

Current state of the tree canopy

To adequately plan for the future tree canopy across the Northern Beaches it is important to establish a baseline or a current state.

This section provides a summary of the current state of the tree canopy and related elements using available data. It highlights data gaps for future consideration.

Current canopy cover

Metropolitan context

The Greater Cities Commission (The Pulse of Greater Sydney) identified that of the nine Councils in the Sydney North District, the Northern Beaches, Ku-ring-gai and Hornsby all have over 50% tree canopy. This measure is of the tree canopy in the urban areas identified in the North District Plan and excludes tree canopy cover in National Parks and the Metropolitan Rural Area (MRA).

Northern Beaches context

The Northern Beaches tree canopy data that has informed this Plan was obtained by Council in May 2019 using a LiDAR survey. This provides our baseline canopy cover and will enable us to measure the effectiveness of this Plan and monitor our performance. Figure 3 shows the 2019 canopy cover across the LGA. Analysis of the 2019 LiDAR survey shows there is:

- 56.73% canopy cover across the whole LGA including national parks
- 56.81% canopy cover across open space and bushland.

National Parks

A significant amount of the Northern Beaches tree canopy is located in National Parks. Their presence contributes significantly to the character and beauty of the Northern Beaches. National Parks and Wildlife Service manages these areas on behalf of the State Government. In addition to protecting and preserving tree canopy, these parks play an integral role in conserving biodiversity.

This Plan excludes direct Actions within the National Parks. Nevertheless, the protection and management of the Northern Beaches tree canopy on urban and non-urban areas will support a seamless bush environment for wildlife corridors and provide ongoing support to these parks.

Northern Beaches LGA Land Area

Total Area (minus water bodies) 25,415 hectares

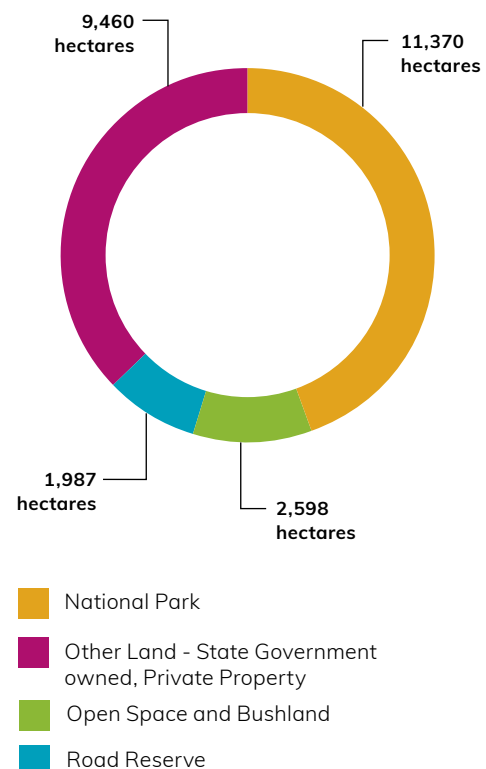
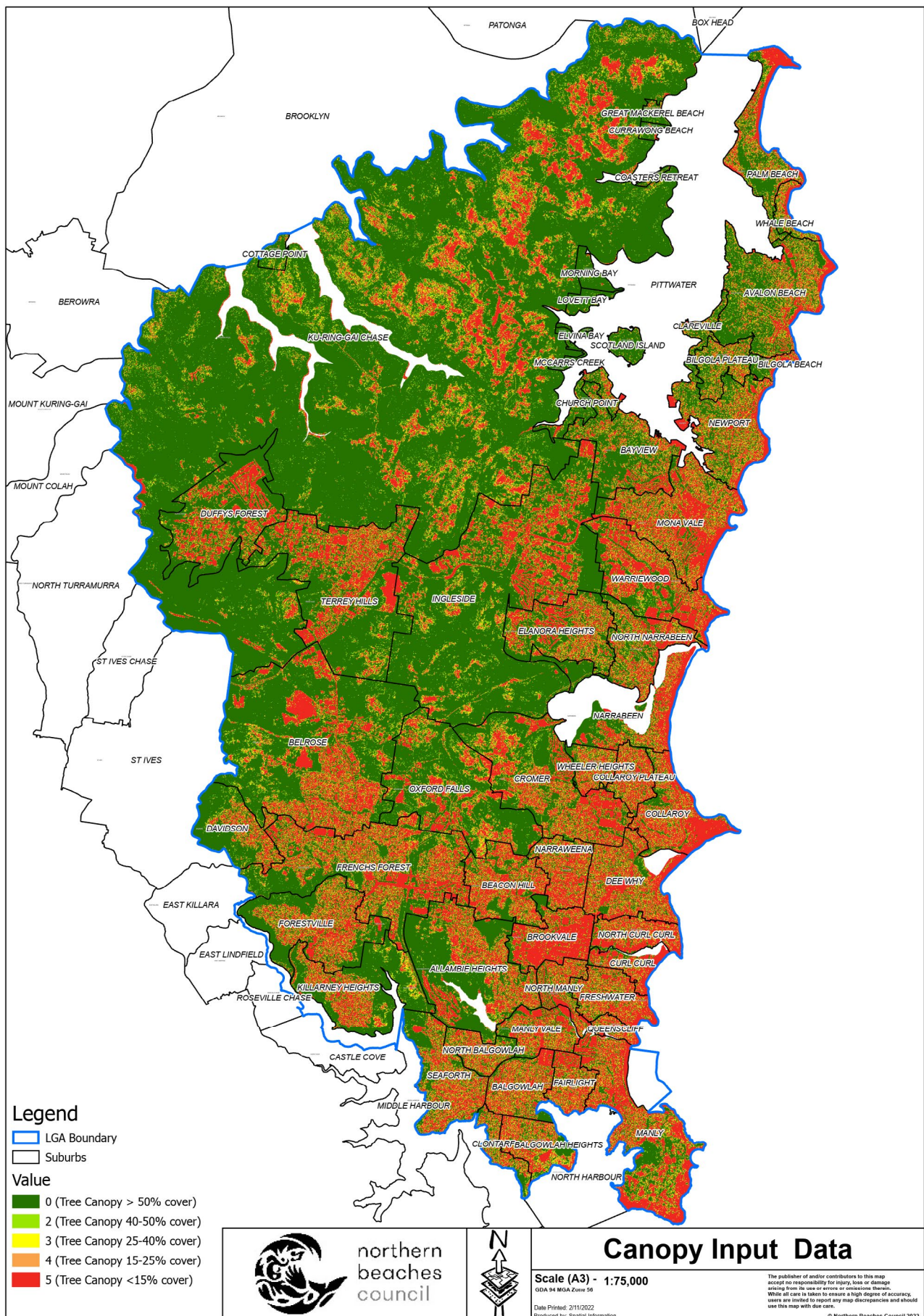


Figure 3
Map of Northern Beaches tree canopy % cover



Council managed land

Council managed lands include the thousands of trees within parks, sportsgrounds, open space, reserves and road reserves. Of the 4,585 hectares of land that Northern Beaches Council manages more than 1,700 hectares are bushland.

Council undertakes both proactive maintenance works and reactive maintenance works. Proactive works include the regular removal and maintenance of trees which leads to a reduction in reactive work resulting from unexpected weather events posing a threat and hazard to the community. This, in turn, should reduce the level of reactive tree maintenance, as a result of climatic conditions and storm events.

Reactive maintenance such as removing dangerous branches or trees is carried out on a priority basis. Council becomes aware of maintenance works as a result of resident notifications, from their routine maintenance inspections, and in response to damage from storms or work required due to interference with infrastructure.

Street trees are very important assets for councils. They provide amenity, improve air quality by removing carbon dioxide and returning oxygen, enhance property values, provide biodiversity and provide cooling shade. Northern Beaches Council's has many trees across all land types and tens of thousands of street trees, with multiple species, that are both native and exotic, evergreen and deciduous and range in age, size and condition.

Private land

The management of the tree canopy on private property is regulated by the Environmental Planning and Assessment Act 1979, and specifically the State Environment Planning Policy (Bio Diversity & Conservation) 2021, and Councils Development Control Plan for trees and bushland preservation.

There are a number of tree species that are exempt and do not require approval to be removed regardless of their size. The exempt tree species list can be found on Council's **website** northernbeaches.nsw.gov.au/environment/trees/exempt-tree-species-list.

Additionally, there are exemptions and guidelines for tree species that are classified as part of a complying development or if the property is in a 10/50 Vegetation Clearing Entitlement Area.

This Plan supports Actions to encourage private landowners to retain canopy trees, plant more trees, and assist Council in collecting private tree data.

Suburb canopy cover

Tree canopy per suburb shows a lower percentage tree canopy in urban areas particularly along the coast (Figure 3 and Figure 4). Across the LGA there are pockets of the urban area with low canopy due to large areas of open space, coastal vegetation that may not grow above 3m in height and a desire for uninterrupted views of the coast.

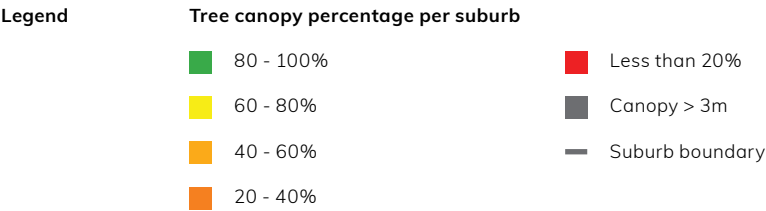
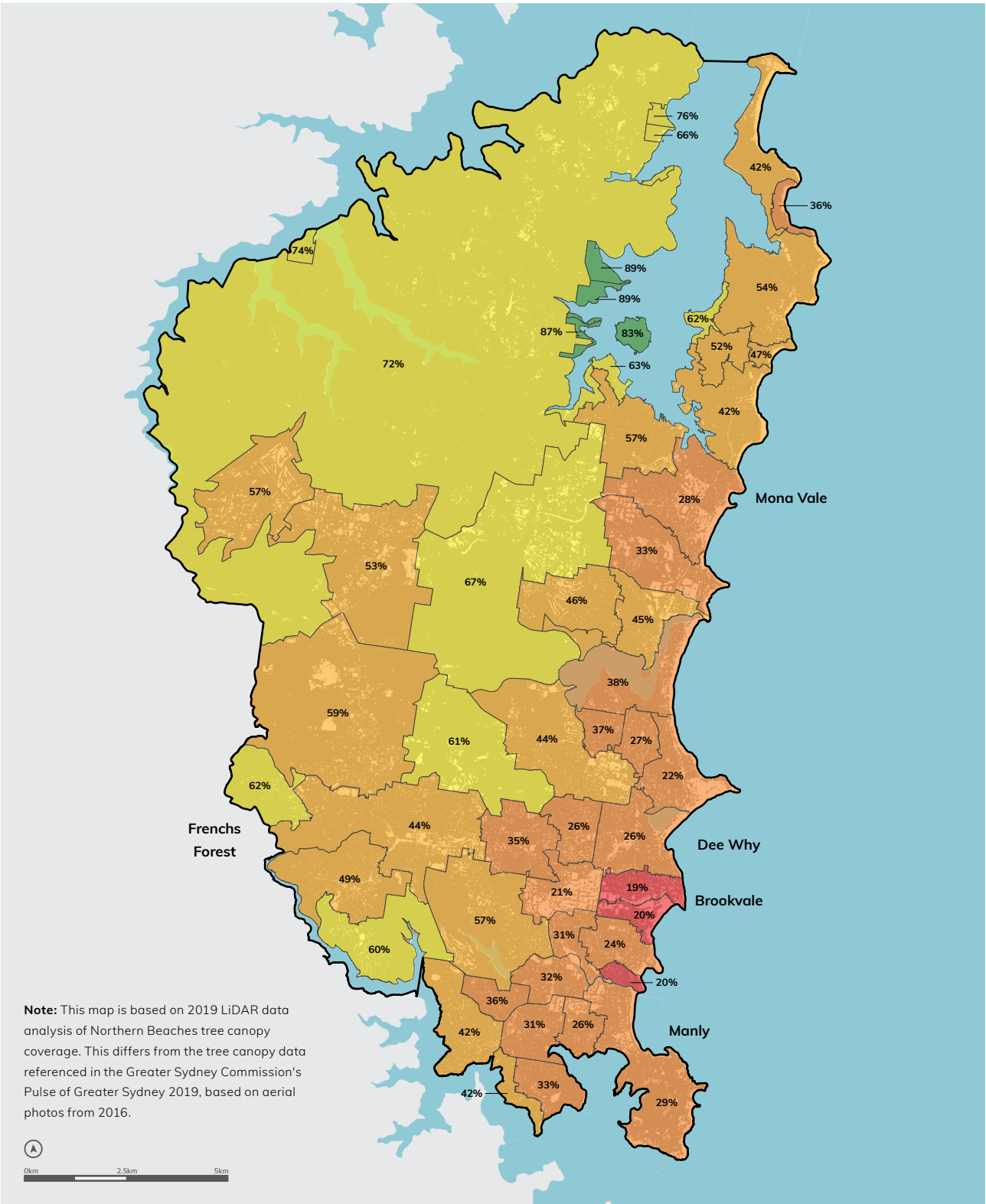
Some of the suburbs with the lowest tree canopy cover include:

- Curl Curl (20%)
- North Curl Curl (19%), largely due to a lack of canopy at John Fisher Park
- Queenscliff (20%)
- Brookvale (21%)

Suburbs with over 80% tree canopy include the non-urban coastal communities such as Scotland Island, Morning Bay and Lovett Bay.



Figure 4
 Northern Beaches tree canopy cover (%) by suburbs



Changes in tree canopy cover

LiDAR survey for the LGA was first undertaken in 2011 and 2013 in the north and southern sections of the LGA respectively. This has been compared to the May 2019 LiDAR. While the survey methods had slight differences, the data still provides a good level of comparison and an indication of changes over time.

Figure 5 shows a comparison of canopy cover over 3 metres between 2011-13 and 2019, there has been:

- a small decrease of 0.34% in the overall canopy cover
- an increase of 3.99% in the canopy within the National Parks
- a reduction of 6.12% in the canopy on other land*
- a reduction of 1.57% in the canopy cover associated with streets and roads
- a slight increase of 2.74% in the canopy cover of open space and bushland areas.

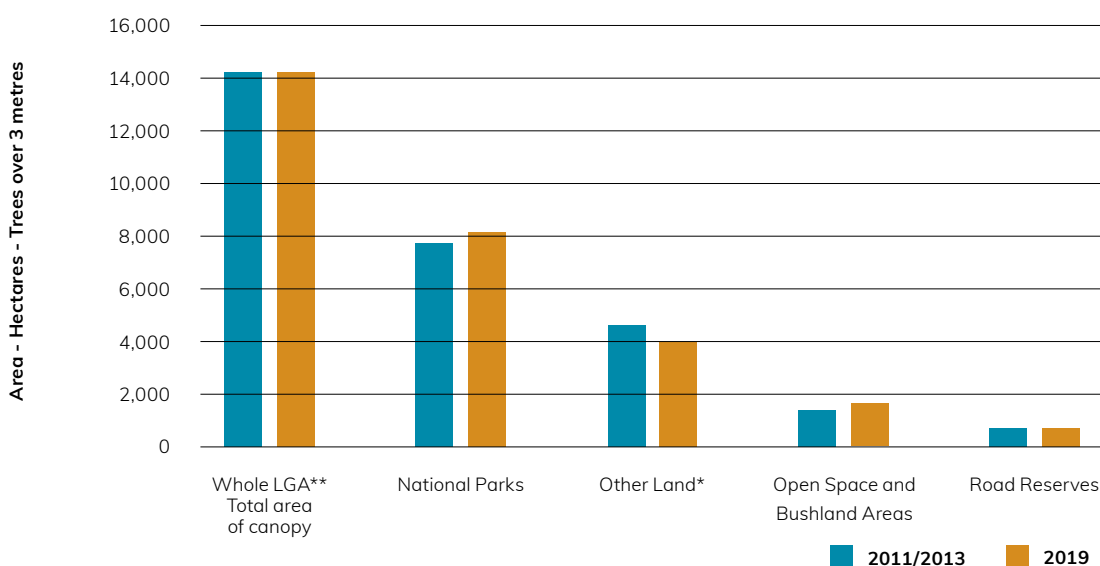
There has been an overall decrease in canopy cover between 2013 - 2019. Changes (losses and gains) in canopy are not evenly distributed.

Direct causes of losses in canopy cover are as a result of:

- bush fire fuel management through hazard reduction burning
- Mona Vale and Warringah Road upgrades
- clearing for development, including both approved and illegal removals
- removal of individual trees, including exempt tree species (both exotic species and trees under 5m tall) and dangerous trees
- application of the 10/50 Code under the Rural Fires Act, which allows removal of trees within 10m of a house in a 10/50 entitlement area
- dead trees due to reaching the end of their natural life.

Figure 5

Hectares of Canopy 2011-13 and 2019



* Other land = Land that is not National Park, Council managed or Water Bodies, includes eg. State owned lands, privately owned

Urban heat

The Urban Heat Island Effect (UHIE)³ can be defined as the “discernible temperature difference between urban and adjacent rural areas caused by the excess heat emitted and the solar gain trapped by the urbanised environment” (Gartland, 2008⁴). Trees provide cooling through evapotranspiration and surface shading. Often UHIEs are associated with extreme heatwaves that increase the demand for energy, water, and healthcare services.

The tree canopy is most effective at combatting the UHIE and providing protection from over-exposure to UV radiation.

More vulnerable individuals, such as the elderly, young children, people living with disability and the economically-disadvantaged, are often the most affected. Brookvale, Manly Vale, Dee Why, Narrabeen, Warriewood and Mona Vale (along with most town centres) are identified as hotspots in the Northern Beaches where the UHIE is more than 9°C higher than the reference area (Figure 6).

Tree canopy is a key form of green infrastructure most effective at combatting the UHIE and providing protection from over-exposure to UV radiation. It is complemented by other forms of green cover including hedges, grass footpaths, verges, green roofs and walls. Water sensitive urban design (WSUD) also emphasises the cooling of urban environments by incorporating biofiltration, water quality ponds, rain gardens and swales.



³ Gartland, L. (2008). *Heat Islands: Understanding and Mitigating Heat in Urban Areas*. Earthscan publications. United Kingdom

⁴ NSW Climate change adaptation strategy June 2022

Figure 6
Urban Heat Island (UHI) effect across the suburbs of Northern Beaches

