerning a site at Francesca Street and Relowe Crescent in Mont Albert North, and the Tribunal interpreted that a tree having either a height of 5 metres or more or a circumference of more than 1.0m requires a permit under SLO9 of the Whitehorse Planning Scheme.

The rationale behind this trigger ensures that tall, thin trees and shorter, wide trees require a permit for removal, destruction or lopping. At an ecological level this likely relates to primary (height) and secondary (girth) growth in plants. Trees will experience primary growth (height and root systems) before entering secondary growth and gradually increasing their girth. In terms of a tree's contribution to landscape and visual character, height and girth should be considered as mutually exclusive factors. Tall, thin trees are important as they will increase in girth during secondary growth and shorter trees with a greater circumference are important as they are already mature.

If the trigger were to be interpreted as requiring both height and girth, the number of trees captured would likely be significantly lower and unintentionally exclude species or specimens that make, or will make in the future, a significant contribution to character and canopy but do not do so currently, or are not capable of reaching both the height and girth specified.

In this instance the interpretation is considered appropriate to capture both tall and/or mature trees.

Retention Value of Trees

In *Lam v Whitehorse CC* [2018] VCAT 1142 the proposal included the removal of three (3) trees at a Forest Hill site under SLO9. Council issued a Notice of Decision which was contested by an objector. An arborist report determined the trees were declared weeds in Victoria and therefore their removal was undisputed and while VCAT varied Council's decision and issued a permit with amended conditions, this was not in relation to the removal of trees. There was little to no discussion of the contribution the existing canopy trees made from an aesthetic or landscape perspective, and the Tribunal did not determine that any offset planting was required in addition to the tree planting requirements of the GRZ1.

As noted previously, SLO9 does not create an exemption for the removal of weed species. Furthermore, the removal of a tree classified as a weed species does not appear to invoke a requirement for offset planting in these cases.

This issue was considered more generally in *Gaudy Pty Ltd v Whitehorse CC* [2018] VCAT 788 where only one of the trees proposed to be removed at a Vermont South site was found to have retention value according to the arboricultural assessment. A canopy

tree without ecologically or arboriculturally determined retention value may still make a visual contribution to the landscape character, which the SLO9 is seeking to preserve and enhance. In this case, the Tribunal focussed on retaining the one (1) tree with arboricultural retention value, rather than requiring any offset planting for the many others that were removed. Therefore it is of note that the offsets being required are a reflection of ecological value, and give little to no weight to the aesthetic contribution to landscape character.

In *Planning Vision P/L v Whitehorse CC* [2018] VCAT 1101, the Tribunal again refers to the significant contribution individual trees make to the surrounding neighbourhood and landscape character, and how their removal can erode this significance. The local area was again referred to as having existing canopy trees that make a significant contribution to character. In this case, SLO9 was effective in considering the protection of 'the most significant tree on the site' and this was key in the Tribunal's affirmation of Council's decision not to grant a permit.

It is likely that the retention of the tree would not have been supported in the absence of the SLO given the cumulative impact of historic tree removal.

Setbacks

In *Z & B Investments Pty Ltd v Whitehorse CC* [2018] VCAT 464, a proposal for four (4) three-storey dwellings in Burwood was considered by the Tribunal. The plans had been prepared before the introduction of SLO9, and Council had determined that in order to meet the objectives of the GRZ1 and SLO9, deletion of the fourth dwelling was required. The proposal included a generous front setback of 7.5 metres which included the retention of an attractive canopy tree, which meets the objectives of the SLO9. Ultimately, the Tribunal decided to remove the proposed pedestrian footpath from a side boundary to allow for more landscaping to this interface. This demonstrates that the introduction of the SLO9 achieves good outcomes for street setbacks in the GRZ but may struggle to assist in providing good interfaces to side and rear setbacks.

In *Kneale Liu Pty Ltd v Whitehorse CC* [2018] VCAT 806, the Tribunal refused to issue a permit based largely on issues other than the removal of vegetation at a site in Box Hill. This case, however, highlighted the following permit requirement for buildings and works:

A permit is not required to construct a building

or carry out works provided the building or works are set back at least 4 metres from the base of any tree protected under the provisions of this schedule.

The proposal involved the removal of six (6) trees on the property under SLO9, and the 4-metre setback was considered for trees on neighbouring properties. While it was not explicitly considered, it raises the question of where retention of trees within a lot is appropriate. In the RGZ the front setback is identified as the preferred location for tree retention, but in other zones is left to often subjective interpretation. The Tribunal has acknowledged that trees in the centre of the property are more difficult to retain than those along property boundaries. The objectives of SLO9 may be strengthened by being more explicit about expectations and providing incentives to increase setbacks for the retention of existing canopy trees.

Landscaping

In *Luo v Whitehorse CC* [2018] VCAT 979, the Tribunal considered Clause 22.04 (Tree Conservation Policy) and SLO9 and determined a proposal to remove thirteen (13) trees, including one (1) tree with medium retention value, for the development of three (3) double-storey dwellings in Blackburn was appropriate.

There was little discussion about “*whether the site provides adequate space for offset planting of indigenous or native trees that can grow to a mature height similar to the mature height of the tree to be removed*” (SLO9 decision guidelines). There was also no clarity as to whether all 13 trees should be offset, or just the one tree that was found to have medium retention value.

This raises an issue with the primary objective of SLO9: “[t]o encourage the retention of established and mature trees and to provide for the planting of new canopy trees” as the outcome is a net loss in canopy tree vegetation from a visual or landscape character perspective. It also means that the SLO is only protecting vegetation with ecological / arboricultural retention value. Furthermore,

the provision of new canopy trees in proposed landscaping is often less than the number of trees removed.

In *He v Whitehorse CC* [2018] VCAT 966 it is highlighted that SLO9 strengthens the ResCode requirements for private open space (and as varied by Schedules to residential zones). The proposal was for four (4) two-storey dwellings and removal of vegetation under SLO9 and provided eight (8) canopy trees at a site in Burwood. As per the ResCode requirements, four (4) of these canopy trees were required to be provided in the private open space available to each dwelling. The Tribunal refused to grant a permit for a number of reasons, including that the area of private open space did not meet the relevant Standards and could not accommodate a canopy tree. These requirements may result in areas of private open space which are dominated by a single canopy tree, of which the responsibility for monitoring and maintenance falls on the property owner or lessee. It also highlights a tension between the offset provisions of the SLO and the tree planting requirements of the zone schedules.

In *Brown v Whitehorse CC* [2018] VCAT 1133, concerning a site in Mitcham, the Tribunal made several important distinctions, including:

- The NRZ3 and SLO9, when read together, are not simply seeking low site coverage and high permeability, but development that is subservient to landscaping (and canopy trees in particular); and
- While it may be permissible under SLO9 to remove (in this instance) thirteen (13) existing trees due to their limited environmental and/or arboricultural significance, they still make a visual contribution to the landscape character of the area.

The details of this case have already been discussed in detail in an earlier section, but it is important to note SLO9 does not differentiate as to whether or not trees make a contribution to landscape character, other than the permit requirement which implies it is any tree over 5 metres and/or with a trunk circumference of 1 metre.

Appendix E: Draft Amendment

[xx/xx/2019](#)
[CXXX](#)

SCHEDULE 9 TO CLAUSE 42.03 SIGNIFICANT LANDSCAPE OVERLAY

Shown on the planning scheme map as **SLO9**.

NEIGHBOURHOOD CHARACTER AREAS

1.0 Statement of nature and key elements of landscape

[xx/xx/2019](#)
[CXXX](#)

The leafy garden and bushy character of Melbourne's eastern suburbs can be viewed from many high points throughout Melbourne and is a significant component of the subregion. The treed character of areas such as Whitehorse provides an important 'green' link between Melbourne and the Yarra Valley.

Trees are significant to the landscape character of Whitehorse and the tree cover simultaneously delivers multiple benefits to the community, including defining neighbourhood character, providing visual amenity, reducing the urban heat island effect in more urbanised areas, improving air quality and energy efficiency, providing habitat for fauna, [and](#) increasing the wellbeing of people and liveability of neighbourhoods.

The **Garden Suburban Neighbourhood Character Area** generally has formalised streetscapes comprising grassed nature strips, concrete footpaths, kerbs and channels, and buildings are generally visible along streets behind low front fences and open garden settings.

Gardens are typically established with canopy trees, lawn areas, garden beds and shrubs and there are typically well defined property boundaries and consistent building siting.

The majority of the municipality is included in the Garden Suburban Neighbourhood Character Area.

The **Bush Suburban Neighbourhood Character Area** generally has a mix of formal and informal streetscapes with wide nature strips and streets are dominated by vegetation with buildings partially hidden behind tall trees and established planting.

Gardens are less formal, consisting of many canopy trees and property boundary definition can be non-existent or fenced. Buildings appear detached along the street and generally comprise pitched rooftops, with simple forms and articulated facades.

The Bush Suburban Neighbourhood Area includes parts of Blackburn, Box Hill South, Vermont South, Mitcham, Nunawading and Mont Albert North as shown in the Neighbourhood Character Precincts Map contained in the *Neighbourhood Character Study 2014*.

2.0 Landscape character objective to be achieved

[xx/xx/2019](#)
[CXXX](#)

To encourage the retention of established and mature trees and to provide for the planting of new [and replacement](#) canopy trees.

3.0 Permit requirement

[xx/xx/2019](#)
[CXXX](#)

Buildings and works

A permit is required to construct a front fence that is within 4 metres of any vegetation that requires a permit to remove, destroy or lop under the provisions of this schedule. This does not apply to the like-for-like replacement of a front fence to the satisfaction of the responsible authority.

A permit is not required to construct a building or carry out works provided the building or works are set back at least 4 metres from the base of any tree protected under the provisions of this schedule.

Vegetation removal

A permit is required to remove, destroy or lop a tree.

This does not apply to:

- A tree less than 5m in height and having a single trunk circumference of 1.0 metre or less at a height of one metre above ground level; or
- [A tree that has a base located less than three metres from the wall of an existing Dwelling, an existing garage attached to a Dwelling or an existing Dependent persons unit \(excluding all other outbuildings normal to a dwelling\); or](#)
- [A tree that has a base located less than three metres from an inground swimming pool; or](#)
- [A tree species that is listed as an Environmental Weed in Table A to this Schedule; or](#)
- The pruning of a tree for regeneration or ornamental shaping; or
- A tree which is dead or dying or has become dangerous to the satisfaction of the responsible authority; or
- A tree outside the Minimum Street Setback in the Residential Growth Zone or
- [A tree on public land or in a road reserve removed by or on behalf of Whitehorse City Council; or](#)
- [A tree that is to be removed, destroyed or lopped to the minimum extent necessary:](#)
 - [to maintain the safe and efficient function a Utility installation;](#)
 - [by or on behalf of a utility service provider to maintain or construct a Utility installation in accordance with the written agreement of the Secretary to the Department of Environment, Land, Water and Planning \(as constituted under Part 2 of the Conservation, Forests and Lands Act 1987.](#)
- [A tree required to be removed, destroyed or lopped in order to construct or carry out buildings and works approved by a Building Permit issued prior to 8 February 2018.](#)

Note: [The above exemptions do not authorise the removal, destruction or lopping of trees required as a condition of permit or shown on an endorsed plan.](#)

Pruning of a tree is defined as removing branches (or occasionally roots) from a tree or plant using approved practices, to achieve a specified objective such as for regeneration or ornamental shaping.

Lopping is defined as the practice of cutting branches or stems between branch unions or internodes.

4.0 Decision guidelines

08/02/2018
C191

The following decision guidelines apply to an application for a permit under Clause 42.03, in addition to those specified in Clause 42.03 and elsewhere in the scheme which must be considered, as appropriate, by the responsible authority:

- The contribution of the tree to neighbourhood character and the landscape.
- The need to retain trees that are significant due to their species age, health and/or growth characteristics.
- Where the trees are located, their relationship to existing vegetation and their role in providing habitat and corridors for fauna and their contribution to local ecological systems.
- Where the location of new and existing footings and impervious areas are in relation to the root zone of established trees.
- The compatibility of any buildings and works with existing vegetation proposed to be retained.
- The effect of any proposed lopping on the significance, health or appearance of the tree.
- Whether there is a valid reason for removing the tree and whether alternative options to removal have been fully explored.

- If retention cannot be achieved, or a tree is considered appropriate for removal, consider whether the site provides adequate space for offset planting of indigenous or native trees that can grow to a mature height similar to the mature height of the tree to be removed. If it is not appropriate to select an indigenous or native tree species, the selected species should be drought tolerant.
- Whether the planting location of the replacement ~~tree~~ ~~vegetation~~ will enable the future growth of the canopy and root system of the tree to maturity.
- Whether the replacement tree species and planting locations conflict with existing or proposed overhead wires, buildings, easements and existing trees.

5.0 Expiry

08/02/2018
C191

~~The requirements of this overlay cease to have effect after 31 December 2018.~~

5.0

Reference documents

xx/xx/2019
CXXX

Municipal Wide Tree Study Options and Recommendations Report, June 2016
Whitehorse Neighbourhood Character Study, April 2014

TABLE A: Environmental Weeds

Box Elder (*Acer negundo*)
Cape Wattle (*Paraserianthes lophantha*)
Cootamundra Wattle (*Acacia baileyana*)
Cotoneaster (*Cotoneaster spp.*)
Desert Ash (*Faxinus angustifolia*)
Hawthorn (*Crataegus monovna*)
Mirror Bush (*Coprosma angustifolia*)
Privet (*Ligustrum spp.*)
Radiata or Monterey Pine (*Pinus radiata*)
Sallow Wattle (*Acacia longifolia*)
Sweet Pittosporum (*Pittosporum undulatum*)
Willow (*Salix spp.*)

Appendix F: Mechanisms for Enhancing Canopy Coverage

Existing Mechanisms for Canopy Enhancement

Introduction

As noted in Section 4 of this report, existing canopy trees are important and integral to the neighbourhood and landscape character across the Whitehorse residential areas, and also provide wider benefits such as those outlined in the Urban Forest Strategy (UFS). However, the canopy coverage mapping in preceding sections has also highlighted that many areas, including Schedule 9 to the Significant Landscape Overlay (SLO9), are substantially below the UFS target of 30%. Considering this importance, it is necessary to focus on new development enhancing canopy cover through establishment of new canopy trees in order to make up this existing shortfall.

This section considers the wider context of canopy tree provisions within the planning scheme, specifically those that provide for the establishment of new canopy trees. As focusing on tree retention alone will not achieve the target in residential areas, it is important to ensure these mechanisms will deliver enhanced canopy rates in an equitable way, and then as canopy cover rates increase, tree retention policies and mechanisms will ensure the long-term protection of this maturing canopy.

The current mechanism for achieving new canopy tree planting in residential areas is contained within the schedules to the residential zones, referred to as the Scheduled Tree Planting Requirement (STPR) throughout this report. Within the General Residential Zone (GRZ) and Neighbourhood Residential Zone (NRZ), there is the same STPR for two (2) trees to be provided per dwelling capable of reaching a mature canopy height of at least 8m / 12m depending on the schedule (other than NRZ7, GRZ5 & GRZ6 which do not contain local content).

Schedule 1 to the Residential Growth Zone (RGZ1) and RGZ2 both have a STPR of one (1) indigenous or native canopy tree (per site, not per dwelling) capable of reaching a mature height of at least 8m.

The STPR in most schedules to the NRZ and GRZ for two trees per dwelling is the outcome of the *Neighbourhood Character Study*, 2014. This study surveyed the residential areas of Whitehorse, which were predominantly typified by single dwelling development typologies, and identified the presence of trees within established gardens as a significant element of this character, in particular when located in specific areas on the lot such as front setbacks. The translation of this character feature into a required number of trees per dwelling aims to reinforce the character of detached houses within established gardens.

Key Concept:

Tree Root Growth

Trees require space not only for their canopies, but also their roots. Tree roots generally radiate outwards from the trunk parallel to the soil surface, and not downwards as historically depicted.

Under natural growing conditions, 60-90% of a tree's entire root volume (both absorbing and structural roots) is found within the top 20 centimetres of mineral soil (Randrup et al. 2001), which allows the tree to quickly and easily absorb water, nutrients and air (i.e. trees need oxygen for a healthy root system) from the surrounding medium.

Structural roots may go down as far as 60 centimetres, however these still grow in a generally horizontal direction to provide stability (Harris, Clark and Matheny 2003).

In more difficult conditions, such as in eroded, dry or rocky conditions, trees will use a tap root to travel down several metres to access water reservoirs (e.g. the water table).

Urban trees may not have the freedom to grow under natural conditions and will therefore grow in an opportunistic manner to access water, nutrients and air. Heterogeneous soil conditions, hard-paved surfaces, roads and buildings all provide barriers that may stop roots from radiating outwards and instead channel roots over, under or around these structures (Randrup et al. 2001).

Analysis of Canopy Enhancement Controls

Introduction

The following provides an analysis of the current tree management controls, and specifically the STPR for two trees per dwelling.

The analysis has identified a number of issues in directly linking (or 'coupling') tree requirements with dwelling density, especially in light of canopy coverage targets.

Assumptions and Data Sources

The testing of the tree management controls is informed by the following assumptions and sources of data:

- Underlying lot and zone data is informed by data used for the *2014 Whitehorse Housing Capacity Analysis*;
- Minimum lot sizes based on 2014 Housing Capacity Analysis assumed lot size per dwelling, as no minimum is set in the zones. These lot sizes are:
 - Detached dwelling: 320m²;
 - Semi-detached dwelling: 200m²;
- Tree canopy area based on ratio of 0.6:1 planting area to canopy (see explanation on page 92 - 93).

Key Concept:

Tree Protection Zone (TPZ)

The TPZ is an area around the tree's trunk designed to protect all structural roots and sufficient absorbing roots for the tree to remain viable, expressed as the radius in metres. It is calculated by multiplying the tree's DBH by 12 (Figure 19), with the minimum TPZ for any tree being two metres and the maximum being 15 metres (Standards Australia 2009). Physical barriers, such as cyclone fencing and hoarding, are typically erected at the edge of the TPZ before site works commence to protect the tree during construction.

Encroachment into the TPZ by site works may be necessary under certain circumstances, with a maximum encroachment of 10% into the TPZ being regarded as minor encroachment under AS4970-2009 (Standards Australia 2009) (Figure 19). Anything greater than 10% is considered a major encroachment, and from an arboricultural perspective, may be permissible if it can be demonstrated that such encroachment will not fundamentally impact the tree (i.e. not cut through important structural roots or removing a large number of absorbing roots) (Standards Australia 2009). The area of encroachment must be compensated by increasing the width of the TPZ in other directions (Figure 19). From a Habitat Hectares perspective, a native tree is considered lost if works impact on more than 10% of the TPZ, which therefore requires native vegetation offsets.

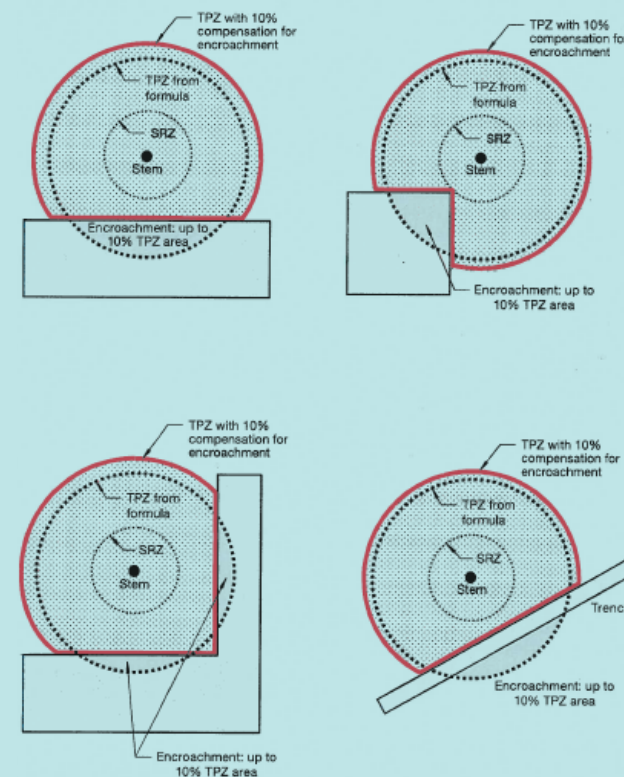


Figure 19. Examples of minor encroachment into TPZ, extracted from AS4970-2009 (Standards Australia, 2009)

Key Concepts

Structural Root Zone (SRZ)

The SRZ is closer to the tree trunk than the TPZ and is designed to protect the inner-most structural roots that maintain mechanical support and structural stability (Figure 19). The minimum SRZ is 1.5 metres (Standards Australia 2009). SRZ is measured and described as a radius, measured from the centre of the trunk. When allowing encroachment into the TPZ of up to 10%, this encroachment cannot enter the SRZ. Furthermore, any encroachment into a tree's SRZ (even if the TPZ encroachment is less than 10%) renders the tree lost (according to Habitat Hectares - DELWP 2017).

Exploratory tree root investigation

If works are required within a tree's TPZ, the potential impact of works/development on the tree's viability can be determined by conducting root investigation works through non-destructive methods. The safest way to do so is by using a hydro and/or air excavation unit. These tools can penetrate and remove soil around the tree without risk of damaging root material or utility lines. A qualified arborist should be present during root exploration to determine the structural importance of potentially impacted roots, and if possible, provide a safer area in which works/development can be undertaken.

Analysis Method

The current provisions couples the STPR with the number of dwellings on a lot, with generally two trees required per dwelling. This ratio reflects observations about neighbourhood character in areas typified by single detached dwellings. The effect of trees, and particularly canopy trees, on landscape and neighbourhood character actually relates to the density of trees and their canopy size across a given residential area, and their location with respect to built form, rather than the ratio of trees with respect to dwellings.

This ratio works when applied to the single dwellings and typical lot sizes of those reflected in the original neighbourhood character study, however an issue of scaling arises when this ratio is applied to a diversity of lot sizes and dwelling densities typical to an area expected to accommodate growth. In part, this is also symptomatic of smaller trees planted in more intensive / multi-unit developments that therefore don't achieve the canopy outcomes.

To test the objective of the canopy tree requirements in the zone schedules to deliver an enhanced canopy coverage (in particular NRZ and GRZ), this analysis applies a formula to determine the expected canopy cover provided per tree based on the amount of

dedicated ground level planting area. For each development typology the required number of canopy trees is converted to an estimated canopy cover area, which is then divided by the lot area to determine the overall rate of canopy cover achieved for each development typology on a given lot size.

It should be noted that the analysis in the following sections is based on the assumption that a planning permit is triggered in order to require tree planting, and that there is discretion in applying Schedules where relevant.

The requirements of the Whitehorse Planning Scheme are:

- Minimum Garden Area (from residential zones):
 - At least 25% of a vacant lot (less than 400m²) created by subdivision
 - 25-35% of the lot (depending on the area of the lot) for the construction or extension of a dwelling or residential building
- STPR (from schedules to the residential zones): generally two (2) trees per dwelling.
- Scheduled Tree Area Requirement (STAR) from the Tree Conservation Local Policy at Clause 22.04: 35m² per tree.

Tree Planting Area (TPA)

Lindsey and Bassuk (1991) observe that inadequate soil rooting space can be one of the more important factors in the premature mortality of trees in urban areas. They identify a basic conflict between the biological needs of a tree's root system and the small and confined areas they are often planted in our urban environments, in particular street trees.

They researched the soil volumes required to provide adequate water quantities under a range of climatic conditions, then tied these predictions to a measurable tree parameter (mature crown outward projection), and incorporated this into a simple yet accurate means of estimating this required soil volume. The findings were a ratio of 2ft³ of soil per 1ft² of crown projection, which were found to both apply to a range of climatic conditions and also be in agreement with re-interpretations

of other related work. Converted into metric terms, this ratio equates to 0.6m³ of soil per 1m² of mature crown projection. As (non-structural) roots will typically utilise soil within a 1 metre depth of the ground level, this can be simplified to the following formula:

Deep soil planting areas (TPA, m²) = 60% of the mature crown projection / spread (m²)

or, conversely

Maximum expected Canopy = 1.67 x TPA

The STPR is two canopy trees each in 35m² STAR, resulting in 70m² minimum STAR. Calculating the resultant potential canopy area based on the TPA ratio of 1m² of canopy coverage for every 0.6m² of planting area results in a minimum estimated canopy coverage of 116.9m² per two trees. The success of this formula relies on Council identifying and encouraging the use of suitable canopy tree

species that make full use of the available space and complement the preferred character of the municipality.

Single Dwellings on a Lot

Applying the STPR and STAR to a single dwelling on a range of lot sizes results in significant variance in the resultant canopy coverage percentage (using the calculations discussed previously).

At a minimum lot size of 320m² for detached dwellings according to the Whitehorse Housing Capacity Analysis 2014, the 116.9m² estimated canopy cover provided by the STPR and STAR equates to a canopy coverage of 36% of the lot, exceeding the UFS target of 30%. At a minimum lot size of 200m² for semi-detached dwellings, this increases to a canopy coverage of 58% of the lot.

Table 14 – Median Lot Sizes and Canopy Coverage Provision by Zone

Median Lot Sizes & Resultant Minimum Canopy Provision										
Zone	NRZ2	NRZ3	NRZ4	NRZ5	GRZ1	GRZ2	GRZ3	GRZ4	GRZ5	GRZ6
Median Lot Size	616m ²	602m ²	595m ²	660m ²	588m ²	366m ²	588m ²	597m ²	584m ²	598m ²
Maximum Canopy Coverage from Two Trees (based on 116.67m ² per two trees) provided by the STPR and STAR	19%	19%	20%	18%	20%	32%	20%	20%	20%	20%

However, the vast majority of existing lots across the NRZ and GRZ areas of Whitehorse are substantially larger than this at around 600m², with the Table 14 showing the median lot sizes for each zone.

If this estimated canopy cover of 116.67m² for the required two trees is applied to these median lot sizes, as shown in Table 14 the requirements will deliver only a maximum of 18-20% canopy coverage.

It is relevant to test the typology of a median lot with a single dwelling given the high proportion of lots with lot sizes closely clustered around the median lot size within these zones, and the very high percentage of lots in these zones that currently only contain 1 or less dwellings (98.06-99.69%).

In a best case scenario, where all current STPR and STAR are met, and using the TPA to calculate canopy spread, an increase in dwelling density across median lots of around 150% will be required to meet the 30% target, so that around three trees are provided per lot. Conversely, at current development trends of single dwellings per lot, the average lot size that would deliver 30% canopy coverage is 389m².

Multiple Dwellings on a Lot

Variance in the canopy coverage percentage outcomes is also demonstrated on sites developed with higher densities. For example, a lot size of 650m² has capacity for 2 detached dwellings at 320m² each (according to the Whitehorse Housing Capacity Analysis 2014), or 3 semi-detached dwellings at 200m² each. At 3 dwellings, the STPR of 6 canopy trees requires 210m² of STAR (32% of site). Using the TPA calculation, this would theoretically correspond to 350.7m² of maximum canopy coverage (54% of site). However, this STAR of 32% of the site is greater than the corresponding 30% Garden Area requirement of 195m², representing a constraint on development. The 1m minimum dimension of Garden Area provides for more flexibility in lot design than the minimum dimension of 5m under the STAR but perhaps less flexibility for tree planting.

Tree Planting Area - An Alternative Approach

This alternative approach seeks to use a potentially more practical method than the current STPR calculated from the number of dwellings on the site, to better connect it to the municipality-wide target of 30% canopy cover. Instead, a percentage of the lot is set aside for the purpose of planting / protecting canopy trees. This percentage would be based on the municipality-wide target for canopy cover, though could reflect an overall target for residential areas and could also be adjusted to reflect different neighbourhood character areas and preferred character statements, noting that there may be some lots in the municipality that are not able to achieve 30% canopy coverage.

The approach explores the concept of a Tree Planting Area Requirement (TPAR) which calculates the minimum deep soil root surface area required for a given lot to achieve canopy coverage targets, based on the ratio of 0.6m² minimum deep soil surface areas required per 1m² of canopy coverage. In other words, for the area of canopy that a tree will provide, 60% of that area needs to be set aside exclusively as deep soil root area (**see full explanation on page 92**).

Assuming a target of 30% canopy cover for each lot, a 1,000m² lot would have to achieve a minimum canopy coverage of 300m² (canopy coverage is defined as the total area of crown projection of a canopy tree at maturity) through either retention of existing trees or newly planted trees.

To achieve the 300m² (30% of 1,000m²) canopy cover, the calculated TPAR would be 60% of 300m² = 180m². This 180m² would be the TPA for the hypothetical 1,000m² lot (refer to page 92).

Using this ratio, a canopy coverage target of 30% equates to a TPAR of 18% of the site.

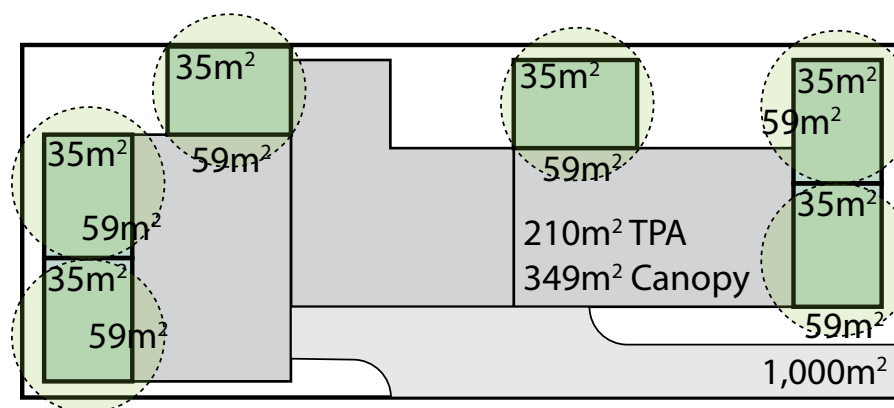
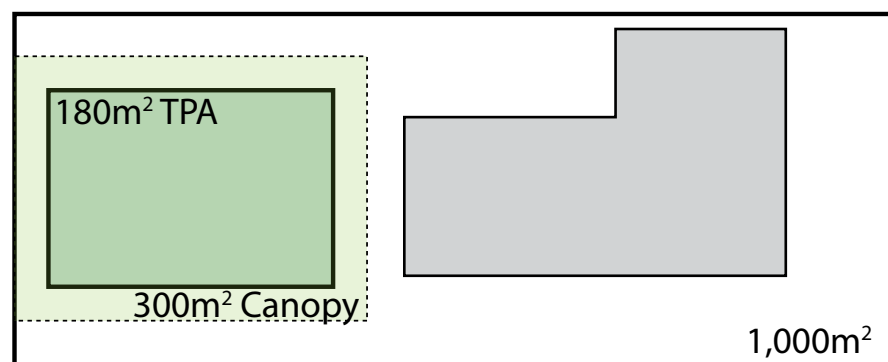


Figure 20. Example TPAR and Potential Canopy Cover Calculation for a Single Lot - Area Calculations (left) and TPAR Applied to a Multi-Unit Development using STAR (right)

The TPAR is generally related to, and falls within, the minimum Garden Area requirement, which is between 25-35% of the site (depending on lot size). The TPAR could comprise multiple TPAs with minimum areas of 35m² for consistency with the STAR of the zone schedules (as shown in Figure 20).

Critical to ensuring the achievement of canopy targets is that each TPA is planted with a tree of minimum dimensions to achieve a canopy spread commensurate to the TPA set aside. These minimum dimensions are set out in Table 15.

Table 15 – TPA Sizes

Tree Planting Area	
Minimum Deep soil planting surface area required	35m ²
Minimum dimension of deep soil planting area	5m
Minimum tree provision	1 Canopy Tree
Canopy Tree Requirements	
Minimum mature height	5m
Minimum mature spread (diameter)	9m

Each Canopy Tree proposed within a TPA should meet the following criteria:

- Mature height of at least 5m;
- Mature spread of at least 9m diameter*; and,
- Species aligns with existing neighbourhood character.

*Note: A ground area of 35m² should result in a maximum canopy of just over 58m², the diameter of which is approximately 9 metres.

It is recommended that Council develops a list of suitable TPA Canopy Tree species that meet the above criteria to guide development.

It is also recommended that Council consider developing a smaller TPA size (possibly based on 20m² or similar) that allows greater flexibility in meeting the total TPAR of a site. This smaller area should be limited to no more than half of the number of TPAs required on a given site. (For example, a site requiring 142m² of TPAR could provide 3 x 35m² TPAs and 2 x 20m² areas to total 145m² TPAR).

Landscaping Tree Requirement Case Studies - Analysis Method

A number of endorsed plans for recent permits were provided by Council for analysis of how contemporary development typologies within the GRZ and NRZ areas were performing in terms of tree retention and provision. These applications were across a range of zones, and from two to four dwellings per lot.

This analysis is summarised in Table 16 on the opposite page.

Existing Trees and Canopy

The analysis first identifies the pre-existing trees greater than 5m in height on and adjacent to the subject lot.

Secondly, the canopy area that these pre-existing trees are contributing is identified by mapping the proportion of the canopy spread that is contained within the site. As indicated by the red shading in the “Existing Canopy Area Column” these are all below the UFS target of 30%.

Proposed Trees and Canopy

As per the schedules to the zones, two trees are generally required per dwelling (STPR). The retained and proposed trees are identified on the plans and added to identify whether the proposal is meeting the canopy requirement. The blue shading in the “Total Trees” column indicates that all applications met this requirement, however the lighter blue shading indicates where some of the required trees were below the canopy tree minimum height of the zone schedule (in some cases even lower than 5m), with the number in brackets noting the actual total canopy trees provided.

The area of canopy coverage provided by the application was determined by adding the areas of retained canopy within the lot to the new canopy provided by the proposed trees that falls within the subject lot. The retained canopy was calculated based on the spread of existing trees (or the TPZ where this was less than the TPZ, suggesting a juvenile tree). The new canopy was based on the mature spread of the tree species as per the planting schedule on the landscaping plan. Areas of overlap were only counted once.

As identified by the red shading in the “Total Canopy” column, no applications achieved the 30% UFS target, with the shading deepening for lower totals.

Three case studies from the permit applications are detailed below where they identify particular findings.

Table 16 – Permit Application Analysis (2017-2018)

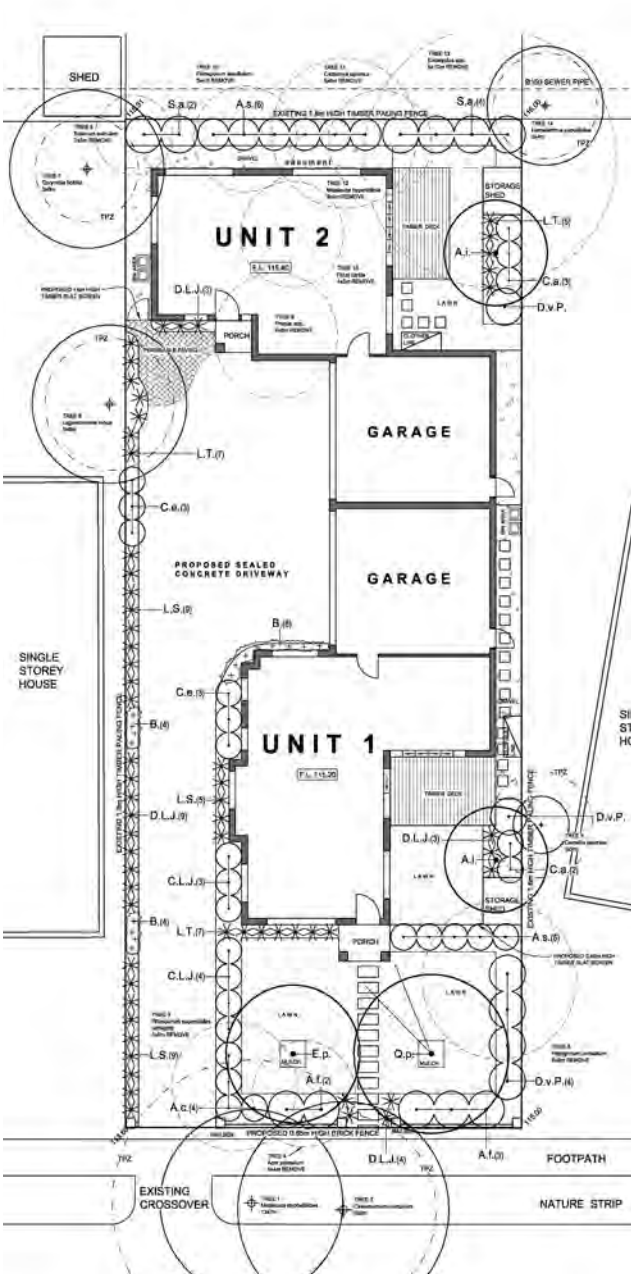
Post-VC110 (Garden Area) Permit Application Analysis														
Address	Zone	Lot Size (m ²)	Dwellings Proposed	Required Trees	Req. Tree Height	Existing Trees >5m height (on site and adjacent)	Existing Canopy Area on Site (m ²) including from adjacent trees	Retained Trees on Site	Proposed Trees	Total Trees	Canopy Target (30% of lot) (m ²)	Retained Canopy (m ²) including adjacent trees	Proposed Canopy (m ²)	Total Canopy Area (m ²)
Case Study 1: Hilltop Crescent, Burwood East	GRZ1	585	2	4	8m	8	147 (25.1%)	0	4	4	175.5	34.84	82	117.04 (20%)
Beverly Crescent, Blackburn	GRZ1	690	2	4	8m	2	76 (11%)	1	3	4	207	68.47	91	159.47 (23.1%)
Peter Street, Box Hill North	GRZ4	608	2	4	8m	5	44 (7.2%)	0	5	5	182.4	0	84.28	84.28 (13.9%)
Case Study 2: Esdales Street, Blackburn	GRZ1	798	3	6	8m	10	193 (24.2%)	0	6*	6 (2)	239.4	4.94	83.66	88.6 (11.1%)
Luckie Street, Nunawading	GRZ1	925	3	6	8m	6	207 (22.4%)	2	7	9	277.5	140.2	67.3	207.5 (22.4%)
Laburnum Street, Blackburn	GRZ2	921	3	6	12m	4	125 (13.6%)	0	6*	6 (1)	276.3	47.98	99.93	147.91 (16.1%)
Linda Avenue, Box Hill North	GRZ4	810	3	6	8m	1	20 (24.7%)	0	6	5	243	0	83.77	83.77 (10.3%)
Evelina Street Mont Albert North	GRZ4	1235	3	6	8m	4	127 (10.3%)	1	10	11	370.5	95.9	138.53	234.43 (19%)
Case Study 3: Orient Avenue, Mitcham	NRZ3	1042	3	6	12m	2	116 (11.1%)	2	1	3	312.6	116.49	19.64	136.13 (13.1%)
Byron Street, Box Hill North	NRZ5	872	4	8	8m	0	0 (0%)	0	8*	8 (4)	261.6	0	105.2	105.2 (10.1%)

* denotes some proposed trees are less than minimum height, () identifies actual Canopy Trees proposed

Case Study 1: Hilltop Crescent

Table 17 – Case Study 1

Case Study 1	
Address	Hilltop Crescent, Burwood East
Lot Area	585
Zone	GRZ1
Landscaping Requirements	
Canopy Tree Requirement	2 per dwelling
Min. Canopy Tree Height	8m



Case Study 1 Analysis

This application removes all existing trees from the site, however does provide two new large (12 & 15m) trees within the front setback. It relies on the relatively skinny *Acacia implexa* to meet the canopy tree requirement with the smaller trees planted in the POS areas in on the eastern side of the lot.

The proposal removes seven existing canopy trees, and proposes two dwellings, requiring seven offset trees and four additional trees under the zone schedule, 11 trees in total. This is consistent with the outcome of VCAT cases where the STPR is considered additional to any like-for-like offsets under SLO9. As shown in Diagram 2 of Figure 22, only four new trees are proposed, achieving a total canopy cover of 12.6% for the site.

Diagram 3 shows that it is completely unrealistic to accommodate the required 11 trees, with only three canopy trees able to be accommodated in adequate planting areas.

By contrast, the alternative TPA approach of Diagram 4 achieves the TPAR within three new canopy trees, and if minimum dimensioned trees are planted within these areas will achieve a canopy cover of 29.9%, marginally below the target. (It is considered that an additional tree could also be accommodated to pass 30%, however that this would be overly burdensome given the 0.1% difference.

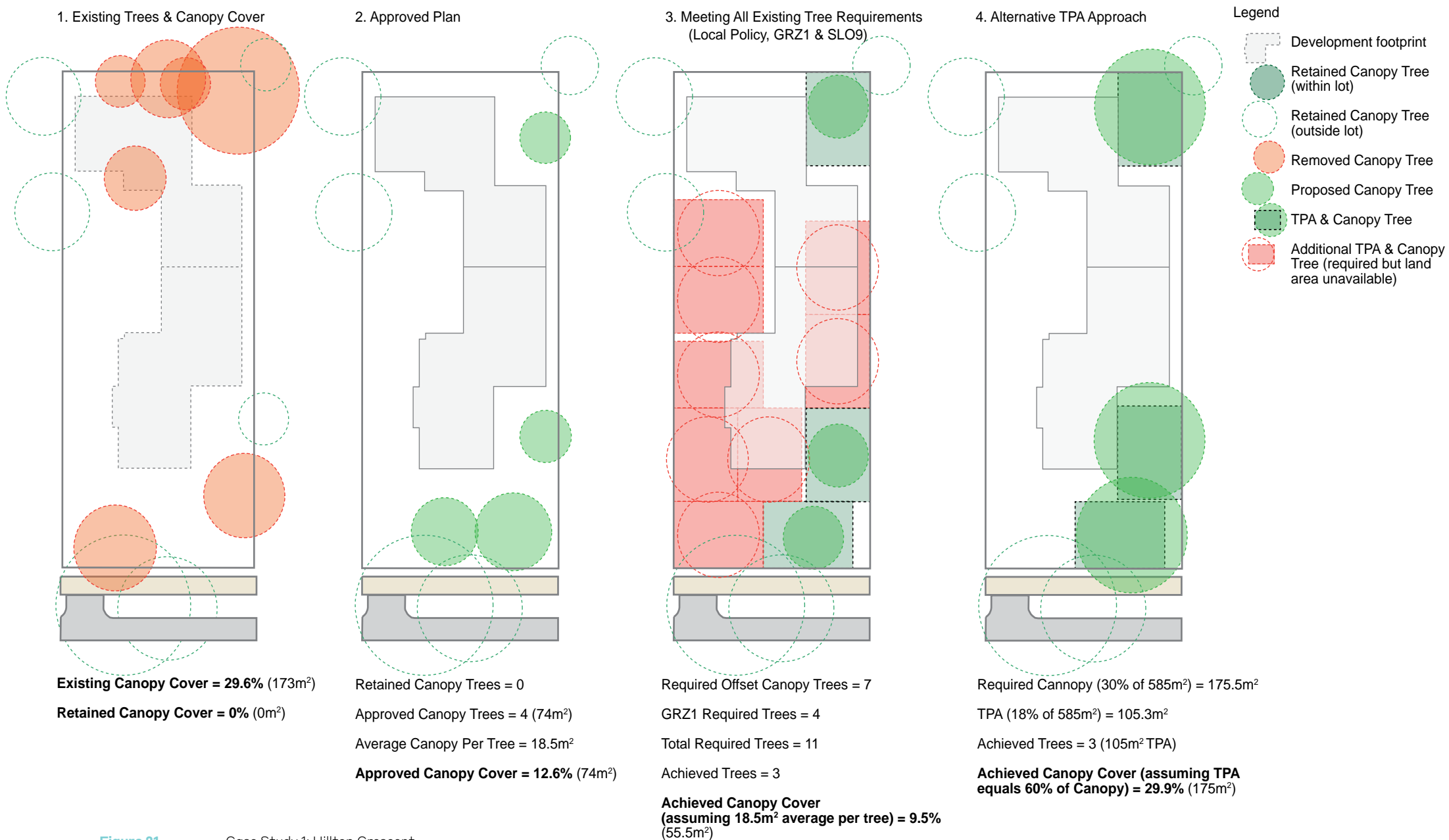
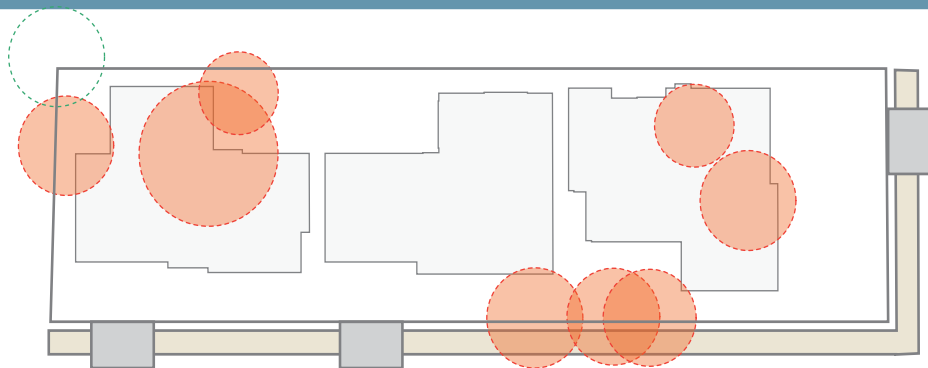


Figure 21.

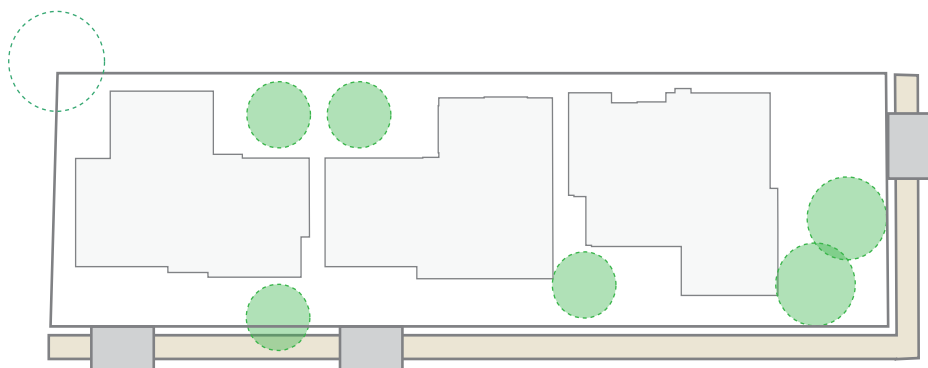
Case Study 1: Hilltop Crescent



1. Existing Trees & Canopy Cover

Existing Canopy Cover = 32.5% (259.5m²)

Retained Canopy Cover = 0% (0m²)



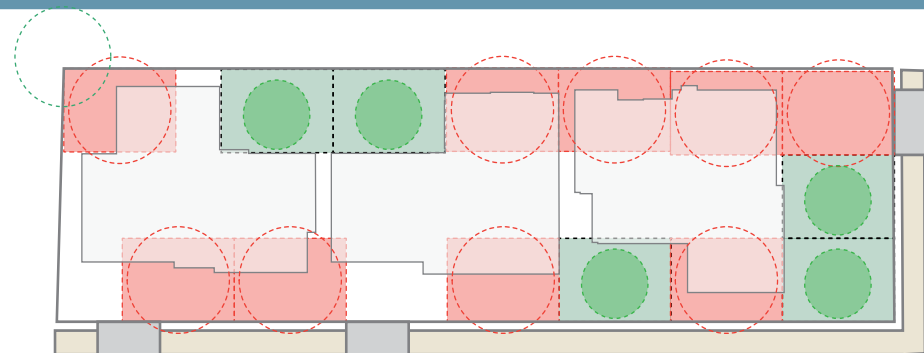
2. Approved Plan

Retained Canopy Trees = 0

Approved Canopy Trees = 6 (89.5m²)

Average Canopy Per Tree = 14.9m²

Approved Canopy Cover = 11.2% (89.5m²)



3. Meeting All Existing Tree Requirements
(Local Policy, GRZ1 & SLO9)

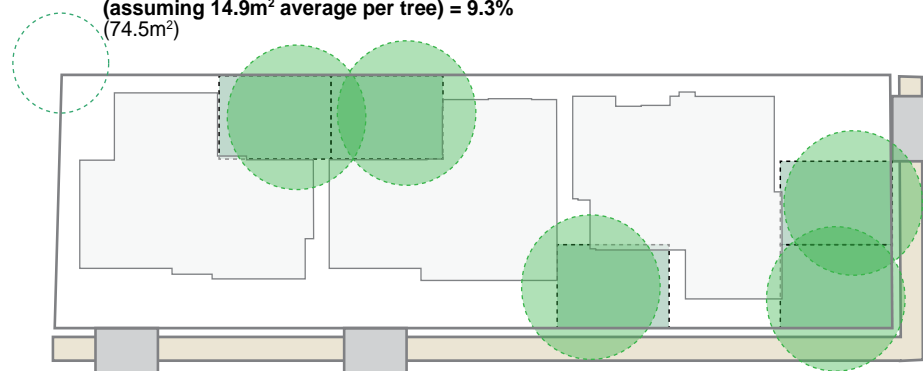
Required Offset Canopy Trees = 8

GRZ1 Required Trees = 6

Total Required Trees = 14

Achieved Trees = 5

Achieved Canopy Cover
(assuming 14.9m² average per tree) = **9.3%**
(74.5m²)



4. Alternative TPA Approach

Required Canopy (30% of 798m²) = 239m²

TPA (18% of 798m²) = 144m²

Achieved Trees = 5 (175m² TPA)

Achieved Canopy Cover (assuming TPA equals 60% of Canopy) = 36.6% (292m²)

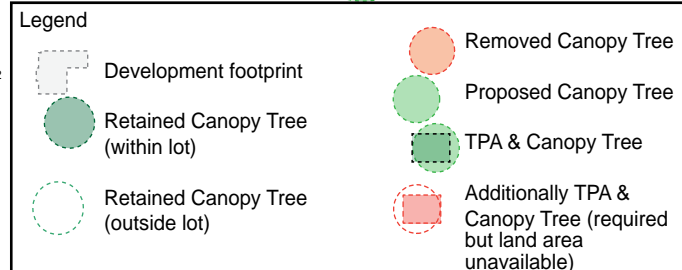


Figure 22.

Case Study 2: Hilltop Crescent: Esdale St, Blackburn



Case Study 3

Orient Street

Table 19 – Case Study 3

Case Study 3	
Address	Orient Street, Mitcham
Lot Area	1042
Zone	NRZ3
Landscaping Requirements	
Canopy Tree Requirement	2 per dwelling
Min. Canopy Tree Height	12m

Case Study 3 Analysis

This case study demonstrates the successful retention of large mature trees in the front setback. It does not remove any existing canopy trees and proposes one (small) new tree. Including the existing canopy retained, this application still only achieves 13.4% canopy cover.

Diagram 3 of Figure 24 demonstrates that it is not possible to accommodate the required 6 new trees of the zone schedule, with only five new canopy trees able to be accommodated in adequate planting areas.

The alternative TPA approach of Diagram 4 allows for the TPZ of the retained trees, and achieves the TPAR within four new canopy trees. If minimum dimensioned trees are planted within these areas will achieve a canopy cover of 35.8%, in excess of the target.

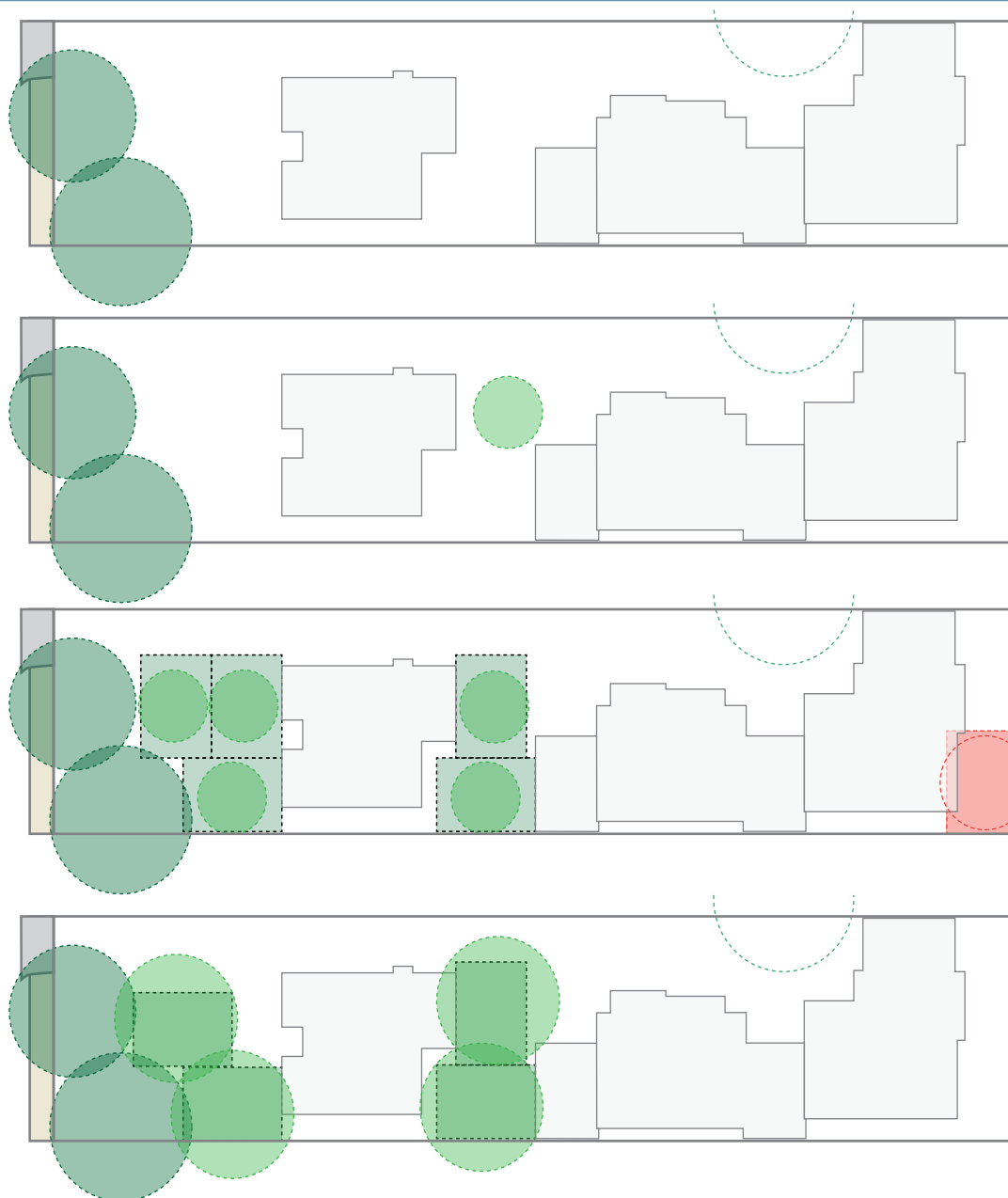


Figure 23. Case Study 3: Orient St, Mitcham

1. Existing Trees & Canopy Cover

Existing Canopy Cover = 13.4% (140m²)

Retained Canopy Cover = 13.4% (140m²)

2. Approved Plan

Retained Canopy Trees = 2

Approved Canopy Trees = 1 (20m²)

Average Canopy Per Tree = 20m²

Approved Canopy Cover = 15.4% (160m²)

3. Meeting All Existing Tree Requirements (Local Policy, GRZ1 & SLO9)

Required Offset Canopy Trees = 0

NRZ3 Required Trees = 6

Total Required Trees = 8 (2 retained)

Achieved Trees = 7 (2 retained)

Achieved Canopy Cover (assuming 20m² average per tree) = 23% (140 + 100 = 240m²)

4. Alternative TPA Approach

Required Canopy (30% of 1042m²) = 313m²
Req. Canopy Minus Ex. Canopy = 173m²

Req. TPA (18% of 1042m²) = 188m²
Req. TPA Minus Ex. Canopy TPZ Area on Site (76m²) = 112m²

Achieved Trees = 4 (140m² TPA)
Total Canopy Trees = 6 (216m² TPA/TPZ)

Achieved Canopy Cover (assuming TPA equals 60% of Canopy) = 35.8% (373m²)

Legend

- Development footprint
- Retained Canopy Tree (within lot)
- Retained Canopy Tree (outside lot)
- Removed Canopy Tree
- Proposed Canopy Tree
- TPA & Canopy Tree
- Additionally TPA & Canopy Tree (required but land area unavailable)

Conclusions

The current STPR of generally two trees per dwelling is based on surveyed neighbourhood character of the existing residential areas of Whitehorse. These areas are predominantly typified by single dwelling development typologies, and identified the presence of trees within established gardens as a significant element of this character, in particular when located in specific areas on the lot such as front or setbacks.

The translation of this character feature into the zone schedule's required number of trees per dwelling (STPR) reinforces the character of detached houses within established gardens. However, for multiple dwellings this also increases the number of canopy trees required on a site, which does not necessarily retain the existing character but imports a more leafy "compact" garden character, or may become unachievable. This results in a significant variance in canopy coverage outcomes across different lot sizes and development typologies. As density increases, it becomes more difficult for multi-unit developments to provide the STAR required for trees, and often results in the provision of smaller trees in confined spaces. While more trees may be provided (in some instances), the contribution they are capable of making to character is compromised.

An alternative possibility would be for higher density developments to share the amenity of larger canopy trees on the site (possibly in common areas).

At lower densities, such as those predominantly characterising the NRZ and GRZ zones, two trees per dwelling will not necessarily ensure that a canopy coverage target of 30% is achieved. To consistently achieve a target the UFS 30% in NRZ and GRZ areas using the current STPR, an increase in density would be required.

Examining median lot sizes and existing forms of development in these zones, the existing STPR will deliver only 18-20% canopy coverage. An increase in density across these lot sizes of around 150% will be required to meet the UFS target. Using these assumptions, the lot size that corresponds to two trees creating 30% canopy coverage is 389m².

However, this only works for a small increase in density across a high number of lots, and actively constrains development at higher levels of density. Even minor increases in density necessitate redesign to accommodate the required trees, or even limit the number of dwellings a site can accommodate.

The analysis of the permit application and case studies show that this 'squeeze' results in:

- A loss of existing canopy trees and associated site canopy cover;
- Minimal planting areas below the STAR for 35m² planting areas per tree;
- A reliance on smaller and skinnier species that provide minimum canopy as planting areas reduce; and,
- High rates or reliance on of 'shared' canopy.

An alternative TPAR approach in contrast could ensure a consistent minimum canopy coverage. The alternative approach incentivises retention of trees and planting of larger trees as the required TPAR is constant and not dependent on the number of trees. It also allows for the provision / retention of trees in areas and setbacks that are associated with the neighbourhood character of the areas. The case studies demonstrate that the TPAR approach does produce measurably better outcomes in terms of total canopy cover delivered, and does not constrain development.