

i-Tree Open Academy

Summer 2023

Session 3: The View From The Top

Assessing canopy cover with i-Tree Canopy and OurTrees

August 16, 2023

1:00pm Eastern Time

Davey Institute/USDA Forest Service



*i-Tree is a
Cooperative
Initiative
among these
partners*



Defining Canopy Assets

- **i-Tree Canopy**
 - Combining the magic of Google with US Forest Service science

There's a map for that...

i-Tree Canopy v7.1 Home Project Menu i-Tree Feedback

Conduct your survey: Add survey points by clicking or tapping the **+** button below. With each point you add, the map will shift to a new, random location where you assess the land cover at the yellow crosshairs in the center of the map. The more points you survey, the lower your standard error, and the more precise your sampling will be. More points provide a better estimation of Land Cover across your study area.

Bar Chart: % Covered vs. Area Covered (mi²) for Cover Class (BE, G, I, T, W). The chart shows that Grass (G) and Impervious (I) are the most common classes, with Grass at approximately 33% and Impervious at approximately 23.7%.

Survey Results Summary: Impervious: 33.0% ± 1.92 Tree: 23.7% ± 1.74 Water

View Results Report

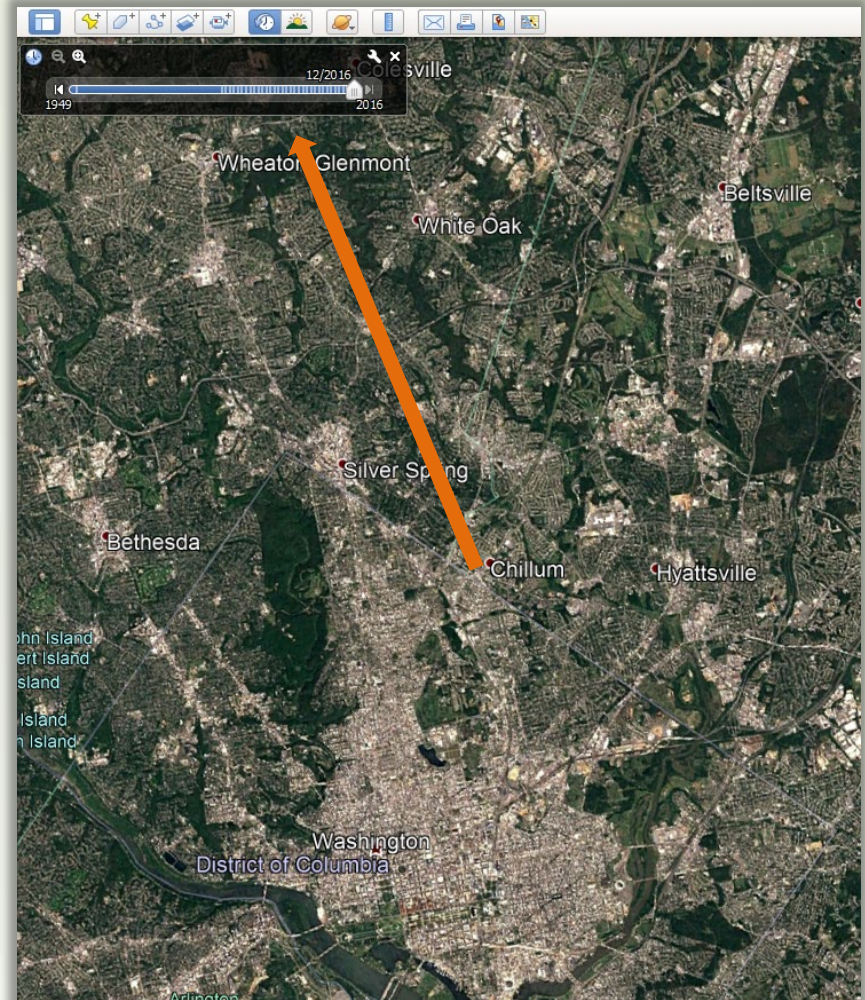
ID	Cover Class	Latitude	Longitude
1	Impervious	41.63463	-86.24499
2	Impervious	41.65614	-86.27871
3	Grass	41.75738	-86.32580
4	Grass	41.66447	-86.30023
5	Impervious	41.66999	-86.20212
6	Grass	41.73040	-86.33129
7	Impervious	41.69898	-86.27998
8	Grass	41.61184	-86.21994
9	Grass	41.66045	-86.32086
10	Bare Earth	41.71759	-86.31191

Save your Project Save Save often - don't lose your data!

Logos: IAS, DAVEY, Arbor Day Foundation, SMA ARBORISTS, ISA, Casey Trees

Canopy Change Survey

- Utilizes **Google Earth Pro** to evaluate trends and projects with historic images
 - Free to download
 - Canopy points to KML
 - Capture changes to your sample over time



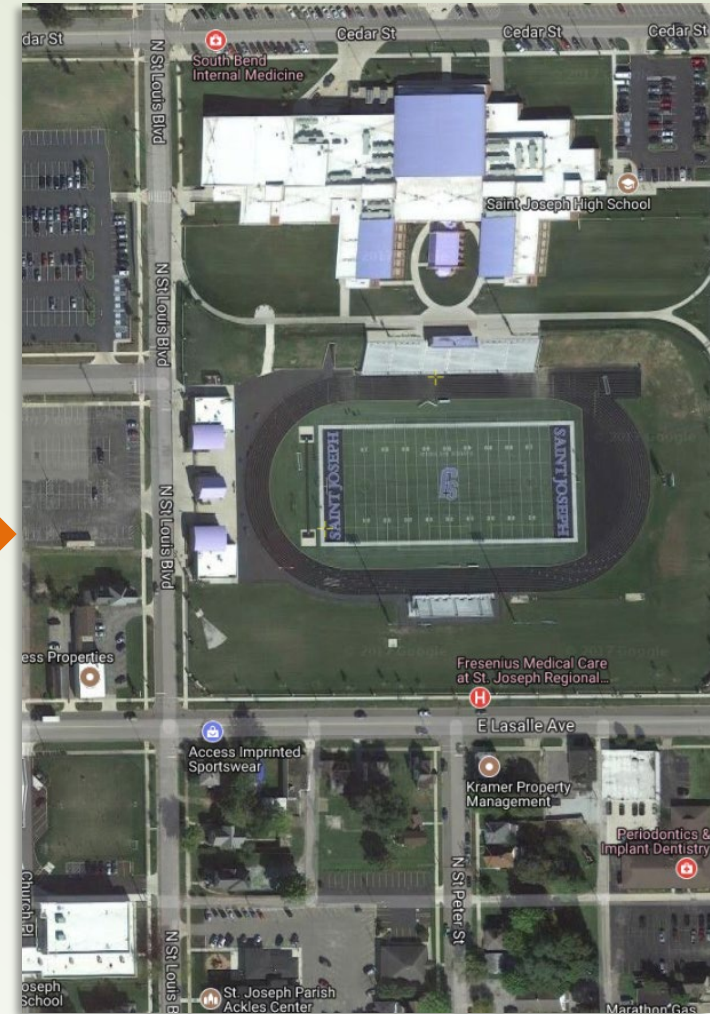
Land Use	2005	2016
Tree	23.0%	23.7% (+)
Impervious	32.1	33.0 (+)
Grass	38.4	36.8 (-)
Bare Ground	4.33	3.83 (-)
Water	2.16	2.67 (+)

Canopy Change Over Time

2005



2016



Canopy Change Over Time

2005



2016

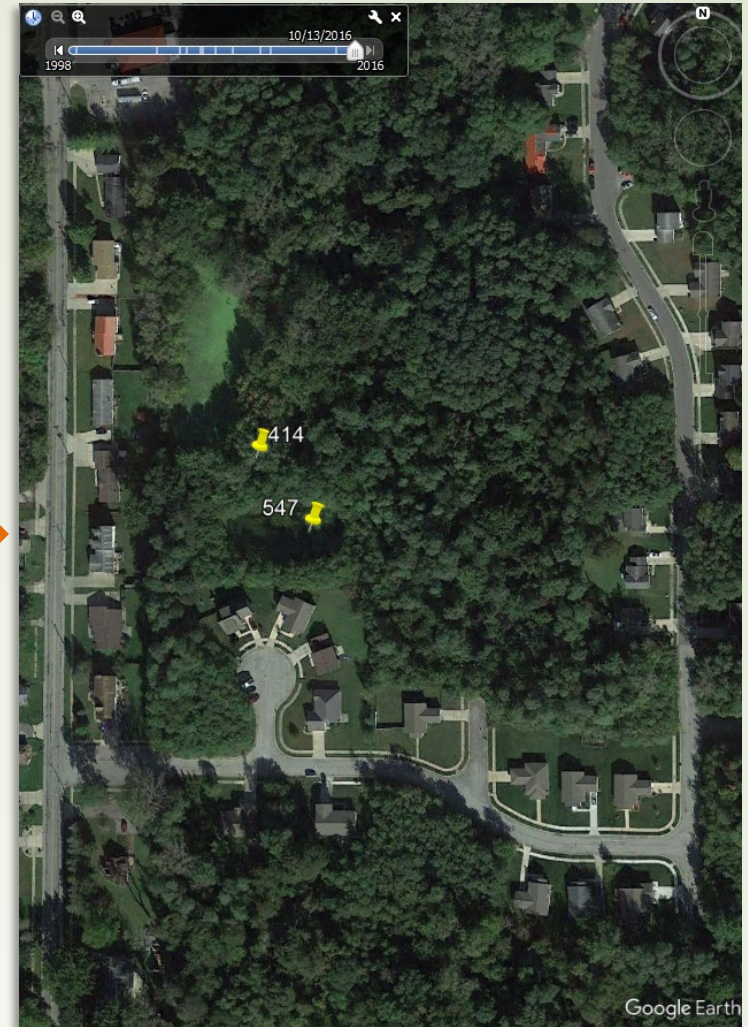


Canopy Change Over Time

2005



2016



Canopy – Now What?


- What you know powers the way forward
 - *What You Have, Where You Have It*
- Even subtle changes can be meaningful
- Stormwater → Impervious just as important as Canopy
- Changes can drive conversations with communities and policy makers
 - Opportunities for engagement, stewardship, and resource management
- *Strategies that can build resilience for both trees and neighborhoods*

OAKS OF NORTH LAWDALE

Community Roots That Grow On Trees

Spotlight: North Lawndale, Chicago, IL
 The ways that trees benefit a community are as numerous as their branches. Planning for trees, understanding their benefits, planting them and caring for them fosters engagement, stewardship and sustainability.

When you add that to their public health and environmental advantages, trees can have a positive impact on neighborhoods for generations. Inspired by the 7000 Oaks art installation, the Oaks of North Lawndale project partners neighborhood residents with the city and the School of the Art Institute of Chicago in an effort to nurture a greener, peaceful, and re-forested community.



Photos courtesy of Foundation for Human Square


In September 2017, SAIC set up its mobile foundry at their Roman Square campus, site of the project launch event with artist Perin Reyes, who joined residents in the melting of weapons to create shovel heads which were used to plant the first trees.

The Oaks of North Lawndale project could raise canopy coverage in the neighborhood to at least 23%, representing an increase of more than 38% over current canopy amounts.

Trees would be planted over a multi-year period, providing opportunities for sustained collaboration among neighbors, artists and educators at SAIC, a local tree nursery and gardeners, the North Lawndale Employment Network and job skills training programs, along with other organizations.

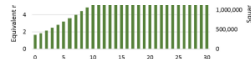
Trees in urban environments are known to...

- improve human health.
 - Improve air quality
 - Improve respiratory health, overall well-being, and reduce stress
 - Protect from harmful UV light
- benefit the community.
 - Lower summer air temperatures and reduce energy costs
 - Provide aesthetic benefits and promote community equity
 - Enhance property values
- provide environmental services.
 - Reduce stormwater runoff
 - Absorb carbon dioxide – a greenhouse gas that traps heat in the atmosphere



7,000 trees can

Impacts from 7,000 newly planted trees in North Lawndale as they grow to maturity over 30 years



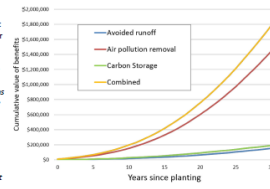
- Trees improve public health by removing harmful air pollutants. Poor air quality is a common problem in many urban communities. It can contribute to serious respiratory health problems such as childhood asthma, bronchitis, and other cardiovascular health incidents.
- Trees help absorb stormwater runoff and reduce the risk of flooding. Precipitation is caught by leaves and filtered through soil, instead of running over pavement and impervious city surfaces that can overwhelm water and sewer lines during a heavy rainstorm.

Where the numbers come from: The benefits and values associated with trees were estimated using i-Tree Eco and Landscape software from the US Forest Service. The programs use local weather, pollution, and population data to estimate how the woody and leafy parts of trees interact with the environment and the people who live there.


Tree growth was predicted using i-Tree's Forecast module, and assumed that all trees are cared for and survive to maturity. The growth predictions consider local climate along with the rates different sizes and species of trees typically grow. Five common tree species were modeled to represent future tree species to be planted.

➢ trees help people by cooling the surrounding air and providing shade. Higher temperatures magnify health risks, increase energy use, and worsen air pollution impacts. Increasing and protecting community tree canopy can help lessen these negative impacts.

➢ Trees absorb carbon dioxide from the air and store it as wood. Carbon dioxide (CO₂) is a greenhouse gas that traps heat in the atmosphere. It enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, and fire wood, and also as a result of certain chemical reactions (e.g., manufacturing of cement).



the community of North face temperatures about 10 than the regional average. trees in Douglas Park help re by more than 3 degrees.



Want to get involved? Visit <https://www.facebook.com/saicofnorthlawndale/> to learn more about the project and how to lend a hand.

Powered by i-Tree and The Davey Institute. i-Tree means nothing-its peer reviewed. USDA Forest Service research analyzed into tools and applications easily used by everyone. www.i-treetools.org

A typical block of newly planted street trees (left) would see an increase of more than 10,000 sq. ft. in canopy coverage, and the environmental, economic, and health benefits that come with them.