

2025 Brighton Urban Forest Canopy Monitoring Report

v2 (20/11/2025)



**Brighton
Council**

Introduction

The Brighton Council has commissioned Geoneon to undertake its first comprehensive analysis of tree canopy cover across the council. This study establishes a reliable baseline for ongoing monitoring of urban greening and environmental resilience in the region. This analysis was limited to three urban areas, around Brighton, Bridgewater, and Old beach, using the Urban Growth Boundaries (UGB).

High-resolution satellite imagery captured in December 2024 was used as the primary dataset for canopy classification, with additional imagery from April 2025 reviewed to verify consistency. The April imagery showed broadly similar canopy patterns to December 2024, but the December

dataset provided superior image quality and was therefore used for final analysis.

The study compares canopy conditions between 2020 and 2025, providing insights into spatial change and distribution over time. Detailed outputs are presented for suburb, cadastral type, land use, along with canopy height estimates and a tree planting prioritisation layer to support strategic greening initiatives.

This dataset provides a strong foundation for Brighton's future monitoring and planning efforts, helping to improve climate resilience, guide canopy expansion, and support evidence-based environmental policy.

Data Summary

NAME	SOURCE	DATE(S)	DESCRIPTION
VANTOR HIGH RESOLUTION SATELLITE IMAGERY	VANTOR (formerly MAXAR)	19 Dec 2019 (partial mosaic with 2020) 20 Mar 2020 4 Dec 2024 9 Apr 2025 (<i>validation only</i>) Accessed: 24 Jul 2025	Primary 50 cm multispectral satellite imagery used for canopy classification and height estimation. Sourced from the Vantor (Maxar) core imagery products, all imagery resampled to 50 cm resolution, and clipped to the Brighton Urban Growth Boundary (UGB) for consistent analysis.
SUBURBS	The LIST	Revision Date: 20 Mar 2025 Accessed: 9 Oct 2025	Derived from the <i>list_locality_postcode_brighton</i> layer. Boundaries clipped to the UGB. Used to summarise canopy coverage at suburb scale (see full metadata).
CADASTRE	The LIST	Revision Date: 12 Feb 2025 Accessed: 21 Oct 2025	Extracted from <i>list_parcels_brighton</i> . Classified using CAD_TYPE_1 and CAD_TYPE_2 fields, then dissolved into five parcel categories: Water, Road Corridors, Private Parcels, Other Public Authority, and Local Government Authority. Used to report canopy coverage by parcel type (see full metadata).
LAND USE	The LIST	Revision Date: 20 Mar 2025 Accessed: 21 Oct 2025	Based on <i>Tasmanian Planning Scheme Zoning</i> dataset. Data clipped to the UGB and classified by zoning category. Used for canopy analysis by land-use type (see full metadata).
URBAN GROWTH BOUNDARY (UGB)	The LIST	Access Date: 12 May 2025	Defines the Area of Interest (AOI) for canopy mapping. Based on Greater Hobart Urban Growth Boundary. Used as the spatial boundary for clipping all analytical layers and downloading satellite imagery.
CENSUS DATA (ABS 2021)	Australian Bureau of Statistics (ABS)	Access Date: 7 Oct 2025	2021 Census data used to calculate population vulnerability and socioeconomic disadvantage at SA1 level. Integrated into the canopy prioritisation layer to inform greening strategies.

Table 1: Summary of Data Sources and Descriptions Used in the Brighton Tree Canopy Mapping Analysis

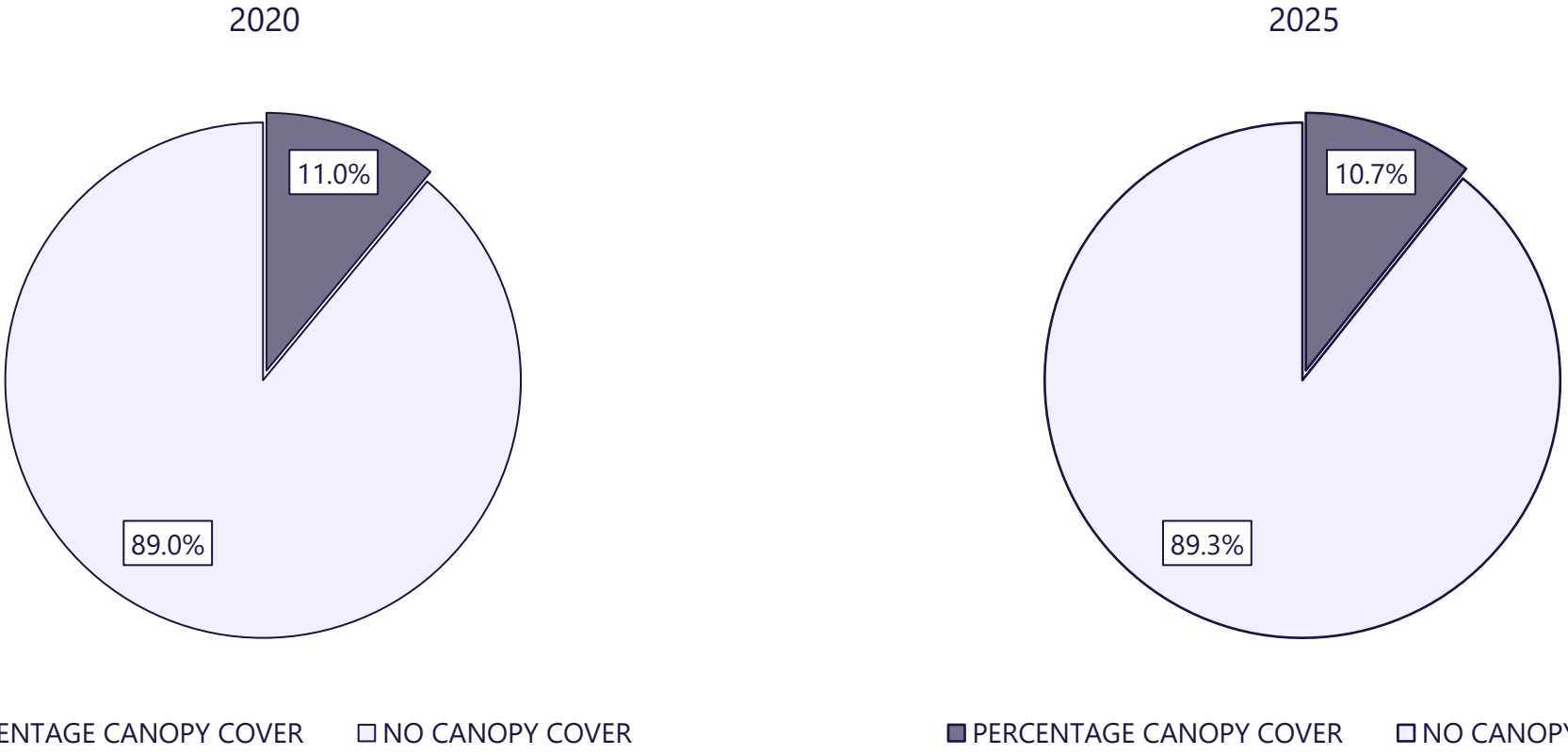
This table summarises the core datasets used to produce the Brighton Tree Canopy Mapping outputs. Each dataset includes details on its origin, acquisition or revision date, and analytical role in the canopy modelling process. The listed inputs encompass high-resolution satellite imagery, spatial boundary datasets, planning and cadastral layers, and socioeconomic indicators. Together, these datasets underpin the spatial analysis, canopy classification, and prioritisation modelling used to assess tree cover distribution, change detection, and greening opportunities across the Brighton Urban Growth Boundary (UGB).

Methodology Summary

The workflow implemented for Brighton's urban canopy assessment followed the steps outlined below:

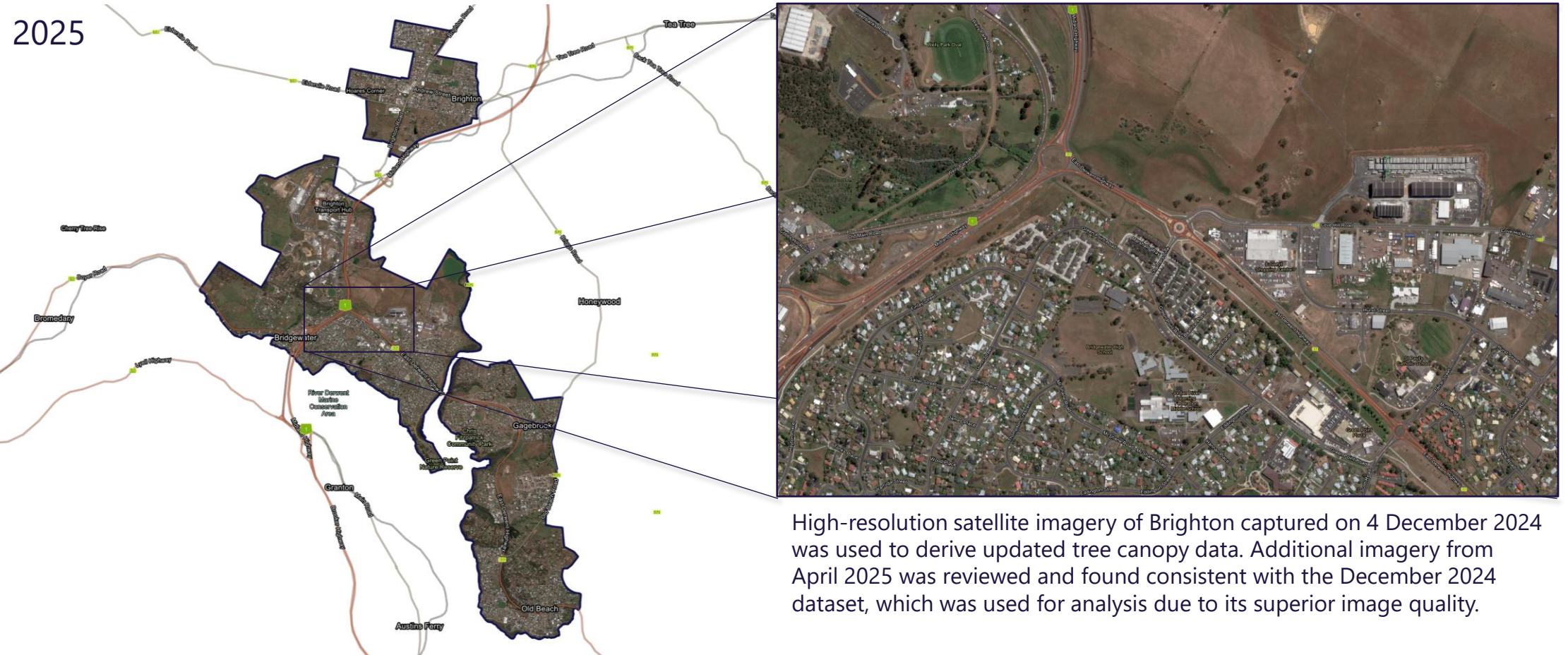
1. Data Preparation
 - Import and reproject all spatial datasets to the EPSG:32755 coordinate reference system (WGS84/ Zone 55).
 - Clip all vector datasets to the Brighton Urban Growth Boundary (UGB), defining the Area of Interest (AOI).
2. Canopy Classification
 - Apply the Geoneon AI classification models to 50 cm Vantor (Maxar) satellite imagery to generate high-resolution canopy polygons.
 - Remove polygons smaller than 0.001 m² and any null geometries to ensure data quality.
3. Spatial Analysis
 - Compute canopy cover percentages for suburb, cadastre, and land-use layers using area-weighted spatial intersection.
 - Generate a 30 m change detection grid aligned with the UGB to facilitate temporal comparison.
4. Change Detection and Prioritisation
 - Calculate canopy gain and loss between 2020 and 2025 imagery using grid-based differencing.
 - Derive a prioritisation index integrating canopy deficit, heat susceptibility, and social vulnerability indicators to support urban greening strategies.

Tree Canopy Over the Council Area



*Note: Canopy Cover Percentages have a 5% uncertainty error see [Note 1](#) for more information

Satellite Imagery



High-resolution satellite imagery of Brighton captured on 4 December 2024 was used to derive updated tree canopy data. Additional imagery from April 2025 was reviewed and found consistent with the December 2024 dataset, which was used for analysis due to its superior image quality.

Satellite Imagery – 2020 & 2025

2020



2025



Satellite Imagery (Brighton) – 2020 & 2025

2020

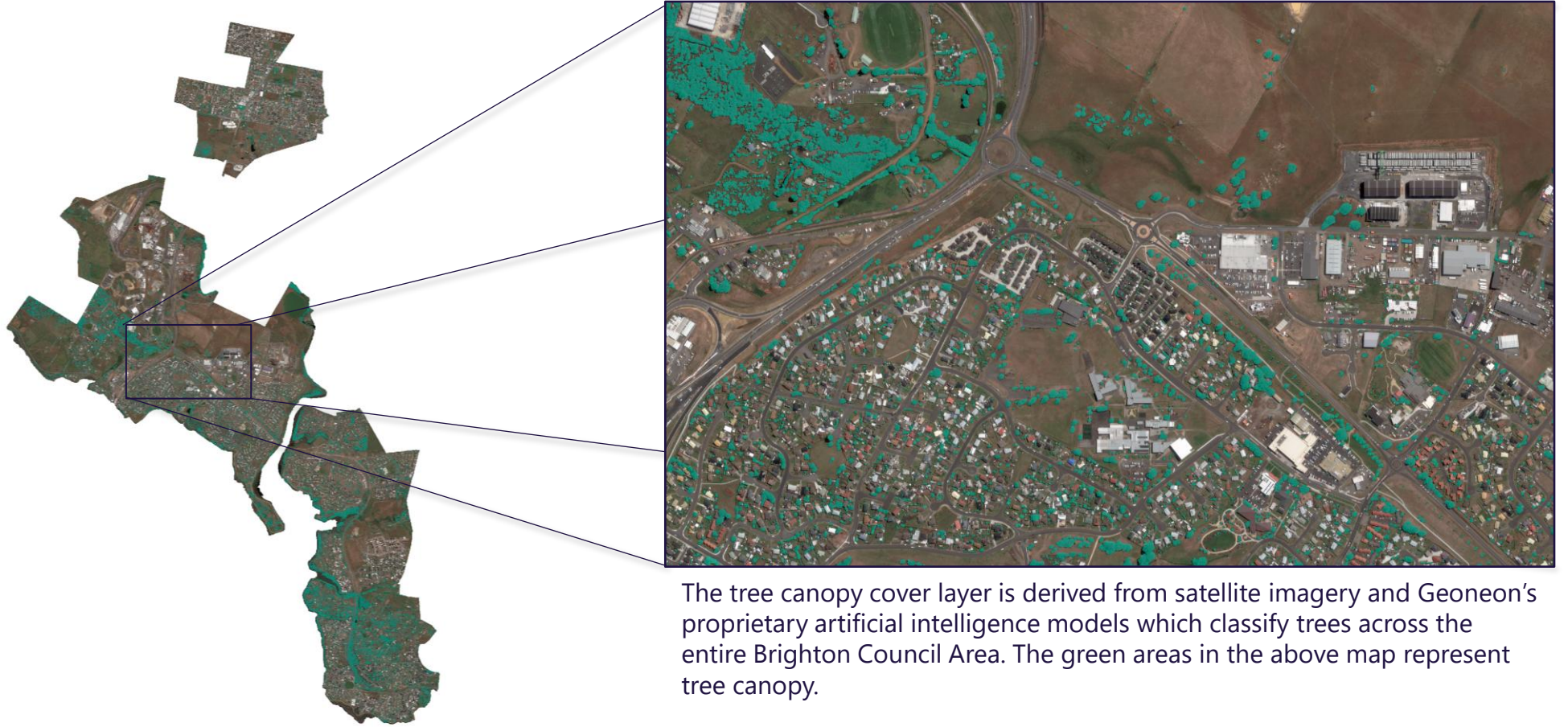


2025



Tree Canopy Cover – 2025

2025



Tree Canopy Cover (2020 – 2025)

2020



2025



Tree Canopy Cover – Brighton (2020 – 2025)

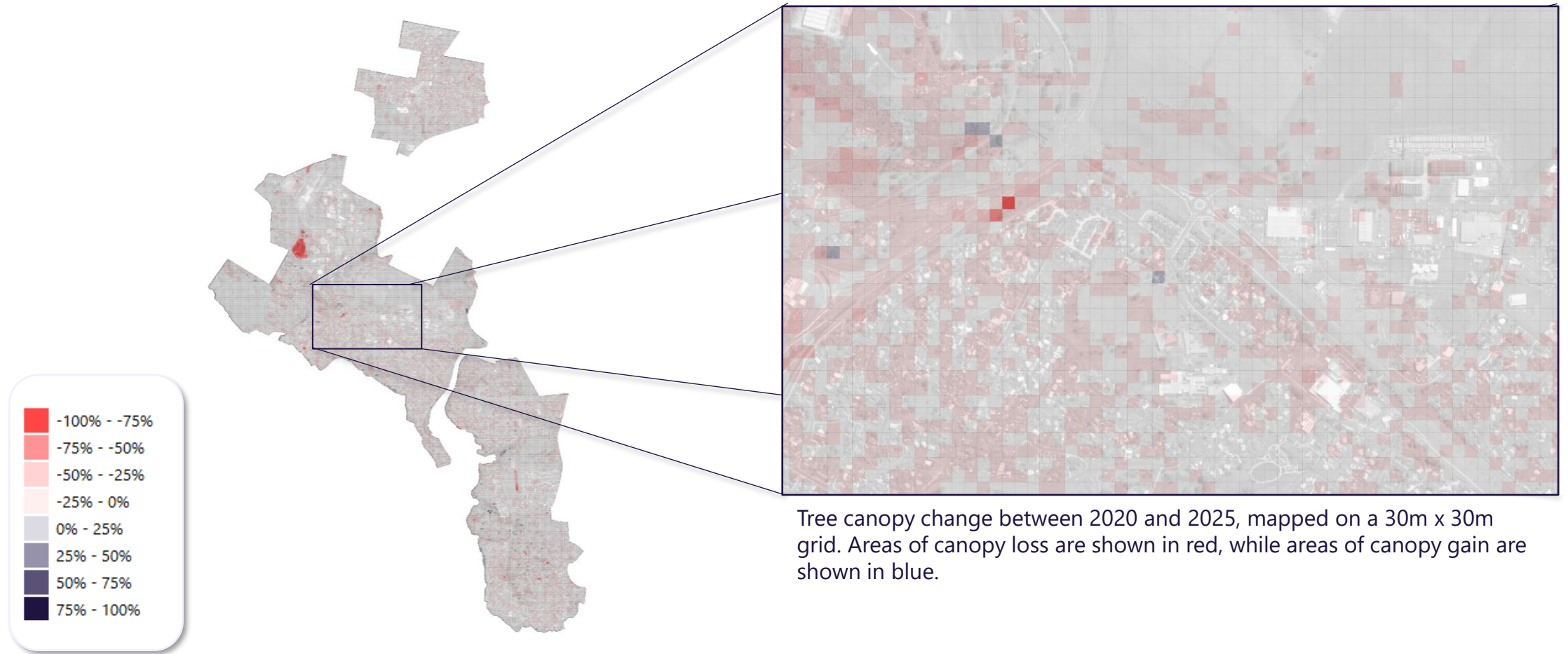
2020



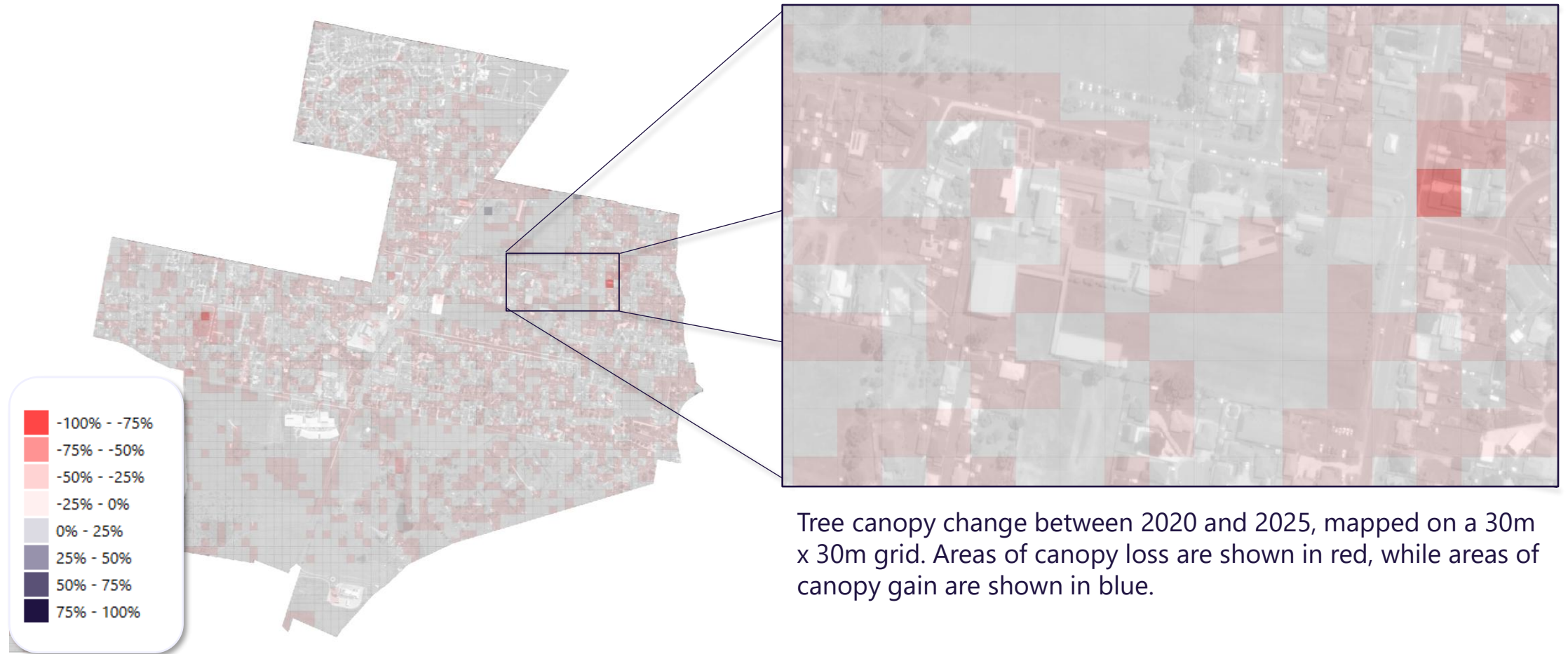
2025



Tree Canopy Cover Change (2020 – 2025)

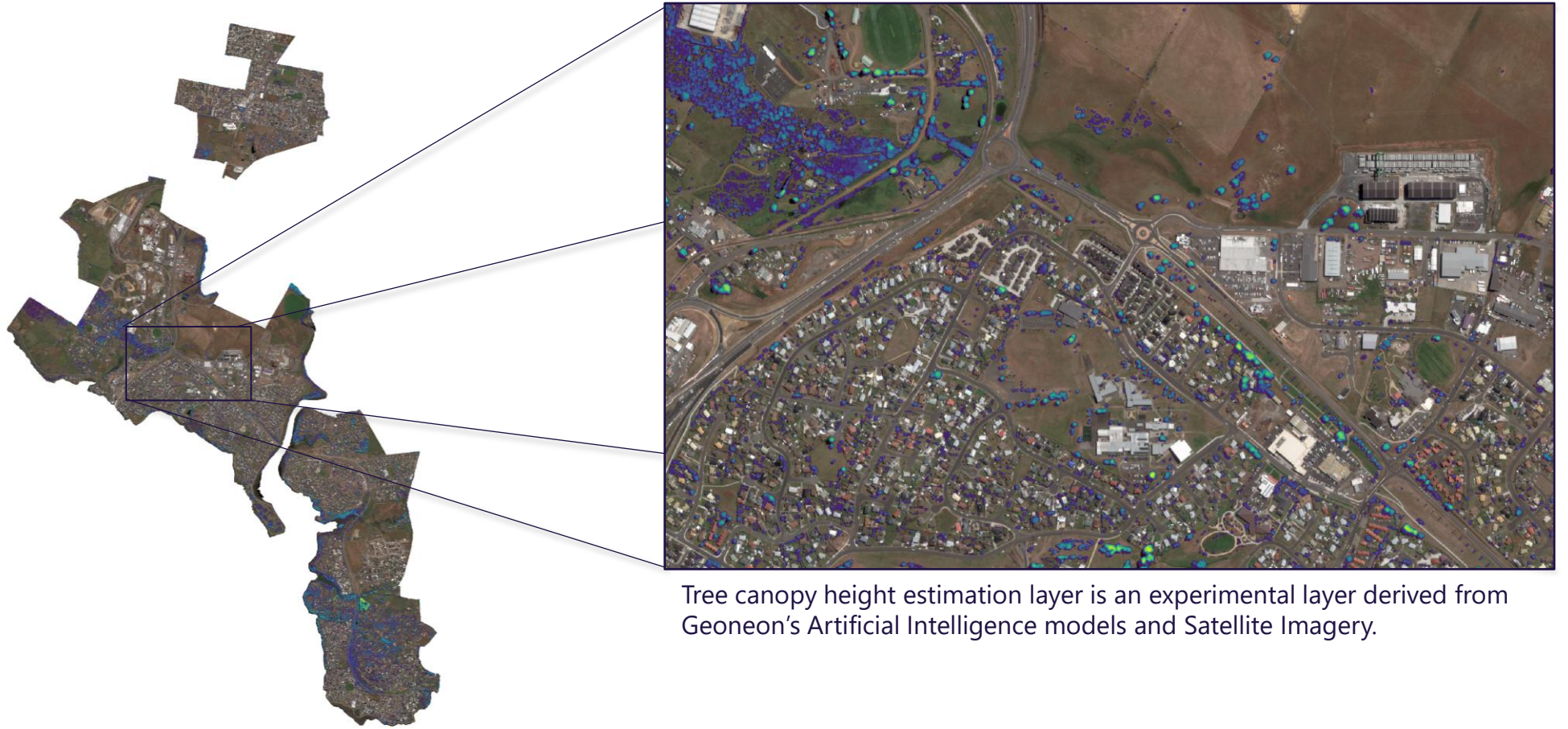
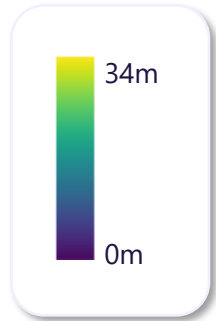


Tree Canopy Cover Change – Brighton (2020 – 2025)



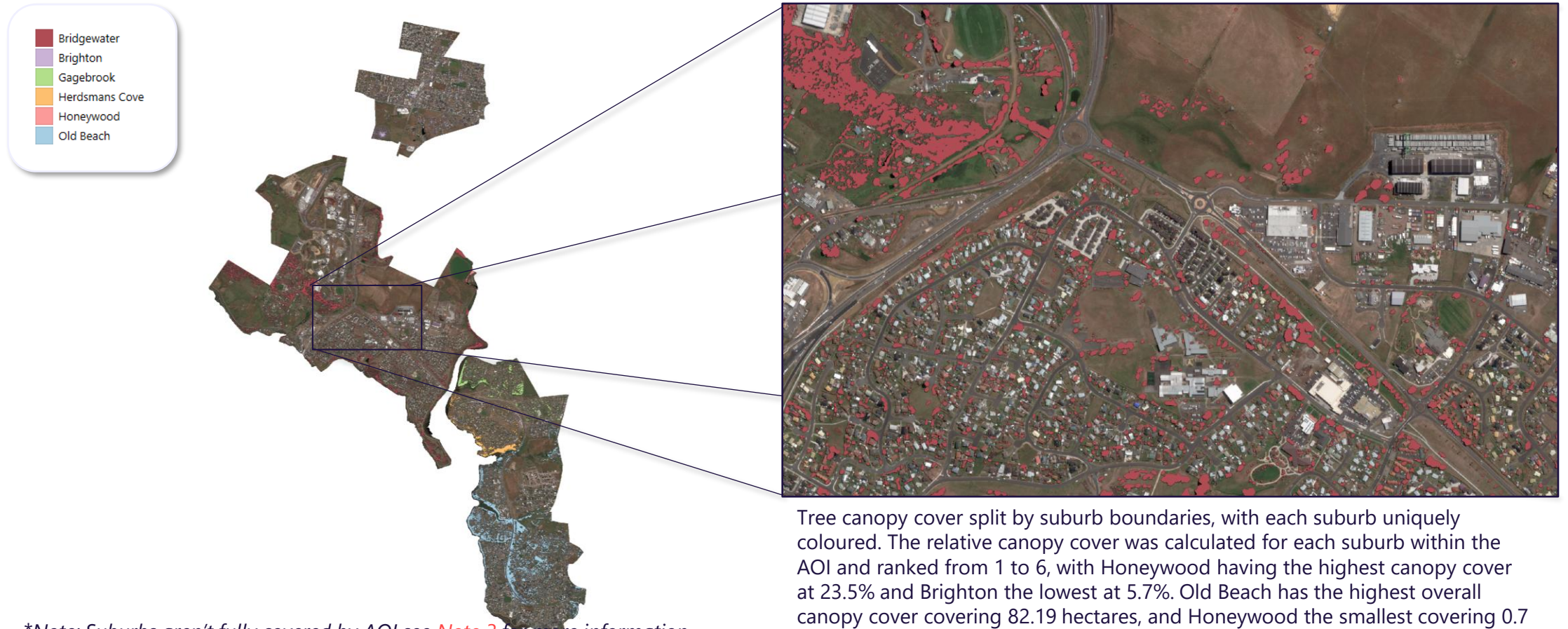
Tree canopy change between 2020 and 2025, mapped on a 30m x 30m grid. Areas of canopy loss are shown in red, while areas of canopy gain are shown in blue.

Tree Canopy Height – 2025



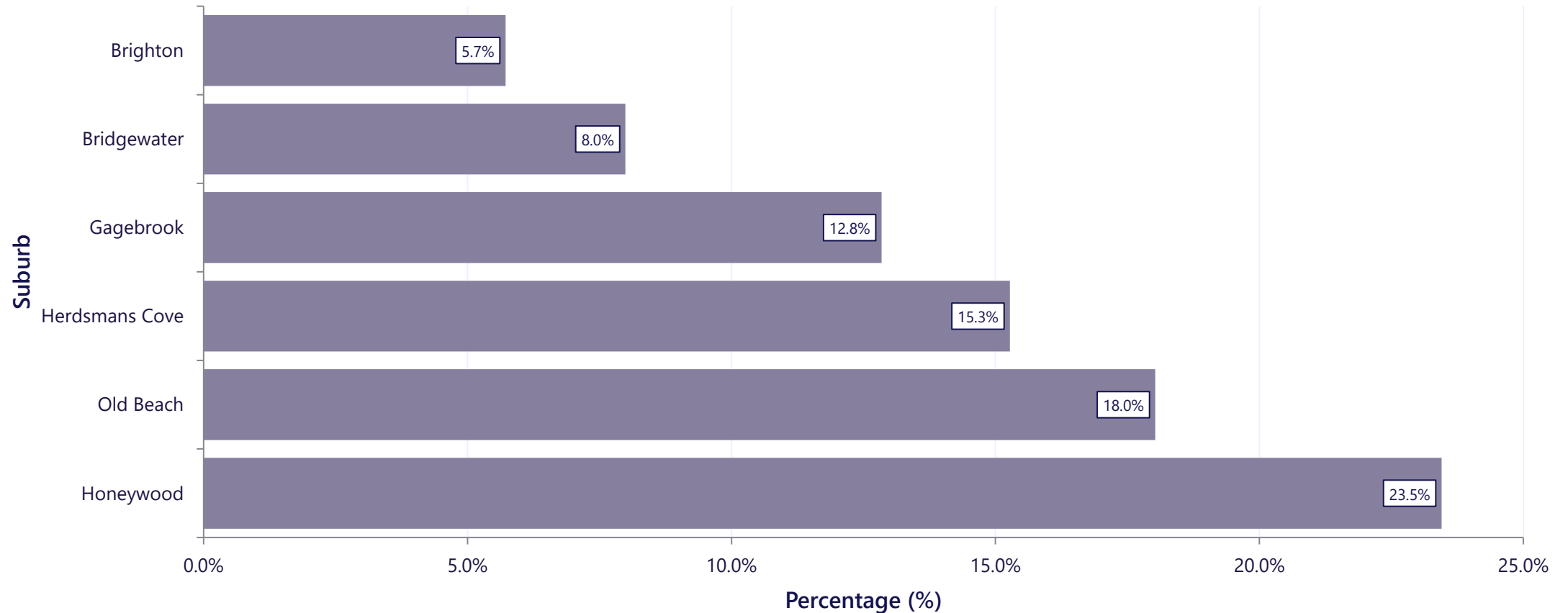
Tree canopy height estimation layer is an experimental layer derived from Geoneon's Artificial Intelligence models and Satellite Imagery.

Tree Canopy Cover – Suburbs (2025)



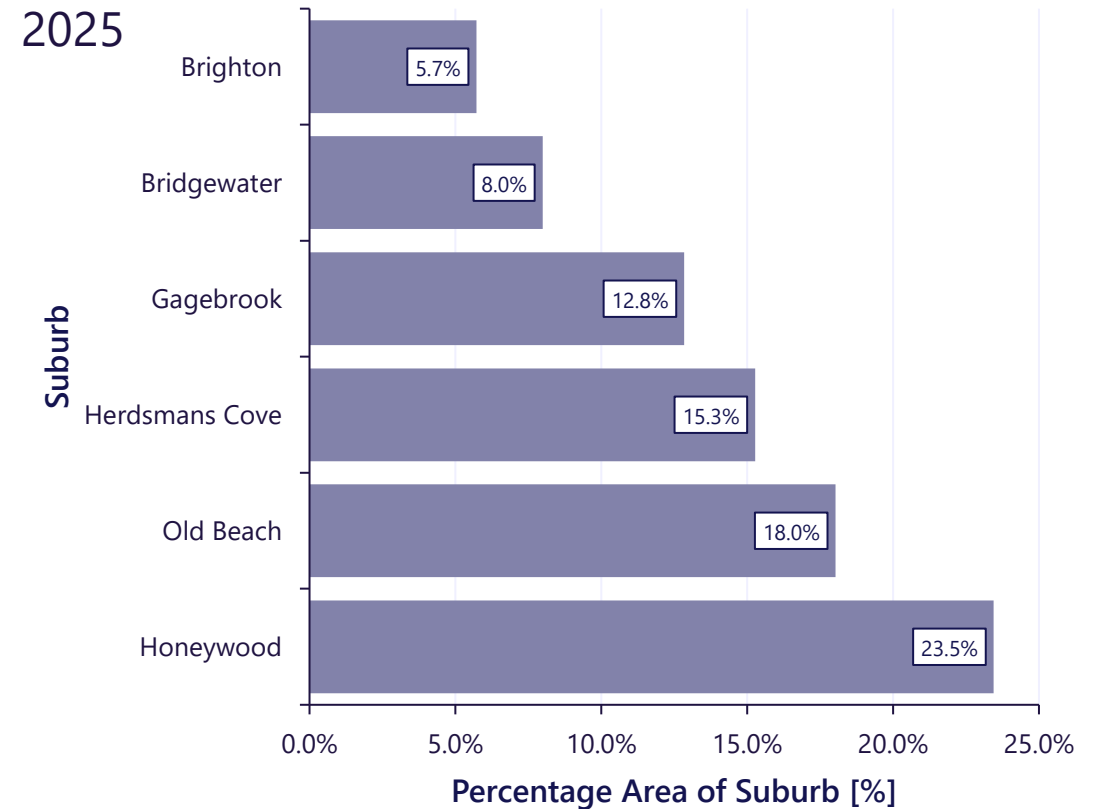
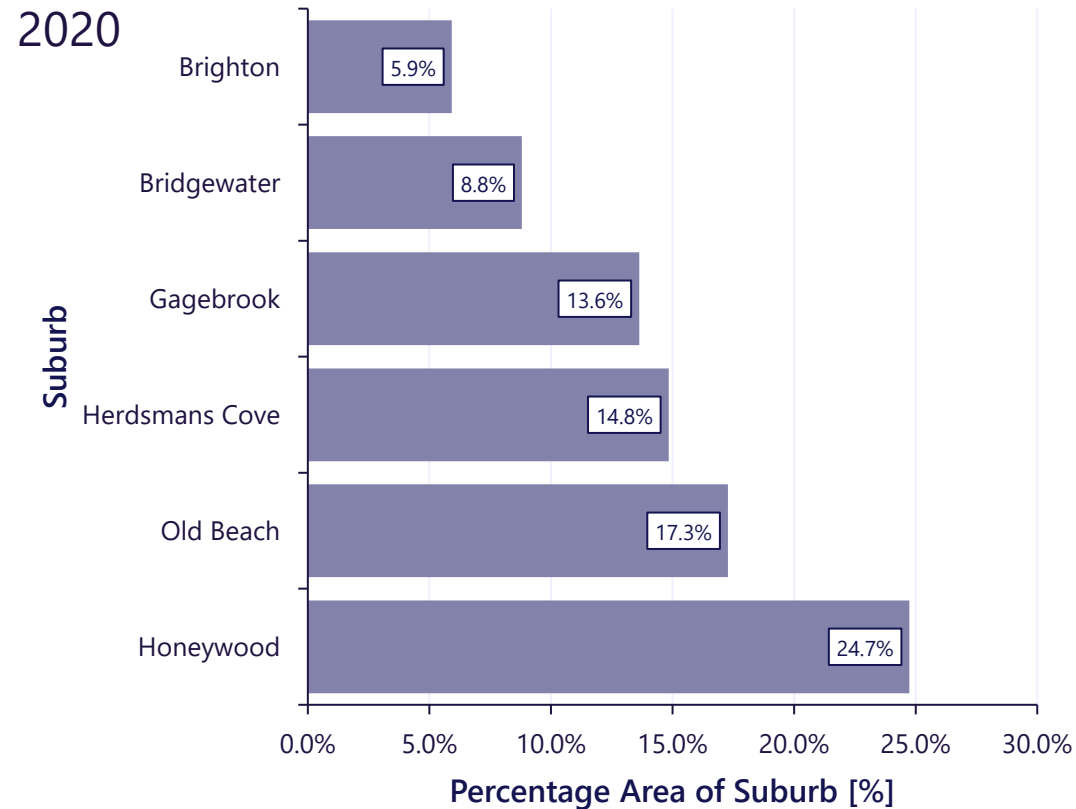
Tree canopy cover split by suburb boundaries, with each suburb uniquely coloured. The relative canopy cover was calculated for each suburb within the AOI and ranked from 1 to 6, with Honeywood having the highest canopy cover at 23.5% and Brighton the lowest at 5.7%. Old Beach has the highest overall canopy cover covering 82.19 hectares, and Honeywood the smallest covering 0.7 hectares.

Tree Canopy Cover Percentage by Suburb (2025)



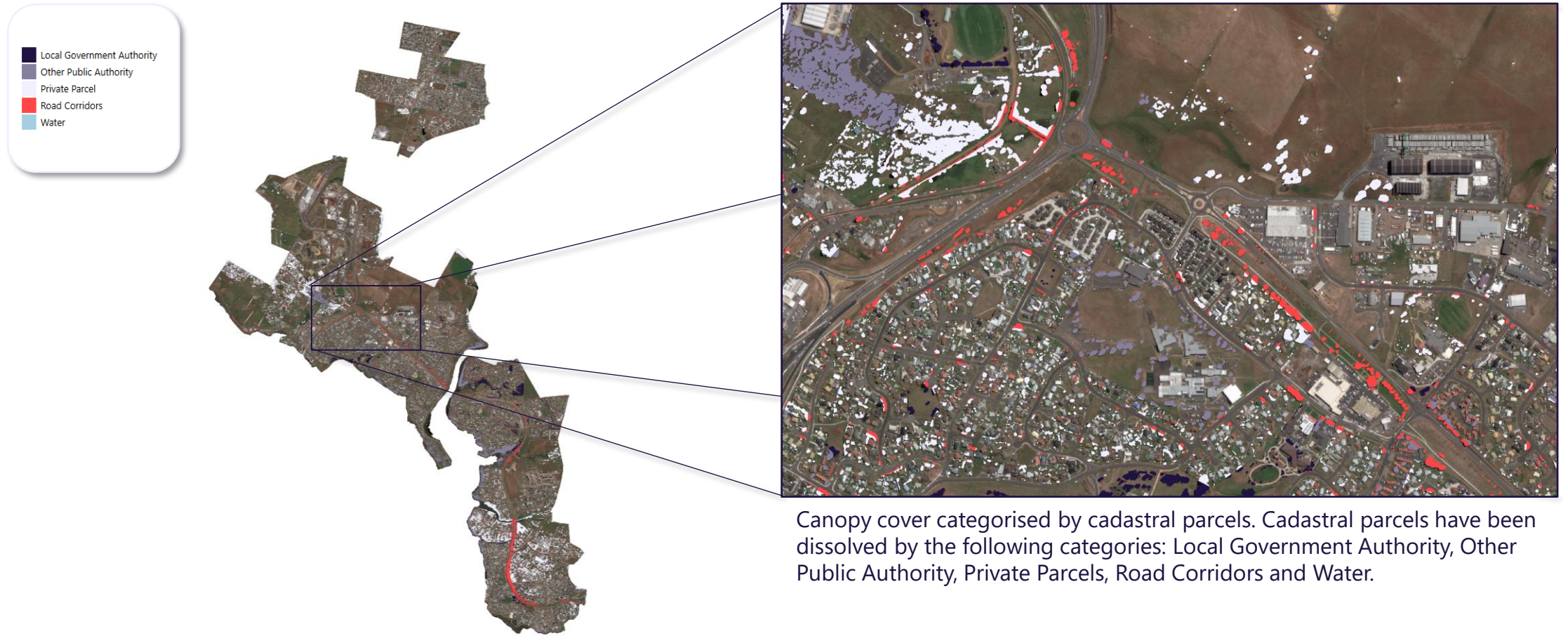
*Note: Canopy Cover Percentages have a 5% uncertainty error see [Note 1](#) for more information

Tree Canopy Cover Percentage by Suburb

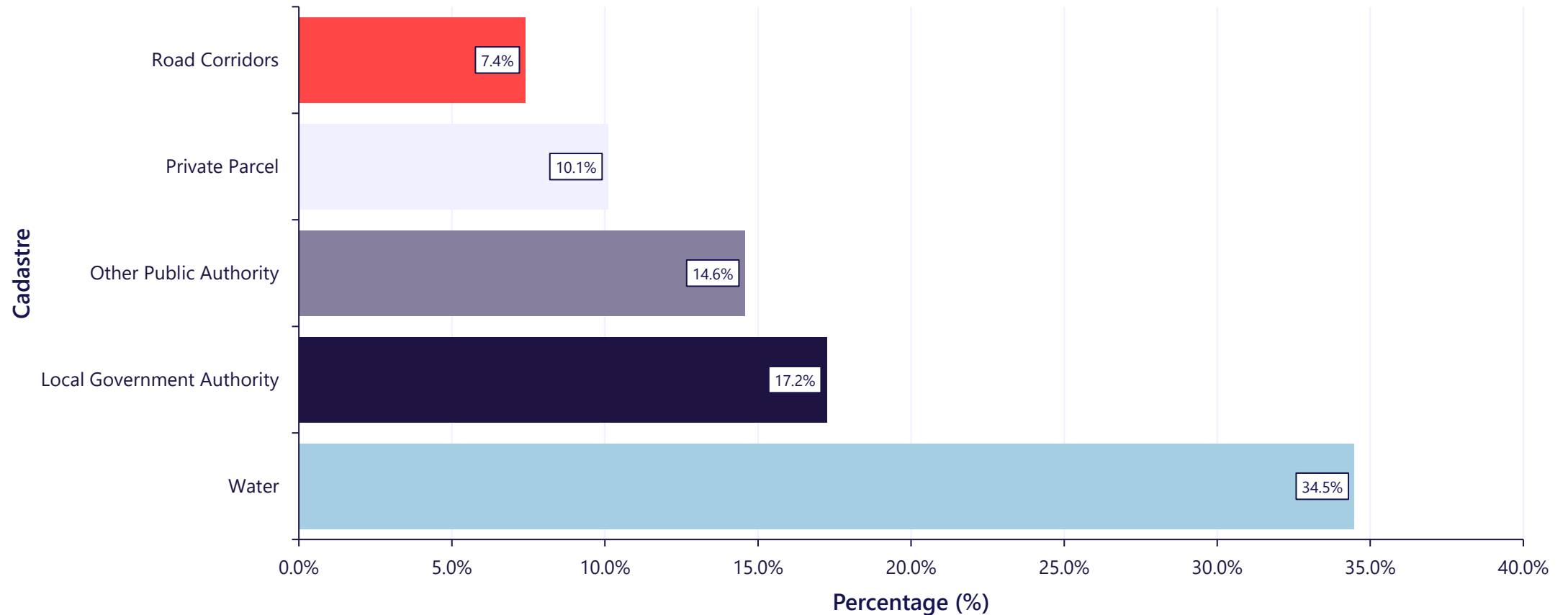


*Note: Canopy Cover Percentages have a 5% uncertainty error see [Note 1](#) for more information

Tree Canopy Cover – Cadastre (2025)

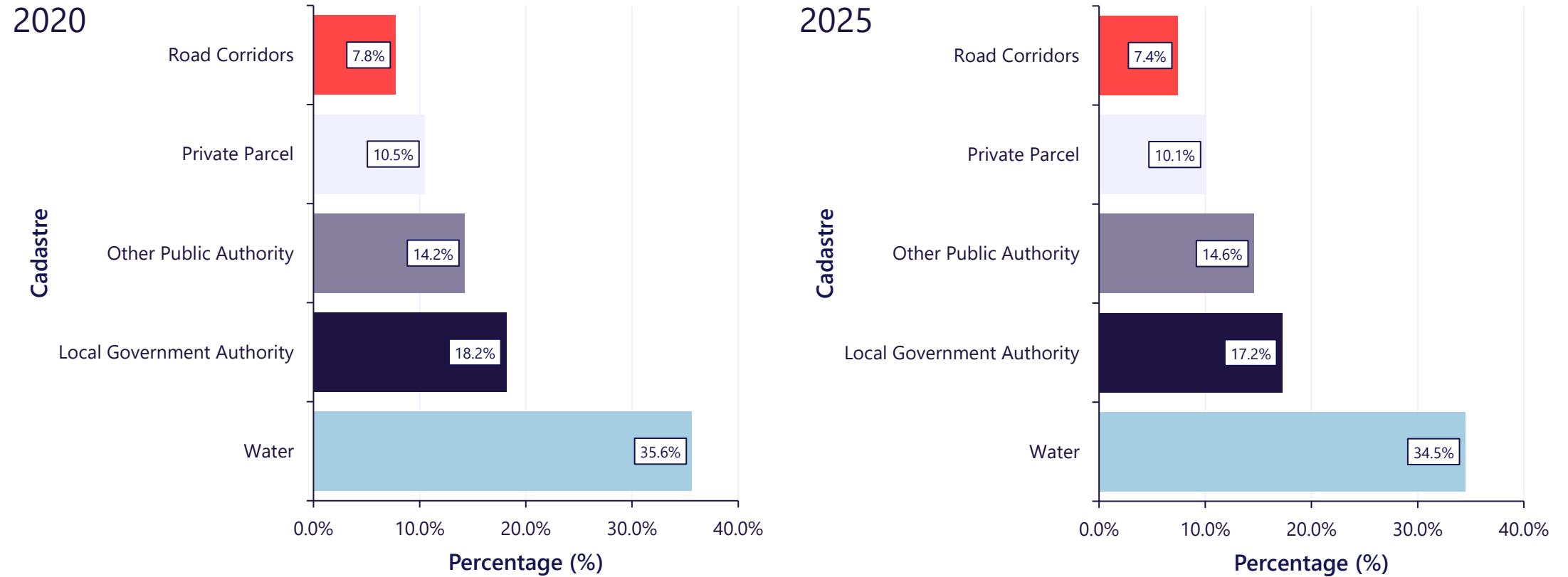


Tree Canopy Percentage by Cadastre (2025)



*Note: Canopy Cover Percentages have a 5% uncertainty error see [Note 1](#) for more information

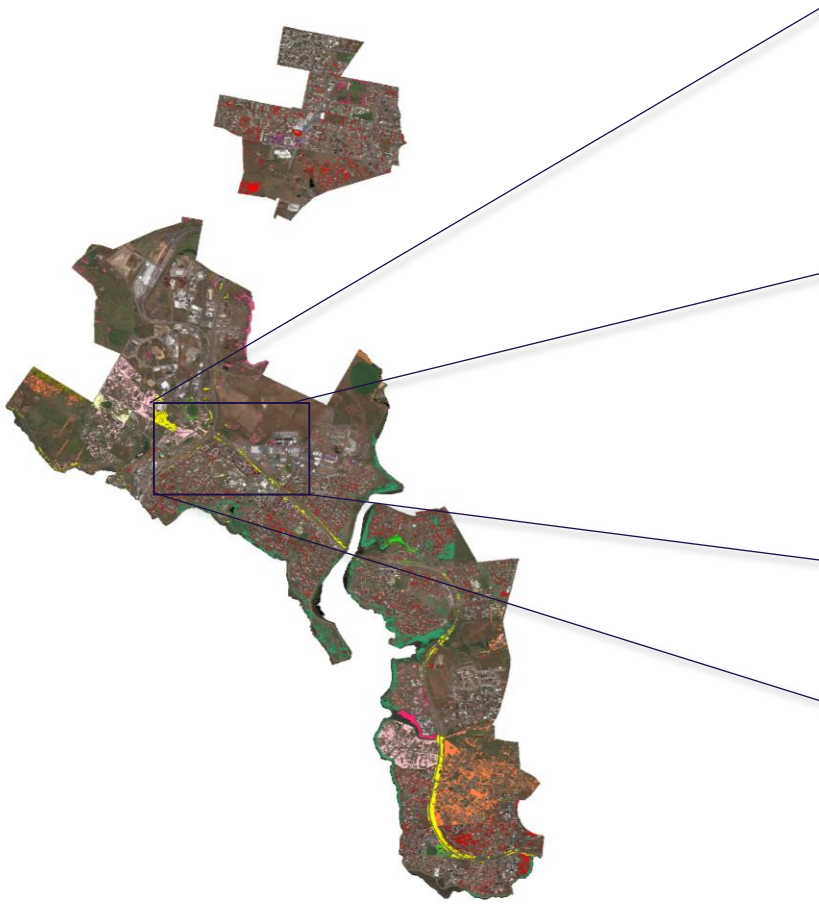
Tree Canopy Cover Percentage by Cadastre



*Notes: Canopy Cover Percentages have a 5% uncertainty error see [Note 1](#) for more information.

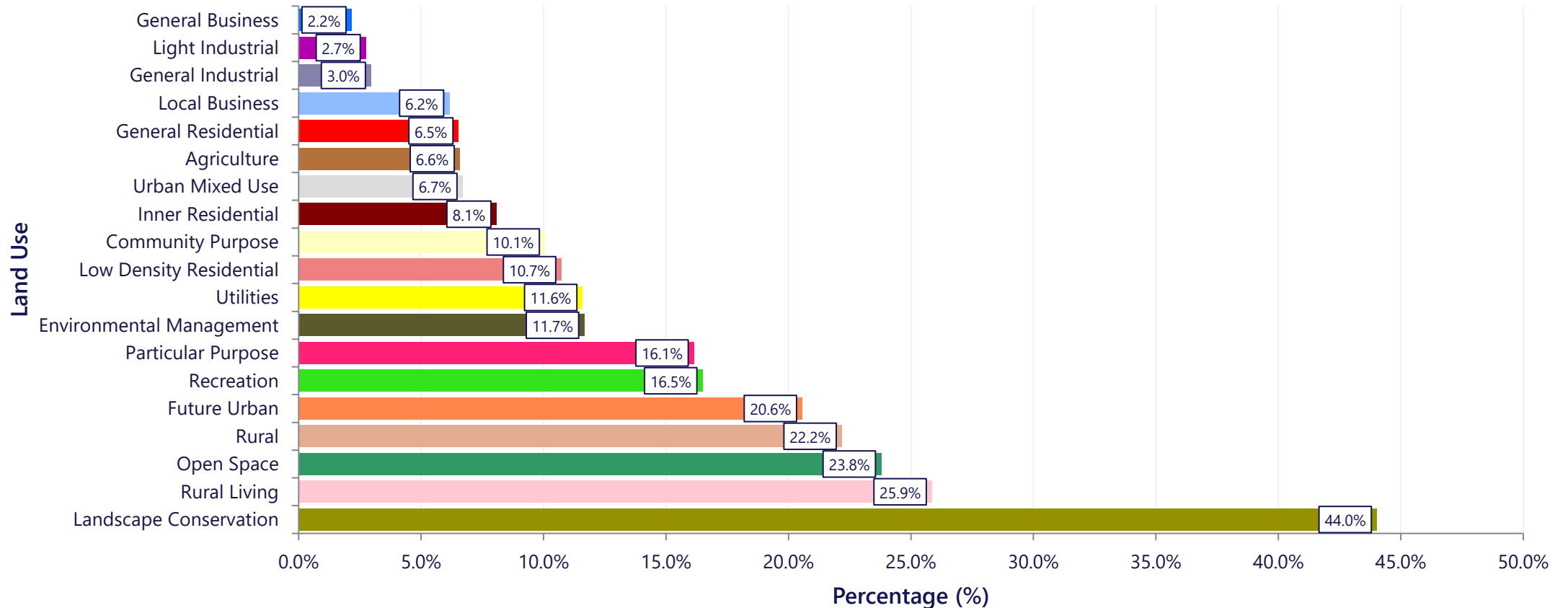
Tree Canopy Cover – Land Use (2025)

- General Residential
- Inner Residential
- Low Density Residential
- Rural Living
- Village
- Urban Mixed Use
- Local Business
- General Business
- Central Business
- Commercial
- Light Industrial
- General Industrial
- Rural
- Agriculture
- Landscape Conservation
- Environmental Management
- Major Tourism
- Port and Marine
- Utilities
- Community Purpose
- Recreation
- Open Space
- Future Urban
- Particular Purpose
- Other



Canopy cover by land use categories. The layer is derived from The LIST Planning Scheme Zones layer.

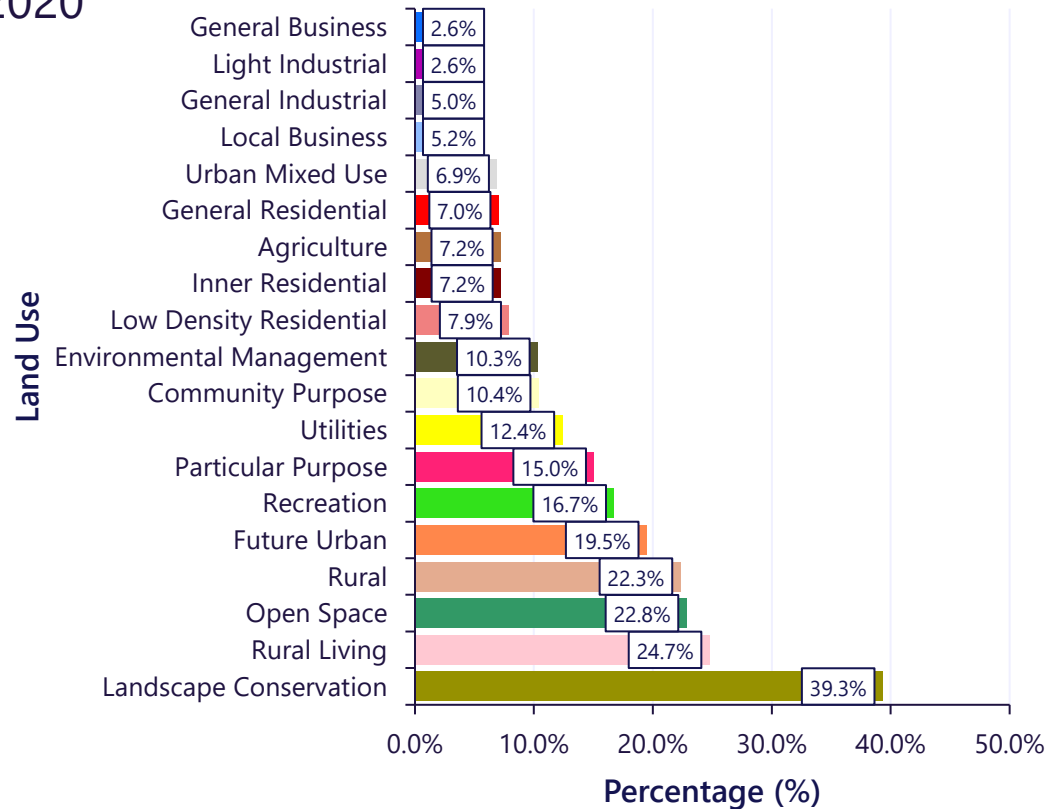
Tree Canopy Percentage by Land Use (2025)



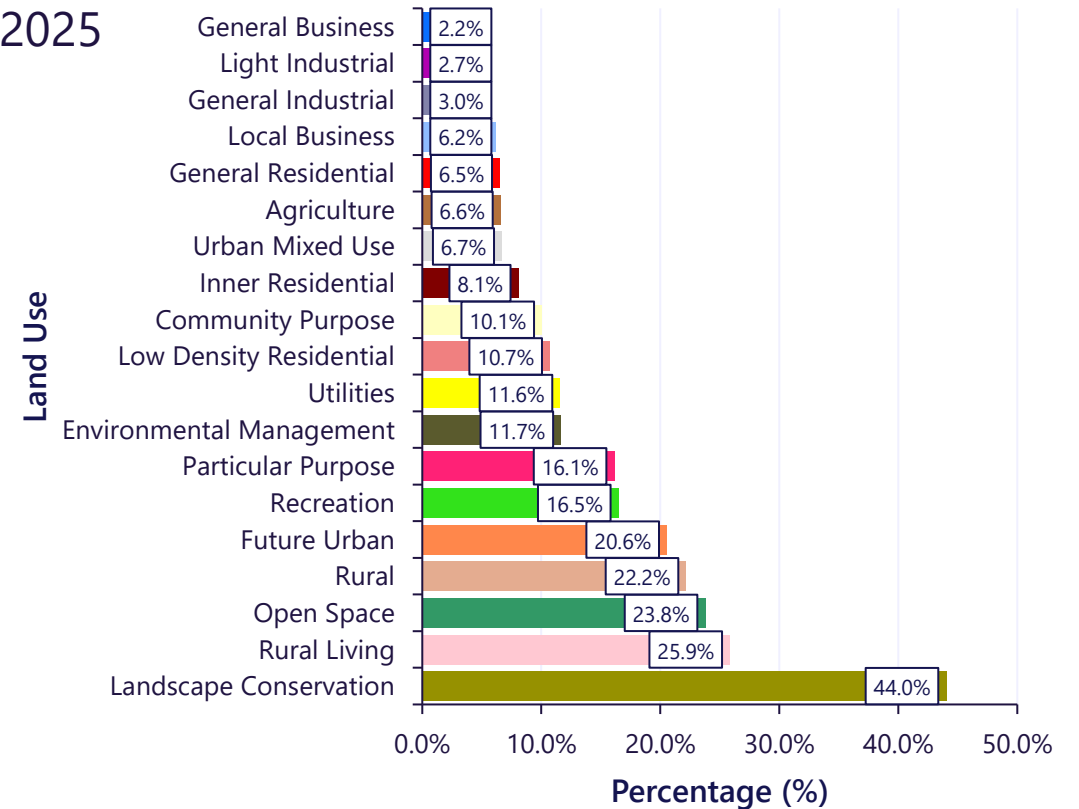
*Note: Canopy Cover Percentages have a 5% uncertainty error see [Note 1](#) for more information

Tree Canopy Cover Percentage by Land Use

2020

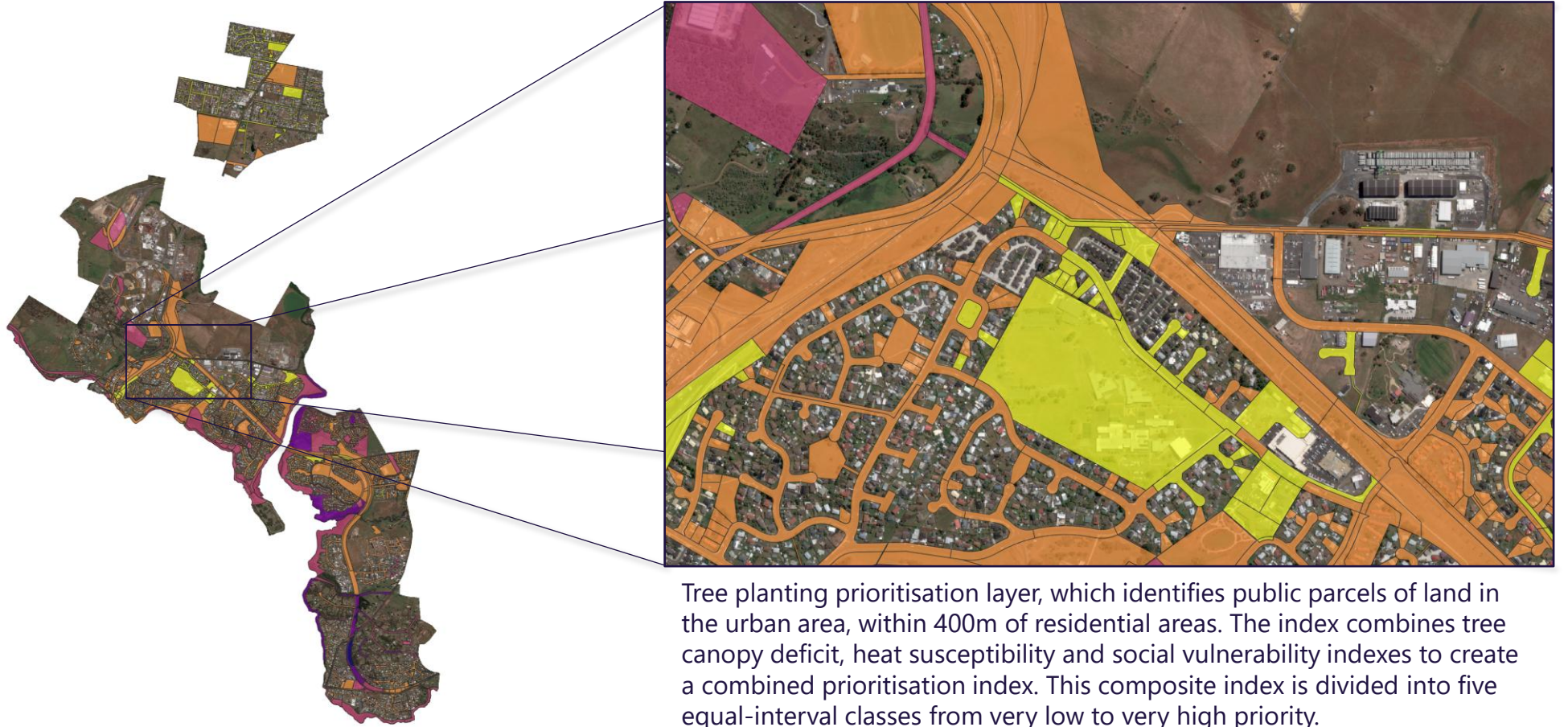


2025



*Note: Canopy Cover Percentages have a 5% uncertainty error see [Note 1](#) for more information.

Tree Planting Prioritisation – 2025



Tree planting prioritisation layer, which identifies public parcels of land in the urban area, within 400m of residential areas. The index combines tree canopy deficit, heat susceptibility and social vulnerability indexes to create a combined prioritisation index. This composite index is divided into five equal-interval classes from very low to very high priority.

Conclusion

The 2025 Brighton tree canopy monitoring results show a generally stable canopy trend across the council area, with small variations between suburbs and land categories.

At the urban council scale, overall canopy cover has changed only slightly from 11.0% in 2020 to 10.7% in 2025, representing a modest decrease within the expected uncertainty range. This suggests that, despite development pressures and environmental variability, Brighton's urban canopy has remained relatively steady over the five-year period.

Key observations include:

- Suburban variation: Brighton records the lowest relative canopy cover (5.7%), consistent with the 2020 baseline. Honeywood maintains the highest relative canopy proportion (23.5%), although only a small portion of the suburb falls within the Area of Interest (AOI). Old Beach contains the largest total canopy area, reflecting its broader spatial extent and vegetation density.
- Land use differences: Public land parcels, including those managed by the Local Government Authority, exhibit canopy

coverage of approximately 17.2%, compared with 10.1% for private parcels. Water parcels show the highest relative canopy cover, although they likely do not represent complete watercourses, as parcel boundaries are often clipped to the AOI along these features.

- Canopy change: Minor canopy losses are observed in areas of recent residential expansion, particularly around growth corridors. These changes are consistent with new development activity within the urban growth boundary.
- Canopy height mapping: The experimental height model continues to refine understanding of the vertical structure and maturity of Brighton's urban forest, adding depth to traditional canopy extent metrics.

Overall, Brighton's urban forest appears steady with small, negative trends in canopy extent and structure. Continued monitoring will help validate these patterns over time and guide targeted planting, particularly in lower-canopy suburbs and high-heat areas identified in the prioritisation layer.

Notes

Note 1 - 5% Uncertainty Error

- The 5% uncertainty reflects the expected margin of error in tree canopy detection. This means reported canopy percentages may vary by up to ± 5 percentage points from the true value.
- For example, a measured canopy cover of 30% may realistically fall within the range of 28.5% to 31.5% (5% of 30% = 1.5%).
- This uncertainty accounts for variations between classification models and differences in satellite imagery over time.

Note 2 – Loss/Gain Considerations

- Fire loss : In our model, areas of forest burnt by bushfire/controlled burning will sometimes not show up as tree canopy. Therefore fire/fire recovery between images may be shown as a loss/gain of tree canopy in that area.
- Shadows: Difference in shadows from trees/topology between satellite images can sometimes give the false result of tree canopy by obscuring canopy features.

Note 3 – Suburb Analysis

- Herdsmans Cove is the only suburb fully contained within the Area of Interest (AOI).
- All other suburbs are partially covered, ranging from approximately 11% (Brighton) to 60% (Bridgewater) of their total area.
- Pontville excluded — intersects less than 1 m² within the AOI boundary and is therefore not included in the analysis.

The Geoneon logo is rendered in a white, rounded, sans-serif font. The letters are thick and have a friendly, approachable feel. The 'G' is particularly large and rounded. The background of the entire slide is a blue-tinted photograph of a mountain range with mist or fog between the peaks, creating a sense of depth and tranquility.

Geoneon

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