Report on Watertown’s Urban Forest, Fall 2018

Data collected by teens in Teens for Trees, a program of Trees for Watertown, and volunteers from Trees for Watertown and Elders’ Climate Action
Joint Committee Summary, April 2018

1. Watertown residents want to live on pretty tree-lined streets, and the Town Council should make this both an operational and a budget priority.

2. Watertown should develop a data-driven plan to determine what neighborhoods and specific streets are underserved by public shade trees, identify specific locations in those areas to plant new trees, and develop budget policies based on this data.

3. As part of street & sidewalk construction projects, Watertown should identify locations for new street trees early in the process so that adequate planting beds can be designed into the project, and also institute policies so that existing street trees are both properly cared for and have their planting beds improved during such projects.

4. For planting new public shade trees in locations where no construction projects are planned, policies should be developed to insure such trees thrive in the long-term, by providing appropriate sized planting beds, by providing automobile barriers in locations where there are no curbs, and by planning the planting locations so that they will not be disturbed by future construction projects.
Our Program
What Teens Learned

- Different types of street trees
- How to maintain trees
  - Pruning
  - Watering
  - Planting
- How to measure trees (CBH & DBH)
- Benefits of healthy urban forests
- Benefits of programs like OpenTreeMap
Benefits of our Urban Forest

- Temperature regulation
  - Windbreak in winter
  - Shade in summer
  - Evaporative cooling
  - Lowering heating and cooling costs
- Greenhouse gases: trees absorb CO2
- Reduce flooding due to extreme rain events
- Provide rest and relaxation for residents
- Support local wildlife such as the birds and the bees
- Increase property value
- Bring people out and build community
Urban Heat Map of Watertown
Two Analyses

How to measure tree coverage?

Throughout Watertown (private and public)

**Approach:** Analysis of satellite imagery using iTree Canopy

Public shade trees

**Approach:** Complete street tree inventory (walking around town measuring trees)
Results of Canopy Analysis

Tree Canopy (left) / Permeability (right)

MAC: 49%
Rest of #1: 20%
Results of Canopy Analysis
Tree Canopy (left) / Impermeability (right)

MAC: 49%
Rest of #1: 20%

Tree Cover by Precinct
- 12.9%
- 13% - 16.9%
- 17% - 22%
- 23.1% - 28.8%
- 29.9% - 36.2%

Impermeability by Precinct
- 16.9% - 25%
- 25.1% - 28.2%
- 26.3% - 31.7%
- 31.8% - 36.1%
Results of Canopy Analysis

Tree Canopy (left) / Buildings (right)

- MAC: 49%
- Rest of #1: 20%

Tree Cover by Precinct:
- 12.9%
- 13% - 16.9%
- 17% - 23%
- 23.1% - 28.8%
- 26.9% - 32.2%

Building Coverage by Precinct:
- 15.5% - 16.4%
- 17% - 18.2%
- 18.3% - 22.2%
- 22.3% - 25.4%
- 25.5% - 29%
Overall Town Results

Coverage Type in Watertown, MA 2018 (iTree Canopy results)

- Tree: 26.0% (Ranging from 13% to 36%)
- Impermeable: 27.0% (19%-36%)
- Permeable: 26.0% (12%-37%)
- Building: 19.8%
- Water: 2.3%
Results of Tree Inventory

As of October 15, we have inventoried 3,423 trees!
Eco-Benefits

These trees save the town and its residents over $188,000 per year!

Trees save money by:
Reducing energy use
Filtering water
Improving the air we breathe
Removing CO2 from the air

<table>
<thead>
<tr>
<th>Eco Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total annual benefits</strong></td>
</tr>
<tr>
<td>$188,127 saved</td>
</tr>
<tr>
<td><strong>TREE BENEFITS</strong></td>
</tr>
<tr>
<td><strong>Energy conserved</strong></td>
</tr>
<tr>
<td>2,736,718 kwh/year saved $152,862</td>
</tr>
<tr>
<td><strong>Stormwater filtered</strong></td>
</tr>
<tr>
<td>4,267,901 gal/year saved $3,414</td>
</tr>
<tr>
<td><strong>Air quality improved</strong></td>
</tr>
<tr>
<td>5,416 lbs/year saved $27,290</td>
</tr>
<tr>
<td><strong>Carbon dioxide removed</strong></td>
</tr>
<tr>
<td>1,365,153 lbs/year saved $4,559</td>
</tr>
<tr>
<td><strong>Carbon dioxide stored to date</strong></td>
</tr>
<tr>
<td>5,383,566 lbs saved $17,981</td>
</tr>
</tbody>
</table>
Chances for Trees

Watertown has lots of space to plant street trees
Other issues notwithstanding, over 1,000 empty sites available
BUT our work is not done!
We still have 1,070 sites to inventory
Health of Public Trees

Distribution of tree health in Watertown

- Good: 2674 trees (84.6%)
- Fair: 356 trees (11.3%)
- Poor: 104 trees (3.3%)
- Dead but standing: 23 trees (0.8%)
- Stump: 3 trees (0.09%)
Distribution by age (as measured by size)

Size Distribution of Trees in Watertown, MA vs. Ideal Urban Distribution

- Young: 0'-8'' 45.80% (Watertown Distribution), 40.00% (Ideal Distribution)
- Established: 9'-17'' 30.00% (Watertown Distribution), 30.00% (Ideal Distribution)
- Maturing: 18'-24'' 14.81% (Watertown Distribution), 20.00% (Ideal Distribution)
- Mature: 24''+ 9.39% (Watertown Distribution), 10.00% (Ideal Distribution)
More Info

tfwteensfortrees.org

Map: opentreemap.org/watertownma

david@tfwteensfortrees.org
Distribution by species

Species Distribution, Watertown MA

Percent of inventoried street trees

Tree Species

Norway Maple, 21.44%
Caulery Pear, 13.20%
Red Maple, 11.32%
Cherry, 9.04%
London Plane tree, 6.44%
Honey Locust, 5.45%
Littleleaf Linden, 5.03%
General maple, 2.72%
Zelkova, 2.57%
Elm, 1.98%
Pin Oak, 1.95%
Ash, 1.68%
Silver maple, 1.53%
Hedge maple, 1.26%
Sugar maple, 0.87%
Northern Red Oak, 0.84%
Swamp white oak, 0.30%

10% “rule”
No more than 10% of single species in an urban stock