Regreen Springfield in partnership with the US Forest Service:

i-Tree Canopy Assessment
of Springfield Neighborhoods

August 2014

Prepared August 2014
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Todd Beals, University of Massachusetts
Dominic Savoie, Regreen Springfield, Inc.
The Values of Urban Tree Canopy

Urban and community forests can be considered part of the "green infrastructure" that complements our grey infrastructure and should be managed with equal importance. Urban tree canopy assessments can help a community determine how much of their land area is covered by trees, location of those trees and where there are new opportunities to plant trees. UTC assessments also determine the amount and location of impervious cover in a community. The power of an UTC assessment is the GIS framework where it resides. Canopy cover can be assessed by watershed, zoning or land use category, political boundary, neighborhood, business district, census tract or individual parcel. Results of analyses focus on specific community needs and provide a blueprint of available and unavailable planting opportunities.

A community needs to determine available resources prior to conducting a UTC assessment. Remotely sensed sub-meter resolution digital imagery is necessary as well as technical expertise to process and analyze the data. Imagery and analysis can be expensive so smaller communities should work with state and federal entities to leverage resources or acquire available grants. However, analysis may be equally expensive depending on the level of land cover information sought.

There are two primary ways of assessing the structure or composition of the urban forest: 1) a top-down approach, which involves aerial assessments of canopy cover, and 2) a bottom-up approach, which involves collecting field data on tree species composition and physical attributes of the vegetation. The top-down approach can be relatively easy and quite accurate, but is limited to measuring the quantity and distribution of canopy layers. The bottom-up approach involves collecting field vegetation data in the field on the vegetation and may provide more detailed information needed to assess urban forest structure and ecosystem services, and to aid in urban forest management e.g., species composition, number of trees tree locations, tree sizes and tree health). Specialized software tools developed by the U.S. Forest Service such as the i-Tree suite (Eco, Streets and Hydro) are available at no cost.
### Neighborhood Percent Canopy Cover Area Cover (Sq.Mi.)

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Percent Canopy</th>
<th>Area Cover (Sq.Mi.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sixteen Acres</td>
<td>50 (CI = 4.08)</td>
<td>4.04 (CI = 0.33)</td>
</tr>
<tr>
<td>Boston Road</td>
<td>44 (CI = 4.05)</td>
<td>0.29 (CI = 0.04)</td>
</tr>
<tr>
<td>Brightwood</td>
<td>20 (CI = 3.27)</td>
<td>0.13 (CI = 0.02)</td>
</tr>
<tr>
<td>East Springfield</td>
<td>17.3 (CI = 3.09)</td>
<td>0.54 (CI = 0.1)</td>
</tr>
<tr>
<td>Old Hill</td>
<td>15.9 (CI = 2.98)</td>
<td>0.08 (CI = 0.02)</td>
</tr>
<tr>
<td>South End</td>
<td>13.3 (CI = 2.78)</td>
<td>0.07 (CI = 0.02)</td>
</tr>
<tr>
<td>Memorial Square</td>
<td>9.3 (CI = 2.38)</td>
<td>0.05 (CI = 0.01)</td>
</tr>
<tr>
<td>Metro Center</td>
<td>6.7 (CI = 2.04)</td>
<td>0.06 (CI = 0.06)</td>
</tr>
</tbody>
</table>

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**About this Study**

The tree canopy cover in the seventeen neighborhoods of Springfield, Massachusetts was examined in this study, and a summary of the percent tree canopy within each community was established, using i-Tree Canopy. Additionally, the area of tree canopy, in acres in each neighborhood was determined using the i-Tree toolkit. This study, completed in January, 2014 provides the City Forestry Division with a baseline measure of Springfield’s tree canopy, as it moves toward establishing tree canopy goals for the next decade. Additionally, the comparison of neighborhood tree cover provides useful information that will assist cities in planning and managing their green infrastructure.

**i-Tree Software Toolkit**

i-Tree is a state-of-the-art, peer-reviewed software suite from the US Forest Service that provides urban and community forestry analysis and benefits assessment tools. The i-Tree tools help communities of all sizes to strengthen their urban forest management and advocacy efforts by quantifying the environmental services that trees provide and the structure of the urban forest.

i-Tree has been used by communities, non-profit organizations, consultants, volunteers, and students to report on the urban forest at all scales from individual trees, parcels, neighborhoods, cities, to entire states. By understanding the local, tangible ecosystem services that trees provide, i-Tree users can link urban forest management activities with environmental quality and community livability. Whether your interest is a single tree or an entire forest, i-Tree provides baseline data that you can use to demonstrate value and set priorities for more effective decision-making.

**i-Tree Canopy**

This i-Tree tool offers a quick and easy way to produce a statistically valid estimate of land cover types (e.g., tree cover) using aerial images available in Google Maps. Canopy can be used by urban forest managers to estimate tree canopy cover, set canopy goals and monitor canopy change over time. Canopy can also be used to estimate inputs for urban green infrastructure planning.

**Tree Canopy Goals**

Tree canopy is the layer of leaves, branches, and stems of trees that cover the ground when viewed above. Tree canopy provides many benefits to communities by improving water quality, saving energy, lowering city temperatures, reducing air pollution, enhancing property value, providing wildlife habitat, facilitating social and educational opportunities and providing aesthetic benefits. Establishing a tree canopy goal is crucial for communities seeking to improve their green infrastructure and environment quality. A tree canopy assessment is the first step in this goal setting process, providing estimates for the amount of tree canopy currently present in a city as well as the amount of tree canopy that could theoretically be established.
### i-Tree Canopy Analysis

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<tr>
<td>Boston Road</td>
<td>44 (CI = 4.05)</td>
<td>1.02 (CI = 0.09)</td>
</tr>
<tr>
<td>Forest Park</td>
<td>41.3 (CI = 4.02)</td>
<td>1.45 (CI = 0.14)</td>
</tr>
<tr>
<td>East Forest Park</td>
<td>30.7 (CI = 3.76)</td>
<td>0.86 (CI = 0.11)</td>
</tr>
<tr>
<td>Indian Orchard</td>
<td>30.2 (CI = 3.76)</td>
<td>0.77 (CI = 0.1)</td>
</tr>
<tr>
<td>Pine Point</td>
<td>29.3 (CI = 3.72)</td>
<td>0.71 (CI = 0.71)</td>
</tr>
<tr>
<td>Liberty Heights</td>
<td>28 (CI = 3.61)</td>
<td>0.77 (CI = 0.1)</td>
</tr>
<tr>
<td>Bay</td>
<td>26.7 (CI = 3.61)</td>
<td>.29 (CI = 0.04)</td>
</tr>
<tr>
<td>Brightwood</td>
<td>20 (CI = 3.27)</td>
<td>0.13 (CI = 0.02)</td>
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CI denotes Confidence Interval

Forest Park, is a Victorian garden district located in Springfield, Massachusetts, developed between 1880 and 1920. It is the city's most populous neighborhood, and surrounds the 735-acre Frederick Law Olmsted-designed Forest Park. The Forest Park neighborhood has nature and recreation within walking distance. It contains 2,103 acres of land, 41% of which is conservation or parkland. A 195-acre section of the neighborhood was listed on the National Register of Historic Places in 1982 as the Forest Park Heights Historic District. The 600-house Forest Park Heights Historic District was developed between 1890 and 1910, and includes gracious Colonial Revival, Tudor Revival, Queen Anne, and Shingle Style homes. The ruggedly contoured valley of Pecousic Brook occupies more than half of the south side of the Forest Park. This area has been left largely Naturalist in style, although it features many walking trails and a few elegant bridges. It is home to many species of birds and wildlife.
Sixteen Acres, located in the Southeast corner of the city, is Springfield's largest neighborhood at 4,508 acres and with a population of 24,252 people. Sixteen Acres includes Western New England University, the SABIS International High School, Pioneer Valley Christian Academy, Veterans Memorial Golf streets of newer ranches, levels, and capes, the large condominium Nassau Drive. Sixteen the 28-acre Greenleaf expanded branch library, beach clubs. Commercial Wilbraham Road and provide convenient including the recently opened Fresh Acres Market. Sixteen Acres residents have a quick drive to East Longmeadow's employers, such as Hasbro and American Saw.

Boston Road is Springfield, Massachusetts's principal commercial and retail corridor. It is a medium-sized Springfield neighborhood, containing 727 acres plus rights-of-way and water bodies. Principal boundaries are the Boston & Albany Railroad to the north; the North Branch of the Mill River to the south; the Town of Wilbraham to the east; and Cobb and Methuen Streets to the west. Boston Road remains a commercial stronghold, home to the fully occupied Eastfield Mall, various big box stores, a movie theater, and a branch of Hampden Bank. Just across from the above mentioned Hampden Bank, Springfield city parks including Five Mile Pond and Loon Pond provide places to swim, fish, boat, and picnic. The High School of Science & Technology Putnam Vocational High School are located in this neighborhood
Indian Orchard is a neighborhood in the City of Springfield, Massachusetts. It is located in the northeastern corner of the city. Containing 1,251 acres plus rights of way and water bodies, it is the fifth largest of Springfield's seventeen neighborhoods. Indian Orchard began in the 1840s as an isolated mill town and has preserved its identity over the years, even after becoming more fully encompassed by "The City of Firsts." One of Indian Orchard's former mills is now a large artists' studio space; this has been the catalyst for the neighborhood's growing arts & crafts scene. The Indian Orchard Mills/Dane Gallery hosts an artists' open house twice a year. Hubbard Park is a major source of recreational activities. The newly expanded Indian Orchard branch of the Springfield Library offers adult and family activities. The neighborhood is also home to Lake Lorraine State Park, a public swimming beach.

Metro Center is the original colonial settlement of Springfield, Massachusetts, located beside a bend in the Connecticut River. As of 2011, Metro Center features a majority of Western Massachusetts' most important cultural, business, and civic venues. In recent years, it has become an increasingly popular residential district, especially among young professionals, empty-nesters, and creative types, with a population of approximately 7,000 (2010.) Metro Center includes approximately 690 acres of land where the city was initially established, founded in 1636 by William Pynchon and a group of pioneers, was originally called Agawam Plantation. The arrival of the railroad to Springfield in the 1830s brought great wealth to the city. Goods from New York, Boston, Chicago, and even as far west as San Francisco travelled through Springfield on their ways to coastal distribution centers. Springfield, rather than Hartford, or Northampton, or Greenfield, became Western New England's railroad hub, perhaps due to the presence of the Springfield Armory, but more likely due to the city's growing reputation for ingenuity, and that it served as a nearly equidistant point between Albany and Boston, Providence, and New York.
The McKnight National Register Historic District in Springfield, Massachusetts is known worldwide to urban-planners as the one of the first planned residential neighborhoods in the United States of America. The neighborhood’s 900 ornate homes are part of a district listed on the National Register of Historic Places. Mason Square, formerly Winchester Square, is the commercial heart of the McKnight District. It features a renovated branch library, the original Indian Motorcycle Company building, American International College, and a monument to the first game of basketball played on the site of the first-ever game, played at the original location of Springfield College.

Liberty Heights comprises smaller Springfield neighborhoods including Hungry Hill, Lower Liberty Heights, and Atwater Park and is located in the northwest quadrant of the city. It contains 1,384 acres and is the fifth largest of Springfield's seventeen neighborhoods. Liberty Heights is a residential neighborhood full of a variety of 20th century housing types, such as: Craftsman, Colonial Revival, Tudor Revival, Capes, and Ranches. Liberty Heights is partly home to Van Horne Park, one of the city's largest public parks, the Liberty Plaza shopping center, and some of the city's largest employers, such as Baystate Medical Center and Smith & Wesson. The Liberty Heights neighborhoods are also close to Elms College in Chicopee.

The Bay neighborhood is located in Springfield, Massachusetts, near the city's geographic center, approximately two miles east of Metro Center, Springfield, Massachusetts. It contains 556 acres of land, plus streets and railroads. Bay is one of the smallest of the city's seventeen neighborhoods. Bay is one of the most racially diverse Springfield neighborhoods, featuring large numbers of African Americans, Hispanics, and Whites.
Finding Additional Resources on Urban Tree Canopy Cover

The following links provide useful information on Urban Tree Canopy (UTC) assessments and how they can help you analyze trees in your community —

i-Tree Canopy Software Toolkit
www.itreetools.org/canopy

US Forest Service UTC Homepage
http://www.nrs.fs.fed.us/urban/utc/

University of Vermont
www.itreetools.org/canopy

National Association of State Foresters
http://www.stateforesters.org/urban_forest_canopy_cover_primer

UTC video from US Forest Service
http://www.nrs.fs.fed.us/urban/utc/about/

UTC Bibliography from US Forest Service
http://www.nrs.fs.fed.us/urban/utc/pubs/

www.regreenspringfield.org

Photography by Mick Normoyle
http://www.flickr.com/photos/mick3b1g/5767871657/
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of Springfield Neighborhoods

August 2014
## i-Tree Canopy Assessment

### Bay Neighborhood - By Area

### i-Tree Canopy v5.1
Cover Report - 1/10/14

<table>
<thead>
<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>Land Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>40</td>
<td>0.29 ± 0.04</td>
</tr>
<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
<td>35</td>
<td>0.25 ± 0.04</td>
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<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>75</td>
<td>0.54 ± 0.04</td>
</tr>
</tbody>
</table>

### About i-Tree Canopy

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### Limitations of i-Tree Canopy

The accuracy of the analysis depends upon the ability of the user to correctly classify each point into its correct class. As the number of points increase, the precision of the estimate will increase, as the standard error of the estimate will decrease. If too few points are classified, the standard error will be too high to have any real certainty of the estimate.

### A Cooperative Initiative Between:

[Logos of various organizations]
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment
Bay Neighborhood - % Canopy Cover

i-Tree Canopy v5.1
Cover Report - 1/10/14

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iTree Canopy Assessment

Boston Road Neighborhood - By Area

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### Cover Report - 1/10/14

**Land Cover (m² ±SE)**

<table>
<thead>
<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>Land Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>66</td>
<td>1.02 ±0.09</td>
</tr>
<tr>
<td>Grass and Shrub</td>
<td>Grass and Shrub</td>
<td>GS</td>
<td>45</td>
<td>0.70 ±0.09</td>
</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>39</td>
<td>0.60 ±0.08</td>
</tr>
</tbody>
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[Logo of various organizations]
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iTree Canopy Assessment

Boston Road Neighborhood - % Canopy Cover

### Cover Class

<table>
<thead>
<tr>
<th>Cover Class</th>
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<th>Abbr.</th>
<th>Points</th>
<th>% Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>66</td>
<td>44.0 ±4.05</td>
</tr>
<tr>
<td>Grass and Shrub</td>
<td>Grass and Shrub</td>
<td>GS</td>
<td>45</td>
<td>30.0 ±3.74</td>
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<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>39</td>
<td>26.0 ±3.58</td>
</tr>
</tbody>
</table>

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Regreen Springfield in partnership with the US Forest Service:

**iTree Canopy Assessment**

**Brightwood Neighborhood - % Canopy Cover**

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### Percent Cover (±SE)

<table>
<thead>
<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>% Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>30</td>
<td>20.0 ±3.27</td>
</tr>
<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
<td>54</td>
<td>36.0 ±3.92</td>
</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>66</td>
<td>44.0 ±4.05</td>
</tr>
</tbody>
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**A Cooperative Initiative Between:**

![Partner Logos]
i-Tree Canopy v5.1
Cover Report - 1/10/14

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<tr>
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<th>Abbr.</th>
<th>Points</th>
<th>Land Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>46</td>
<td>0.88 ± 0.11</td>
</tr>
<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
<td>47</td>
<td>0.88 ± 0.11</td>
</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>57</td>
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iTree Canopy Assessment

East Forest Park Neighborhood - % Canopy Cover

i-Tree Canopy v5.1
Cover Report - 1/10/14

Percent Cover (±SE)

<table>
<thead>
<tr>
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<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>46</td>
<td>30.7 ±3.76</td>
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<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
<td>47</td>
<td>31.3 ±3.79</td>
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<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>57</td>
<td>38.0 ±3.96</td>
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East Springfield Neighborhood - By Area

**i-Tree Canopy v5.1**
Cover Report - 1/10/14

### Land Cover (mi² ± SE)

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<td>26</td>
<td>0.54 ±0.10</td>
</tr>
<tr>
<td>Grass and Shrubs</td>
<td>All other surfaces</td>
<td>GS</td>
<td>47</td>
<td>0.97 ±0.12</td>
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<tr>
<td>Impervious Building</td>
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<td>IB</td>
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[Logos of various organizations]
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East Springfield Neighborhood - % Canopy Cover

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Percent Cover (±SE)

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</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>77</td>
<td>51.3 ±4.08</td>
</tr>
</tbody>
</table>

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A Cooperative Initiative Between:

[Logos of various organizations]
Regreen Springfield in partnership with the US Forest Service:

 iTREE Canopy Assessment

Forest Park Neighborhood - By Area

---

### Cover Report - 1/10/14

<table>
<thead>
<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>Land Cover</th>
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</thead>
<tbody>
<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>62</td>
<td>1.45 ±0.14</td>
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<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
<td>36</td>
<td>0.84 ±0.12</td>
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<td>Impervious Building</td>
<td>IB</td>
<td>52</td>
<td>1.22 ±0.14</td>
</tr>
</tbody>
</table>

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---

**A Cooperative Initiative Between:**

- DAVEY
- Arbor Day Foundation
- ISA
- Casey Trees
Regreen Springfield in partnership with the US Forest Service:

**iTree Canopy Assessment**

Forest Park Neighborhood - % Canopy Cover

---

**i-Tree Canopy v5.1**

**Cover Report - 1/10/14**

---

**Percent Cover (±SE)**

<table>
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<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>% Cover</th>
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</thead>
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<tr>
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<td>Grass and Shrubs</td>
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<td>24.0 ±3.49</td>
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<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>52</td>
<td>34.7 ±3.89</td>
</tr>
</tbody>
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**A Cooperative Initiative Between:**

- Davey Tree Expert Company
- Arbor Day Foundation
- ISA
- Casey Trees
- UAS
- SMA

Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

Indian Orchard Neighborhood - By Area

About iTree Canopy

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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

**iTree Canopy Assessment**

**Indian Orchard Neighborhood - % Canopy Cover**

### i-Tree Canopy v5.1

Cover Report - 1/10/14

<table>
<thead>
<tr>
<th>Cover Class</th>
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<th>Abbr.</th>
<th>Points</th>
<th>% Cover</th>
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<tr>
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<td>45</td>
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<td>Grass and Shrub</td>
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<td>Impervious Building</td>
<td>IB</td>
<td>55</td>
<td>36.9 ±3.95</td>
</tr>
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**A Cooperative Initiative Between:**

- [Davey](#)
- [Arbor Day Foundation](#)
- [ISA](#)
- [Casey Trees](#)
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment
Liberty Heights Neighborhood - By Area

### i-Tree Canopy v5.1
Cover Report - 1/10/14

**Land Cover (mi² ±SE)**

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<thead>
<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>Land Cover</th>
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</thead>
<tbody>
<tr>
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<td>42</td>
<td>0.77 ±0.10</td>
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<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
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<td>Impervious Building</td>
<td>IB</td>
<td>67</td>
<td>1.23 ±0.11</td>
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</tbody>
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**A Cooperative Initiative Between:**

- USDA
- Arbor Day Foundation
- ISA
- Casey Trees
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment
Liberty Heights Neighborhood - % Canopy Cover

Cover Class | Description               | Abbr. | Points | % Cover
---|----------------------------|------|--------|--------
Tree        | Tree, non-shrub            | T     | 42     | 28.0 ± 3.67
Grass and Shrubs | Grass and Shrubs     | GS    | 41     | 27.3 ± 3.64
Impervious Building | Impervious Building | IB    | 67     | 44.7 ± 4.06

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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

McKnight Neighborhood - By Area

<table>
<thead>
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<th>Description</th>
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<th>Points</th>
<th>Land Cover</th>
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<tr>
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<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>96</td>
<td>0.39 ±0.02</td>
</tr>
</tbody>
</table>

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Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

McKnight Neighborhood - % Canopy Cover

### i-Tree Canopy v5.1
Cover Report - 1/10/14

| Cover Class         | Description       | Abbr. | Points | % Cover  
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<th></th>
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</thead>
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<td>Tree</td>
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<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
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<td>24.2 ± 3.51</td>
</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>96</td>
<td>64.4 ± 3.92</td>
</tr>
</tbody>
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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

Memorial Square Neighborhood - By Area
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

Memorial Square Neighborhood - % Canopy Cover

---

**Cover Class** | **Description** | **Abbr.** | **Points** | **% Cover**
--- | --- | --- | --- | ---
Tree | Tree, non-shrub | T | 14 | 9.33 ±2.38
Grass and Shrubs | Grass and Shrubs | GS | 40 | 20.7 ±3.61
Impervious Building | Impervious Building | IB | 96 | 64.0 ±3.92

---

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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

Metro Center Neighborhood - By Area

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**i-Tree Canopy v5.1**

Cover Report - 1/10/14

<table>
<thead>
<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>Land Cover (m² ±SE)</th>
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<td>Tree</td>
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<td>10</td>
<td>0.06 ±0.02</td>
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<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
<td>24</td>
<td>0.15 ±0.03</td>
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<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>116</td>
<td>0.72 ±0.03</td>
</tr>
</tbody>
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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

Metro Center Neighborhood - % Canopy Cover

<table>
<thead>
<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>% Cover</th>
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<td>Impervious Building</td>
<td>IB</td>
<td>116</td>
<td>77.3 ± 3.42</td>
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A Cooperative Initiative Between:

[Logos of various organizations]
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment
Old Hill Neighborhood - By Area

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### i-Tree Canopy Cover Report - 1/10/14

<table>
<thead>
<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>Land Cover</th>
</tr>
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<tr>
<td>Tree</td>
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<td>24</td>
<td>0.08 ±0.02</td>
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<td>Grass and Shrubs</td>
<td>All other surfaces</td>
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<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>89</td>
<td>0.30 ±0.02</td>
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</tbody>
</table>

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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

 iTREE Canopy Assessment

Old Hill Neighborhood - % Canopy Cover

---

### i-TREE Canopy v5.1

**Cover Report - 1/10/14**

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<th>Cover Class</th>
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<th>% Cover</th>
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<td>24</td>
<td>15.9 ± 2.98</td>
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<tr>
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<td>38</td>
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<td>Impervious Building</td>
<td>IB</td>
<td>69</td>
<td>58.9 ± 4.00</td>
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---

**A Cooperative initiative Between:**

- **DAVEY**
- **Arbor Day Foundation**
- **ISA**
- **Casey Trees**
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

Pine Point Neighborhood - By Area

---

### i-Tree Canopy v5.1

**Cover Report - 1/10/14**

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<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>Land Cover</th>
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<tr>
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<td>T</td>
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<tr>
<td>Grass and Shrubs</td>
<td>All other surfaces</td>
<td>GS</td>
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<td>Impervious Building</td>
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<td>56</td>
<td>0.91 ±0.10</td>
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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

Pine Point Neighborhood - % Canopy Cover

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**Cover Report - 1/10/14**

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<tr>
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<td>T</td>
<td>44</td>
<td>29.3 ± 3.72</td>
</tr>
<tr>
<td>Grass and Shrubs</td>
<td>All other surfaces</td>
<td>GS</td>
<td>50</td>
<td>33.3 ± 3.85</td>
</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
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---

A Cooperative Initiative Between:

![Logos of cooperating organizations]
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

Six Corners Neighborhood - By Area

About i-Tree Canopy

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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment
Six Corners Neighborhood - % Canopy Cover

i-Tree Canopy v5.1
Cover Report - 1/10/14

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<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
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<td>Grass and Shrubs</td>
<td>GS</td>
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<td>34.7 ± 3.89</td>
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<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment
Sixteen Acres Neighborhood - By Area

i-Tree Canopy v5.1
Cover Report - 1/10/14

<table>
<thead>
<tr>
<th>Cover Class</th>
<th>Description</th>
<th>Abbr.</th>
<th>Points</th>
<th>Land Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>75</td>
<td>4.04 ±0.33</td>
</tr>
<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
<td>41</td>
<td>2.21 ±0.29</td>
</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>34</td>
<td>1.83 ±0.28</td>
</tr>
</tbody>
</table>

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A Cooperative Initiative Between:
Regreen Springfield in partnership with the US Forest Service:

**iTREE Canopy Assessment**

**Sixteen Acres Neighborhood - % Canopy Cover**

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**Covers Report - 1/10/14**

<table>
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<tr>
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<th>Abbr.</th>
<th>Points</th>
<th>% Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>75</td>
<td>50.0 ±4.08</td>
</tr>
<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
<td>41</td>
<td>27.3 ±3.64</td>
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<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>34</td>
<td>22.7 ±3.42</td>
</tr>
</tbody>
</table>

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**A Cooperative Initiative Between:**

[Logos of various organizations]
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment
South End Neighborhood - By Area

i-Tree Canopy v5.1
Cover Report - 1/10/14

Cover Class | Description | Abbr. | Points | Land Cover
---|---|---|---|---
Tree | Tree, non-shrub | T | 20 | 0.06 ± 0.01
Grass and Shrubs | Grass and Shrubs | GS | 29 | 0.08 ± 0.01
Impervious Building | Impervious Building | IB | 101 | 0.29 ± 0.02

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South End Neighborhood - % Canopy Cover

i-Tree Canopy v5.1
Cover Report - 1/10/14

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<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>20</td>
<td>13.3 ± 2.78</td>
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<tr>
<td>Grass and Shrubs</td>
<td>Grass and Shrubs</td>
<td>GS</td>
<td>29</td>
<td>19.3 ± 3.22</td>
</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>101</td>
<td>67.3 ± 3.83</td>
</tr>
</tbody>
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A Cooperative Initiative Between:

[Logo images for US Forest Service, Arbor Day Foundation, ISA, and Casey Trees]
Regreen Springfield in partnership with the US Forest Service:

**iTree Canopy Assessment**

Upper Hill Neighborhood - By Area

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### i-Tree Canopy v5.1

**Cover Report - 1/10/14**

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#### Land Cover (mi² ±SE)

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<tr>
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<tr>
<td>Tree</td>
<td>Tree, non-shrub</td>
<td>T</td>
<td>18</td>
<td>0.08 ±0.02</td>
</tr>
<tr>
<td>Grass and Shrub</td>
<td>Grass and Shrub</td>
<td>GS</td>
<td>56</td>
<td>0.23 ±0.02</td>
</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>76</td>
<td>0.32 ±0.03</td>
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**A Cooperative Initiative Between:**

![Logos of various organizations]
Regreen Springfield in partnership with the US Forest Service:

iTree Canopy Assessment

Upper Hill Neighborhood - % Canopy Cover

**i-Tree Canopy v5.1**

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<td>GS</td>
<td>56</td>
<td>37.3 ±3.95</td>
</tr>
<tr>
<td>Impervious Building</td>
<td>Impervious Building</td>
<td>IB</td>
<td>76</td>
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