ARLINGTON
VIRGINIA

DEPARTMENT OF PARKS
AND RECREATION

Tree Canopy Assessment Technology
Urban Forestry Commission
November 19, 2020

EXISTING ASSESSMENTS, AND TECHNOLOGIES USED

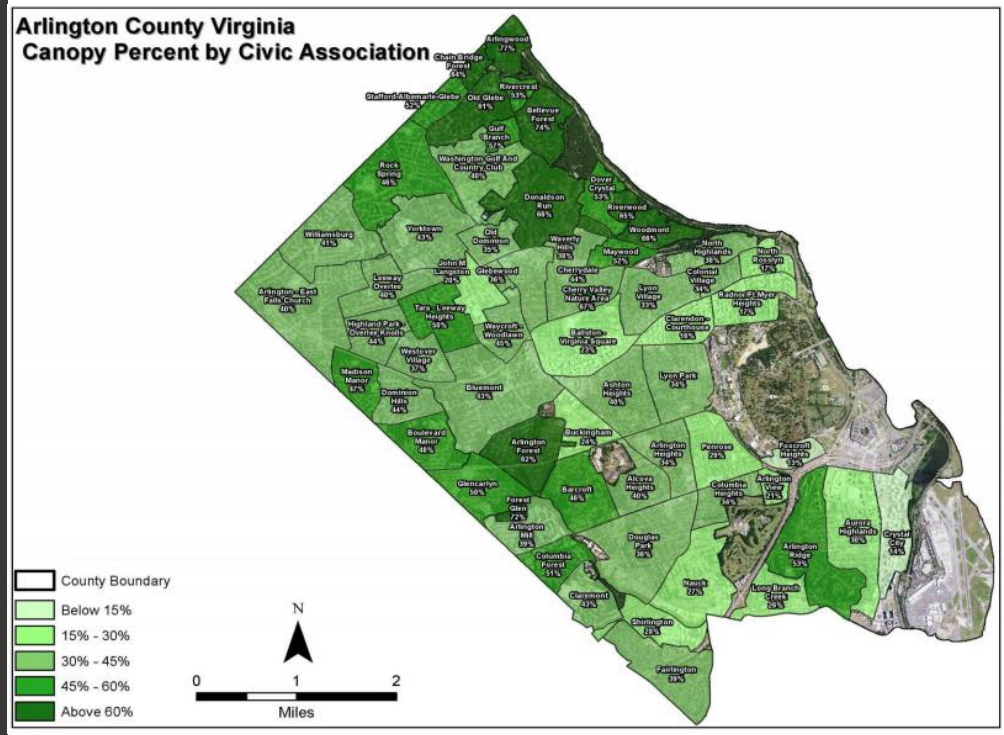
Last tree canopy assessment (2017, using 2016 data):

- Land cover analysis conducted for the entirety of Arlington County, including federal land.
- Study focused on tree canopy, which is the layer of leaves, branches, and stems of trees that cover the ground when viewed from above.
- Study used publicly available 2016 USDA National Agriculture Imagery Program data.
- Study used remote sensing and GIS software to calculate tree canopy at 1 meter resolution.

All existing studies:

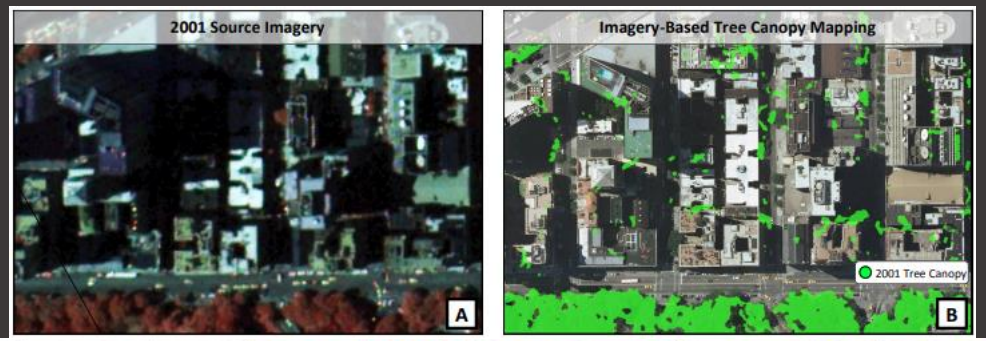
	2008		2011		2016	
	Acres	Percent	Acres	Percent	Acres	Percent
Tree Canopy Excluding DOD and Airport	6,349	43%	5,883	40%	6,015	41%
Tree Canopy Including DOD and Airport	N/A	N/A	6,191	37%	6,356	38%

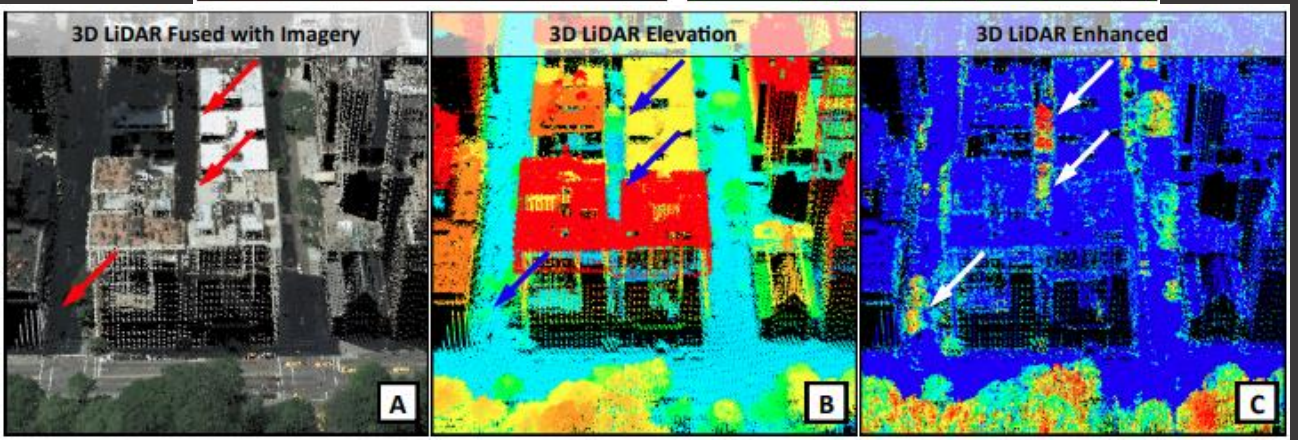
Table 1. Tree Canopy of Arlington County Excluding and Including Department of Defense (Pentagon, Arlington Cemetery, and other properties) and Airport Data

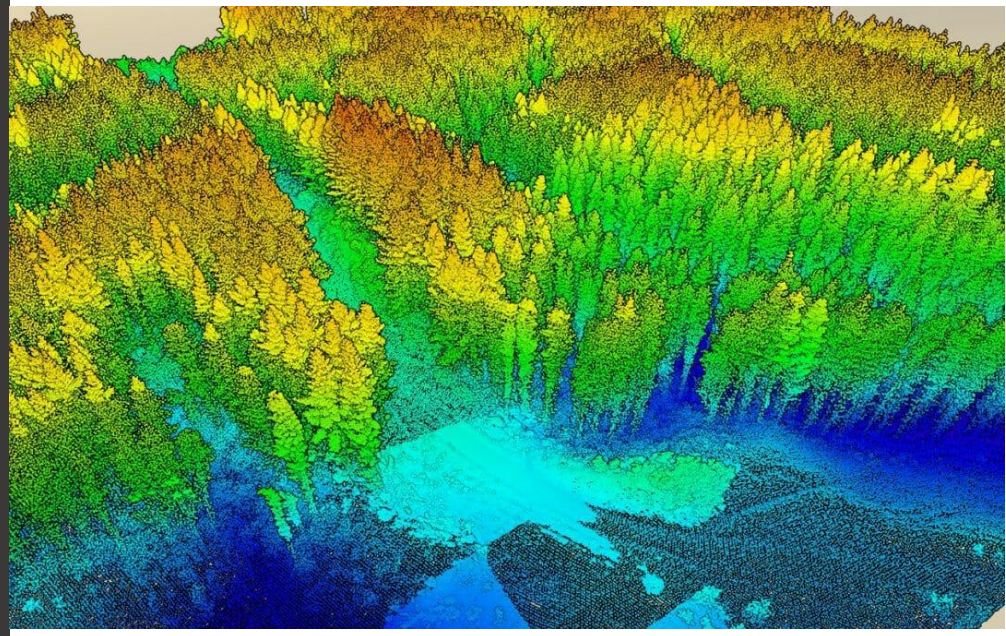


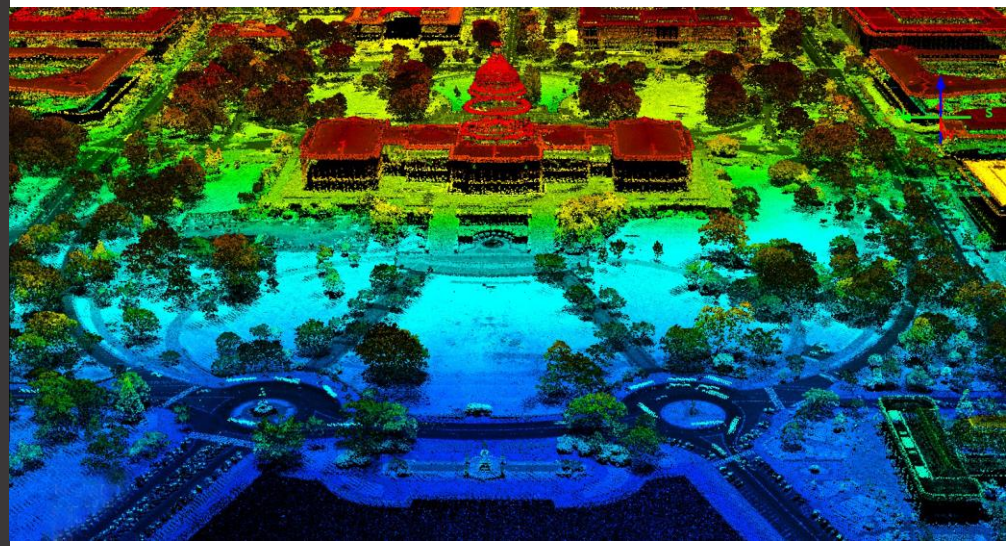
OTHER TECHNOLOGIES - LIDAR

- Originally stood for a combination of LASER and Radar, now stands for *Light Detection and Radar*
- Detects three-dimensional shapes on the ground, allowing for trees to be found in darker areas, like stream valleys or densely urban spaces.
- From https://www.nrs.fs.fed.us/urban/utc/local-resources/downloads/LiDAR_TreeMapping_NYC.pdf



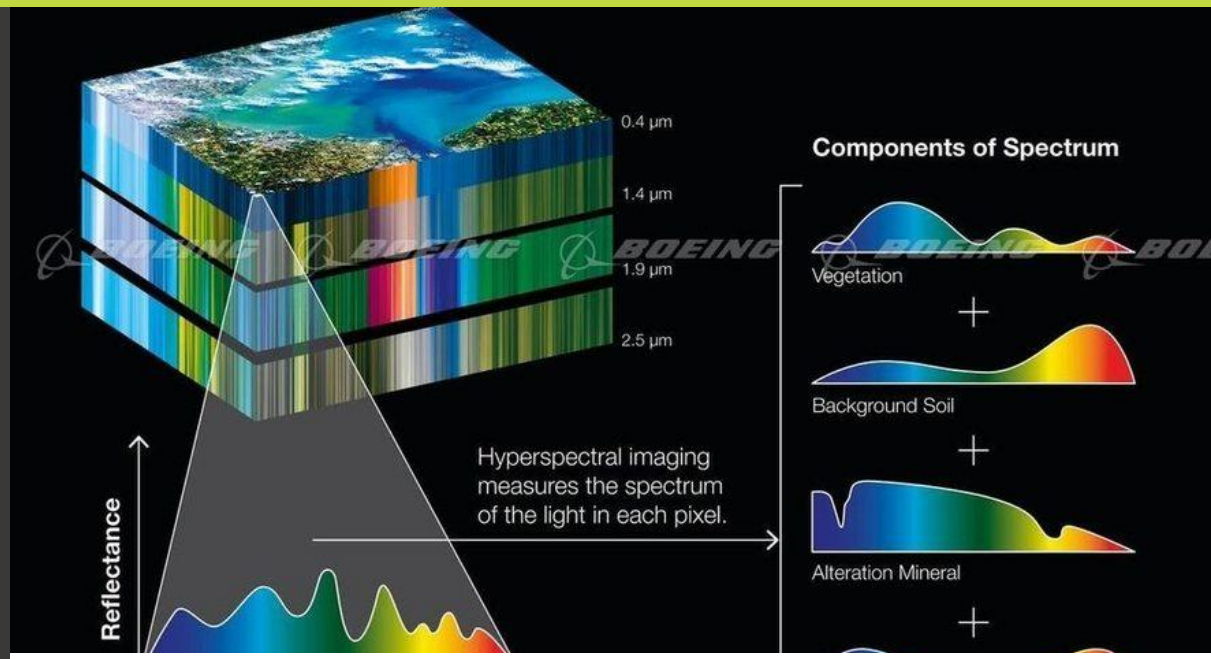


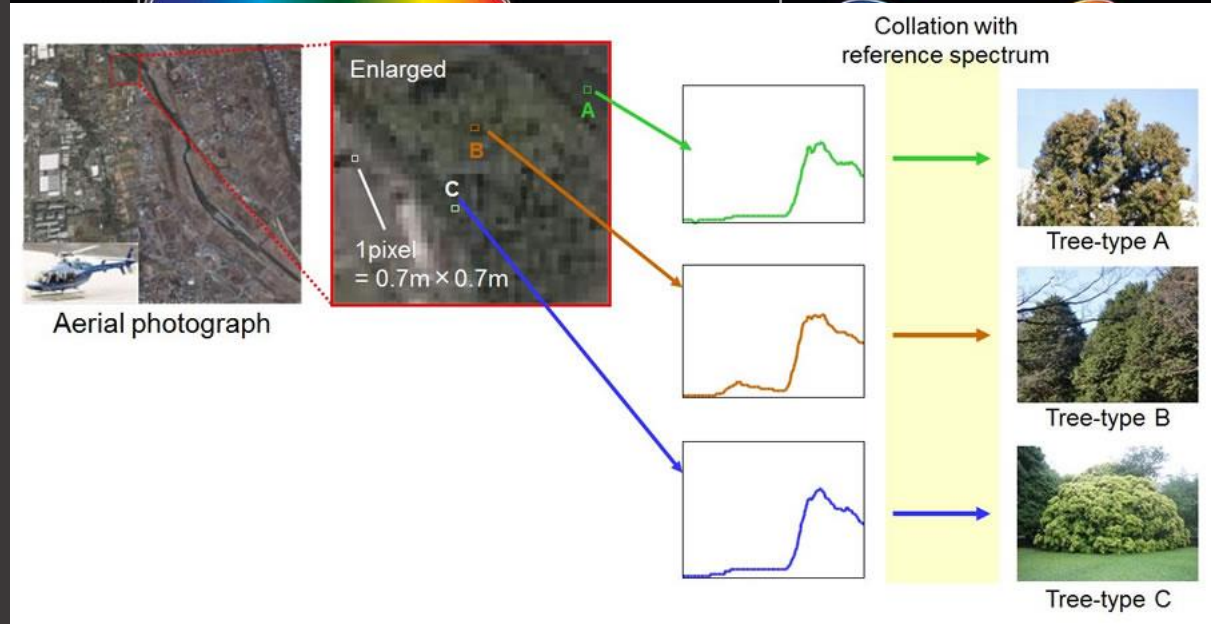




OTHER TECHNOLOGIES – HYPERSPECTRAL IMAGERY

- Captures the signature of the colors imaged
- Allows for very specific identification of vegetation
- Used to find species like *Fraxinus* (Ash) to recognize potential pest risk, and to understand the diversity of the tree canopy

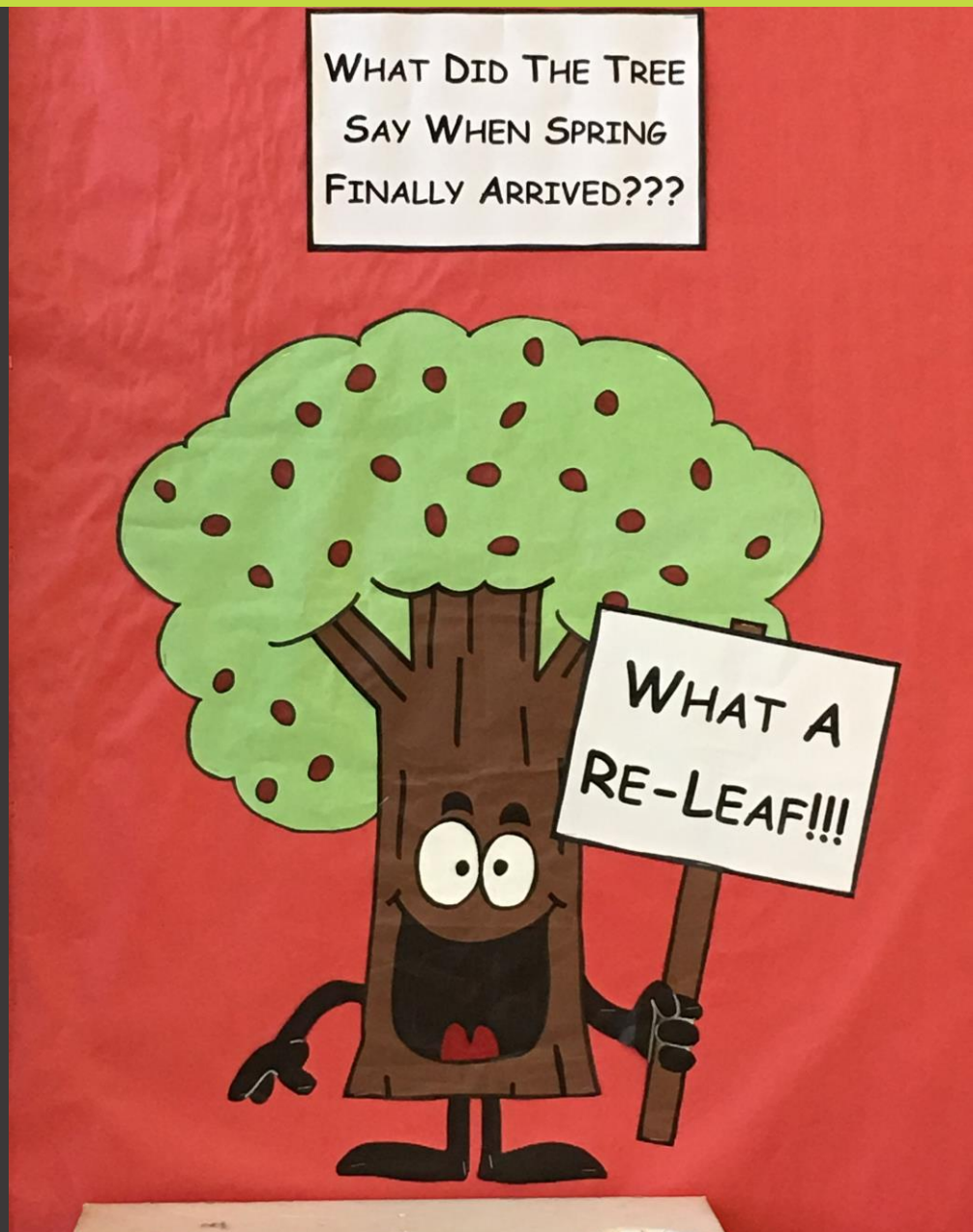




COST RANGES

$$
Small area $30-60k USD
Complex scope
Cupertino, CA, 11 mi²
Tree canopy/land cover map (2 time periods), plantable space, 4 scales, canopy change analysis, planting prioritization, ecosystem benefits, report, fact sheet, TP CANOPY
Large area $60-100k USD
Complex scope
Jacksonville, FL, 700 mi²
Tree canopy and land cover map, plantable space, 6 scales, planting prioritization, ecosystem benefits, report, fact sheet, TP CANOPY, city council presentation
PLANIT GEO
mapping a greener future
Small area $5-20k USD
Simple scope
Chelan, WA, 7 mi²
Tree canopy and land cover map, plantable space, 3 scales, basic report
Large area $40-80k USD
Simple scope
Charlotte, NC, 309 mi²
Tree canopy mapping
Change analysis with pre-existing data
Complexity of Scope
$
< 10 mi²
Size of Study Area
> 100 mi²

QUESTIONS?

- US Forest Service page on Tree canopy studies:

  https://www.nrs.fs.fed.us/urban/utc/