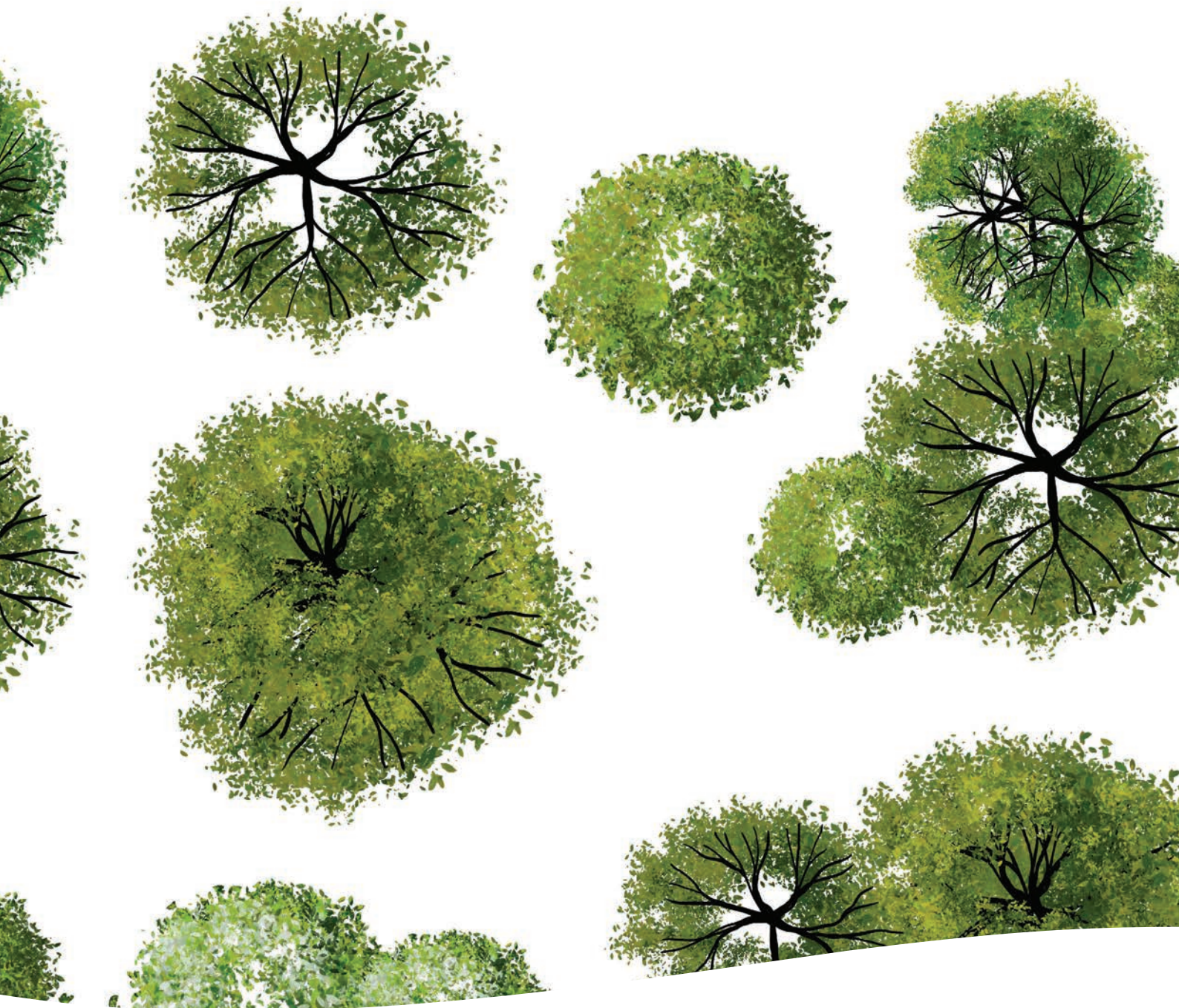


STATE OF THE CANOPY

A REPORT INTO TREE CANOPY
COVER ACROSS HOBART



City of **HOBART**

State of the Canopy

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City of Hobart
Hobart Town Hall
Macquarie Street,
Hobart, Tasmania 7000

T 03 6238 2711

E coh@hobartcity.com.au

W hobartcity.com.au



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INTRODUCTION

Cities often measure their health in terms of ‘green infrastructure’. This can be calculated, in large part, by the percentage of land covered by tree canopy.

A city’s tree canopy is made up of trees planted right across a city, and includes trees on private property, along streets, in parks and surrounding nature reserves.

Hobart is unique among capital cities across Australia in that it contains significant proportions of forested bushland reserves, which have the effect of massively boosting the city’s overall tree canopy cover.

However, if you take Hobart’s surrounding bushland reserves out of the equation, and only look at canopy cover across the city’s urban landscape, the picture is very different.

This report measures Hobart’s canopy cover across just urban areas, excluding forested bushland reserves and rural living zones. We want to get a better understanding of the tree canopy cover within Hobart’s urban areas – the places where people live, work and spend their day-to-day lives.

This canopy mapping was undertaken by Geoneon on behalf of the City of Hobart.

The City of Hobart has an ambitious target of increasing tree canopy cover across its urban areas to 40 per cent by 2046. This new data, which uses planning zones to map tree canopy suburb by suburb, provides the information we need to target those areas most in need of more tree canopy through new tree plantings to reach our ambitious 2046 goal.



2046 **GOAL**
Increase Hobart's
urban tree canopy
to 40%



GROWING HOBART'S URBAN FOREST

While the entire Hobart municipality has the highest tree canopy cover of any capital city in Australia, at 59 per cent, it contracts significantly when we look at canopy cover for just our urban areas.

In 2017, as part of the City of Hobart's Street Tree Strategy, Hobart's urban canopy cover was calculated at 16.9 per cent. However, new canopy mapping using a clearly defined urban area and satellite imagery from spring and summer of 2017 and 2022 reveals a different picture.

The new canopy mapping was conducted by Geoneon on behalf of the City of Hobart. Geoneon uses satellite data, artificial intelligence and data fusion to leverage spatial data that makes cities more efficient and sustainable. Its tools help cities improve land-use and infrastructure planning.

BOUNDARIES – URBAN & NON-URBAN

The new canopy mapping has been undertaken using clearly defined urban areas based on local land use zones that reflect urban uses:

- general residential
- inner residential
- low density residential
- urban mixed use
- commercial
- central business.

Satellite imagery from 2017 and 2022 was used to compare canopy cover across Hobart's urban area over a five year period.

Planning zones defined as "rural living", "environmental management" and "environmental living" were not considered to be a representation of an urban area and have not been considered in this report. The urban area that is the focus of this report is shown in Figure 1.

Key findings from Geoneon's work reveal total tree canopy across Hobart's urban areas in 2022 is 29 per cent, and that the Hobart CBD, North Hobart, New Town and Battery Point have the lowest tree canopy

cover of all 17 Hobart suburbs. The new data also reveals that tree coverage across Hobart's urban areas went backwards between 2017 and 2022, with the city losing two per cent of its entire urban tree canopy. All of this tree canopy loss occurred on private land.

The Geoneon analysis used a trained deep learning model to perform tree canopy segmentation covering the designated area, and reveals changes in tree canopy between 2017 and 2022 classified by:

- public and private land
- suburb
- land use zones

KEY FINDINGS

The change in urban canopy cover across public and private land within the City of Hobart between 2017 and 2022 is shown in Figures 1, 2 and 3.

Key findings from this analysis are:

- Canopy cover across Hobart's urban areas in 2022 is 29 per cent.
- The canopy cover across Hobart's urban areas in 2017 (using the newly-defined urban areas) was 31 per cent.
- Canopy cover has declined in urban areas by 2 per cent since 2017. All of the canopy loss occurred on private land.
- The suburb of Hobart has the lowest canopy cover across the Hobart municipality at just 6.9 per cent. This is a slight increase from 6.8 per cent in 2017. This increase is likely attributable to growth of existing canopy, protection of existing trees and the City of Hobart's street tree planting program.
- North Hobart's canopy cover has declined from 10 per cent to 9 per cent (Figure 4).
- When looking at tree canopy across different planning zones industrial (1 per cent), commercial (1 per cent) and central business (4 per cent) land use zones have incredibly low canopy cover.
- Canopy cover across inner residential areas is rapidly trending downward – canopy cover across Hobart's inner residential areas fell by three per

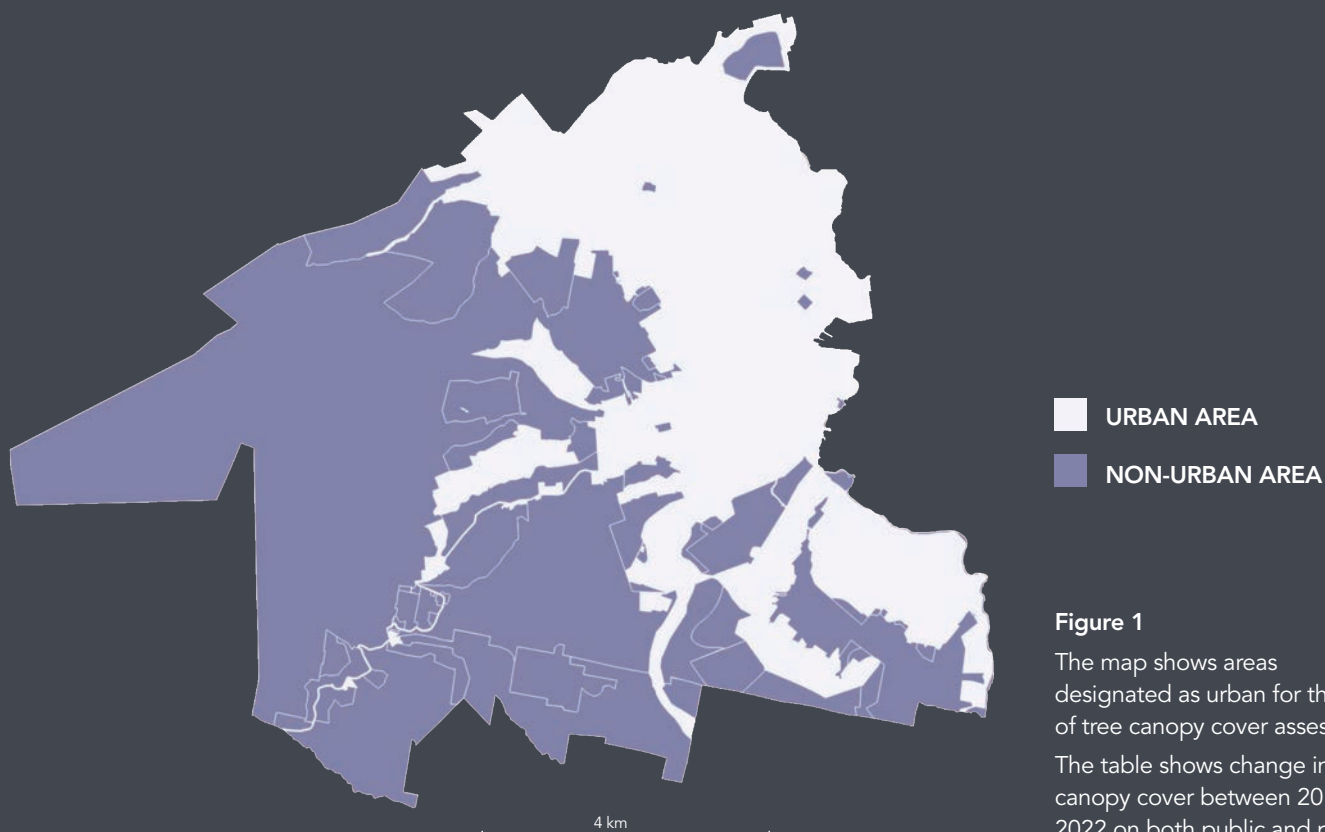


Figure 1

The map shows areas designated as urban for the purposes of tree canopy cover assessment. The table shows change in urban canopy cover between 2017 and 2022 on both public and private land.

CANOPY CHANGE	Urban Private Land	
	2017 canopy cover on urban private land	509.3 ha
	2022 canopy cover on urban private land	454.7 ha
	► Change in canopy cover on urban private land	54.6 ha loss in canopy in 5 years
	Urban Public Land	
	2017 canopy cover on urban public land	401.6 ha
	2022 canopy cover on urban public land	401.7 ha
	► Change in canopy cover on urban public land	0.1 ha gain in canopy in 5 years

cent in just five years, from 20 per cent to 17 per cent. Canopy cover also fell dramatically in general residential areas – from 29 per cent to 26 per cent. It also fell in low density residential areas, from 46 per cent to 43 per cent (Figure 5).

- Hobart's CBD area is the worst in terms of canopy cover – just 4 per cent of the central business zone is covered by tree canopy, despite the fact this is the area in which the highest number of workers and visitors spend time in Hobart.

KEY FINDINGS

- In just five years – 2017 to 2022 – Hobart has lost two per cent of tree canopy on private land. This is the equivalent of losing more than 27 MCGs worth of trees across Hobart.
- Assuming the average canopy for every tree lost is 10 metres wide, this represents the loss of 6875 trees on private land in just five years.
- Tree canopy cover on public land in Hobart has remained roughly stable, with a slight gain of 0.1 hectares between 2017 and 2022.

TREE CANOPY COVERAGE ACROSS HOBART

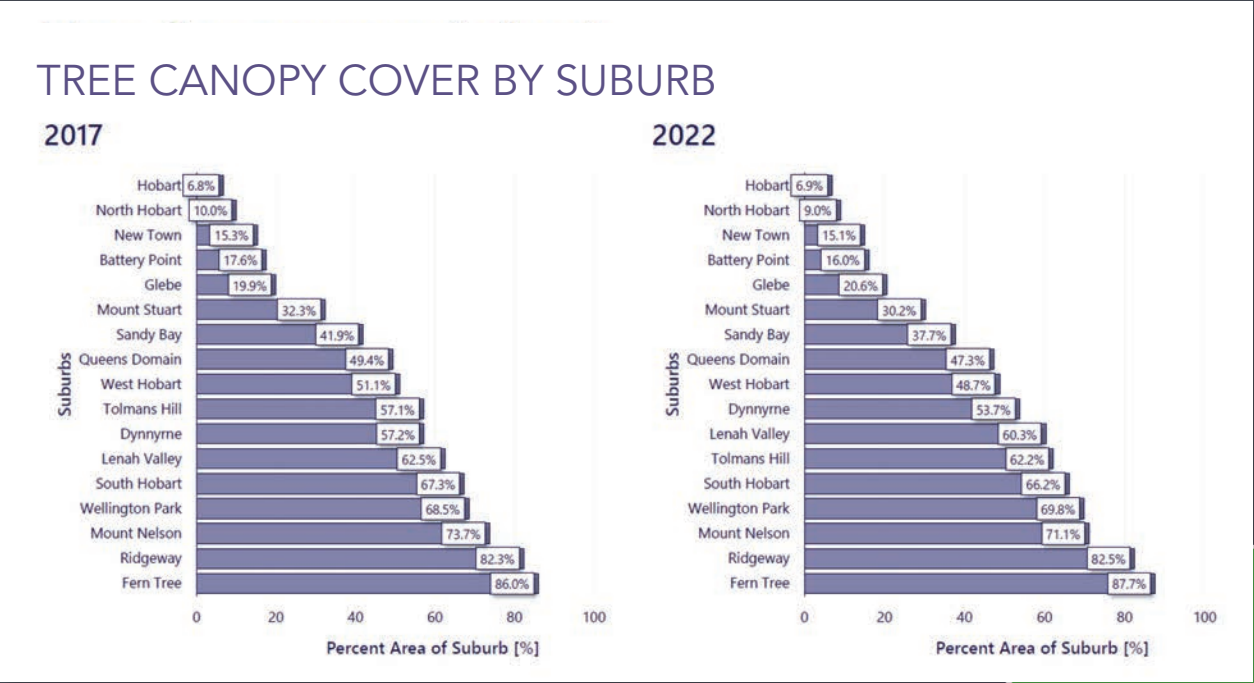
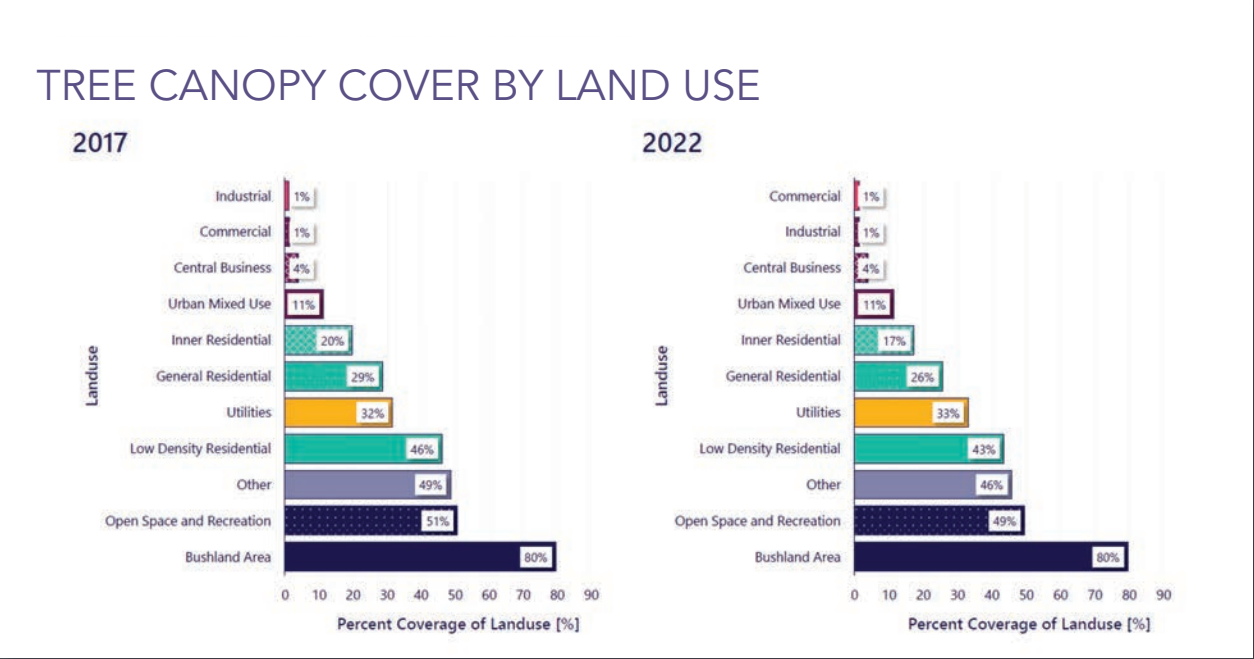
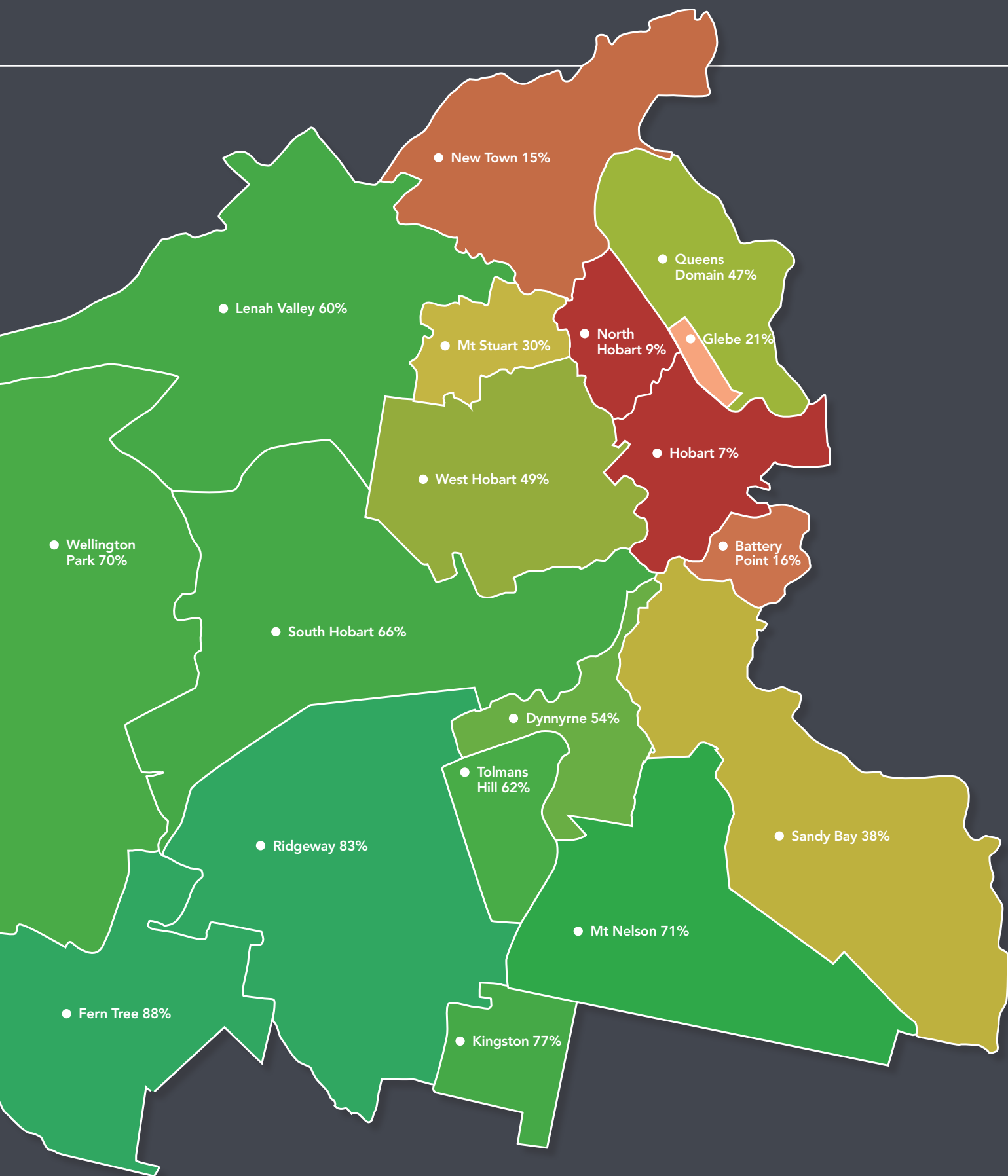


Figure 2 Tables show changes in canopy cover by land use and suburb. The map reflects percentage of canopy cover suburb by suburb in 2022.





EXISTING TREE PROTECTION FRAMEWORK

The investigation of tree canopy cover across Hobart between 2017 and 2022 does not determine why there has been a loss of trees on private land, however, canopy loss on private land is generally attributed to:

- subdivision of larger blocks resulting backyards being turned into housing
- larger houses and ancillary buildings resulting in less space for tree growth
- community attitudes towards trees (a negative perception of trees resulting in tree removal).

Councils often face the seemingly competing objectives of increasing the amount of available housing and diversity of housing choices while increasing tree canopy cover. However, the Intergovernmental Panel on Climate Change report *AR6 Climate Change 2022: Impacts, Adaptation and Vulnerability* details just how critical trees are for healthy, liveable and resilient cities. As global temperatures increase over the coming decades having a healthy and abundant urban tree canopy will be critical for the health of current and future populations.

TREES ON PUBLIC LAND

The City of Hobart is responsible for tree management on Council land and has a comprehensive tree management framework that includes proactive and reactive tree inspection and maintenance programs, and a tree planting program.

Under section 23 of the Public Spaces By-Law No. 4 2018 it is an offence to, by any act, cut, prune, pluck, destroy, remove or injure any tree growing in a public space unless authorised to do so by a permit. Persons found guilty of the above offence can be penalised.

Penalty: 20 penalty units.

SIGNIFICANT TREES CODE

Trees listed in the Significant Tree Code of the Hobart Interim Planning Scheme have the highest level of protection. Significant trees can be on public or private land, however, the process to

SIGNIFICANT TREES	Listings on public land	72
	Listings on Council land	156
	▶ TOTAL	228
	Number of hedges	7
	Number of Council trees*	877
	Number of private trees	300
	▶ TOTAL	1177

Table 1 Number of total listings and total number of trees (June 2023).* Includes the Soldiers Memorial Avenue listing that contains 537 individual trees.

individually list trees is onerous and the criteria to list a tree is strict. The intent of the Significant Tree Register is to highlight and protect exceptional and outstanding trees – either because of their size, age or another element – rather than to protect the general community, environmental and social benefits provided by an extensive and healthy canopy cover across Hobart.

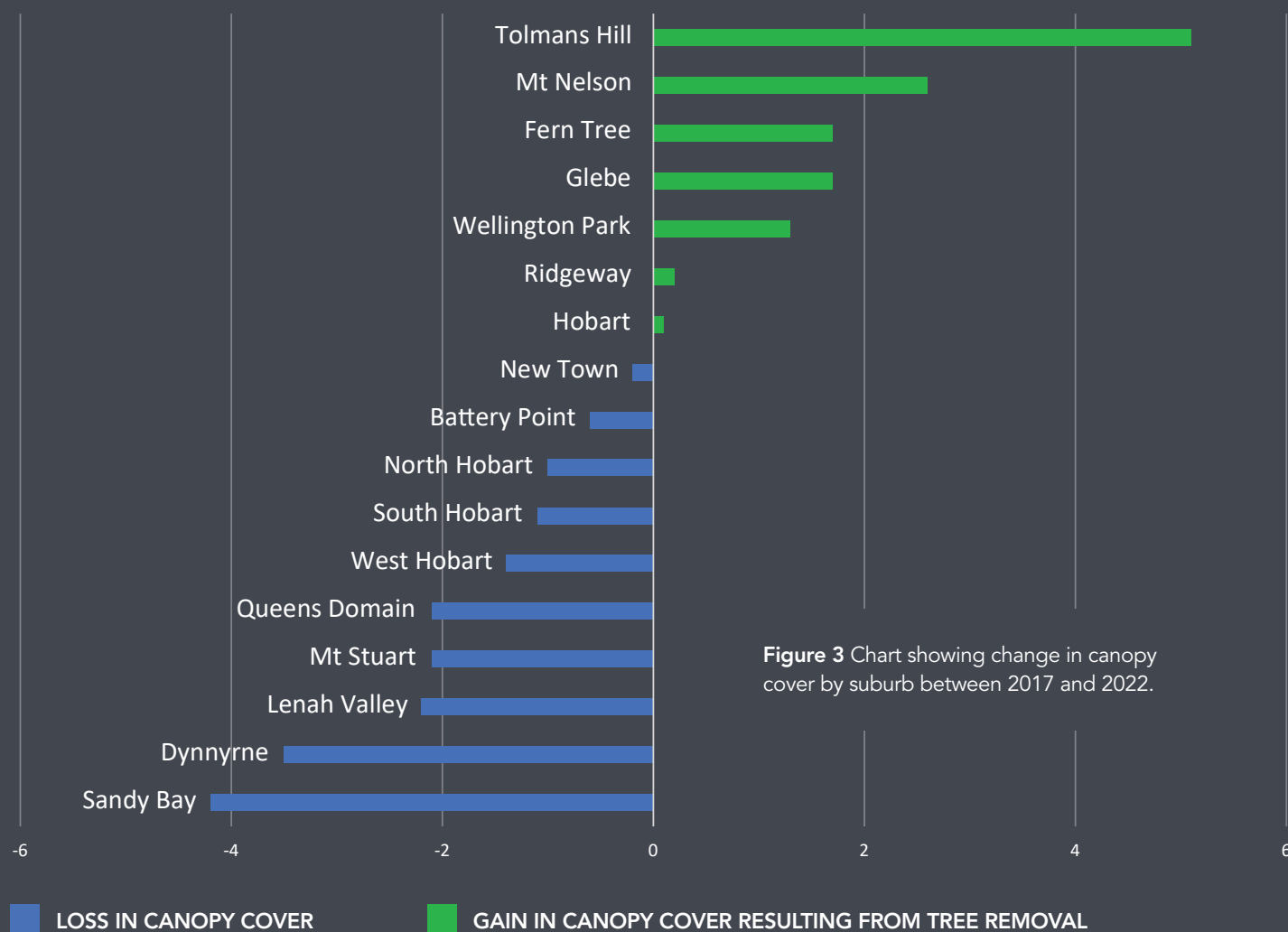
The Significant Tree Code includes trees across Council owned and managed land as well as private land, crown land, etc. Of the 1177 Significant Trees on the register (as of June 2023), just 25 per cent are on privately-owned land (Table 1).

While this code is essential to highlight and protect these highly important trees the Significant Tree Code is not considered an adequate mechanism to protect and enhance Hobart’s overall urban tree canopy.

TREES ON PRIVATE LAND

A planning permit may be required to remove a tree on private property if:

- It is a listed Significant Tree.
- If the Property is a listed Heritage Place.
- If the property is in a Heritage Precinct.
- If there is a Biodiversity Code.
- If there is a Waterway and Coastal Protection Code.
- If there is a Landslide Code.



A study by Clark et al (2020)¹ reviews the strengths and weaknesses of different private tree protection approaches for six metropolitan Melbourne municipalities (including significant tree registers, by-law protections – commonly called local laws in Victoria, and planning overlays). From this Victorian study there was a clear preference for planning overlays as the strongest planning control that can be used to protect private trees. It was noted that local laws (by-laws in Tasmania) permit a ‘minor control’ of urban canopy loss – mainly because most municipalities exempted a requirement for a local laws permit when a planning application was submitted.

While a general Vegetation Protection Overlay was the preferred outcome for tree protection in Victoria, it may not be appropriate in Tasmania due to differences in the planning schemes and the general exemption provisions in the State Planning Provisions (which cannot be overridden by the Local Provision Schedules). These general exemptions would undermine the efficacy of such a protection.

No current Tasmanian council has a tree protection by-law. Kingborough Council previously had a tree protection by-law for 20 years. This by-law was

removed in 2021 following legal advice but the decision drew considerable public concern, with 184 submissions received by the Kingborough Council about the removal of the provision. Kingborough Council sought further legal advice from a Senior Council on the legality of the proposed tree by-law and the council has since determined to proceed with a tree by-law.

At this stage, it is not recommended the City of Hobart pursue greater regulation either through by-laws or a general vegetation protection provision in the planning scheme due to the potential for legal challenges, planning scheme exemptions and the significant additional internal resourcing that would be required to facilitate either one of these mechanisms.

1. Clark C, Ordonex C and Livesley SJ (2020). Private tree removal, public loss: Valuing and enforcing existing tree protection mechanisms is the key to retaining urban trees on private land. Landscape and Urban Planning, 203.

HOW DO WE GROW TREE CANOPY COVER ON PRIVATE LAND?

The new tree canopy mapping demonstrates the City of Hobart’s existing tree protection provisions on public land are working to retain or slightly increase canopy cover over time. However, the decrease in tree canopy on private land suggests more needs to be done in this area.

To increase canopy cover on private land in future years it recommended the City of Hobart takes a multi-pronged approach that avoids greater regulation. These approaches are outlined in Table 2.

Given the City of Hobart has committed to an ambitious target of increasing Hobart’s tree canopy cover across urban areas to 40 per cent by 2046 the fall in tree canopy cover on private land in urban areas is alarming.

However, the same mapping that shows Hobart has lost two per cent of tree canopy cover across urban areas also reveals a number of opportunities to grow

the city’s urban tree canopy by focusing tree planting efforts on the CBD and other inner suburbs where the tree canopy cover is lowest.

Planting initiatives and a public information campaign about the importance of growing Hobart’s tree canopy in these areas, both on public and private land, should be prioritised by the City of Hobart.

The main existing mechanism to protect private trees in urban areas is the Significant Tree Code. The code on its own is not an adequate mechanism for protecting and enhancing the overall urban tree canopy of Hobart. Due to the challenges of increasing regulation that prevent the removal of trees on private land through by-laws or planning scheme protections, it is recommended the City of Hobart initially focus efforts on reversing the loss of canopy trees on private land through community education, tree planting incentives and initiatives, and further research.

Research	• Work with the University of Tasmania and other agents to better understand the drivers behind tree canopy loss on private land – community attitudes, increased housing sizes, subdivisions, multi-unit developments. • Scope out best practice examples of increasing housing density while increasing canopy cover.
Education & Engagement	• Education programs to improve community awareness of the benefits of trees, and specific guidance in tree selection, planting, care and maintenance, to provide greater support for planting on Council-owned land and lead to increased tree canopy on private land. • Run programs and competitions to engage the community with the idea of taking individual action that grows Hobart’s urban forest.
Tree planting & protection incentives	• Run tree giveaway events with stock sourced from the City of Hobart nursery. • Provide small grants to individuals or groups wanting to enhance greening on private property. • Provide small grants for individuals to maintain existing, large and important canopy trees.

Table 2 Mechanisms for growing tree canopy cover on private land.







The best time
to plant a tree was
20 years ago.
The second best
time is now.





Hobart Town Hall,
Macquarie Street,
Hobart, Tasmania 7000
T 03 6238 2711
E coh@hobartcity.com.au
W hobartcity.com.au