



**ANNAPOLIS,
MARYLAND**

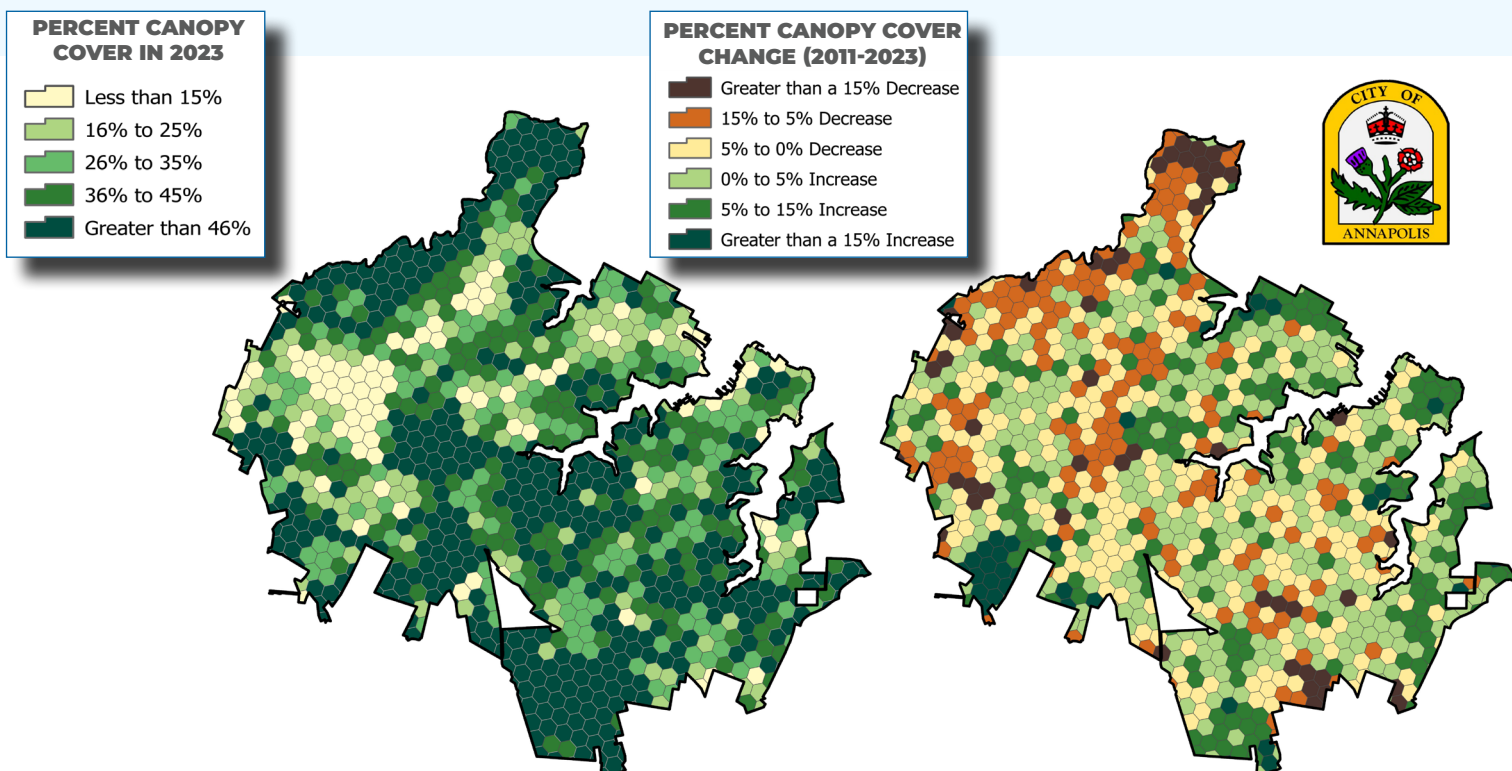
- 4,548** TOTAL AREA (ACRES)
- 4,529** LAND AREA WITHOUT WATER (ACRES)
- 1,966** URBAN TREE CANOPY 2023 (ACRES)
- 1,964** URBAN TREE CANOPY 2011 (ACRES)
- 790** PLANTABLE SPACE (ACRES)
- 43%** CANOPY COVER
- +0.04%** CHANGE IN CANOPY (2011-2023)

AN ASSESSMENT OF PAST AND EXISTING TREE CANOPY

Annapolis, the capital of Maryland, is nestled along the Severn River where it meets the Chesapeake Bay. Annapolis is renowned for its waterfront charm, maritime heritage, and well-preserved colonial architecture and mature canopy. Recognized as a Tree City USA member for 32 years, Annapolis has implemented ordinances and community programs aimed at protecting mature trees and expanding canopy coverage.

Driven by a tree canopy goal of reaching 50% by 2050, a comprehensive tree canopy assessment was conducted in 2024 to enhance understanding of the city's canopy infrastructure. This assessment examined the urban tree canopy (UTC), its changes over time, potential new planting locations (Possible Planting Areas - PPA), and areas where planting is not feasible. The outcomes provide a detailed overview of the current state of Annapolis' urban forest and its future possibilities, which can be explored through Annapolis' Interactive Tree Canopy Map (<https://www.annapolis.gov/2263/Tree-Canopy-Map>).

Using the latest aerial imagery from 2023 provided by the USDA's National Agriculture Imagery Program (NAIP), this study provides a near-current view of land cover throughout Annapolis. Machine learning techniques were employed to create an extensive land cover dataset, facilitating the tracking of tree coverage changes over time. These findings should guide strategies to protect and expand the urban forest, ensuring enjoyable spaces for all and helping the city refine and establish new canopy goals and management practices.



Urban Tree Canopy across Annapolis by hexagons: near-current tree canopy percentage (left) and tree canopy change over time (right). Assessing tree canopy by hexagons provides a consistent, evenly distributed grid that helps identify spatial patterns and variations in canopy coverage.

OVERALL CHANGE IN CANOPY

The study found that between 2011 and 2023, Annapolis' tree canopy experienced a net increase of two acres, representing a 0.04% gain in urban forest cover. This modest change indicates that overall canopy levels in the city have remained relatively stable during this period.

Prioritizing the growth of the city's canopy is essential, especially given Annapolis' substantial population of mature trees. As older trees naturally decline or are removed, consistently planting young trees becomes critical to diversify canopy age and ensure long-term sustainability. By continuously adding new saplings, the city can not only preserve but also expand its overall tree canopy, providing enduring benefits to residents and the environment well into the future.



Only 7% of Annapolis' canopy shades impervious surfaces, leaving the city more vulnerable to urban heat island effects, reduced air quality, and increased stormwater runoff.

ASSESSING ANNAPOLIS' WARDS

Annapolis is celebrated for its welcoming community spirit and extensive green spaces spread across its eight voting wards. Among these, Ward 2 has the highest tree canopy coverage, accounting for 19% of the city's total canopy area (377 acres). Additionally, Ward 2 encompasses 23% of all available planting spaces in Annapolis, with 21% of that area (184 acres) designated for new tree plantings. This makes Ward 2 a key focus for expanding and maintaining the city's urban forest.

Ward 5 stands out with the highest canopy density—55% of its land area (289 acres) is covered by trees, plus an additional 21% of the ward available for planting. By contrast, Ward 1 maintains just 35% canopy coverage, one of the lowest in the city, yet it has the highest impervious surface percentage. This underscores the urgency of prioritizing plantings near impervious areas to mitigate heat and stormwater impacts.

ANNUAL ECOSYSTEM BENEFITS OF ANNAPOLIS' URBAN FOREST



TOTAL ECOSYSTEM BENEFITS VALUE
\$859,506



STORMWATER
\$214,498 23 MILLION GALLONS OF AVOIDED RUNOFF



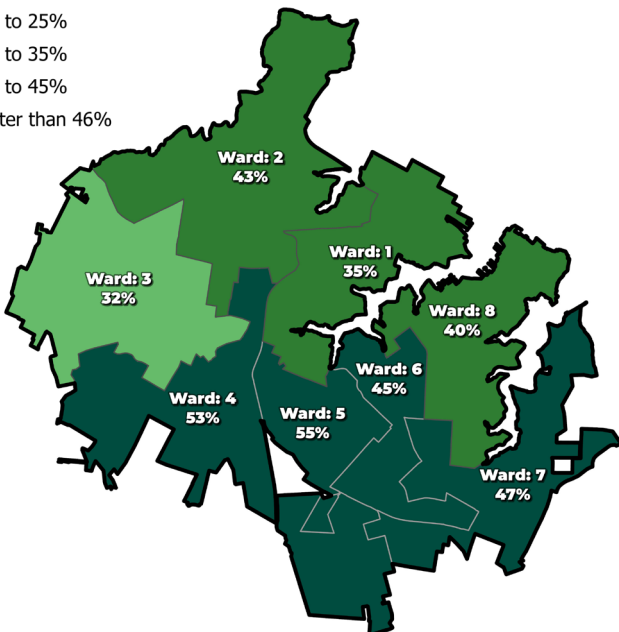
CARBON SEQUESTRATION
\$248,694 2,915,884 LBS SEQUESTERED



AIR QUALITY
\$396,314 161,185 LBS OF POLLUTION REMOVED

CANOPY COVER BY WARDS (2023)

- Less than 15%
- 16% to 25%
- 26% to 35%
- 36% to 45%
- Greater than 46%



FINDINGS BY ZIP CODES

ZIP CODE 21403
Densest Canopy Cover:
1,038 acres (49%)



Largest Canopy Cover Increase:
Gained 16 acres of canopy (+0.8%)

ZIP CODE 21401
Most Plantable Space:
424 acres (18%)



Largest Canopy Cover Decrease:
Lost 14 acres of canopy (-0.6%)