

# Assessing Connecticut's Forest Cover at Multiple Spatial Scales


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## Background

The purpose of this project was to use i-Tree Landscape to examine tree canopy cover and ecosystem services at broad and fine scales and to use the results of broad assessments to prioritize urban tree canopy investments at finer scales. To do this, I first examined urban tree cover and associated ecosystem services for all of 169 municipalities in Connecticut. I then zoomed in on one municipality in particular, Waterbury, CT and quantified urban tree cover and ecosystem services for that city only to understand how Waterbury's urban canopy contributes to Connecticut's collective urban canopy. I choose Waterbury because it is the fifth largest city in the state but has relatively fewer resources and investments than other large cities in the state. Using i-Tree Landscape I wanted to identify priority areas with Waterbury that would be good places to increase investment in urban tree cover. Specifically, I was interested in neighborhoods with low canopy cover, high population density, and in environmental justice areas.

## Statewide Tree Cover

Connecticut has a high urban tree cover at 61.24%. As expected, rural areas have very high tree cover (up to 81.84%) and more urban areas have much lower tree cover (as low as 16.10%). The state has an estimated 30.09% of potential "plantable" area. Other benefits are outlined below:



**Location Information**  
 Canopy & Impervious (High Resolution UTC)

	Area			Canopy			Impervious			Plantable Space		
	acres	\$	% of all	acres	\$	%	acres	\$	%	acres	\$	%
<b>Selection Total:</b>	3,277,122.3		130.00	1,323,832.1		62.14	340,889.2		7.77	100,375.7		30.00

**Tree Benefits**  
 Carbon and CO<sub>2</sub> (High Resolution UTC)

	Carbon Storage			Carbon Sequestration			CO <sub>2</sub> Equivalent Storage			CO <sub>2</sub> Equivalent Sequestration		
	\$	Short Ton	\$/yr (per ac)	\$/yr (per ac)	\$/yr (Short Tons, per year)	\$	Short Ton	\$/yr (per ac)	\$/yr (Short Tons, per year)			
<b>Selection Total:</b>	17,726,346,197	193,831,055.0	282,294,266	1,655,193.1	17,726,346,197	361,090,430.0	202,294,393	2,069,041.5				

**Total Air Pollution Removal (High Resolution UTC)**

	\$/yr	Mg (Millions of Gallons)/yr (per ac)	Health Incidence	Emergency Room Visits	Hospital Admissions	Acute Respiratory Symptoms	Asthma Exacerbations	Mortality	School Days Lost	Hospital Admissions, Respiratory	Hospital Admissions, Cardiovascular	Acute Myocardial Infarctions	Chronic Bronchitis	Acute Bronchitis	Upper Respiratory Symptoms	Lower Respiratory Symptoms	Wc
<b>Selection Total:</b>	116,882,208	106,803,923.4	21,700	12,67	26.00	10,795.03	7,908.17	12.63	3,388.23	0.69	0.69	2.02	2.02	4.48	44.07	54.00	296

**Hydrology Quantity (High Resolution UTC)**

	Transpiration (MG, Millions of Gallons)/yr (per ac)	Rainfall Interception (MG, Millions of Gallons)/yr (per ac)	Avoided Runoff (MG, Millions of Gallons)/yr (per ac)	Avoided Runoff (\$/yr (per ac))
<b>Selection Total:</b>	219,145.6		117,723.2	8,920.3

## Waterbury Tree Cover

Waterbury ranks 155 out of 169 for urban tree cover (1 being the highest tree cover 169 being the lowest). In Waterbury 38.10% of the land area is forested and 27.91% is potentially plantable. Canopy cover, however, varies significantly depending on neighborhood. For example, the Bucks Hill Neighborhood has 67.88% canopy cover whereas the Central Business District has only 2.81%. Knowing that there are disparities in urban tree cover depending on neighborhood, I next wanted to highlight which neighborhoods would be good to target for urban forestry investments. To do this I created a custom scenario ranking tree stocking level at 30% importance, tree cover per capita at 30%, population below poverty line at 20%, and minority population density at 20%. This analysis highlighted the Hillside, Crownbrook, Willow Plaza and Central Business District as priority neighborhoods for future urban forestry investment (fig. 1).

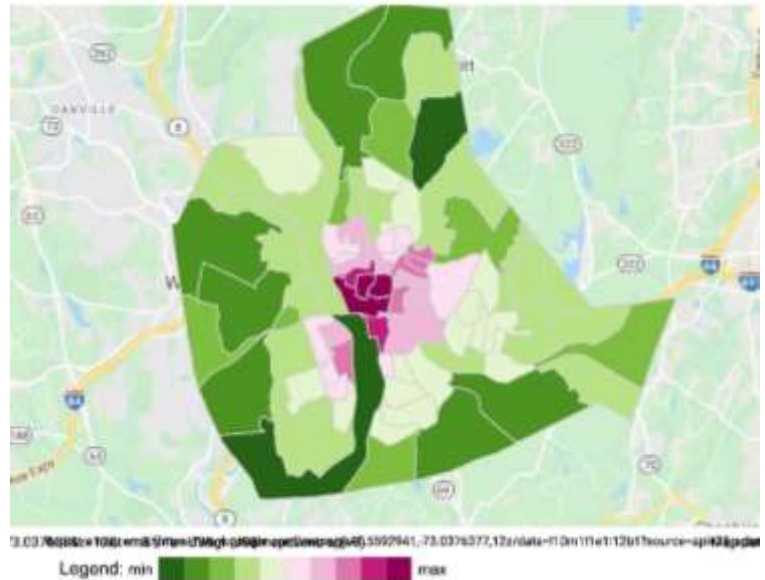


Figure 1. Priority planting/regeneration locations by census block within the city of Waterbury, CT. Areas are prioritized based on tree stocking level, tree cover, population below poverty line, and minority population density.