

i-Tree Open Academy

2025

Session 6: Putting i-Tree to Work

Using tree science to help your canopy grow

June 11, 2025

1:00pm ET



i-Tree is a
Cooperative
Initiative
among these
partners



Arbor Day Foundation™



American
Forests™

Accessing the Science of Tree Benefits

- 🌳 www.itreetools.org
- 🌳 Sessions 1-5 now online!
- 🌳 Exercises available
- 🌳 Use Chat for questions
- 🌳 Q&A at the end with i-Tree Team and fellow i-Tree users
- 🌳 CEUs/CFEs available for live sessions after Academy ends

How:

All sessions will be streamed live via this [Microsoft Teams link](#). They will also be recorded and posted below as well as on the i-Tree YouTube channel, so that you can catch up on anything you missed. There are no requirements for this course, and there will be self-directed exercises that you can use to gain experience using the tools. You are encouraged to submit any questions related to the course via info@itreetools.org, and there will be opportunities to ask questions during certain live sessions and office hours.

When:

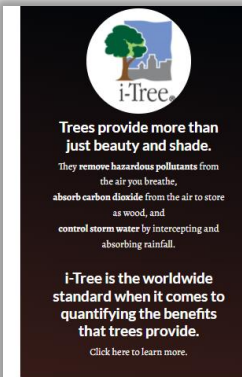
Each session is one hour long and offered **Wednesdays at 1:00 pm** (Eastern US time).

May 7th – Introduction to i-Tree. Understand the basic science of tree benefits and the USFS & cooperator research behind them. Explore the relationships between the i-Tree tools and the data they provide. Start to consider which i-Tree tools will be best for the project you have in mind.

- Video Recording
- Presenter Slides
- Self-directed Exercise - Session 1

May 14th – Online with MyTree, i-Tree Design, and i-Tree Planting. Explore the easiest to use online i-Tree tools for individual trees. Get a better sense of their advantages and most common uses.

May 21st – The view from the top: i-Tree Canopy and OurTrees. You can't manage your forest resource unless you know what you have. Get an estimate of tree canopy cover for any area or monitor change with a few hours of image analysis. Or save your mouse clicks and see if a quick visit to OurTrees will get you what you need.

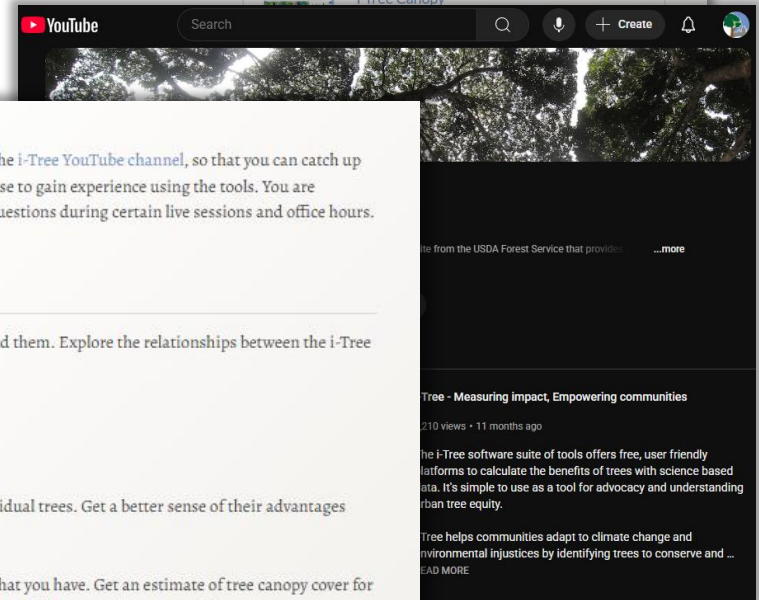


Tools for Assessing Individual Trees

	MyTree Are you new to i-Tree? Start with our EASIEST tool! MyTree helps you quickly assess individual trees with a minimum of fuss. web browser or Android / Apple devices; Learn How to use it!
	i-Tree Design A full-featured web tool with expanded building interactions and forecasting for estimating the benefits of individual trees. via your web browser; Learn How to use it!
	i-Tree Eco Eco is our flagship tool that accommodates tree inventory IMPORT or field data evaluation to derive individual tree benefit estimates. requires installation on a Windows PC; Learn How to use it!

Tree Canopy Assessment Tools

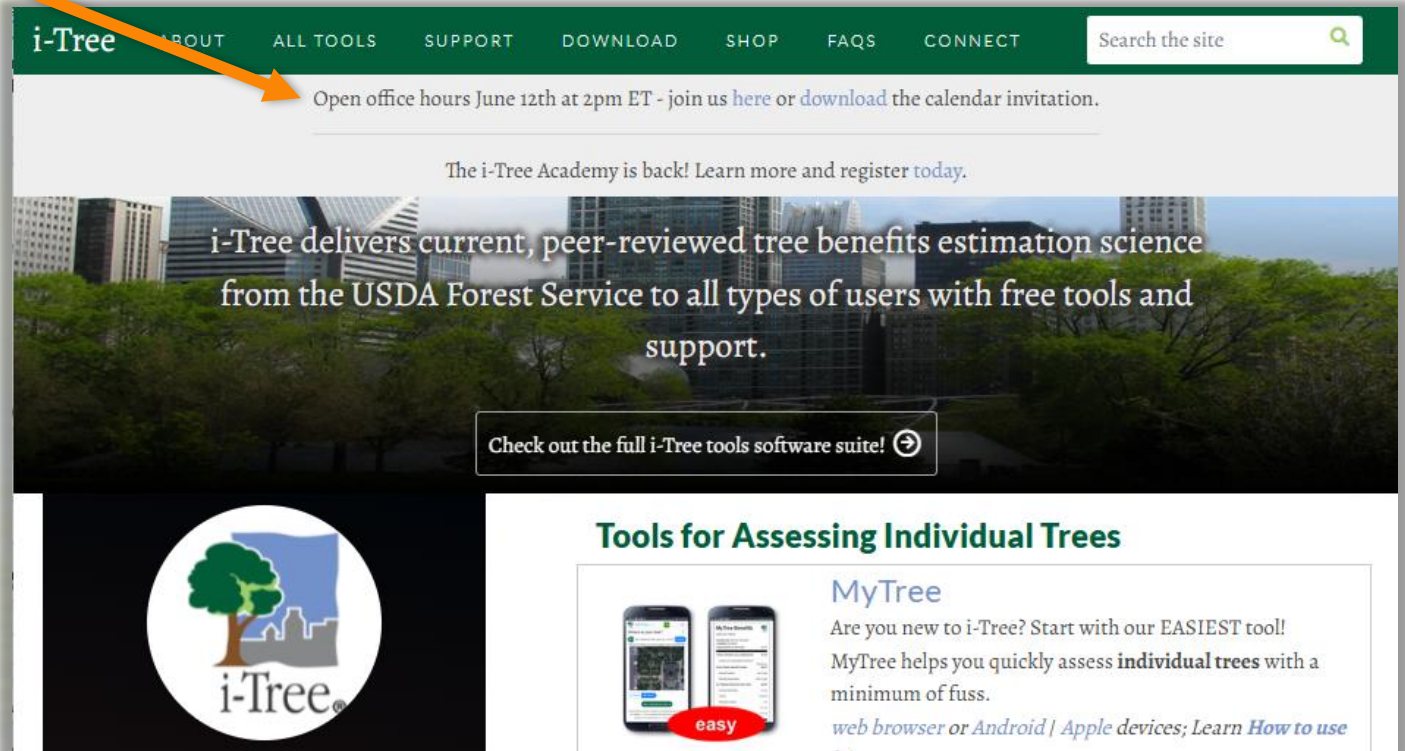
	OurTrees Quick tree canopy and related information for your community within the continental US! web browser or Android / Apple devices
	i-Tree Landscape US tree canopy and Census maps/data at your fingertips! Identify priority planting & protection areas for your local needs. via your web browser; Learn How to use it!
	i-Tree Canopy



Email us anytime: [**info@itreetools.org**](mailto:info@itreetools.org)

Accessing the Science of Tree Benefits

- 🌳 **Final Session: You Made It!!**
- 🌳 Feedback survey will be sent out with details for CEUs/CFEs
- 🌳 **i-Tree Open Office Hours – Thursday, June 12, 2-3p ET!**
- 🌳 *(all are welcome, and we host them every month!)*
- 🌳 Link right from our home page:



Email us anytime: **info@itreetools.org**

Using i-Tree to Help Your Canopy Grow

- 🌳 **Education:** demonstrating value of trees and fostering stewardship
- 🌳 **Engagement:** tree data for advocacy and connections
- 🌳 **Management and Opportunity:** understanding what you have and how you want it to grow



The trees around you:
remove hazardous pollutants from
the air you breathe,
absorb carbon dioxide from the air
to store as wood,
and control storm water by
intercepting and absorbing rainfall.

**Trees provide more than
just beauty and shade.**

**They work hard for all of
us, every day!**

Click here to learn more.

i-Tree for Education

Ana Castillo
i-Tree Support and Outreach



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



Arbor Day Foundation™



ESF

State University of New York
College of Environmental Science and Forestry



**American
Forests™**

Tools for Exploration, Learning, and Science

- Chose the right tool for your audience
- Adaptable to a wide range of students/learners
- Consider your time and resource limitations







Tree Tags

- 🌳 Templates available
- 🌳 Skills learned
 - Tree measurements
 - Tree ID
 - Compass
 - Science communication

EVERY TREE COUNTS

Benefits from this tree:

	This Year	Next 20 Years
 Stormwater runoff avoided, gallons		
 Rainfall intercepted, gallons		
 Stormwater absorbed to fill bathtubs		
 Carbon sequestered, lbs.		
 Offset miles worth of carbon emitted from gas powered vehicle		

Data source: i-Tree Tools - itreetools.org



THIS TREE WILL GIVE BACK

\$

IN ENVIRONMENTAL BENEFITS
OVER THE NEXT YEARS



www.itreetools.org

Tea Tree Gully Tree Trail

I AM A/N **Sugar Gum**

I AM **20.8** METRES TALL

I PROVIDE ENOUGH OXYGEN IN 1 YEAR FOR **337** PEOPLE TO BREATHE IN 1 DAY

I PROVIDE SHADE EQUIVALENT TO **76** BEACH UMBRELLAS

I ABSORB ENOUGH CARBON EACH YEAR TO FILL **21,679** PARTY BALLOONS

IN TREE YEARS I AM A... ☐ CHILD ☐ TEENAGER ☒ ADULT ☐ SENIOR

Take a selfie with a Tree Tag and post it to our Facebook page, and tell us what you like about our trees! #TreeTagSelfie

City of Tea Tree Gully
Environment & Biodiversity
cttg.sa.gov.au/environment



Courtesy Jenni Garden
Edge Env. South Adelaide, AU

<https://www.youtube.com/watch?v=Dtzvji2dSXQ&list=LL&index=5>

Fairchild Tropical Botanical Garden

Green Schools Recognition Program



Challenge 2: Money Grows on Trees


Determine the economic benefits of a minimum of 5-10 trees near your school or within your community.

Use [MyTree](#) - measure different aspects of your trees and use MyTree to determine the economic benefits.

Enter data recorded in the provided datasheet template.

Create a public service video that explains the role and economic benefits of trees in your community.



[VISIT](#) [SCIENCE & EDUCATION](#) [HORTICULTURE](#) [EVENTS](#) [SUPPORT](#) [ABOUT](#) [FAQ](#) 

[SHOP](#)

Challenge 2: Money Grows on Trees

YOUR CHALLENGE:

Trees are integral to the natural well-being of our planet. Trees can remove pollutants from the air, absorb harmful greenhouse gases from the atmosphere, and control stormwater and flooding by absorbing and intercepting rainfall. Did you know that these beneficial features also hold economic value?

For this challenge we want you to determine the economic benefits of 5 - 10 trees within/near your school or within your community. Using the resources provided for you and the [MyTree website](#), you will measure different aspects of your trees and use this to determine the economic benefits provided by these trees. Enter all data into the data sheet template provided. Lastly, make a 1-3 minute long creative public service video that explains the role and economic benefit of trees in your community.

[Download PDF for this info on one page](#)

✓ Submission Requirements:

	Data sheet including # and species of trees, location, measurements, calculated benefits from MyTree .
	At least one public service video (1-3 minutes) that explains the role and economic benefit of trees in your community.

i-Tree Design: Project Learning Tree



TRAININGS ▾ | CURRICULUM ▾ | GREENSCHOOLS ▾ | RESOURCES ▾ | NEWS & STORIES ▾ | ABOUT US ▾



"This is something we can actually use with real-world application."

– Patti Farris, science teacher, Ramsey Jr. High, Ft. Smith, AR

"Very cool program."

– Jane Houseal, Arkansas Master Naturalists

Project Learning Tree's *Teaching with i-Tree* unit includes three hands-on activities that help middle and high school students discover and analyze the many ecosystem services that trees provide. Students input data they collect into a free online tool that calculates the dollar value of the benefits provided by a tree, or a set of trees.

The activities can be used in formal classroom settings or with nonformal groups, such as scouts, students enrolled in afterschool programs, and visitors to nature centers and parks. They require minimal preparation and supplies, and work in urban, suburban, or rural settings.

The activities incorporate the use of [i-Tree Design software](#), a free, state-of-the-art online tool developed by the U.S. Forest Service and its partners. As they complete the activities, students will apply STEM skills to learn the following:

- How to identify trees



<https://www.plt.org/curriculum/teaching-with-itree/>

Brookline High School

Re-Green the Streets: Design competition to Fund Urban Canopy Expansion



Working in teams, you will design a sophisticated plan to improve and enlarge the tree canopy in your city. You'll compete against teams from several other cities for a seed grant (starter grant) that targets select neighborhoods. The grant is designed to develop best practices for re-greening cities that can be replicated across your city and shared with other cities that similarly need money and technical support. The primary services your design should provide is to mitigate urban heat island effect that is concentrated in formerly redlined communities, and neighborhoods that resemble them today, caused by:

- Insufficient tree canopy which reduces shading
- Decreased transpiration from a lack of tree density
- Exposed concrete and asphalt heating
- Lack of permeable surface to absorb rainwater

Climate change is a risk multiplier: It increasingly imperils vulnerable populations in hotter cities, especially where tree canopy is severely diminished. Using resources provided, your team will identify additional benefits to urban reforestation which your design must explicitly address:

2. Criteria: Develop a set of criteria that you will use to select census blocks for reforestation. You'll need to explain how and why you selected these census blocks in your pitch. This is the foundation for a successful pitch and must be carefully deliberated amongst your team. There are many variables for you to consider. The challenge is to come to consensus as to which variables to prioritize when choosing census blocks. In addition to heat mitigation (the primary aim of re-greening), select 2-4 other priority criteria that guide your design (ie. improve walkability and exercise, remedy past racial discrimination vis-a-vis neighborhood segregation (redlining). You will use several data tools to evaluate your city and build a criteria list to identify which neighborhoods (census blocks) you will select and what goals you wish to achieve in addition to heat mitigation. This is the heart of your project. For this stage, you should engage in robust discussion and deliberation, and ultimately arrive at a brilliant consensus:

As you evaluate the following resources, it's important that all team members are initially on the same site so you can compare different maps and layers and communicate about ideas and understanding.

- ☐ **Begin here:** [Tree Equity Score](#)
- ☐ **Next here:** [I-Tree](#)
- ☐ [Justice40: Climate and Economic Justice Screening Tool](#)
- ☐ [Urban Heat](#) (temp difference)
- ☐ [Not even past:](#) HOLC (Redlining v. today)
- ☐ [FEMA National risk index](#)

[Modeling goals and objectives here](#)

Urban Forestry Curriculum

Christean T. Smith
Baton Rouge & USA
Southern University
and A&M College

International i-Tree Academy i-Tree Action Plan

The primary **goal** of this action plan is to integrate i-Tree tools into the Urban Forestry curriculum to enhance students' ability to collect, analyze, and utilize tree data for research and practical applications. This will create a growing database for undergraduate, master's, and Ph.D. students, facilitating data accessibility for coursework, thesis, and dissertation projects.



1. Briefly state the objective for your i-Tree Action Plan



2. What issue(s) or opportunity will your plan help address?

3. What i-Tree tool(s) do you plan to use?

- Organize student-led community workshops on urban forestry.
- Collaborate with local schools to educate K-12 students about i-Tree and tree conservation.
- Present research findings at conferences and urban forestry events.
- Develop an online repository showcasing student projects using i-Tree.

☐ i-Tree MyTree
☐ i-Tree Canopy
☐ i-Tree Eco



 **Christean Smith, Ph.D.** • 1st
Urban Green Assets
2mo • 

Happy to say I was able to incorporate my i-Tree action plan immediately into Southern University Urban Forestry curriculum! The students did an amazing job of demonstrating and presenting their own i-Tree action plan that aligned with their own passions and ideas. [#GrowJAGs](#) [#UrbanForestry](#) [#UrbanGreenAssets](#) [i-Tree Tools](#)



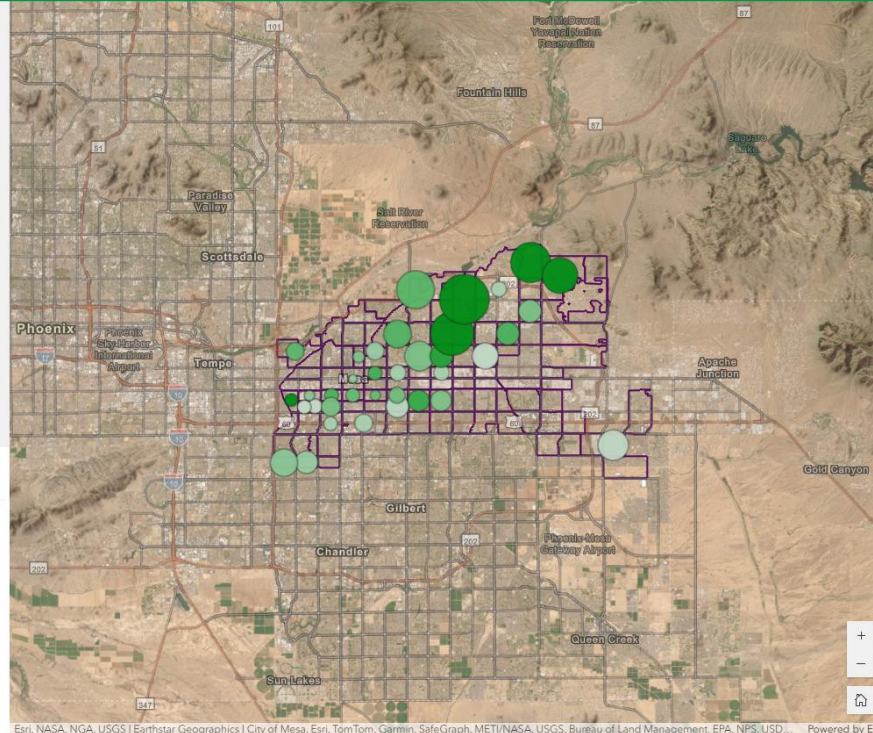
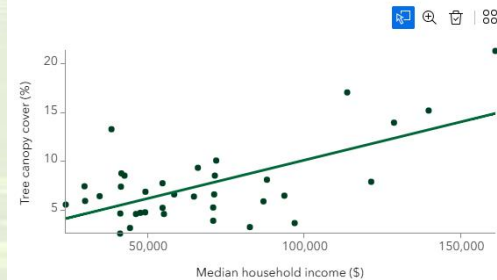
i-Tree Canopy Class Project

Tree cover vs. income in Mesa MCC BIO 105 research project

Urban trees provide a number of benefits to city dwellers, from shade to air pollution reduction to mental health improvements. But not all urban residents have the same access to trees, whether in their yards, along city streets, or in nearby parks. In many American cities, high-income neighborhoods have greater urban tree cover than their lower-income counterparts.

Do wealthier neighborhoods also have more tree cover in Mesa, Arizona? This question is being addressed by students in Mesa Community College's Environmental Biology courses. Students are measuring tree canopy cover in Mesa census tracts (neighborhoods) and comparing it to the median household income of the neighborhoods.

The graph and map you see here are the preliminary results from this study. What patterns do you notice?



<https://experience.arcgis.com/experience/7eedcd77946842f69c68f62203451887/>

Students leading i-Tree Eco projects

Milwaukee Public Schools



Urban trees in Milwaukee Public Schools have the following replacement values:

- Replacement value: \$7.4 million
- Carbon storage: \$357 thousand

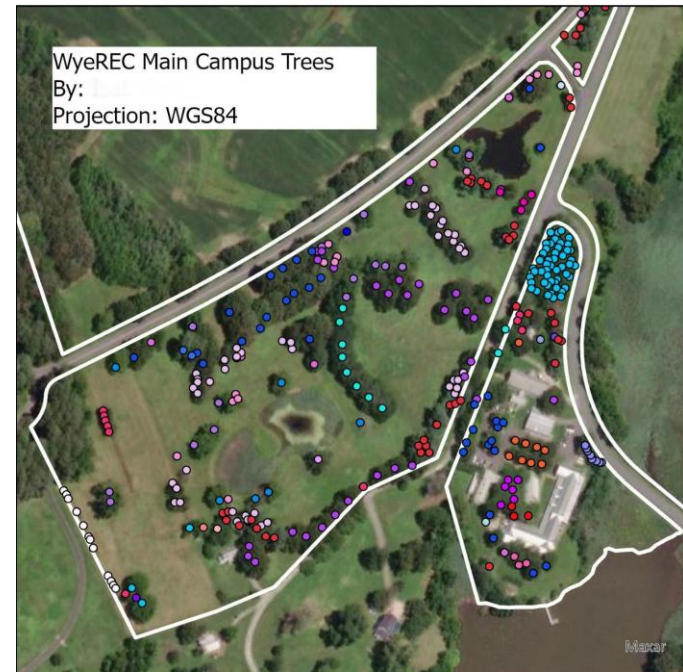
Urban trees in Milwaukee Public Schools have the following annual functional values:

- Carbon sequestration: \$9.15 thousand
- Avoided runoff: \$3.76 thousand
- Pollution removal: \$32.3 thousand
- Energy costs and carbon emission values: \$0

(Note: negative value indicates increased energy cost and carbon emission value)

[i-Tree Ecosystem Analysis - Milwaukee Public Schools](#)

University of Maryland Wye Research and Education Center



MainCampusTrees Species (scientific)

○ <i>Acer negundo</i>	○ <i>Cercis canadensis</i>	○ <i>Morus</i>	● <i>Quercus phellos</i>
● <i>Acer platanoides</i>	○ <i>Cornus florida</i>	○ <i>Picea abies</i>	● <i>Robinia pseudoacacia</i>
● <i>Acer rubrum</i>	● <i>Fraxinus</i>	● <i>Pinus echinata</i>	○ <i>Salix babylonica</i>
○ <i>Acer saccharum</i>	● <i>Gleditsia triacanthos</i>	● <i>Pinus strobus</i>	○ <i>Taxodium distichum</i>
● <i>Araucaria heterophylla</i>	● <i>Juglans nigra</i>	● <i>Platanus</i>	● <i>Zelkova serrata</i>
● <i>Betula nigra</i>	● <i>Juniperus virginiana</i>	○ <i>Prunus serotina</i>	○ <all other values>
	● <i>Liquidambar styraciflua</i>	● <i>Quercus acutissima</i>	
	● <i>Liriodendron tulipifera</i>	● <i>Quercus alba</i>	
	○ <i>Magnolia virginiana</i>	● <i>Quercus coccinea</i>	

Research in Higher Education

"Return-on-Investment for Paid Tree Maintenance in Southwest Philadelphia" – Ezra Caspi

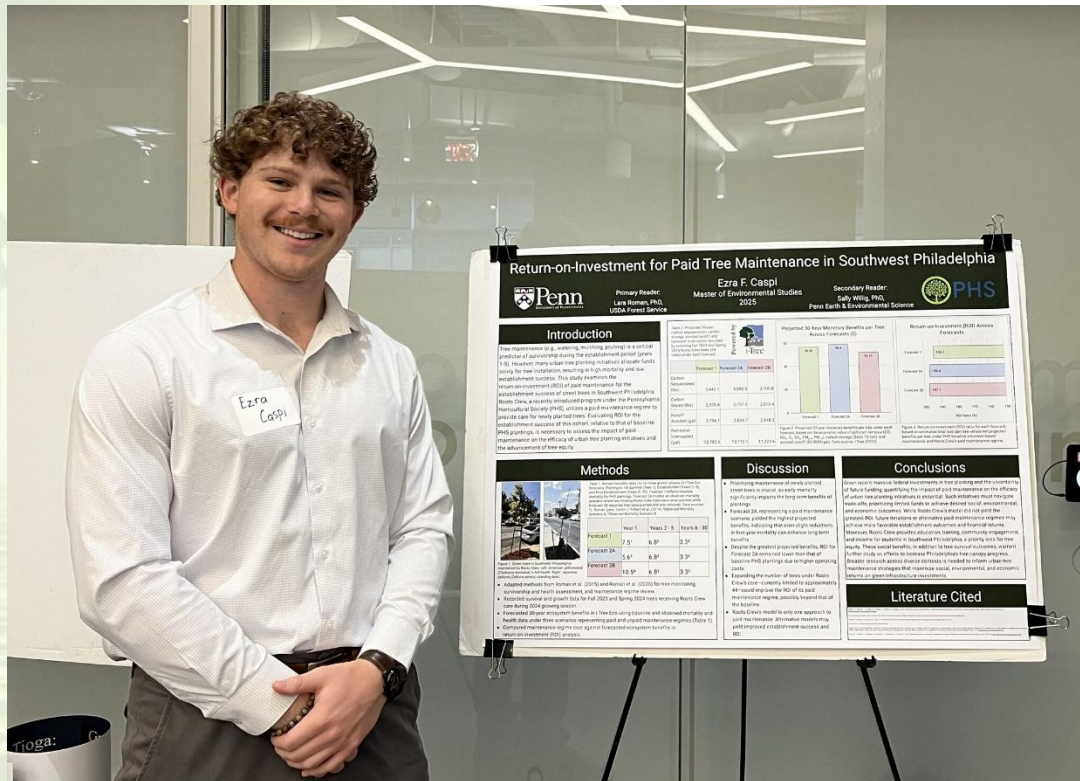
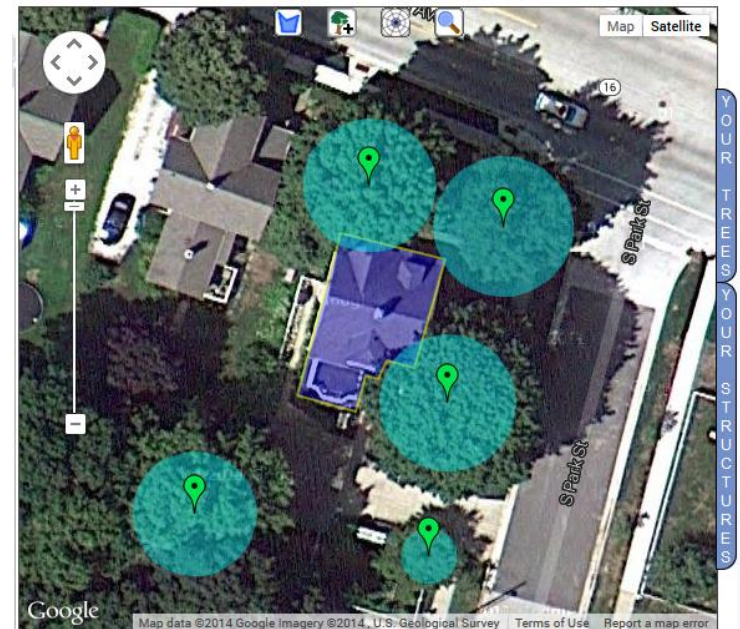
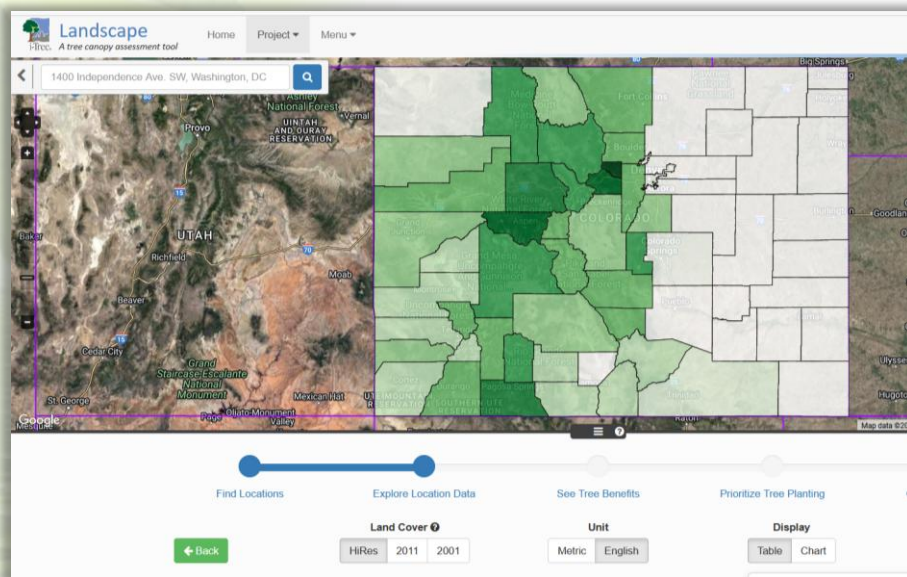


Figure 4. Street trees in Southwest Philadelphia maintained by Roots Crew. Top Left: American yellowwood (*Cladrastis kentukea*) in full health. Top Right: European horse-chestnut (*Aesculus hippocastanum*) with light dieback. Bottom Left: Eastern redbud (*Cercis canadensis*) with severe dieback. Bottom Right: Japanese zelkova (*Zelkova serrata*) standing dead.

Community Outreach Coordinator
New Jersey Urban & Community
Forestry

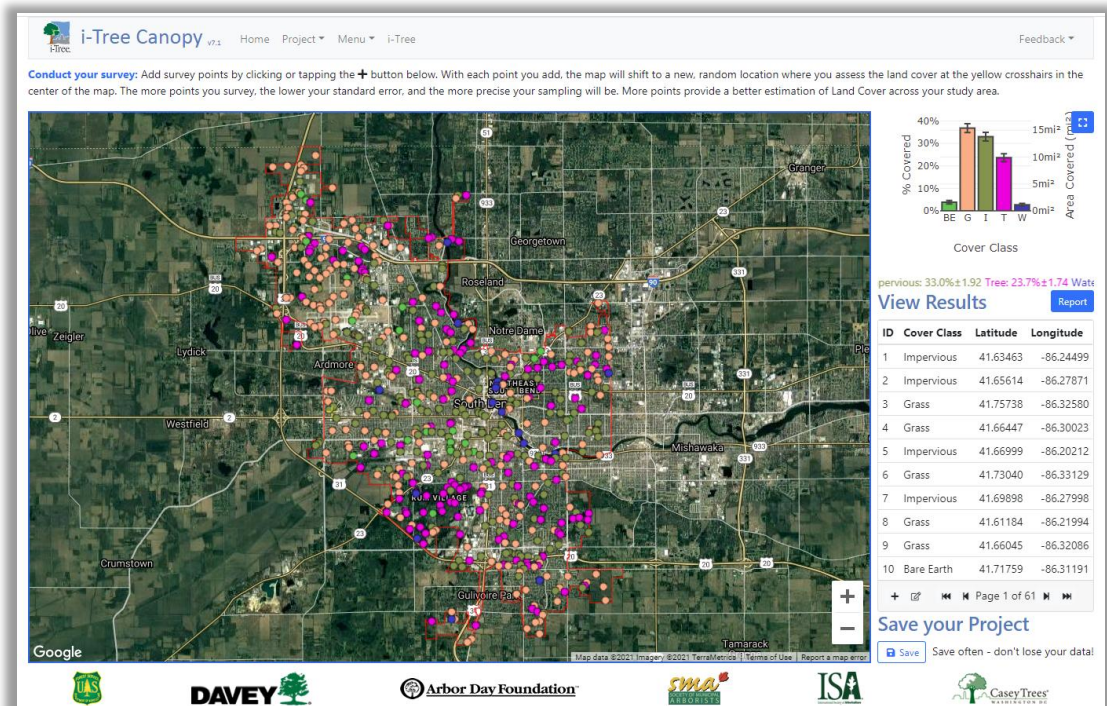
i-Tree for Community Engagement

- Free tools for anyone with a small budget
 - A little knowledge can go a long way
- Sharing tree science with folks who aren't tree scientists
 - Meeting your stakeholders where they are
- Using i-Tree for messaging beyond trees: environmental and human health



What does it mean to “Speak for the Trees”?

- Putting canopy in **context**
 - Trees co-exist with people, habitats, infrastructure
- Knowing more about the landscapes around us helps us understand the **relationships** between people and nature
- Visualizing the canopy in your community makes an instant connection: **You Are Here!**
- Assessing canopy alongside other meaningful data – *relating to risk, needs, and objectives* - can help us better manage tree benefits for the **future**



Inform Community Decisions and City Priorities

- Springfield, MA neighborhood Canopy reports*
 - Using tree benefits for comparison, bragging rights, and local stories



**Courtesy of David Bloniarz, Ph.D
USDA Forest Service*

Highlight Benefits and Neighborhood Assets

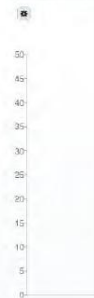
i-Tree Canopy Analysis

Neighborhood	Percent Canopy
Sixteen Acres	50.0%
Boston Road	44.0%
Forest Park	41.3%
East Forest Park	30.7%
Indian Orchard	30.2%
Pine Point	29.3%
Liberty Heights	28.0%
Bay	26.7%
Brightwood	20.0%
East Springfield	17.3%

Forest Park, a Victorian garden designed between 1880 and 1920. It surrounds the 735-acre Frederick Forest Park neighborhood has within walking distance. It land, 41% of which is on the National Register of the Forest Park Heights house Forest Park Heights developed between 1890 and gracious Colonial Revival, Anne, and Shingle Style homes. The ruins occupies more than half of the south side, left largely Naturalist in style, although elegant bridges. It is home to many species of birds and animals.

Regreen Springfield
iTree Canopy
Brightwood Neighborhood

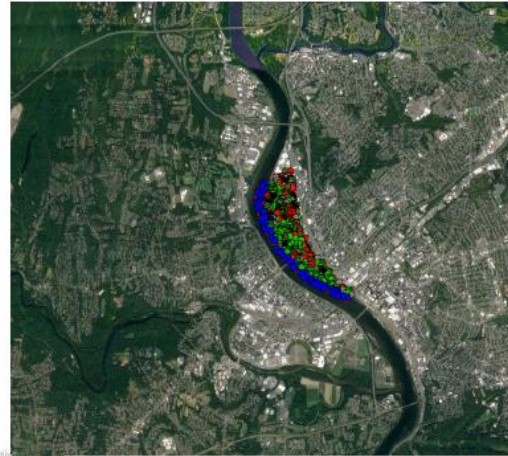
i-Tree Canopy
Cover Report



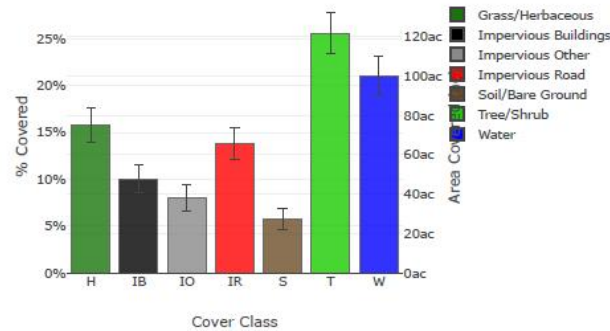
Legend
Tree
Grass and Shrubs
Impervious Building
Aerial i-Tree Canopy
This report and price
(current version of this report)
The accuracy of this report
highly to have any other

i-Tree Canopy v7.1
Cover Assessment and Tree Benefits Report
Estimated using random sampling statistics on 3/10/2021

Brightwood Neighborhood,
Springfield, MA



Land Cover



The Southeast corner of the city, is Springfield's largest neighborhood with a population of 24,252 people. Sixteen Acres includes the University, the School, Pioneer and the 18-hole, Course. Besides colonials, split-neighborhood has complexes on Allen Street shopping, Fresh Acres Market. Sixteen Acres residents have a quick access to shopping, such as Hasbro and American Saw.

Massachusetts's principal commercial and retail corridor. It is a neighborhood, containing 727 acres plus rights-of-way and water are the Boston & Albany Railroad to the north; the North side south; the Town of Wilbraham to the east; and Cobb and Boston Road remains a commercial stronghold, home to the various big box stores, a movie theater, and a branch of the above mentioned Hampden Bank. Springfield city and Loon Pond provide places to swim, fish, boat, and canoe & Technology Putnam Vocational High School are located



Highlight Benefits and Neighborhood Assets

- Crawfordsville, IN
- Easily shared and distributed
- Relatable references

OurTrees Benefits



Trees in Crawfordsville, IN

Serving Size:

22.75% tree canopy on 1,332 acres

30.27% impervious surfaces over 1,772 acres

Total i-Tree benefits for this year: **\$905,952**

Annual values:

Carbon Dioxide Uptake **\$566,782**

Carbon Sequestered 1,310 tn

CO₂ Equivalent¹ 4,803 tn

Storm Water Mitigation **\$108,211**

Runoff Avoided 12 MG/yr

Rainfall Intercepted 82 MG/yr

Air Pollution Removal **\$230,959**

Carbon Monoxide 2,229 lb/yr

Ozone 49,110 lb/yr

Nitrogen Dioxide 6,843 lb/yr

Sulfur Dioxide 2,722 lb/yr

PM_{2.5} 2,672 lb/yr

Values are totals to date:

Carbon Dioxide Uptake **\$25,155,672**

Carbon Storage 58,133 tn

CO₂ Equivalent¹ 213,154 tn

Benefit estimates are based on USDA Forest Service research and are meant for guidance only. Visit www.itreetools.org to learn more. Get even more information at i-Tree.Landscape!

OurTrees Story



The impacts of tree benefits can be hard to grasp. Below are some real-world examples of how trees work hard for our community.

Trees in Crawfordsville, IN

Trees lower air temperature and absorb water, while impervious areas do the opposite.

Trees shade an area equivalent to 1,007 professional football fields!



The land area covered by impervious surfaces – typically buildings and pavement – is like a 2.8 square mile parking lot.

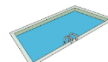
Annual Tree Benefits for Crawfordsville, IN

Sequestering carbon as wood in trees counteracts the CO₂ emissions of 939 gasoline powered passenger cars.



The filtration and removal of air pollution by the leaves of trees is estimated to reduce acute respiratory symptoms and exacerbated asthma by 31 incidents. This also prevents the loss of 4 school day(s).

Rainfall absorbed by tree roots and therefore kept out of storm sewers is equal to 18 Olympic sized pools!

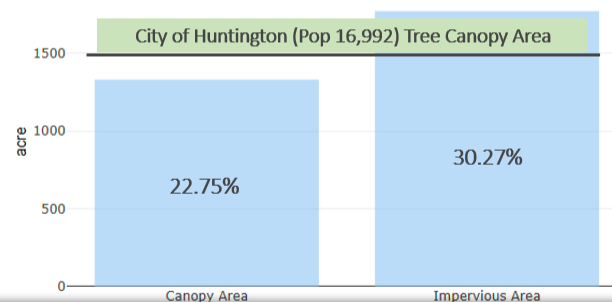


Benefit estimates are based on USDA Forest Service research and are meant for guidance only. Visit www.itreetools.org to learn more. Get even more information at i-Tree.Landscape!



What does the tree cover look like in Crawfordsville?

Canopy & Impervious Area



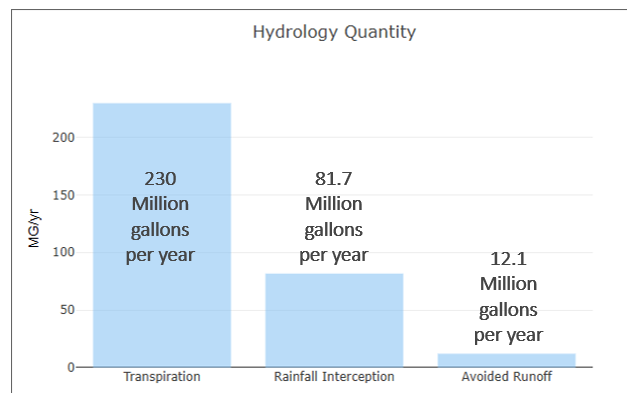
Canopy = amount of tree cover in an area

Impervious area = roads, buildings, and other areas where rainwater cannot soak through.



Benefits of Trees: Water Quality


Hydrology Quantity



Water Quality Alert - 39.97% of waterways in Crawfordsville are known as impaired waterways according to the EPA...

Connect Tree Benefits and Community Goals


- Keeping it real: neighborhood goals and management capabilities



Brainstorming!

Resources

- What issues does your community face?
- How do these impact your life? Your neighbors' lives? Your children's lives?
- What resources do you have access to?
- What resources do you need?



How does a city or town maintain and increase tree cover?

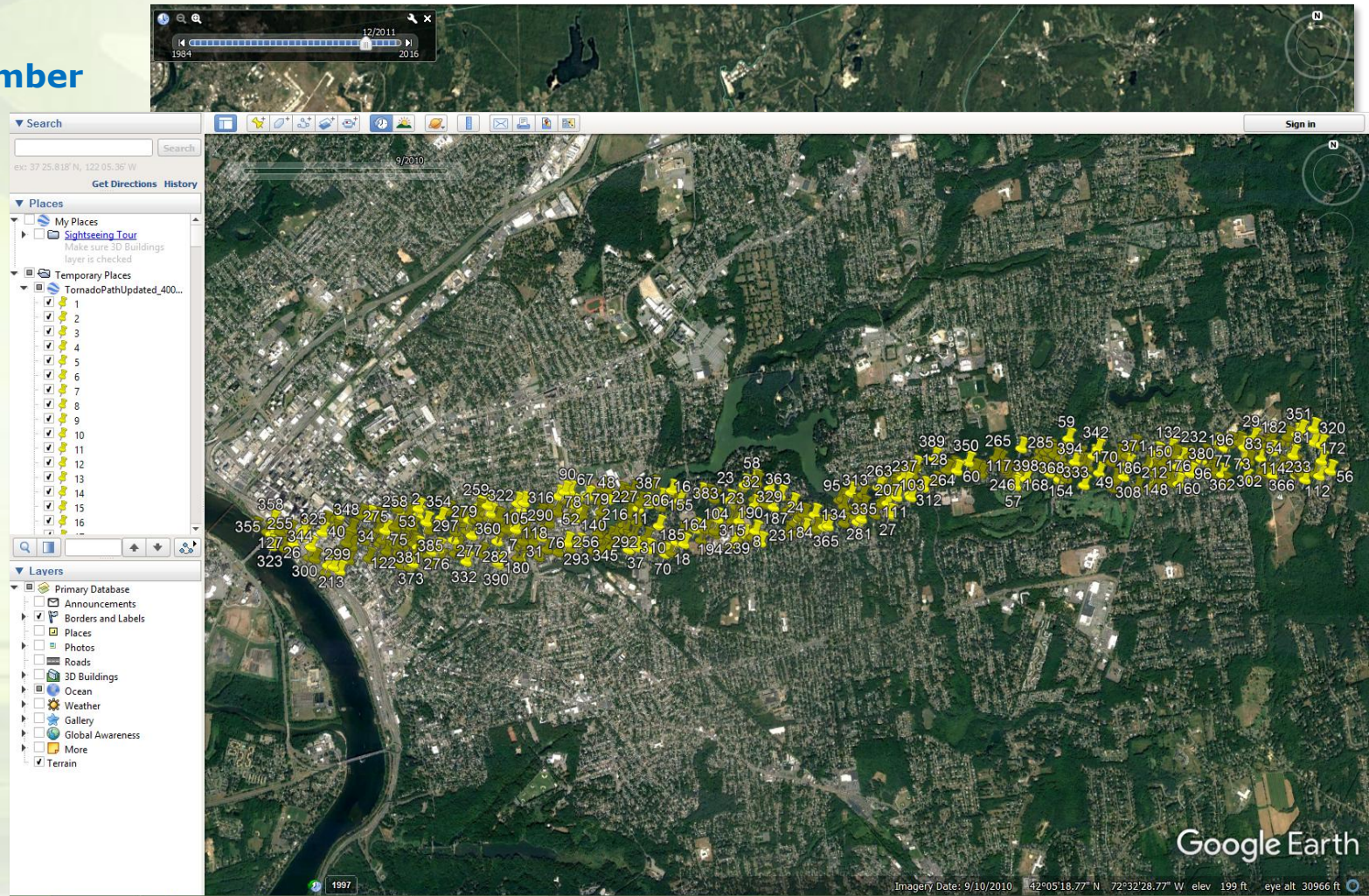
Governance & Management

- Step 2: City plan(s) that prioritize tree care
- Relevant goals in the Crawfordsville Comprehensive Plan
- Goal 6-1 & 6-2: Conservation of natural areas and greenways for public recreation and health
- Goal 7-1: Ensuring quality of life of future residents by meeting environmental/economic/social needs
- Goal 7-4: Attract green collar jobs

Monitoring Change, Progress, and Resilience

Western Massachusetts 2011 tornado visible in satellite imagery

December
2012



Follow-up Can Inform Project Success, Impact, and Future Needs

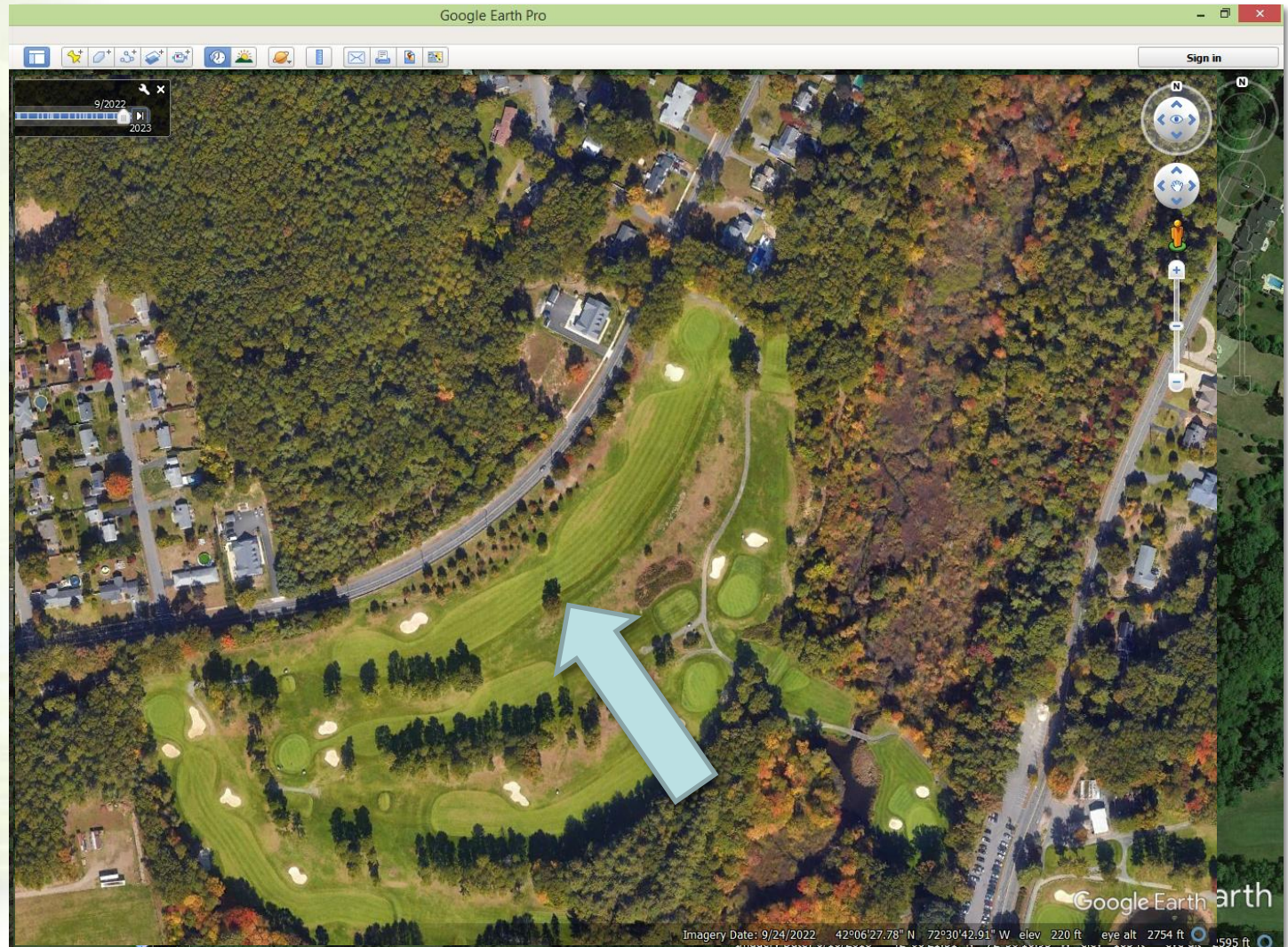
- Veterans Memorial Golf Course

2010

2012

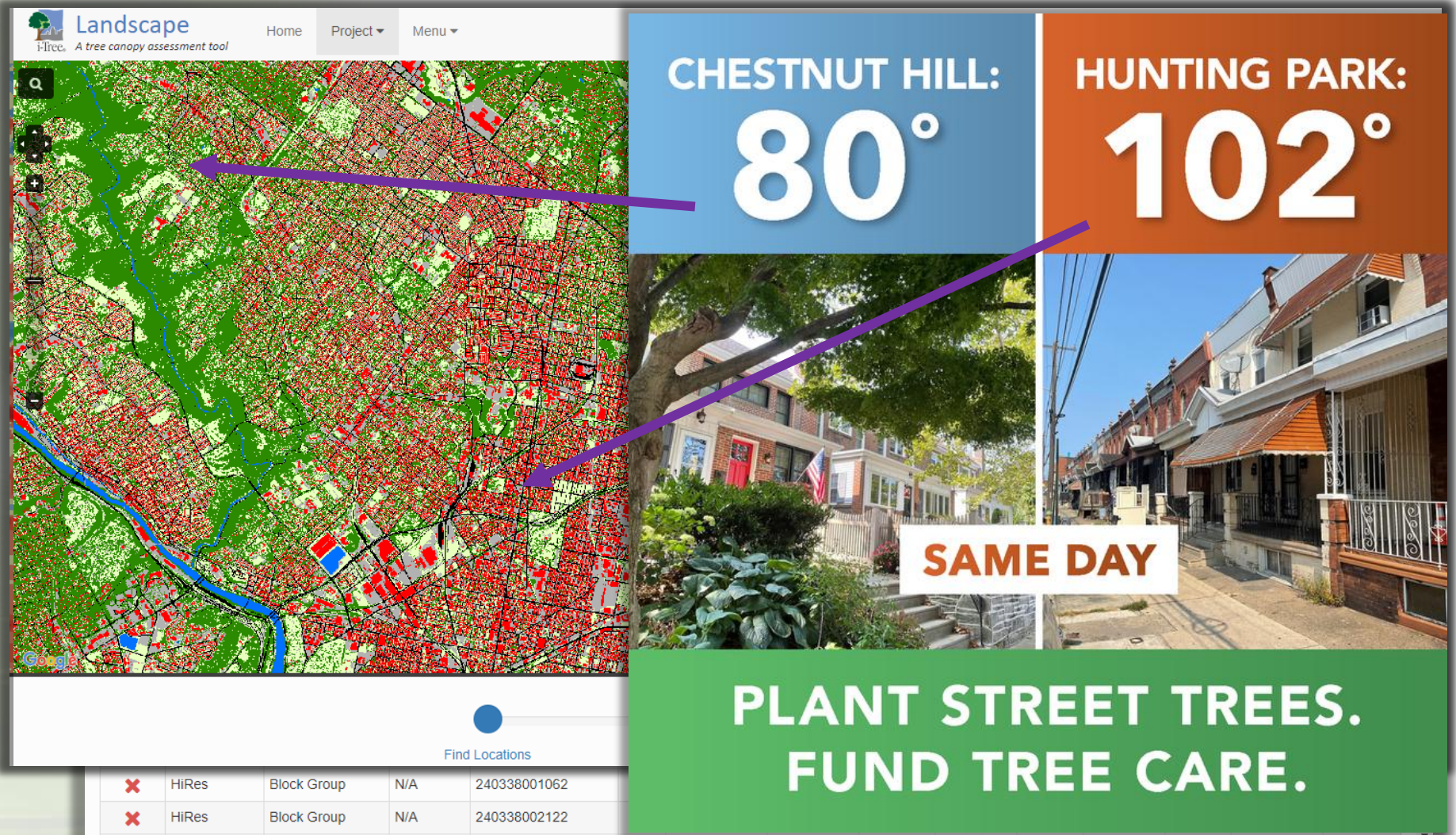
2018

2022



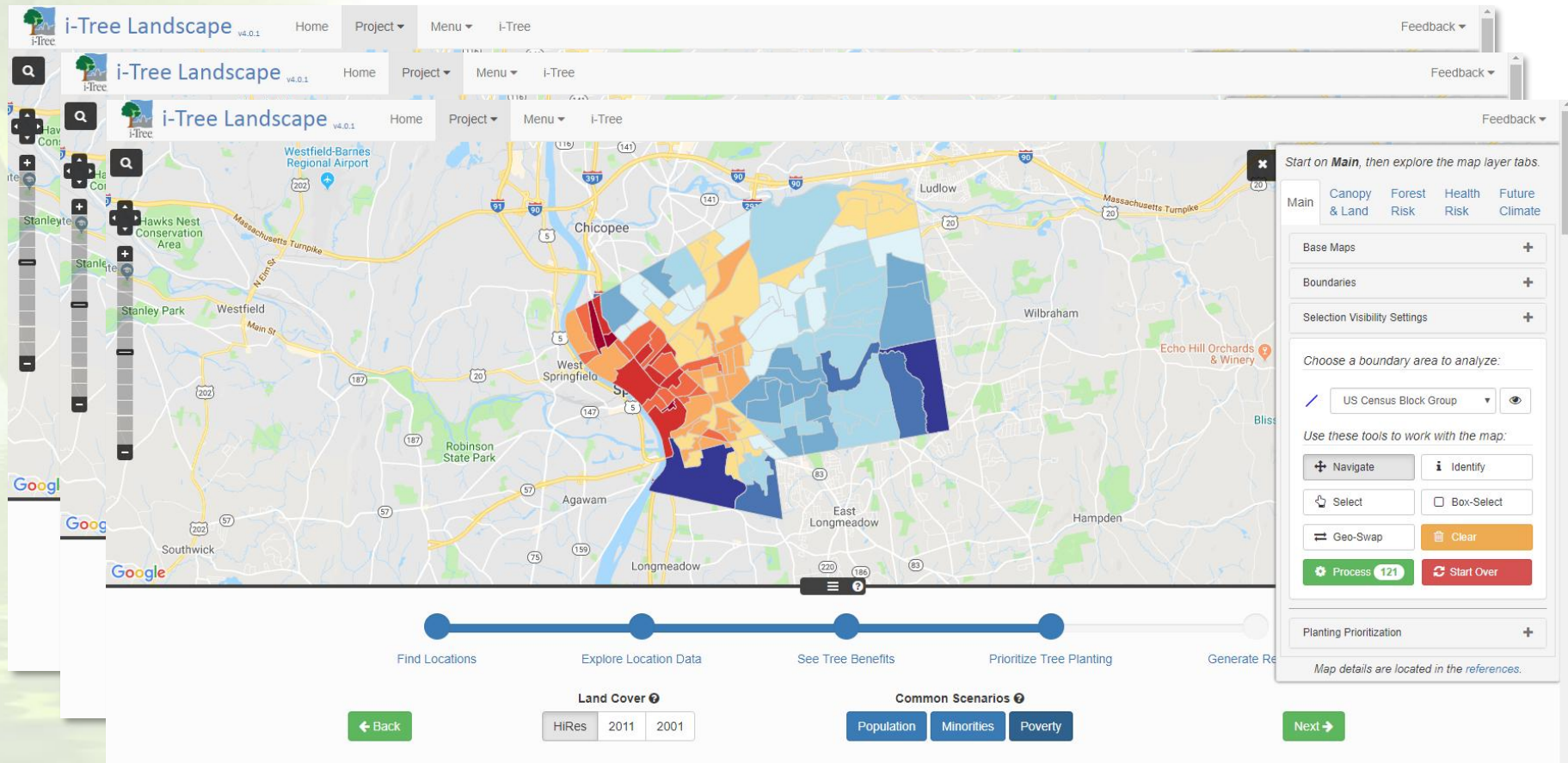
Focus on Features That Matter to Your Neighborhood

- Distribution of resources and challenges



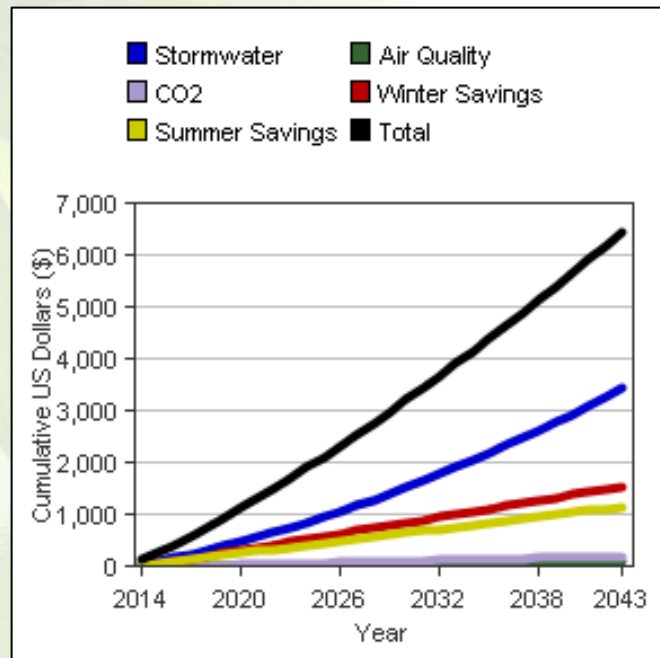
Share What Priorities Might Look Like

- Visualizing the bigger picture: distribution of resources, risks, and gaps can inform goals and objectives

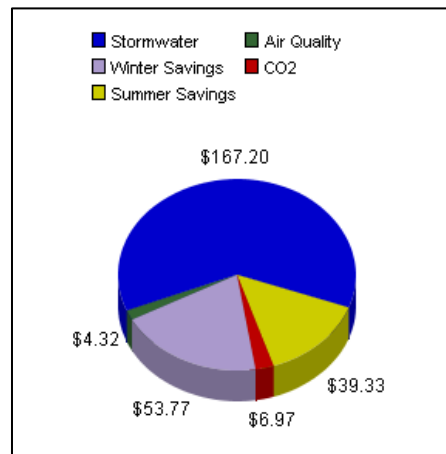


Show Trees Are an Investment

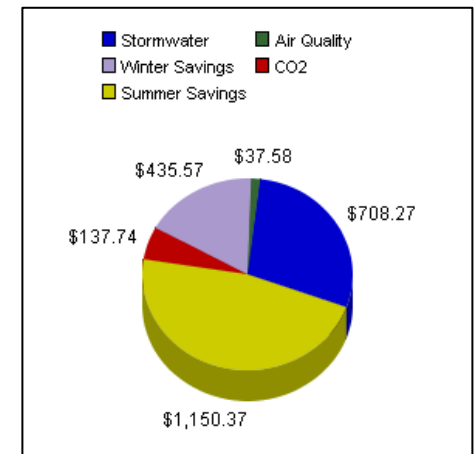
- Sometimes money talks



\$6,476 worth of benefits over the next 30 years ...and growing



Benefits in 2044 = **\$272**

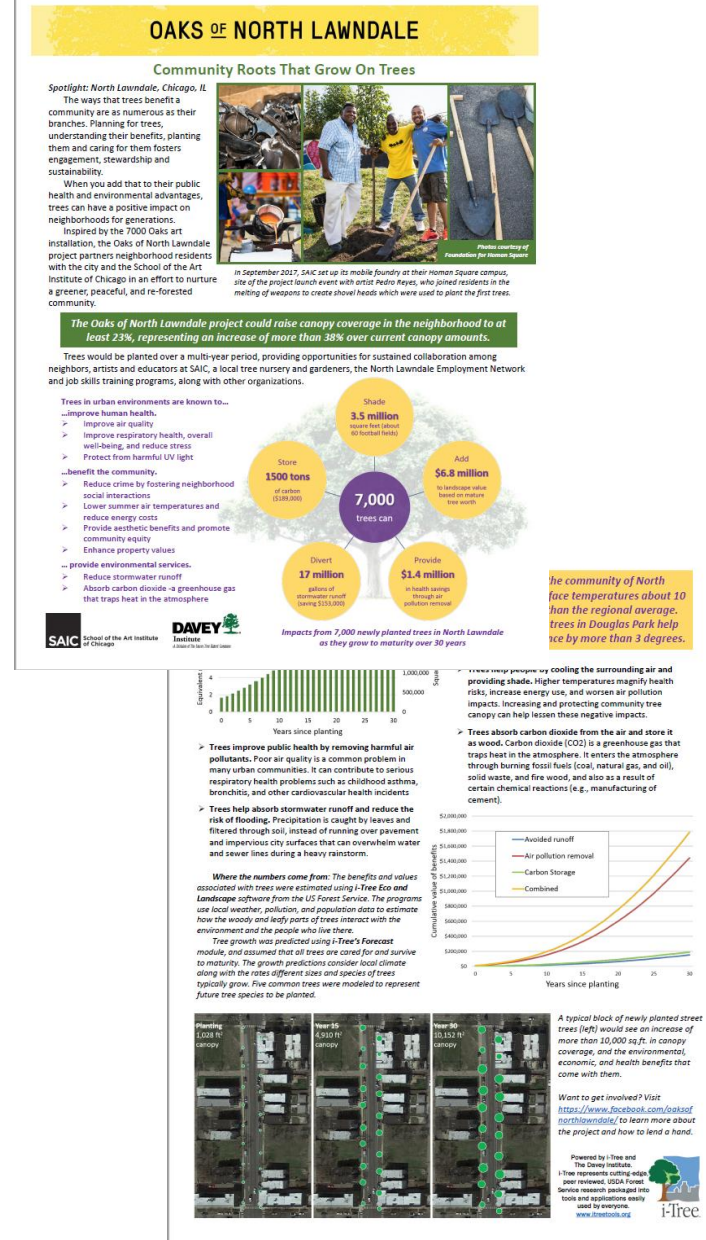


To date = **\$2,470**

Putting It All Together

- What you know powers the way forward
 - What You Have, Where You Have It*
- Unique needs and observations can be meaningful
 - Sharing with AND learning from communities
- 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*



i-Tree: Toward Strategic Management

What is strategic management?

- If you could only plant one tree...
- Maximizing tree benefits...not just numbers of trees
- Delivering tree benefits where they are most needed
- Practical and science backed decision support
- Make the best use of limited resources



i-Tree Canopy



The majority of Lancaster residents obtain their drinking water from the Conestoga and Susquehanna Rivers. The Conestoga River Watershed has the highest nutrient concentration of any watershed flowing into the Susquehanna River.

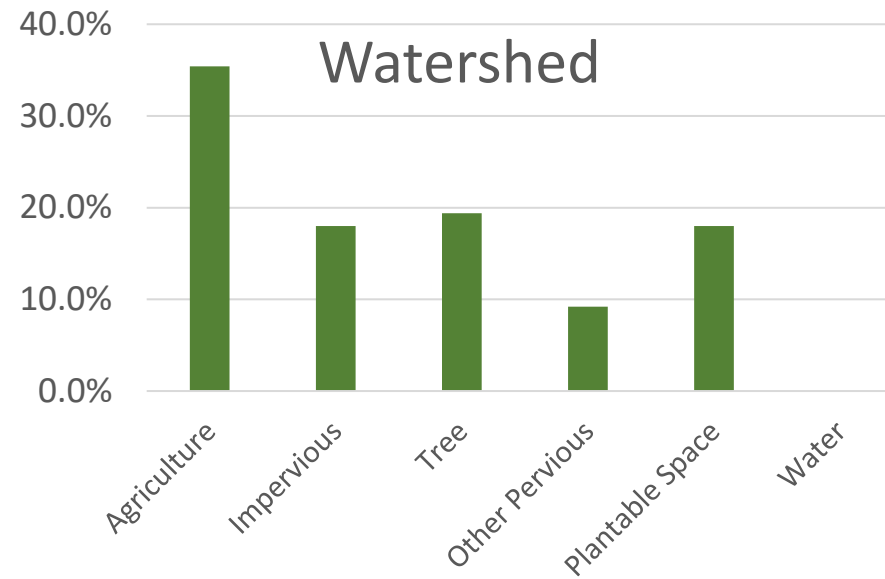
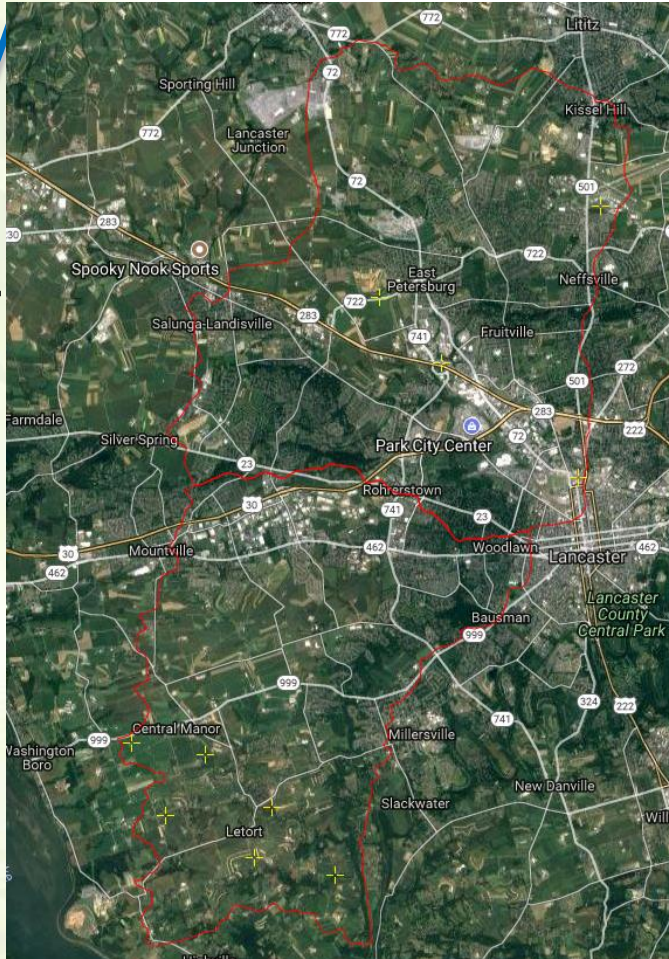


To preserve and enhance the watershed for its citizens and the environment through education and restoration projects.

i-Tree Canopy

Watershed
ed

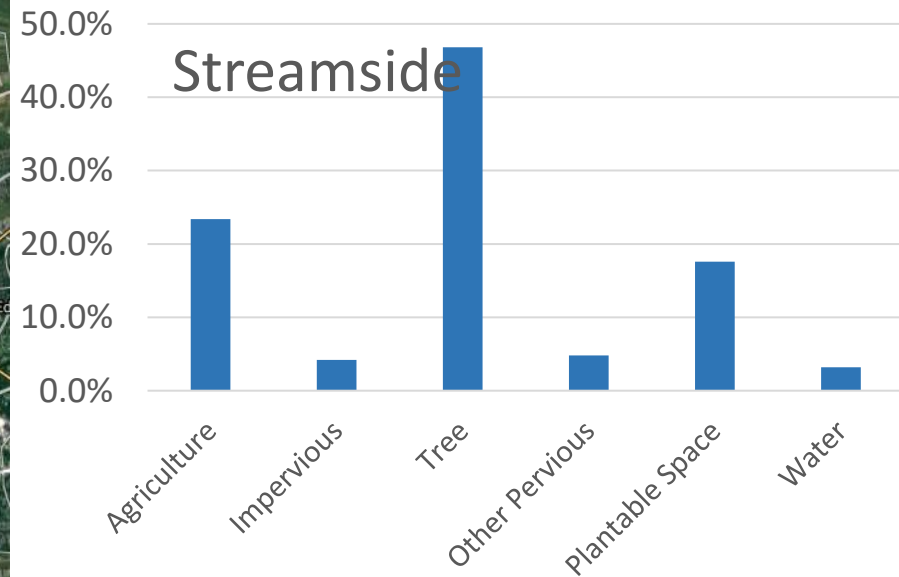
65.53
sq. mi.



419 acres of new
canopy needed to raise
tree cover by **1%**

i-Tree Canopy

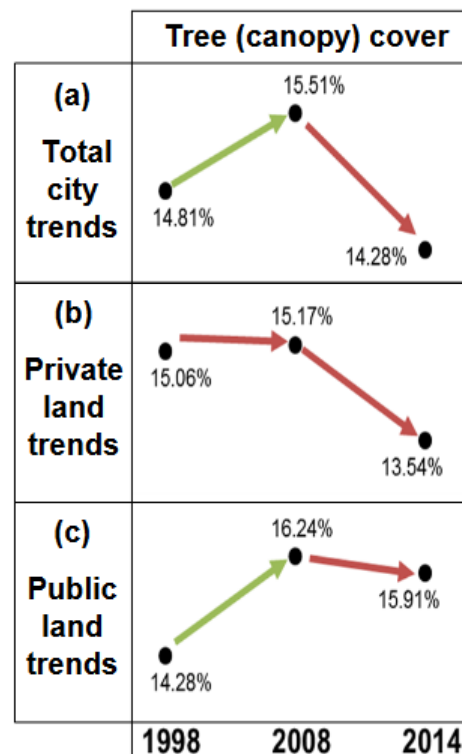
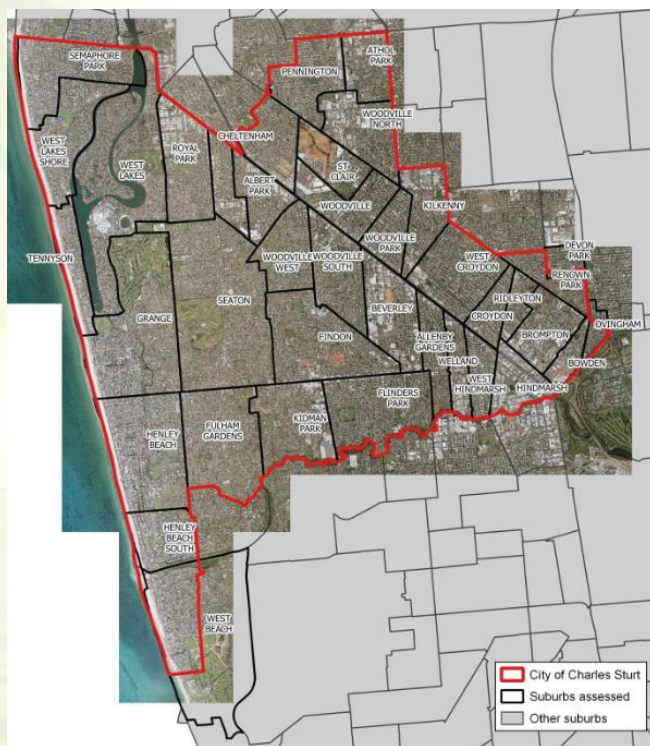
Streams
ide
50ft
buffer
2.55 sq.
mi.



16.3 acres of new canopy needed to raise tree cover by **1%**

Tree Canopy Cover in the City of Charles Sturt

Benchmark Assessment



i-Tree Canopy for benchmarking

Example integration
into voluntary
carbon credit
markets

CLIMATE FORWARD

A PROGRAM OF THE



Baseline Tree Assessments

Percentage deduction applied to project C stocks

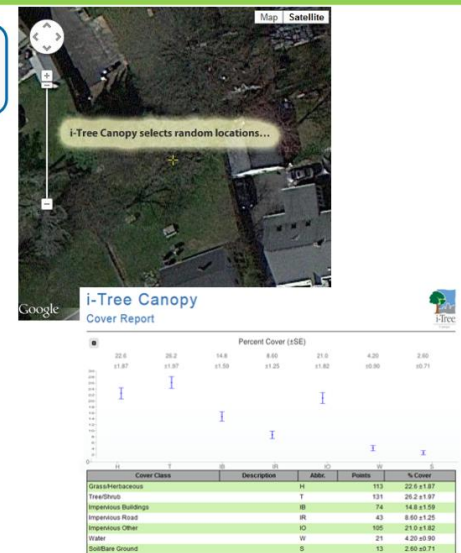
Pre-existing trees

- Canopy cover assessment using i-Tree Canopy
- % deduction based on % canopy cover

Pre-existing natural regeneration (seedlings)

- Only for no site preparation performed
- Pre-planting photo plots
- % deduction based on expected contribution to future forest cover (pre-defined categories)

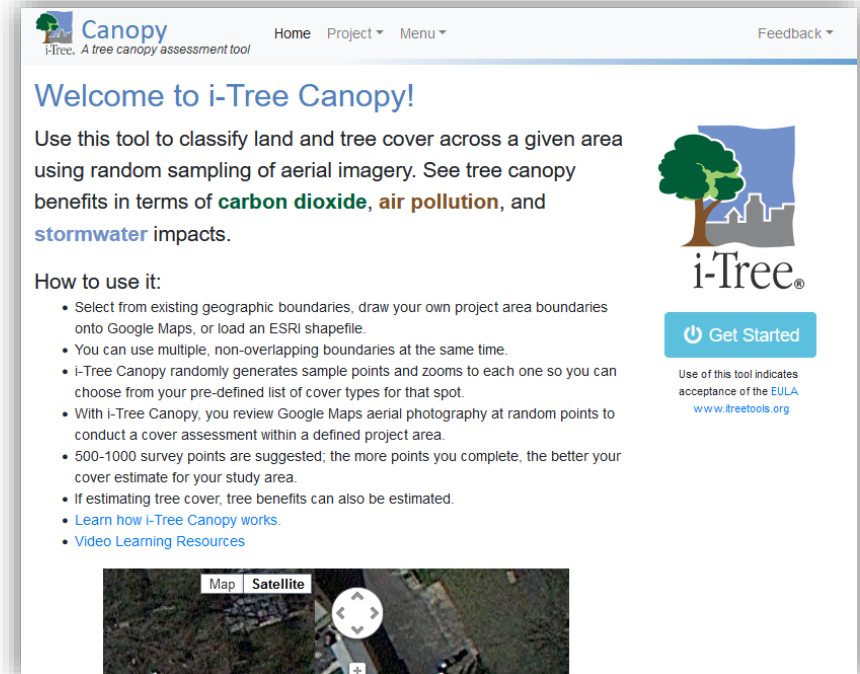
CLIMATE FORWARD



<https://climateforward.org/program/methodologies/reforestation/>

i-Tree Canopy: Benchmarking, impact accounting, targets

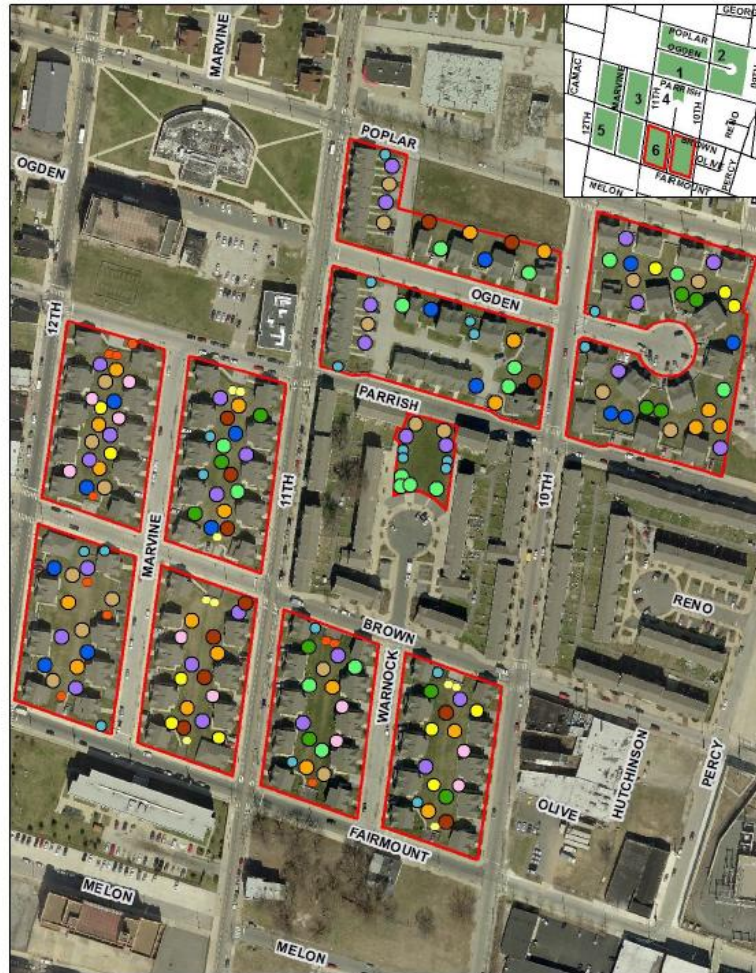
- 🌳 Identify the scope of the challenge
- 🌳 Determine current direction
- 🌳 Set realistic targets
- 🌳 What has been the impact of your past work?



i-Tree Planting



PHS
PENNSYLVANIA
HORTICULTURAL
SOCIETY



PHA – Richard Allen Tree Planting
180 Yard Trees

0 120 Feet
PHS
7/29/2014



i-Tree Planting

**Pennsylvania
Horticultural Society**
planting for the
**Philadelphia Housing
Authority**

Energy Savings over the next 30 yrs

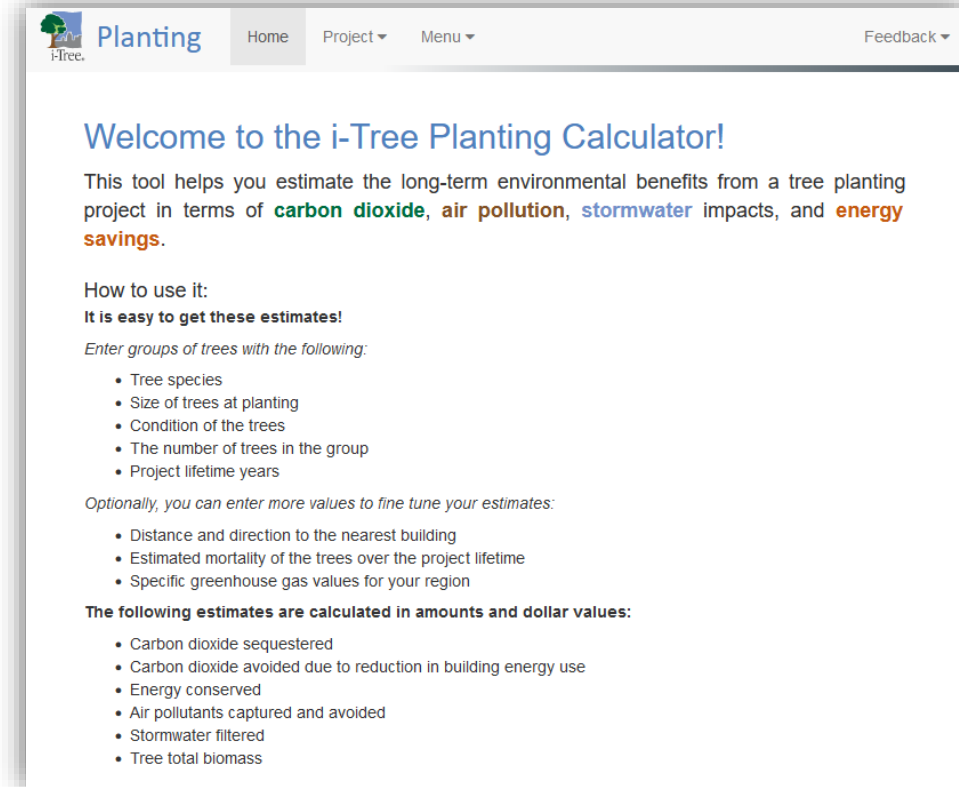
- **\$108,000** in winter
- **\$87,000** in summer



i-Tree Planting: The power of projections

Projecting benefits

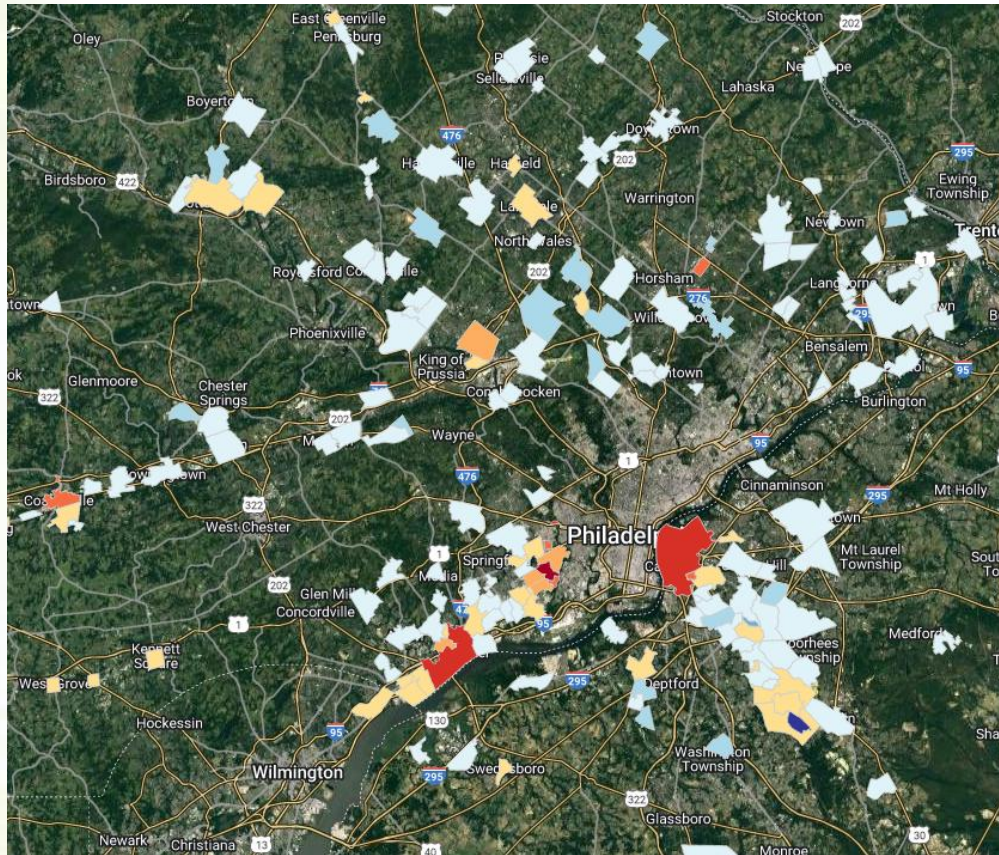
- 🌳 Small trees = small benefits
- 🌳 Support for maintenance
- 🌳 Evaluate species mix
- 🌳 Realistic mortality
- 🌳 Return on investment
- 🌳 Already accepted (CalFire, LEED



i-Tree Landscape



Using **i-Tree Landscape**
To prioritize
where tree
planting is
needed

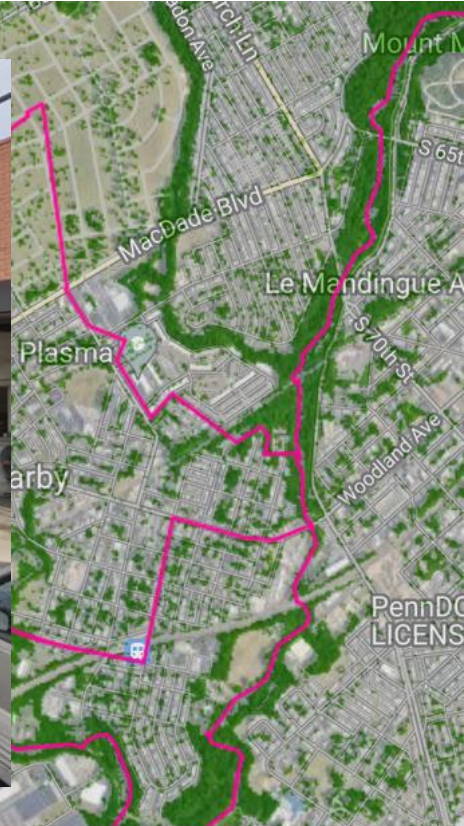


Place	Priority Index
Darby	100
Camden	91
Millbourne	87
Chester	86
Woodlynne	77
Colwyn	77
Warminster	76
Coatesville	75
East Lansdowne	72
Norristown	71
Upland	67
Yeadon	65
Collingdale	65
Sharon Hill	64
South Coatesville	60
Avondale	58
Lansdowne	58
Clifton Heights	57
Pottstown	56
Bridgeport	56
Oxford	55

i-Tree Landscape

Temperature differentials


Existing tree cover



i-Tree Landscape: Where to plant

Prioritization

- Find locations that address your priorities
- Maps with out GIS
- Key to connecting trees to people


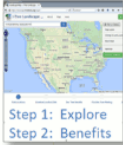
 **Landscape**
i-Tree. A tree canopy assessment tool

HomeProject▼Menu▼Feedback▼


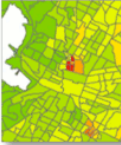
Welcome to i-Tree Landscape!

Explore tree canopy, land cover, and demographic information in your community. View tree canopy benefits in terms of **carbon dioxide**, **air pollution**, **stormwater** impacts, and more! Identify **priority tree planting** and protection areas for climate and social justice efforts.

How to use it:
Select an area of interest and follow these self-guided steps, freely switching back and forth, or even viewing them in separate windows:



Ozone	
\$	g/m ² /yr
90122.16	8.59
PM2.5	
\$	g/m ² /yr
202948.10	0.42



Find Location

Explore Location Data

See Tree Benefits

Prioritize Tree Planting

Generate Results

Once you have selected your area of interest, the following can be explored in any order:

- **Location** data - [US Census](#) data, [US Forest Service](#) map layers, and more!
- Amounts and values of **tree benefit** estimates.
- Planting **prioritization** mapping.

By removing carbon dioxide, trees help mitigate climate change. The shade provided by tree canopies also helps minimize the urban heat island effect. In addition, trees intercept stormwater, which can reduce flooding and improve water quality. Trees remove air pollution, such as ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and fine particulate matter. Reduced pollutants in the air has proven benefits to human health - trees truly



i-Tree Eco: Citywide results

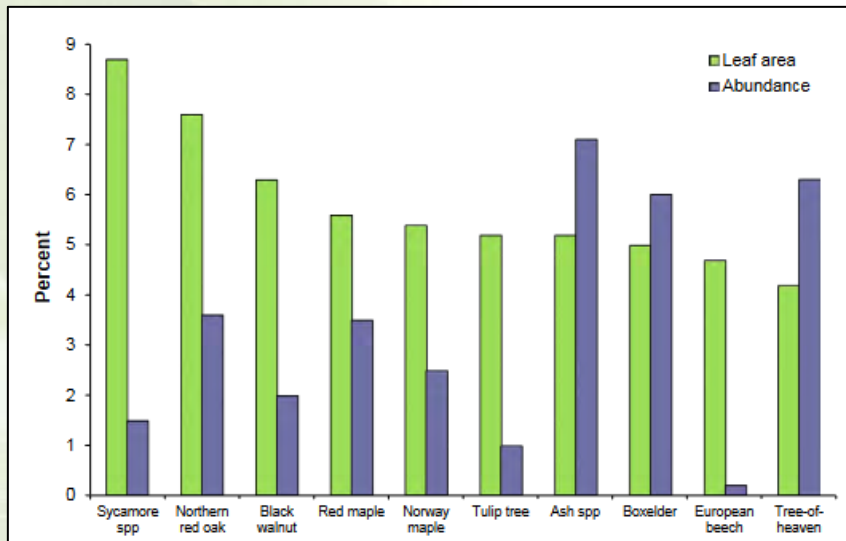


Table 1.—Summary of city-wide urban forest features, Philadelphia, 2012

Feature	Estimate
Number of trees ^a	2,918,000
Tree cover	20% ^b
Most dominant species by:	
Number of trees	spicebush, black cherry, ash species, tree-of-heaven, boxelder
Leaf area	sycamore species, northern red oak, black walnut, red maple, Norway maple
Trees 1 to 6 inches d.b.h.	62.2%
Air temperature reduction ^c	0.3 °F
Pollution removal	513 tons/year (\$19.0 million/year)
VOC emissions	228 tons/year
Carbon storage	702,000 tons (\$50.0 million)
Carbon sequestration	27,000 tons/year (\$1.9 million/year)
Value of reduced building energy use	\$6.9 million/year
Value of reduced carbon emissions	\$764,000/year
Compensatory value ^d	\$1.7 billion
Rainfall interception	81.0 million cubic feet

i-Tree Eco: Power of stratification

City owned parkland is
9% of the city

Trees on city owned

parkland account for

40% of carbon storage

and sequestration

Feature	Estimate
Number of trees	1,100,000
Tree Cover	64%
Carbon Storage	273,000 tons (\$19.4 million)
Pollution Removal	179 tons/yr (\$6.6 million/yr)

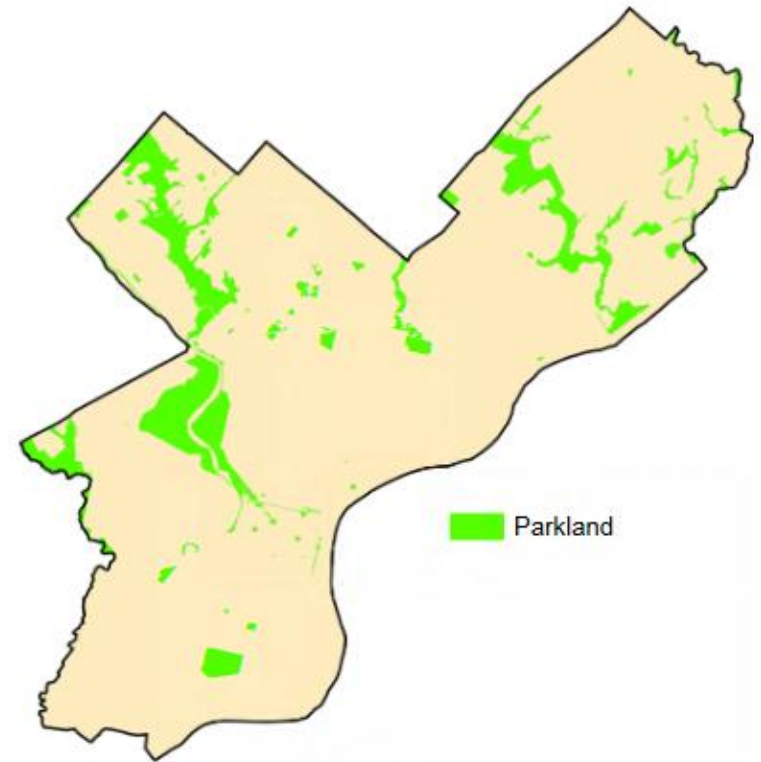
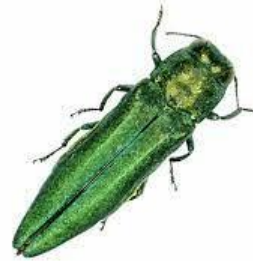


Figure 1.—Philadelphia city boundaries and designated parkland areas, 2012.

Free Eco Example. Large project with targeted results

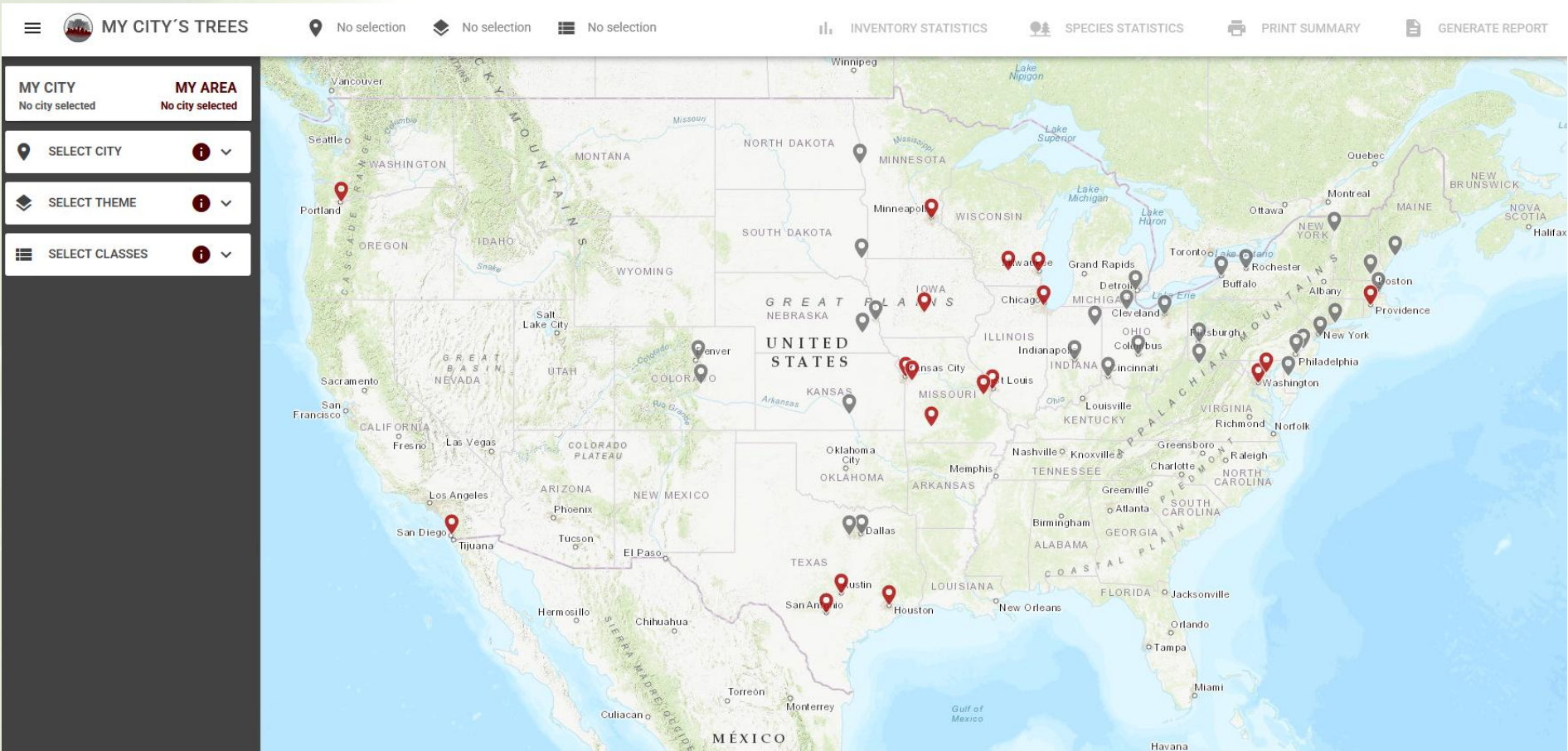
**Ash Trees:
City stands to lose
7.1% of its forest
and millions in
benefits to
emerald ash borer**



Parameter	Estimate	Units	% of Total City	Species Group Rank
Population	206,996	number	7.1	3
Density	2.3	trees/acre		3
Carbon stored	35,742	tons	5.1	7
Carbon sequestered	1,025	tons/year	3.8	11
Net carbon sequestered	935	tons/year	4.0	10
Leaf area	4,818	acres	5.2	7
Leaf biomass	1,936	tons	6.3	3
Trees, diameter 1-3 in.	111,777	number	54.0 ^a	2
Trees, diameter >18 in.	10,557	number	5.1 ^a	12

^a Percent of all ash trees

i-Tree Eco Example: External tools



<https://mct.tfs.tamu.edu>

Free Eco Example. Incorporating in external tools

MY CITY

San Diego, CA

169,857

ACRES

1,380,228

PEOPLE

191

PLOTS

MY AREA

Pollution Burden

46,531

ACRES

282,865

PEOPLE

48

PLOTS

27%

AREA

20%

POPULATION

25%

PLOTS

SELECT CITY

i

▼

SELECT THEME

i

▼

SELECT CLASSES

i

^

Highest Burden

High Burden

Moderate Burden

Low Burden

Lowest Burden

Count

Tree counts (live trees at least 1 inch in diameter)

26%

MY CITY: 4.52 MILLION TREES
MY AREA: 1.18 MILLION TREES

SPECIES	MILLION TREES	PERCENT
Chinese banyan	0.40	34%
arroyo willow	0.18	15%
Tasmanian bluegum	0.11	10%
27 more	0.49	41%
All	1.18	100%

Leaves

Leaf biomass of the live crowns of trees

16%

MY CITY: 44,510 OVEN-DRY TONS
MY AREA: 7,281 OVEN-DRY TONS

SPECIES	OVEN-DRY TONS	PERCENT
Tasmanian bluegum	1,223	17%
Torrey pine	848	12%
Chinese banyan	814	11%
27 more	4,396	60%
All	7,281	100%

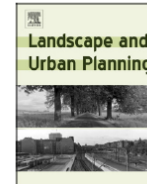
i-Tree Eco



Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Landscape and Urban Planning

journal homepage: www.elsevier.com/locate/landurbplan



Research Paper

Achieving impact from ecosystem assessment and valuation of urban greenspace: The case of i-Tree Eco in Great Britain

S. Raum^{a,*}, K.L. Hand^{b,c}, C. Hall^d, D.M. Edwards^d, L. O'Brien^b, K.J. Doick^b

^a Centre for Environmental Policy, Imperial College London, UK

^b Forest Research, Farnham, UK

^c School of Environment, Earth and Ecosystem Sciences, The Open University, UK

^d Forest Research, Roslin, UK

...inform tree species selection and priority areas for new planting...(Swansea)

... set climate change adaptation targets...(City council)

... support tree maintenance...(Council Task and Finishing Forum)

... support monitoring and management of diseased trees...(Devon Ash Resilience Forum)



Fig. 1. Location of the 22 i-Tree Eco projects known to be completed or in progress in GB as of January 2018.

[Download article here](#)

i-Tree Eco: Small project with big value



Abington Township Montgomery County, PA



Introduction

Master Tree Action Plan

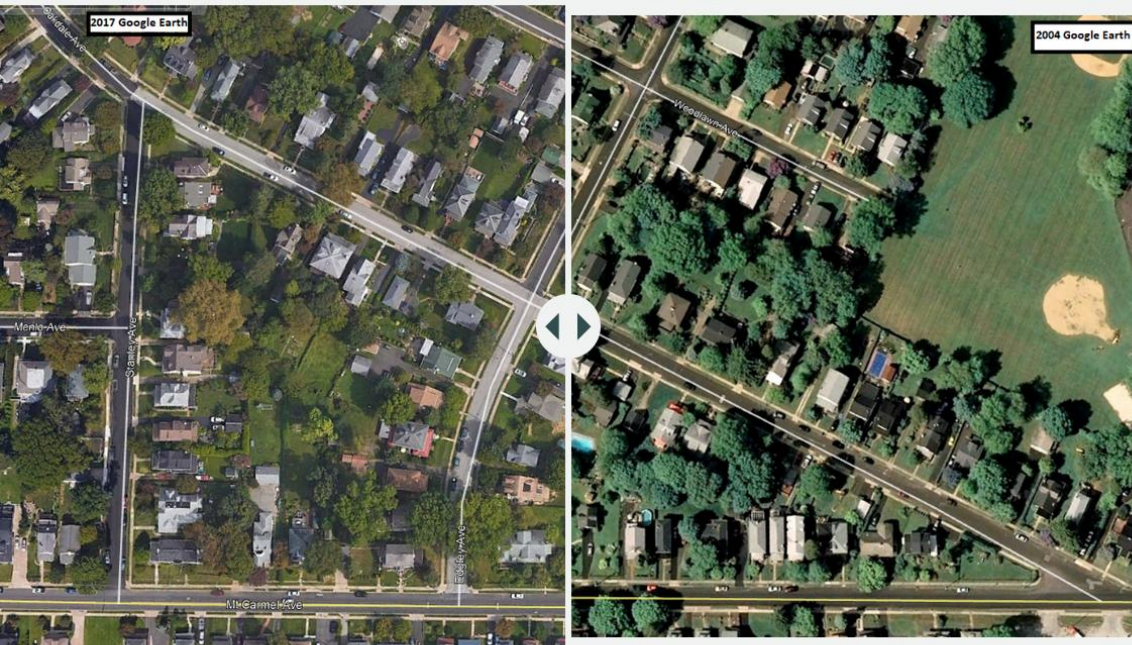
Abington's Urban Tree Canopy

A Closer Look

Tree Canopy Cover by Populatio...

Selected Land Uses

Summ



Tree Size Matters. The neighborhood's large, mature shade trees have the most leaf area and provide the greatest benefits. **While trees 30" or greater in diameter make up only 8% of the population - their canopies make up 27% of the neighborhood's leaf area.** A comparison of the benefits of an 11" diameter Dogwood tree and a 30" diameter Maple tree growing in the neighborhood shows that the Maple provides nearly 8 times the ecosystem benefits as the Dogwood.

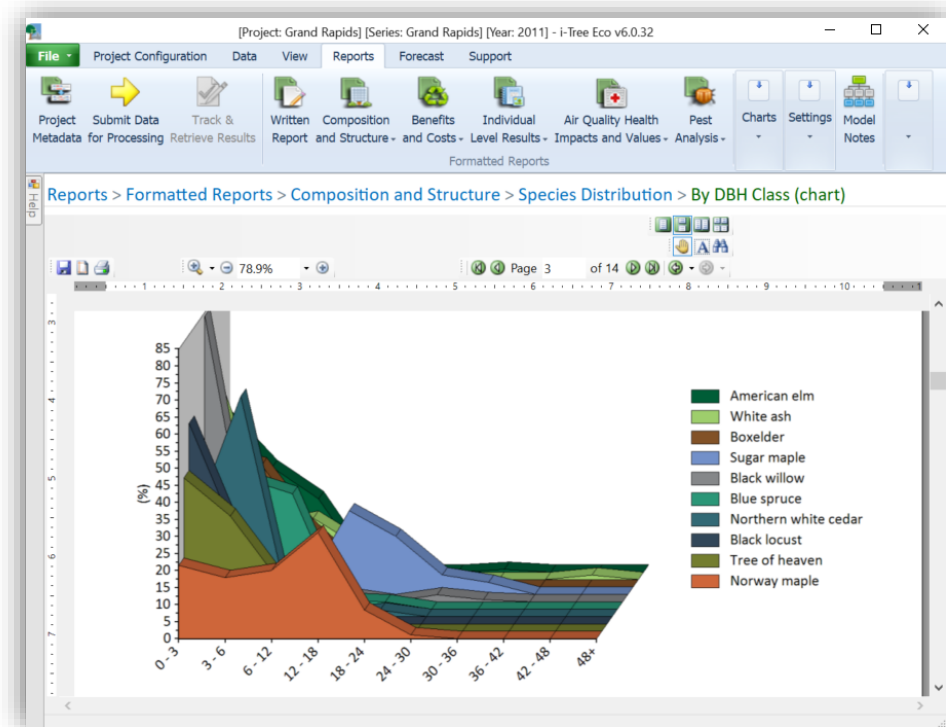
To maximize the benefits Abington's tree canopy provides - we should focus our private property efforts on preserving our existing large trees and planting species that will grow to be large shade trees to replace those we have lost or will lose in the future.

<https://storymaps.arcgis.com/stories/ed7e547aeaed454ea5dd44c4b1be08c0>

i-Tree Eco – Toward strategic management

Diverse projects

- Tree Inventories: strategic management starts with measurement
- Support strategic decision making
- Make the case for the future – health, equity, and sustainability
- Flexibility of projects and results
- All lands (rural to urban, public parks to private back yards)



Next steps...make your own action plan

Putting what you learned in the i-Tree Academy to work

- Plan is simple and flexible
- Meant to reinforce learning
- Should help you and your organization



Resources

 Start at
the
Academy [page](#)

 Video
learning
[page](#)

 Support
[page](#)

Support

i-Tree helps people understand the benefits that trees provide and our support team is here to help you understand i-Tree. The i-Tree team offers free support in using the tools, understanding the science (and pointing the way to more in-depth articles), plus we provide periodic online training.

[Overview](#) of the support we provide.

For new users, here is a handy [Resource Guide](#).

Learn to use the i-Tree tools

- [Video learning](#)
- [Manuals, Guides, and Workbooks](#)
 - [Project Planning and Management](#)
- [Teaching](#)

i-Tree Academy and Learning opportunities

- [i-Tree Open Academy Summer 2023](#) - **Sign-up now!** Live sessions start August 2nd at 1:00 pm US Eastern time. All are welcome.
- [i-Tree Open Academy Spring 2023](#) - *Live sessions are over but all recordings, exercises, and materials are available.* Make your own course by watching and reviewing the materials you're interested or complete all six sessions on your own timeline.
- [i-Tree for Funding Opportunities - May 2023](#) - ***A two session workshop in response to the recent \$1.5 billion in federal funds made available for Urban and Community Forestry.*** Content relevant to other funding opportunities. Sessions on May 3rd and 5th with open office hours on May 8th and 10th. All sessions 1:00 PM eastern time.
- [About the Domestic i-Tree Academy \(2020-2021\)](#)

Post course detail



Certificates of participation



Course feedback survey



Continuing Education Units (CEUs)



i-Tree Academy 2025 - Feedback Survey

If you would like to provide **anonymous** feedback please skip the Your Name and Your Email Address items.

info@itreetools.org [Switch account](#)



Not shared

Your Name as you would like it to appear on your certificate of participation

Your answer

Your Email Address where you would like to receive your certificate of participation.

Your answer

Where do you predominantly do your tree work? (e.g. Philadelphia, PA or New Delhi, India)

Your answer

Feedback Survey



Stay connected with i-Tree

i-Tree at the Partners in Community Forestry Conference – Henderson, NV, November 18-19

i-Tree at SAF – Hartford, CT, October 22-25

LinkedIn/Newsletter

Office hours – 2nd Thur. of every month @ 2:00 eastern

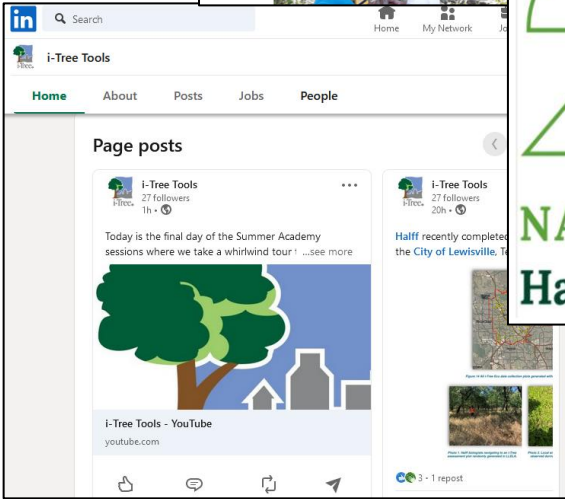
info@itreetools.org



i-Tree International Academy
Live Online Training Program

The US Forest Service's International Programs (FS-IP) and the Northern Research Station, in partnership with the Davey Institute, are offering an international online training program designed to introduce the i-Tree suite of tools to global participants. The Academy instruction is provided by experienced members of the i-Tree project team, and is focused on helping participants learn i-Tree applications and how to assess the value of urban forests and greenspaces.

[Program Format & Details](#)
The course will take place over three



LinkedIn page for i-Tree Tools. The page shows a post from i-Tree Tools (27 followers) dated 1h ago. The post text reads: "Today is the final day of the Summer Academy sessions where we take a whirlwind tour! ...See more". Below the text is a large image of a stylized green tree with a blue sky and white clouds in the background. The post has 3 likes and 1 repost.



SAF 25

NATIONAL CONVENTION
Hartford, CT · October 22-25

Thanks from the team

Supported by:

USDA Forest Service and Davey

Jason
Henning

Alexis Ellis

Dave Bloniarz

Eric Greenfield

Krista



Jay
Heppler

Success stories?

Questions?

Suggestions?

info@itreetools.org