Urban Tree Canopy Assessment and Goal Setting: A Case Study from Leesburg, Virginia

The Town of Leesburg, Virginia has made the restoration of their urban tree canopy a major emphasis in their town planning. The Town has a Tree Commission, a citizen-based group appointed by the Town Council, which advises the Town on all matters related to trees and the management of the urban forest. In addition, in November 2006, Leesburg became the first town in Virginia and the seventh in the Chesapeake Bay watershed to become an official partner in reaching the Chesapeake Bay Program urban tree canopy goal by committing to increase its urban tree canopy to 40%. The effort to increase urban tree canopy is part of the Bay Program's 2003 Riparian Forest Buffer Directive, which states as one of its goals:

"by 2010, work with at least 5 local jurisdictions and communities in each state to complete an assessment of urban forests, adopt a local goal to increase urban tree canopy, and encourage measures to attain the established goals in order to enhance and extend forest buffer functions in urban areas."

In 2004, a Land Cover Change analysis by the conservation group American Forests estimated that Leesburg had lost 71 percent of its UTC between 1992 and 2001, and its urban tree canopy (UTC) was estimated at 8%. The Town of Leesburg responded by proactively creating a comprehensive, long-term Urban Forestry Management Plan. The Plan is intended to provide strategies, goals, policies, standards, and actions to protect, enhance, expand, and preserve the tree canopy in the community.

Figure 1: Mature trees in Leesburg's Raflo Park contribute to the Town's canopy coverage

Through public participation and input from the Tree Commission and Town staff, five major goals emerged as priorities for Leesburg:

1. Tree Planting and Increased Forest Canopy Cover
2. Improved Tree Planting/Protection Legislation and Policies
3. Expanded Education and Public Relations
4. Improved Organizational Structure and Funding
5. Improved Urban Forest Maintenance

The Urban Forestry Management Plan provided a blueprint for the community in moving forward with protecting and recovering its urban forest resources. The plan includes a review of the current state of Leesburg's urban forest, and recommendations for improving current code language to increase tree protection. The plan also examined the town management structure with regards to tree resources, as well as making recommendations on improving maintenance practices and funding urban forest care. Leesburg is the only town-level municipality in Virginia to have commissioned and adopted a management plan for its urban forest resources.

Since adoption of the management plan, several steps have been taken to implement plan recommendations. The most important has been the completion of a more detailed analysis of current and potential UTC in 2007 by the University of Vermont Spatial Analysis Lab and the USDA Forest Service. The use of detailed satellite imagery revealed that 27% (2044 acres) of the town is covered by tree canopy (classified as Existing UTC), and that an additional 57% (4392 acres) of the town could theoretically be restored to support urban tree canopy (classified as Possible UTC). This number differed from the earlier 8% estimate because the 2007 UTC analysis used imagery at a resolution of 60 cm rather than the 30 meter resolution of the National Land Cover tree canopy layer used in the Land Cover Change analysis (Figure 2).

The 2007 analysis found that the majority of Leesburg's Existing UTC is located in areas zoned for residential land use, and that residential land also contains most (58%) of the Possible UTC. The analysis also found that although residential land has the greatest overall amounts of Existing UTC and Possible UTC, institutional lands (e.g., schools, hospitals) have the most potential for canopy increases on a given site since land zoned for institutional has only 12% of its surface covered by tree canopy. The parcel-based UTC metrics have been integrated into the Town's GIS database. This allows decision makers to use GIS to estimate the amount of tree loss in a planned development or set UTC improvement goals for an individual property.

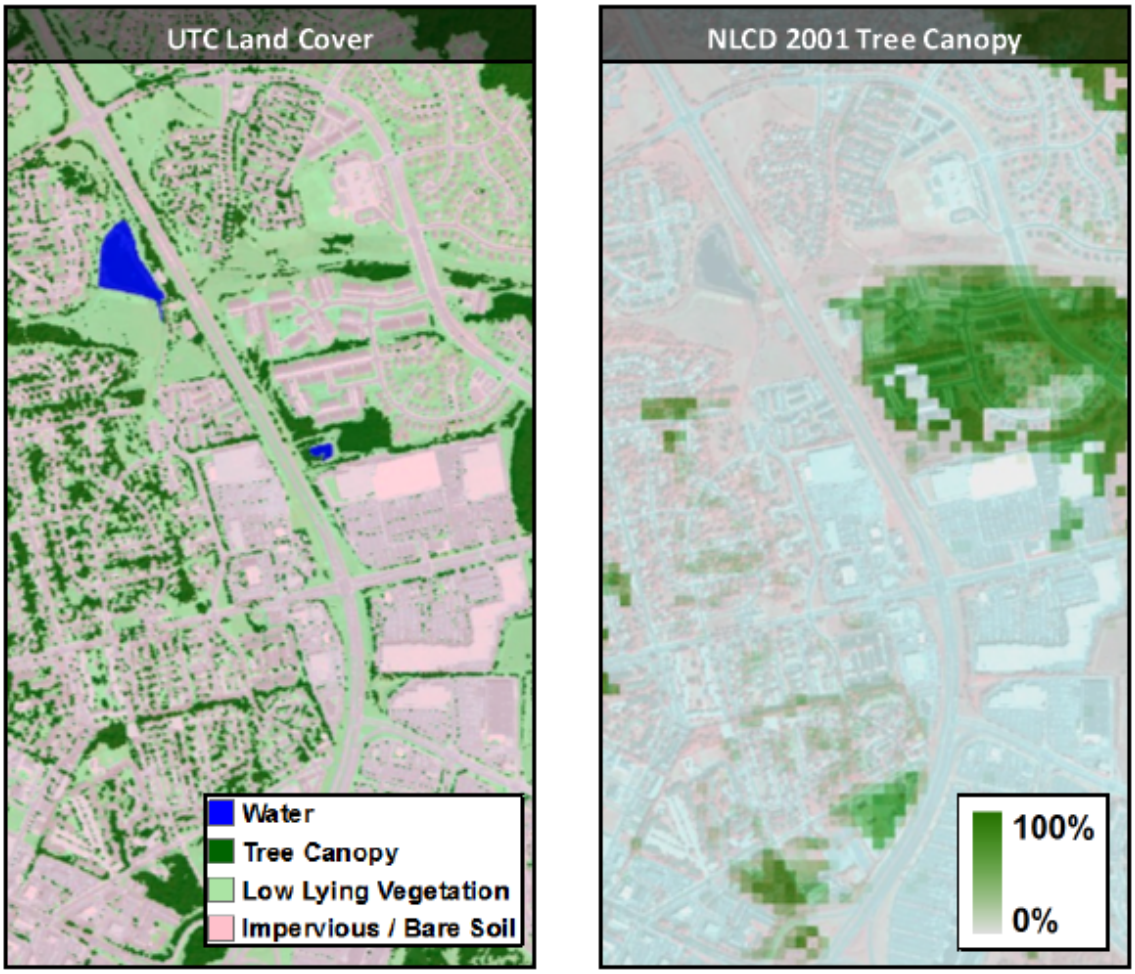

Figure 2. Comparison of Leesburg 2007 UTC imagery to 2001 National Land Cover Dataset tree canopy layer

Other ongoing implementation efforts in Leesburg include:

- The drafting of a specific public tree ordinance
- The completion of a master street tree plan to address planting in street right-of-ways
- The review of the tasks of all town departments that affect tree resources and creation of internal partnerships to coordinate opportunities for tree preservation and protection
- The education of Home Owner Associations (HOAs) through a tree summit to explain tree maintenance responsibilities and practices

For more information about the Town of Leesburg's urban forestry efforts, see http://www.leesburgva.gov/government/commissions/trees/ or contact:

Jay Banks, Urban Forester
Town of Leesburg, VA
jbanks@leesburgva.gov

Developed by the Center for Watershed Protection, 8390 Main Street, 2nd Floor, Ellicott City, MD 21043