

Objective:

This assessment consists of an overall look at the tree benefits provided within the city of Canton, OH using i-Tree Landscape and then using i-Tree Canopy specifically for the downtown area. i-Tree Landscape gave the benefit estimates that the trees provide within city limits. i-Tree Canopy provided benefits in a specific area in order to connect this knowledge with the city arborists or any other interested parties of the benefits for their trees. Seeing these benefits furthers the idea that “more trees can add more benefits.”

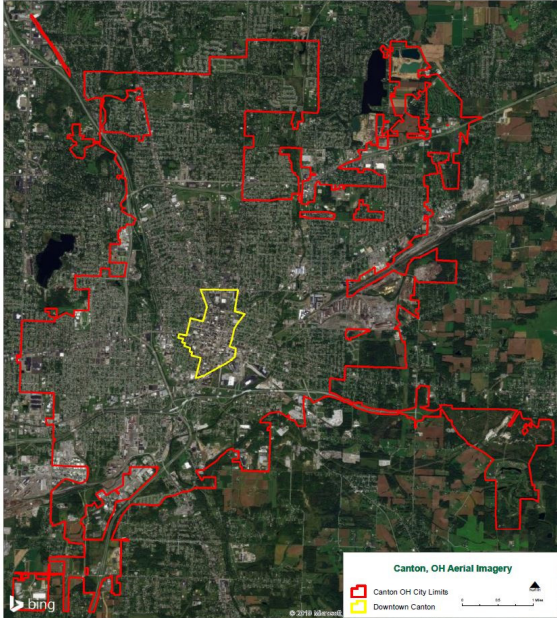
Process:

- i-Tree Landscape, city-wide:
 - Choosing the city of Canton OH under the Census Places boundary, I was able to discern the benefits the trees within the city provided.
 - With the planting priority tool, I looked for areas that had a lot of impervious and a lot of plantable space in order to discern the best areas where trees are needed. Census block groups were used in order to define a specific area. The prioritization categories are depicted within the next page of the report.
- i-Tree Canopy, downtown area:
 - I created a shapefile within ArcGIS to cover the downtown area of Canton, OH and uploaded it to i-Tree Canopy. I assessed 5 separate land cover categories: Grass, Trees, Impervious, Paved, Bare Ground, and Water. Storm water runoff was calculated by combining the rate from i-Tree Landscape, and the tree cover from i-Tree Canopy. That rate is from the research cited here - <https://landscape.itreetools.org/references/data/#hydrology>

Recommendation:

For Downtown Canton, OH – one can see that paved and impervious are the biggest land cover categories in the area. Seeing the benefits that the downtown trees provide, adding more trees here can boost benefits, beautify the space even more, and can provide more shade for any festivities to be had in the area. This report hopes to bring awareness of the importance of trees, what they can provide for health as well as environmental impacts in a certain area by asking, “What tree benefits do we already have?” and “What if we plant more trees?”

Aerial



Census Data*

Population	73,007
Median Income	\$30,043
Housing Units	34,571
Median Home Value	\$82,000
Vacant Homes %	14.1

Land Cover Statistics

Acres

Canopy	2,318
Impervious	6,818
Plantable Space	7,166

Hydrology

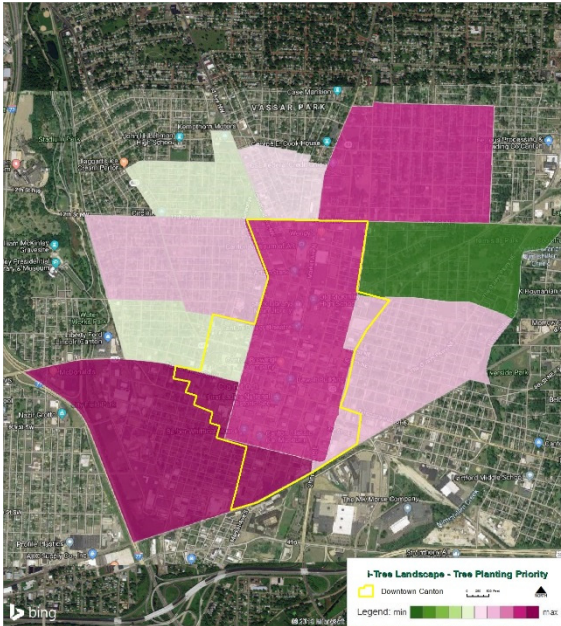
Million Gallons per Year

Transpiration	282.8
Rainfall Interception	177.9
Avoided Runoff	36.8

Air pollution removal by trees in Canton, OH

	pounds	@	value
Carbon Monoxide	2,769		\$1,846
Nitrogen Dioxide	7,059		\$1,539
Ozone	106,143		\$138,769
Sulfur Dioxide	5,412		\$406
Particulate matter (less than 2.5 microns)	7,897		\$460,239
Particulate matter (2.5 to 10 microns)	55,906		\$175,222
Total Pollutants	185,186		\$778,021

Tree Planting Priority – Downtown Canton



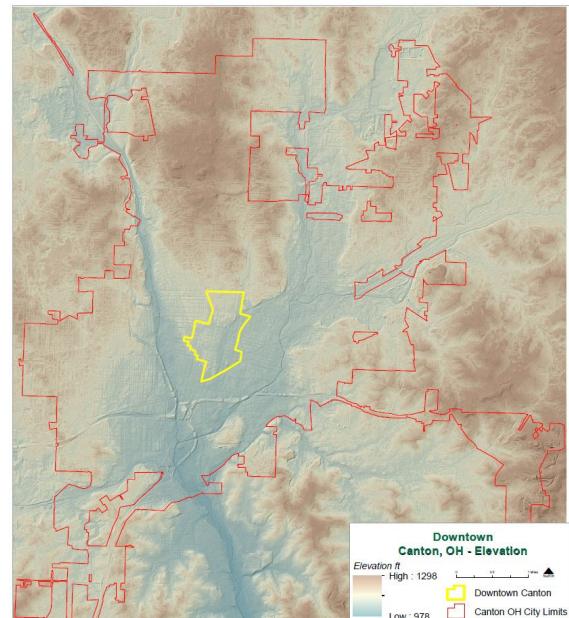
Prioritization Categories

- Low Canopy – 25% weight
- High Impervious – 25% weight
- High Population Density – 25% weight
- High Plantable Space – 25% weight

Data Reference*

<https://landscape.itreetools.org/references/data/#census-data>

Elevation (not within Landscape)



i-Tree Canopy Assessment

The City of Canton, Ohio - Downtown

Estimated Tree Cover for the area: **9.1%**

Storm water runoff managed
each year by your trees:
405,618 gallons @ \$3,610

Carbon Dioxide absorbed
each year by your trees:
182 tons @ \$8,416

Carbon Dioxide already
stored in your trees:
4,560 tons @ \$211,356

Estimated Land Cover	acres
Grass	40.1
Trees	36.1
Impervious	103.9
Paved	201.9
Bare ground	14.7
Water	0.0
Total	396.7

Air pollution removed each year by your trees:

	pounds	@	value
Carbon Monoxide	34		\$23
Nitrogen Dioxide	207		\$45
Ozone	1,559		\$2,108
Sulfur Dioxide	149		\$11
Particulate matter (less than 2.5 microns)	96		\$5,450
Particulate matter (2.5 to 10 microns)	520		\$1,625
Total Pollutants	2,565		\$9,262

Trees remove pollutants from the air.

Poor air quality is a common problem in many urban areas. It can lead to health problems, landscape damage, degraded ecosystems, and reduced visibility.

- Carbon monoxide (CO) interferes with oxygen delivery within the human body.
- Nitrogen dioxide (NO₂) contributes to ozone and fine particle pollution and is linked to adverse respiratory system effects.
- Ozone (O₃) is harmful near the ground and can worsen lung diseases such as asthma, particularly in children.
- Particulate matter (PM), or particle pollution, is a complex mixture of extremely small particles and liquid droplets that can cause serious health effects.
- Sulfur Dioxide (SO₂) can make breathing difficult. It contributes to acid rain and can react with other compounds in the atmosphere to form visibility-reducing haze.

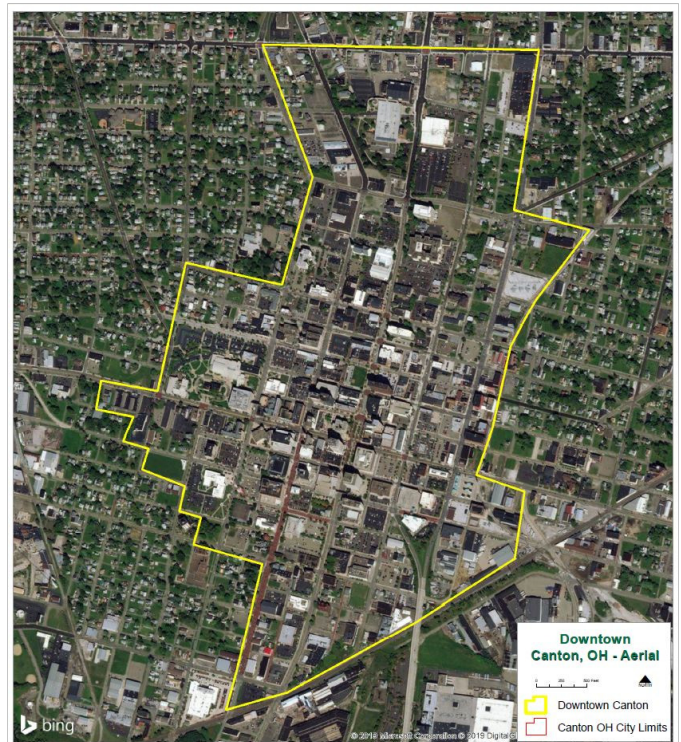
Trees absorb carbon dioxide from the air and store it as wood.

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, trees and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement).

In addition, your trees:

- Enhance property values
- Lower summer air temperatures
- Improve health and well-being
- Provide wildlife habitat
- Reduce storm water runoff
- Provide aesthetic benefits



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