

# Old Goucher Neighborhood Street Tree Analysis

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Baltimore, MD  
Summer 2014

Prepared for

The Baltimore Tree Trust

Prepared by



# Acknowledgements

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The Baltimore Tree Trust thanks those who helped make this project possible:

*For neighborhood outreach and project support:*



**Kelly Cross, Mateusz Rozanski, Kris Northrup, and Jay Orr,  
Old Goucher Community Association**



**Erik Dihle, City Arborist,  
Baltimore City Recreation and Parks' Forestry Division**

*With the support of:*

## The Homewood Community Partners Initiative



This publication was funded (in part) through a grant from the EPA Chesapeake Bay Program Office and with support from the Chesapeake Bay Trust and Maryland Department of Natural Resources.

The data in this technical report are unique to the neighborhood of Old Goucher in Baltimore, MD and the analyses and implications can only be considered in the context of the neighborhood. However, the structure for this report is based on several successful Forest Resource Analysis reports done by the Center for Urban Forests, in particular the *City of Indianapolis, Indiana Municipal Forest Resource Report*, by Paula J. Peper, E. Gregory McPherson, James R. Simpson, Kelaine E. Vargas, Qingfu Xiao and the *City of the Pittsburgh, Pennsylvania Municipal Forest Resource Analysis* by the Davey Resource Group. *I-Tree's STRATUM* documentation also provided direction in documenting and analyzing the results. All photos are copyright of the author, unless otherwise noted.

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# Executive Summary

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The Baltimore Tree Trust (BTT) commissioned this inventory and study in order to establish a benchmark prior to implementing a planting plan to increase the tree canopy of the neighborhood. Data from this study will serve as baseline information for future plantings and will be available to the City or other organizations wishing to understand Old Goucher's street tree resource.

The analysis utilizes a regional benefit-cost modeling program (*i-Tree Streets v. 5.0*) to derive information on the street tree resource's structure, function, value, and maintenance requirements. This data provides on the ground numbers for citizens, community and municipal leaders, and policy makers to examine while making decisions relating to the neighborhood's street tree resource.

**Street Tree Resource Structure**—Old Goucher's tree resource structure has two distinctive qualities. First, despite having 62 different species, certain species are over-represented. This is likely due to the city planting the same tree species at the same time in a particular neighborhood or along a street corridor. (McPherson and Rowntree, 1989) This stand of similar trees may have a pleasing look of uniformity but there are also negative aspects. Increased pollen counts and infestations are correlated with monocultures. There is also a risk that all the trees in a stand will require maintenance at the same time. The neighborhood and city are likely considering these issues as the newest plantings show a greater variety of species. This trend should be encouraged when planning future plantings. And second, a high percentage of Old Goucher's street tree resource are maturing trees. This means that Old Goucher is looking at an urban forest heading towards maturity and that proper management of these trees will greatly impact the benefits the neighborhood currently derives from the street tree resource.

There are a total of 1075 street trees as of the end of the in-field inventory on August 13, 2014.

- 🌳 62 species are represented in Old Goucher, the three most common species are littleleaf linden, Callery pear, red maple (multiple cultivars), and they make up more than half of the total number of trees.
- 🌳 40.27% of Old Goucher's street trees are immature, 57.95% are maturing, and 1.77% are mature.
- 🌳 Street tree canopy covers 11.9% of streets and sidewalks.
- 🌳 To replace Old Goucher's street trees as they exist now would cost Baltimore \$2,213,789.00.

**Street Tree Resource Function and Value**—Old Goucher's street trees provide net benefits to the community valued at an average of \$49.48 per tree, or \$53,191.00 annually for all trees. The street trees provide this value by helping conserve and reduce energy use, reduce local carbon dioxide levels, store carbon, improve air quality, mitigate storm water runoff, and provide other benefits associated with aesthetics, property value increases, and quality of life. Some of these substantial benefits are:

- 🌳 Street trees reduce electricity and natural gas use in Old Goucher due to both shading and climate effects equal to 54.9 MWh and 2219.4 therms, for a total annual savings valued at approximately \$6,490 or a neighborhood average of \$6.04 per tree.
- 🌳 Old Goucher's street trees reduce atmospheric CO<sub>2</sub> by a net of 141.6 tons, valued at \$2,124.00 per year, with an average net benefit of \$1.98 per tree.
- 🌳 Street trees provide a net air quality improvement through the removal and avoidance of air pollutants valued at \$1,422.00 annually or \$1.32 per tree.
- 🌳 By intercepting over 1,425,527 gallons of storm water annually, for an average of 1329.1 gallons per tree, Old Goucher's street trees help clean Baltimore's storm water and avoid flooding. The total value of this benefit is \$14,113.00 per year, with an average of \$13.13 per tree.

- ✿ The estimated total annual benefit associated with property value increases, aesthetics, and other less tangible improvements is \$29,043.00, with an average of \$27.02 per tree.
- ✿ The City of Baltimore does not have figures for expenditures related to tree management or maintenance per neighborhood as of the writing of this report. In order to assess expenditures, the 2014 Urban Forestry Division budget<sup>1</sup> is used. Using a per acre calculation, the estimated annual expenditure on Old Goucher's street trees for 2014 is \$8,034.

**Street Tree Resource Management**—Old Goucher's street trees are a resource and part of the neighborhood's infrastructure. As such, street trees require management and investment. Old Goucher's street trees improve quality of life in the neighborhood and help mitigate the neighborhood's environmental impact. This resource is vulnerable to a variety of stressors and needs sound management practices to ensure the flow of benefits. To improve its tree resource Old Goucher can:

- ✿ Sustain the benefits of the existing street tree resource through comprehensive maintenance, including new tree establishment and cyclical pruning.
- ✿ Implement a neighborhood wide tree planting program to expand the extent of the resource, distribute the resource more equitably across the neighborhood, and maintain the flow of the benefits. Focus on large-stature trees where growing conditions permit to maximize benefits.
- ✿ Increase species selection to achieve greater diversity and guard against catastrophic losses.
- ✿ Achieve an appropriate age distribution by planting new trees to improve long-term resource sustainability.
- ✿ Select species and match them to existing site conditions to avoid conflicts with infrastructure.
- ✿ Consider the instances where proposed storm water mitigation techniques and tree plantings could work in tandem.
- ✿ Educate citizens regarding resource benefits and management. Encourage involvement in volunteer activities supportive of the resource.
- ✿ Strengthen the neighborhood's network of partners to work together towards the common goal of an improved, more functional, and sustainable street tree resource.

The value of Old Goucher's street tree resource should increase as existing trees mature and new trees are planted. Proactive management is essential to ensure a high return on investment as this resource grows. It is not enough to simply plant new trees. Planning and funding for care and management must complement planting effort to ensure the success of new plantings. Existing trees must also be maintained as the greatest benefits are accrued from continued growth of existing canopy.

Recent winter storms have brought trees to many citizens' attention. Older trees, lacking in appropriate maintenance lost limbs or fell into streets, power lines and homes. To combat the public perception that trees are a source of destruction, the neighborhood and city leaders must embrace educating citizens regarding this valuable resource as well as insisting upon substantial funding for the Urban Forestry department for public tree management. While the notion that Old Goucher needs to expend time and funds on caring for its street trees may seem untenable in these uncertain economic times, the neighborhood can take full credit for improving the quality of life in the community, preventing possible maintenance failures, and ensuring future benefits. In short, this resource is well worth the cost.

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<sup>1</sup> Baltimore City Fiscal 2014 Agency Detail, Volume II, pg. 148. <http://www.baltimorecity.gov/>

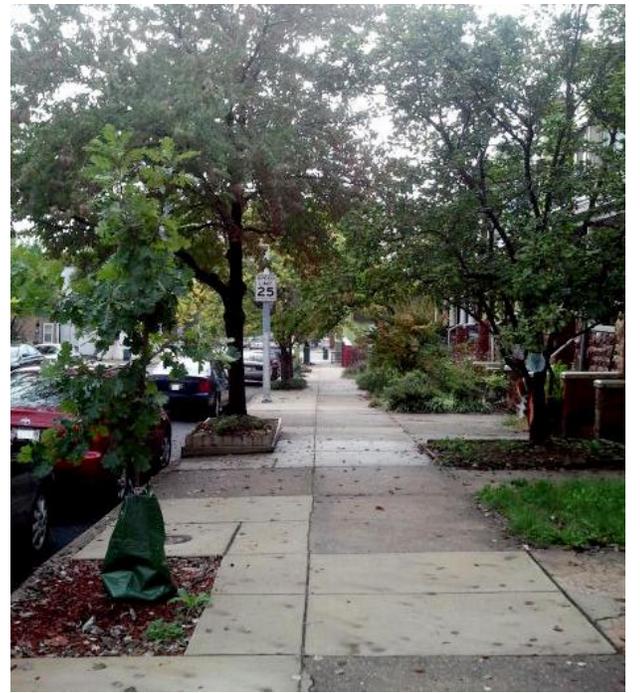


Figure 1: A sampling of the tree-lined streets of Old Goucher. Clockwise from top left locations are Calvert St. between 24<sup>th</sup> and 25<sup>th</sup>, 25<sup>th</sup> St. at Calvert St., Guilford Ave. between 26<sup>th</sup> and 27<sup>th</sup>, and Calvert St. between 25<sup>th</sup> and 26<sup>th</sup>.

# Introduction

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Given the many benefits of healthy city trees, the Baltimore Tree Trust recognizes the important role street trees play in helping the City of Baltimore achieve many of its environmental goals. Urban trees can improve air quality, reduce energy consumption, and slow and reduce storm water runoff. Trees can provide a sense of psychological well-being, increase real estate values, and bring other intangibles benefits such as aesthetics and wildlife habitat. Trees in Baltimore improve the experience of everyday life while mitigating the City's environmental impact.

Baltimore City has taken recent steps with its TreeBaltimore program to increase the City's tree canopy coverage to 40 percent by 2037.<sup>2</sup> While the Urban Forestry Division of the Department of Recreation and Parks does have an annual budget, the trend is toward having neighborhoods or other groups provide funding for planting trees to help offset costs associated with tree planting and establishment. A variety of groups play an important role in the planting and care of Baltimore's trees. These include:

- 🌳 Baltimore Tree Trust
- 🌳 Neighborhood groups and associations
- 🌳 Blue Water Baltimore (Baltimore Water Alliance)
- 🌳 Parks and People
- 🌳 Funders

The Baltimore Tree Trust, founded in 2009 focuses on increasing Baltimore's tree canopy in a variety of ways. This report is one of Tree Trust's efforts to give citizens, community leaders, policy makers, and funders one more tool for understanding the current status of Baltimore's tree resource and its importance. The Baltimore Tree Trust commissioned this report to inventory and analyze the street tree resource in the Baltimore neighborhood of Old Goucher (Figure 2).

Data was collected in the field. I-Tree's Street Tree Resource Analysis Tool for Urban Forest Managers (*i-Tree Streets v.5.0*)<sup>3</sup> was used to assess the value street trees provide to the neighborhood (and City) and to help in analyzing the character of the resource. The information in this report provides the following:

- 🌳 An inventory the current status of Old Goucher's street tree resource to serve as a baseline for future efforts and management to be measured against.
- 🌳 A detailed cost-benefits description, to provide a baseline for comparing to potential costs of maintenance.
- 🌳 A quantification of the value of environmental benefits of street trees.
- 🌳 A description of the current condition of street tree resource to provide assistance in consideration/justification of a management program for Old Goucher's street trees.
- 🌳 Quantifiable data to assist the neighborhood and the City in developing alternative funding sources to aid in resource management.

The focus of this report is the inventory and assessment of the street tree resource, with the additional focus of exploring planting opportunities.

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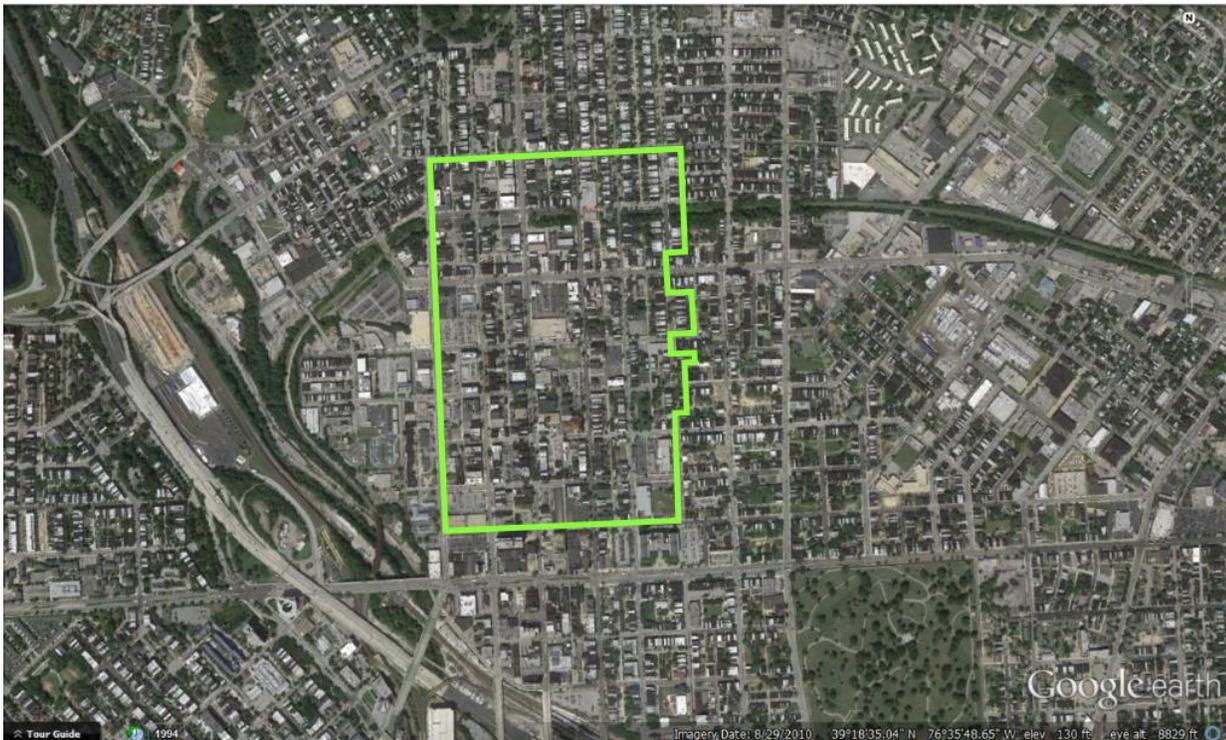
<sup>2</sup> [www.baltimoretreetrust.org](http://www.baltimoretreetrust.org)

<sup>3</sup> [www.itreetools.org](http://www.itreetools.org)

This report does not include trees on private property in Old Goucher. The inventory is of street trees for which the City of Baltimore is responsible. Because trees on private property are not considered, the results stated herein may not reflect the full benefits provided by Old Goucher's total urban forest resource.

## Section 1: Methods

A tree canopy assessment was completed, during the summer of 2014, using *i-Tree Streets* software and following methods from the *Urban Forest Effects (UFORE) Field Data Collection Manual* and *i-Tree Streets v. 50.0* manual for data collection. The assessment was a complete inventory of all street trees along roads falling within the boundaries of Old Goucher neighborhood in the City of Baltimore, Maryland (See Figure 2) the borders of which are Howard Street on the west, 27<sup>th</sup> Street on the north, primarily Guilford on the east, and 20<sup>th</sup> Street on the south. Street trees include trees in sidewalk tree pits and planting strips. Because trees on private property are not considered, the results stated herein may not reflect the full benefits provided by Old Goucher's total urban forest resource.



**Figure 2: Boundaries for the Old Goucher Tree Inventory**

A visual assessment determined whether or not the tree's location qualified it for the survey. A standard diameter tape was used to record tree diameter at breast height (DBH). For trees with multiple stems, the tree's diameter at root collar (DRC) or equivalent<sup>4</sup> was recorded instead. Using an engineer's measuring tape and/or rolling tape, additional data was collected for each tree's canopy diameter parallel to the street. This field measurement of canopy coverage provides a fuller picture the tree in relation to potential planting sites, as well as its condition. Data was also gathered on tree pit size, size of existing stumps, empty tree pits, tree condition, tree height, conflicts with overhead utilities, and sidewalk heaving. For all trees longitude and latitude were collected.

Data in the field was recorded using *i-Tree's* web application.<sup>5</sup> The data was then uploaded to a laptop and maintained in an *i-Tree* database. Quality assurance included review of each day's field work, spot checking tree data, and database review to correct errors. Upon completion of the inventory, *i-Tree Streets* analyses were

<sup>4</sup> Method for determining DRC using diameters of multiple stems is  $DRC = \sqrt{\text{SUM}(\text{stem diameter}^2)}$  according to the "Reference City Field Data Collection Protocols" by the Center for Urban Forest Research

<sup>5</sup> See Appendix A for the field survey categories used as well as the complete data in Excel format.

run. The analyses included data regarding street tree resource structure and function. Data from *i-Tree Streets* analyses were interpreted by the author for this report.

Maintenance recommendations were primarily made from the perspective of the health of the tree canopy. Routine maintenance includes tasks such as minor pruning, thinning tree canopies as needed, removal of invasive plant species in tree pits, or managing populations of disease/pests. Immediate maintenance includes work that is needed to address threats to the tree's survival, such as removal of binding cords or infested/diseased branches.

Several trees in Old Goucher meet the requirements of the Critical Concern/Public Safety maintenance level. These trees require immediate attention in order to avoid potential public harm. Empty tree pits and tree pits with stumps were also noted in the database for management purposes, but were excluded from the *i-Tree Streets* analysis of the benefits received by the neighborhood.

Land use categories were defined by the surveyors according to the primary land uses in the neighborhood: single-family residential; multi-family residential; small commercial; industrial/large commercial; vacant lot; institutional (church, school, government, etc.); park; other. These land uses were determined by what the primary use was at ground level.

Field data was collected by a two member inventory team over the course of four weeks in July and August, 2014. At the end of each day in the field, quality assurance steps were taken and data gathered was reviewed. Species identifications were made with the assistance of *National Audubon Society Guide to Trees*, *National Wildlife Federation Guide to Trees of North America*, *Sibley's Guide to Trees*, and the *Manual of Woody Landscape Plants* (see Appendix F for full citations).



**Figure 3: The Rain Underground Tree Inventory Team (photo by Jill Jonnes)**

While the discussion of data pertains to the trees of Old Goucher, it is important to realize that the neighborhood's trees join with the whole of the city's urban forest to provide clean air and other benefits. The benefits of one tree reach beyond that tree's rooted location. However, for the purposes of this report, we focus on the geographic location of Old Goucher.

## Section 2: Old Goucher's Street Tree Resource Structure

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### Population

Old Goucher has 1075 street trees. All discussion of trees, tree canopy, tree resource, urban forest canopy, etc., hereafter in this report refer to Old Goucher's street trees. Broadleaf deciduous trees comprise 99.1% of the neighborhood's tree canopy, broadleaf evergreen trees comprise less than 1% of the canopy. There are no coniferous trees. There are 1065 broad leaf deciduous trees and 10 broad leaf evergreen trees. Large growing broadleaf deciduous trees number 332 or 30.9%; those of a medium size are 463 or 43%; and small are 270 or 25.1%. The 10 broad leaf evergreen trees are all small in stature. Generally, the larger the tree, the more benefits it provides. However very large trees are often unsuited to life in the urban tree canopy. More frequently, urban foresters across the country are selecting smaller stature trees to replace aging large trees with the idea in mind that smaller trees will tolerate restricted conditions and will require less pruning in their lifespan. (McPherson and Rowntree, 1989)

### Species Richness and Composition

Species richness is a simple count of the number of species found in the study area. Greater species richness is generally considered better for the long term health of urban forests. Species richness protects forests from the possibility of catastrophic die-off and other impacts from infestations.

Table 1: Species Population Totals

## Baltimore

## Complete Population of Public Trees

9/12/2014

| Species                                 | DBH Class (in) |           |            |            |           |          |          |          | Total Standard Error |                 |
|---|----------------|-----------|------------|------------|-----------|----------|----------|----------|----------------------|-----------------|
|   | 0-3            | 3-6       | 6-12       | 12-18      | 18-24     | 24-30    | 30-36    | 36-42    |                      | > 42            |
| <b>Broadleaf Deciduous Large (BDL)</b>  |                |           |            |            |           |          |          |          |                      |                 |
| Norway maple                            | 3              | 15        | 29         | 12         | 1         | 0        | 0        | 0        | 0                    | 60 (±0)         |
| Japanese zelkova                        | 11             | 12        | 11         | 9          | 0         | 0        | 0        | 0        | 0                    | 43 (±0)         |
| London planetree                        | 1              | 4         | 8          | 18         | 10        | 0        | 0        | 0        | 0                    | 41 (±0)         |
| American elm                            | 14             | 4         | 11         | 2          | 4         | 4        | 1        | 0        | 0                    | 40 (±0)         |
| Pin oak                                 | 23             | 4         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 27 (±0)         |
| Willow oak                              | 18             | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 18 (±0)         |
| Sweetgum                                | 8              | 2         | 0          | 1          | 0         | 0        | 0        | 0        | 0                    | 11 (±0)         |
| White ash                               | 1              | 4         | 3          | 2          | 1         | 0        | 0        | 0        | 0                    | 11 (±0)         |
| Freeman maple                           | 3              | 4         | 3          | 0          | 0         | 0        | 0        | 0        | 0                    | 10 (±0)         |
| English oak                             | 8              | 0         | 0          | 0          | 0         | 1        | 0        | 0        | 0                    | 9 (±0)          |
| Honeylocust                             | 6              | 0         | 2          | 0          | 1         | 0        | 0        | 0        | 0                    | 9 (±0)          |
| Tulip tree                              | 8              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 8 (±0)          |
| Horsechestnut                           | 0              | 2         | 4          | 1          | 0         | 0        | 0        | 0        | 0                    | 7 (±0)          |
| Chestnut Oak                            | 6              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 6 (±0)          |
| Swamp white oak                         | 6              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 6 (±0)          |
| American sycamore                       | 4              | 0         | 0          | 0          | 1         | 0        | 0        | 0        | 0                    | 5 (±0)          |
| Northern red oak                        | 3              | 0         | 1          | 0          | 0         | 0        | 0        | 0        | 0                    | 4 (±0)          |
| Green ash                               | 2              | 0         | 1          | 0          | 1         | 0        | 0        | 0        | 0                    | 4 (±0)          |
| Red mulberry                            | 2              | 1         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 3 (±0)          |
| Eastern cottonwood                      | 0              | 0         | 0          | 0          | 2         | 0        | 0        | 0        | 0                    | 2 (±0)          |
| Silver maple                            | 0              | 0         | 1          | 1          | 0         | 0        | 0        | 0        | 0                    | 2 (±0)          |
| Kentucky coffeetree                     | 2              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 2 (±0)          |
| Post oak                                | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Bur oak                                 | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Black oak                               | 0              | 0         | 1          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Scarlet oak                             | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| <b>Total</b>                            | <b>132</b>     | <b>52</b> | <b>75</b>  | <b>46</b>  | <b>21</b> | <b>5</b> | <b>1</b> | <b>0</b> | <b>0</b>             | <b>332 (±0)</b> |
| <b>Broadleaf Deciduous Medium (BDM)</b> |                |           |            |            |           |          |          |          |                      |                 |
| Littleleaf linden                       | 5              | 26        | 74         | 75         | 13        | 1        | 0        | 0        | 0                    | 194 (±0)        |
| Red maple                               | 58             | 30        | 62         | 25         | 3         | 1        | 0        | 0        | 0                    | 179 (±0)        |
| Chinese elm                             | 3              | 8         | 14         | 1          | 0         | 0        | 0        | 0        | 0                    | 26 (±0)         |
| Ginkgo                                  | 6              | 3         | 7          | 1          | 2         | 0        | 0        | 0        | 0                    | 19 (±0)         |
| Silver Linden                           | 0              | 4         | 8          | 2          | 0         | 0        | 0        | 0        | 0                    | 14 (±0)         |
| Black tupelo                            | 10             | 1         | 2          | 1          | 0         | 0        | 0        | 0        | 0                    | 14 (±0)         |
| Yellowwood                              | 4              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 4 (±0)          |
| Black locust                            | 0              | 1         | 0          | 2          | 0         | 0        | 0        | 0        | 0                    | 3 (±0)          |
| Slippery elm                            | 1              | 1         | 0          | 1          | 0         | 0        | 0        | 0        | 0                    | 3 (±0)          |
| River birch                             | 1              | 0         | 1          | 0          | 0         | 0        | 0        | 0        | 0                    | 2 (±0)          |
| Sawtooth oak                            | 0              | 0         | 0          | 2          | 0         | 0        | 0        | 0        | 0                    | 2 (±0)          |
| Boxelder                                | 0              | 0         | 0          | 1          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Common persimmon                        | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Sassafras                               | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| <b>Total</b>                            | <b>90</b>      | <b>74</b> | <b>168</b> | <b>111</b> | <b>18</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>0</b>             | <b>463 (±0)</b> |
| <b>Broadleaf Deciduous Small (BDS)</b>  |                |           |            |            |           |          |          |          |                      |                 |
| Callery pear                            | 5              | 21        | 79         | 48         | 26        | 10       | 1        | 0        | 0                    | 190 (±0)        |
| Kwanzan cherry                          | 3              | 4         | 8          | 5          | 0         | 0        | 0        | 0        | 0                    | 20 (±0)         |
| Eastern redbud                          | 13             | 1         | 0          | 1          | 0         | 0        | 0        | 0        | 0                    | 15 (±0)         |
| Service berry                           | 12             | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 12 (±0)         |
| Common crapemyrtle                      | 5              | 2         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 7 (±0)          |
| Goldenrain tree                         | 1              | 1         | 2          | 0          | 0         | 0        | 0        | 0        | 0                    | 4 (±0)          |
| Apple                                   | 0              | 0         | 2          | 2          | 0         | 0        | 0        | 0        | 0                    | 4 (±0)          |
| Hawthorn                                | 0              | 0         | 3          | 0          | 0         | 0        | 0        | 0        | 0                    | 3 (±0)          |
| Washington hawthorn                     | 0              | 0         | 2          | 0          | 0         | 0        | 0        | 0        | 0                    | 2 (±0)          |
| Paperbark maple                         | 0              | 0         | 2          | 0          | 0         | 0        | 0        | 0        | 0                    | 2 (±0)          |
| Fringe tree                             | 0              | 0         | 2          | 0          | 0         | 0        | 0        | 0        | 0                    | 2 (±0)          |
| Rose-of-sharon                          | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Cherry plum                             | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Winged Euonymus                         | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Forsythia                               | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Dogwood                                 | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |
| Amur maple                              | 0              | 0         | 1          | 0          | 0         | 0        | 0        | 0        | 0                    | 1 (±0)          |

## Complete Population of Public Trees

9/12/2014

| Species                                | DBH Class (in) |            |            |            |           |           |          |          |          | Total Standard Error |
|--|----------------|------------|------------|------------|-----------|-----------|----------|----------|----------|----------------------|
|  | 0-3            | 3-6        | 6-12       | 12-18      | 18-24     | 24-30     | 30-36    | 36-42    | > 42     |                      |
| Trident maple                          | 0              | 1          | 0          | 0          | 0         | 0         | 0        | 0        | 0        | 1 (±0)               |
| Higan cherry                           | 0              | 0          | 1          | 0          | 0         | 0         | 0        | 0        | 0        | 1 (±0)               |
| Flowering dogwood                      | 1              | 0          | 0          | 0          | 0         | 0         | 0        | 0        | 0        | 1 (±0)               |
| <b>Total</b>                           | <b>45</b>      | <b>30</b>  | <b>102</b> | <b>56</b>  | <b>26</b> | <b>10</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>270 (±0)</b>      |
| <b>Broadleaf Evergreen Small (BES)</b> |                |            |            |            |           |           |          |          |          |                      |
| Euonymus                               | 7              | 0          | 0          | 0          | 0         | 0         | 0        | 0        | 0        | 7 (±0)               |
| American holly                         | 2              | 1          | 0          | 0          | 0         | 0         | 0        | 0        | 0        | 3 (±0)               |
| <b>Total</b>                           | <b>9</b>       | <b>1</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>  | <b>0</b>  | <b>0</b> | <b>0</b> | <b>0</b> | <b>10 (±0)</b>       |
| <b>Grand Total</b>                     | <b>276</b>     | <b>157</b> | <b>345</b> | <b>213</b> | <b>65</b> | <b>17</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>1,075 (±0)</b>    |

### Tree Population

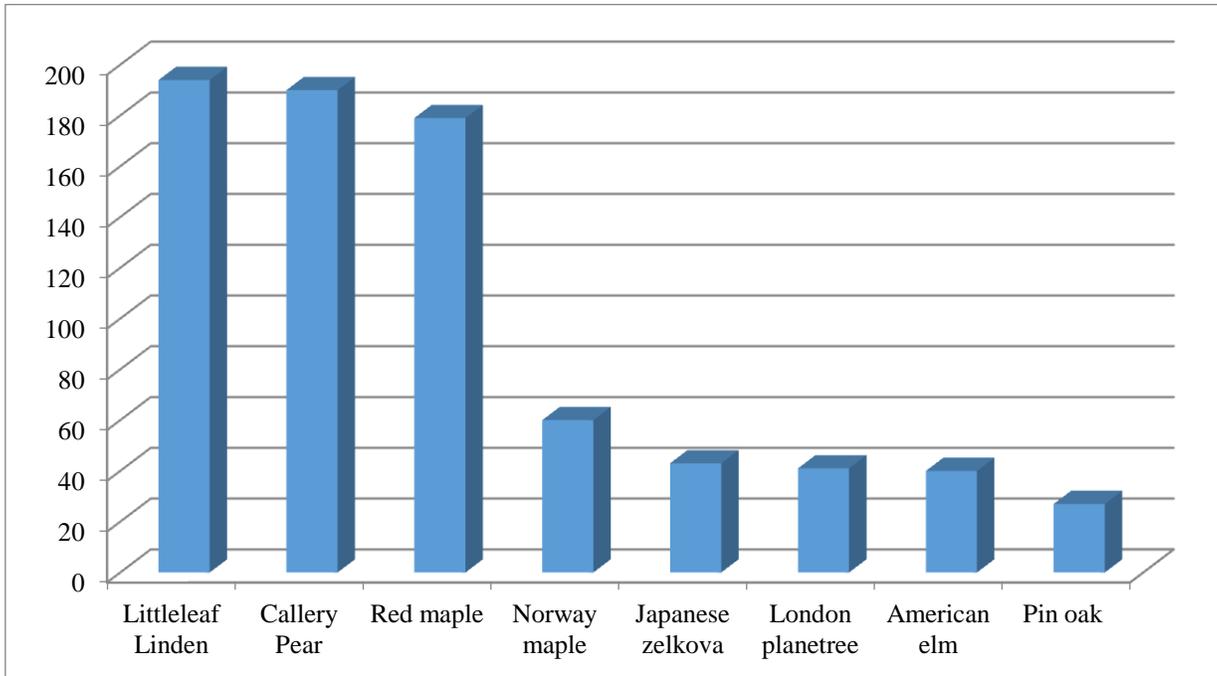
Old Goucher contains 62 species of street trees (See Table 1). The national average is 53 species of street trees as reported by McPherson and Rowntree (1989) from 22 different U.S. cities. Old Goucher appears to be strong in the area of species richness. Nonetheless, it is important to remember that Old Goucher is one neighborhood in a city of many. A complete street tree inventory for the City of Baltimore would surely reveal different numbers regarding species richness. Old Goucher's species richness cannot be construed as reflective of Baltimore's species richness. However, understanding the importance of species richness for the long term health of the urban forest can provide Old Goucher direction for future planting choices.

Composition refers to the percentage of the total tree count by species. Table 2 shows that the four most common street tree species in Old Goucher make up 58% of all street trees and the eight most common species comprise 72% of all street trees. The four most common trees are the littleleaf linden (18% of the population), Callery pear (17.7% of the population), red maple (16.7% of the population), and Norway maple (5.6% of the population). This distribution strays slightly from the generally accepted rule that no single species exceed 10% of the total population and no single genus more than 20% (Clark and others, 1997). Again it is important to note that this report is focused on one neighborhood; an inventory of the entire city may reveal that these numbers are not representative of the city as a whole. The total tree count by species for the top eight trees are also presented in Figure 4 comparing the frequency in relative numbers.

**Table 2: Eight most common species**

| Species                  | Percentage of total population |
|--------------------------|--------------------------------|
| <b>Littleleaf linden</b> | 18.0%                          |
| <b>Callery pear</b>      | 17.7%                          |
| <b>Red maple</b>         | 16.7%                          |
| <b>Norway maple</b>      | 5.6%                           |
| <b>Japanese zelkova</b>  | 4.0%                           |
| <b>London planetree</b>  | 3.8%                           |
| <b>American elm</b>      | 3.7%                           |
| <b>Pin oak</b>           | 2.5%                           |

Figure 4: Frequency of the eight most common trees



### Species Importance

*I-Tree* calculates the Importance Value of each species based on the average of percentage of total population, percentage of total leaf area and percentage of total canopy cover. This value offers an idea of the neighborhood’s dependence on a particular species to provide benefits. It therefore also provides a sense for the neighborhood’s vulnerability to storm, disease, or pest infestations that could inflict damage on a particular species and reduce canopy benefits. The following Importance Values are on a scale of 0-100, with 0 indicating no reliance and 100 referring to complete reliance on one species. These values should not be taken as an absolute rating of their suitability for conditions in Old Goucher, but as one indicator of the neighborhood’s current dependence on a particular species.

The five most common species in Old Goucher comprise 62% of all species in the population, 68.42% of total leaf area of all street trees, and 72.79% of total canopy coverage. Of these species, littleleaf linden scored the highest Importance Value of 24.61 followed by Callery pear (19.71), red maple (14.84), Norway maple (5.32), and Japanese zelkova (3.25) (See Table 3).

Littleleaf linden’s high Importance Value rating results primarily from the high numbers of trees present (194). Of the littleleaf lindens, 76.8% belong to the DBH class of 6-12 and 12-18 inches. This size of tree is characterized as ‘maturing’ for the purposes of planning for appropriate age distribution. There are few ‘mature’ littleleaf lindens in Old Goucher, only 7.2% of the total species population. Because so many littleleaf lindens are on the lower end of the age distribution, Old Goucher can expect an increase in the benefits provided if the littleleaf lindens continue growing and stay healthy.

Comparatively, there are 190 Callery pears in Old Goucher, and this species’ Importance Value is 19.71, slightly lower than that of the littleleaf linden. Of the Callery pears, 66.8% belong to the maturing DBH class of 6-12 and 12-18 inches, and an additional 19.5% are in the mature DBH class of 18-24 and 24-30 and 30-36 inches. One might expect the Callery pear to have a higher Importance Value than the littleleaf linden because a

higher percentage of the population is mature and mature trees usually provide the most benefits. The existing lower Importance Value for Callery pear is most likely a result of the higher percentage of trees in fair, poor or dead condition, 51.6% compared to 43.3% of the littleleaf linden population. Old Goucher will want to assure the health of the Callery pear, giving time for other species to grow and increase in IV and replace the work of the Callery pear as they age out of the canopy.

**Table 3: Importance values for the eight most common trees**

| Species           | Importance Value (IV) |
|-------------------|-----------------------|
| Littleleaf linden | 24.61                 |
| Callery pear      | 19.71                 |
| Red maple         | 14.84                 |
| Norway maple      | 5.32                  |
| Japanese zelkova  | 3.25                  |
| London planetree  | 6.71                  |
| American elm      | 5.47                  |
| Pin oak           | .95                   |

In general, smaller trees and trees with a younger population had much lower Importance Values. While the Importance Value for mature trees of smaller stature may not increase, those species with younger populations may see an increase in Importance Value as the population ages.

### Stocking Level and Canopy Coverage

The stocking level is the relationship between total available planting area and planted area. The current assessment provides details on the available spaces for planting new trees, or the stocking level, by counting and measuring empty tree pits and creating a map marking potential areas for new tree pits/plantings (see Appendix E). According to Baltimore City standards, a general rule is that a tree can be planted every 25 linear feet along a street. Old Goucher has approximately, 3.6 linear miles of streets, with a total of 7.2 miles of public right of way along both sides of these streets. Using the 25 foot rule for spacing trees, 7.2 miles (38,016 feet) of sidewalk would allow a theoretical maximum of 1521 street trees, suggesting that there is room to add a maximum of 446 new trees to the existing 1075 street tree locations in Old Goucher. These figures do not account for the presence of many obstacles to planting such as curb cuts, above and below ground utilities, building entries, or bus stops. The inventory team identified 152 empty tree pits and 271 potential locations for new tree pits. Filling these would put Old Goucher closer to achieving full stocking level. All empty tree pits and potential tree pits should be inspected and their suitability verified according to Baltimore City standards.

Additionally, considering that Old Goucher’s human population is 3,150 (U.S. Census Bureau 2010) there is .34 tree per person in the neighborhood, or approximately 1 street tree for every 2.9 people. The average for U.S. cities is approximately one tree for every 2.7 people (McPherson and Rowntree, 1989). Old Goucher is slightly below average in this regard.

The Old Goucher neighborhood has a land area of 139 acres, of which 28 acres are streets and sidewalks. The total area of canopy cover is 11 acres. *I-Tree* calculates that the canopy coverage is 7.88% of the total land area and 38.86% of the street and sidewalk area. To help improve stormwater management, Baltimore City’s goal for the urban tree canopy is 40% coverage of the street and sidewalk area by 2037, so Old Goucher looks to be capable of reaching this goal if current planting trends continue.

## Relative Age Distribution

For the most part, the age of a tree is relative to the size of the tree, as measured in DBH. While it may seem counter intuitive, a wide range of age distribution among the trees in a population is ideal because it precludes a sudden loss in canopy cover if many trees reach the end of their life simultaneously. In addition, it allows management costs to remain more uniform through time. Additionally, having a high proportion of young trees is desirable to counteract difficulties with new tree establishment and the death of older trees. For population stability, the ideal proportion recommends as much as 40% of the total population should be immature with DBH measurements of under 8 inches to make up for the higher mortality rates in younger trees. Of the rest, 30% should have DBH between 8 and 16 inches, 20% should measure between 16 and 24 inches, and only 10% should fall in largest categories over 24 inches (Richards, 1982/83).

In Old Goucher, 40.28% of the street tree population measures under 6 inches in diameter, 57.95% are maturing, and 1.77% are mature trees over 24 inches. (See Appendix C) This age distribution favors younger and establishing trees but may result in the neighborhood receiving fewer benefits until these trees reach maturity. For example, 85% of the pin oak in the population are immature. It is important therefore to make sure these trees are maintained to ensure their longevity and health so that more mature trees may be established and an even flow of benefits can be ensured over the long term.

Figure 5: Relative Age Distribution

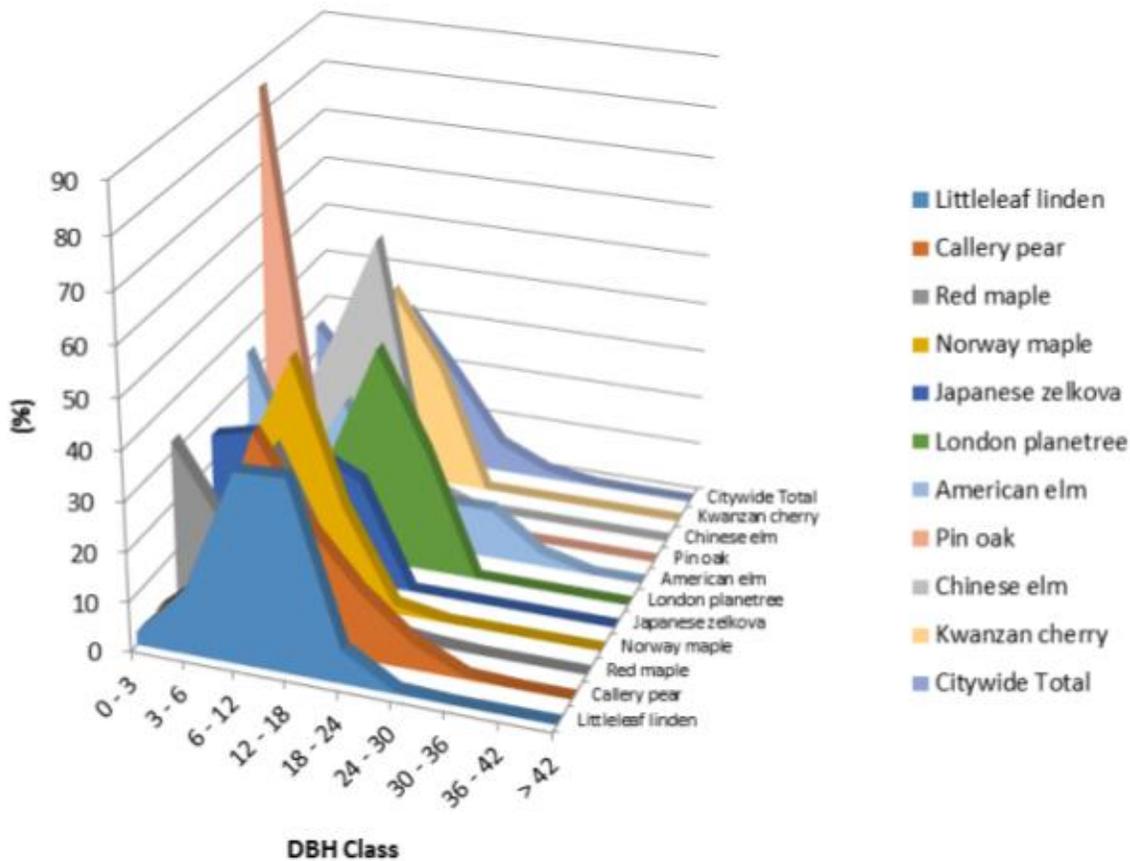


Figure 5 shows that the neighborhood-wide total distribution of DBH classes generally favors immature and maturing trees which bodes well for the future of the neighborhood’s canopy. The London plane population is weighted heavily towards the maturing and mature DBH classes. There are significantly fewer London plane in the immature classes. This raises the potential concern of a future drop off in benefits from this locally important tree when mature trees suffer age related mortality, by which time, the very young trees may not have fully matured to replace them. This is true for the Callery pear as well. The chart reveals that the majority of this species are in the maturing class, with none of this species present in the immature class. Baltimore discourages the planting of Callery pear as a street tree (See Appendix F). On roads such as N. Charles Street, where this is the dominant street tree it will be critical to find a suitable replacement in order to maintain the aesthetic qualities of that tree-lined street. Moving forward it will be important to monitor the health of those trees in the maturing class to assure that they do not pose a public hazard.

## Condition and Performance

As seen in Figure 6, the overall condition of Old Goucher's street trees breaks down as follows: 76% are in good condition; 18% are in fair condition; 4% are in poor condition, and 2% are dead or dying. (To identify specific trees falling in particular categories see Appendix C.)



**Figure 6: Tree Condition**

With such a high percentage of trees in good condition, Old Goucher should examine what it has done correctly. The sheer numbers of littleleaf linden, Callery pear and London plane along the major north/south streets indicate that there are a number of populations that were well-established 20 to 30 years ago. Given the significant number of young trees also evident in the population, the neighborhood must ensure their establishment. This requires careful tree selection and planting technique as directed Baltimore City Urban Forestry Division as noted in Appendix B. According to the USDA Forest Service Piedmont Report, new trees should be watered regularly for the first three to five years in warm climates. With regional tendencies for drought conditions this should be standard policy for the neighborhood.

Urban conditions are less than ideal for tree health, but there are several management factors that may be adversely impacting the condition of growing trees. The majority of tree pits are smaller than 4 by 8 feet. The Baltimore Tree Trust and other tree planting organizations are enlarging existing tree pits and cutting new trees pits to meet the 4 by 8 feet standard, where possible. Having ample room for root growth and surface area for water absorption is crucial to the health of an urban tree.<sup>6</sup> Visible sidewalk heaving is the inevitable result of large trees growing in these small pits. The inventory team also noted locations where the growth of the tree was restricted by out of date metal tree grates. These should be removed wherever possible. Newly planted trees with guide lines installed should be regularly checked and adjusted as necessary to ensure that the guides are not damaging the tree as it grows. Low hanging branches should be removed so that the trees are limbed up to allow for pedestrian clearance.

<sup>6</sup> Urban, James. *Up by Roots: Healthy Soils and Trees in the Built Environment*. Champaign, IL: International Society of Arboriculture 2008, pg.10.

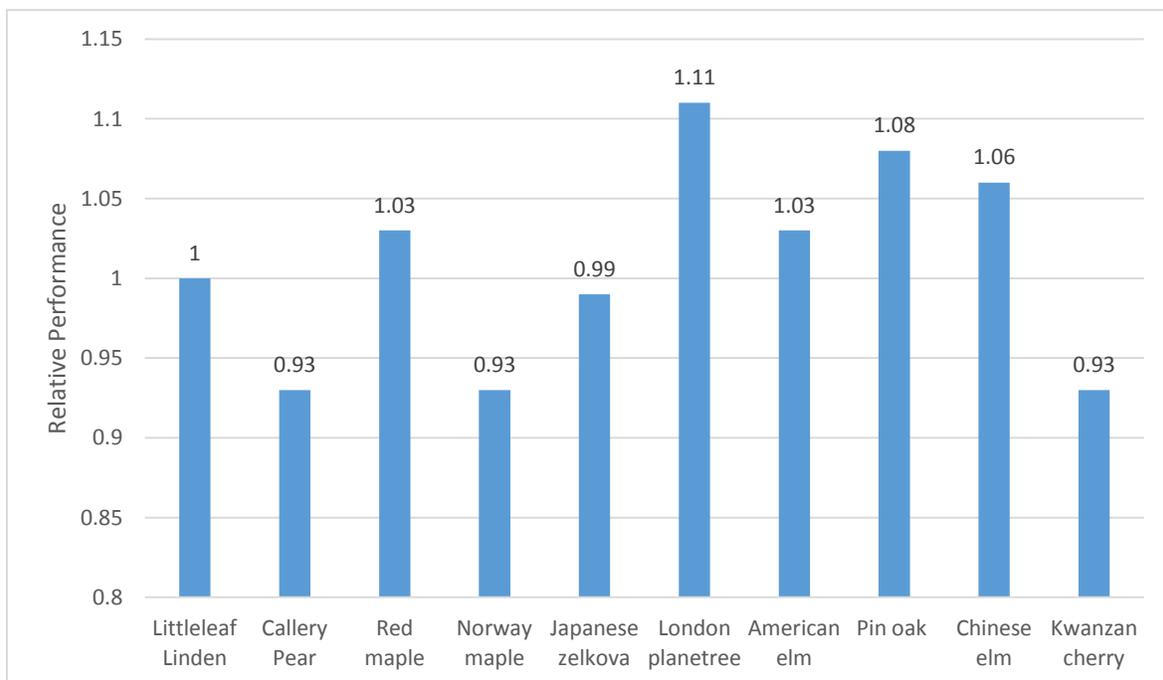
In Old Goucher, 2% of the total population of street trees are dead or dying. Considering that there is an expected mortality rate of 45% for newly planted trees it is unrealistic to think that there would be zero dead trees in the population. In this neighborhood the trees that are suffering tend to be either immature trees that were not watered properly in the first year, or mature trees that are naturally phasing out due to the stresses of the urban forest such as lack of adequate space, water and nutrients.

### Relative Performance

Relative Performance Index is calculated by *i-Tree* to compare the condition of each tree to the condition of the total tree population. This can give an idea about the successful performance of one species of tree versus another. The calculation is made by dividing the percentage of each species that are in good condition by the percentage of the total population that is in good condition. Species with Relative Performance Index values above 1.0 are performing at least as well as the average. Species with Relative Performance Index values below 1.0 may not be the best choices for local conditions and consideration should be taken when exploring species options for new plantings. The Relative Performance Index should not be used as an absolute measure of suitability for planting as overall benefit provision is an important factor as well. For example, a high performing tree according to the Relative Performance Index may not provide the desired level of benefits for a specific stormwater goal. This will be discussed further in the benefits and conclusion sections.

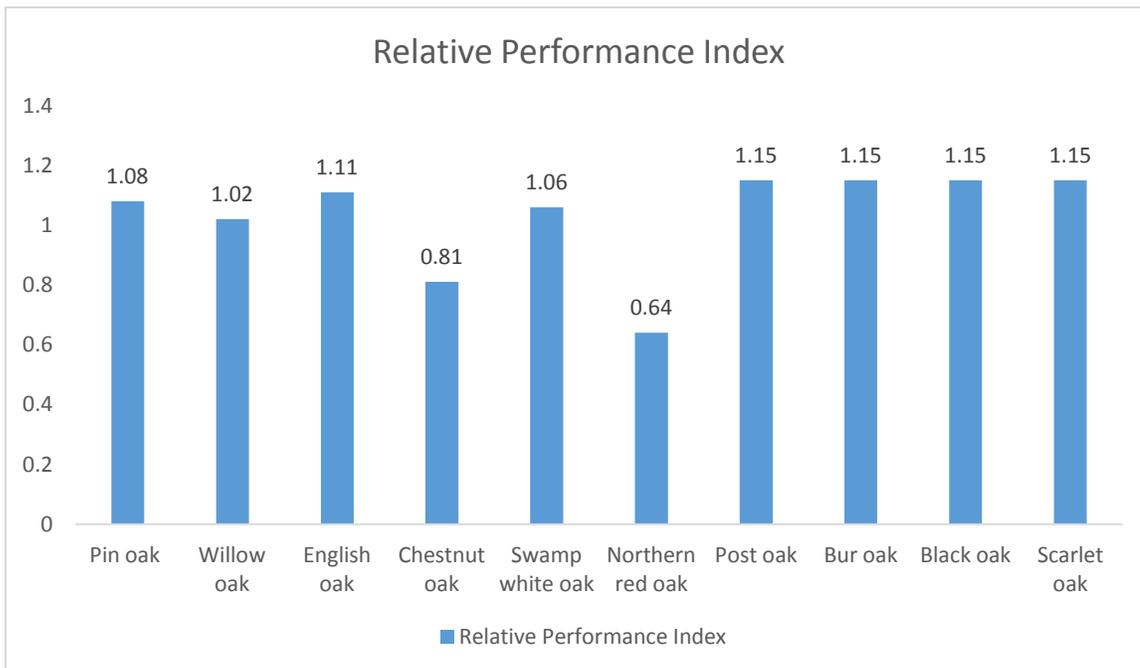
In Figure 7, the ten most common street trees are within 0.10 points of 1.0, meaning that most of the species perform as well as the other species. However, among less common species there are a few outliers. Apples (0.56), Northern red oak (0.64), and horsechestnut (0.79) do not have very good Relative Performance Index values. This is because there are very few of them planted in the neighborhood and most of these trees are in fair or poor condition. As the total sample is small, it would be inappropriate to judge the value of a species based solely on the Relative Performance Index for Old Goucher’s trees. Species with fewer numbers of good performing trees may also be overvalued. It is also important to consider that a city-wide tree inventory would give a fuller picture of the Relative Performance Index for each of these species. The following suggestions for using the Relative Performance Index in determining future tree plantings should be considered.

Figure 7: Relative Performance Index values for the most common species



These Relative Performance Index values can be used to help decide which species the neighborhood wants to plant. Choosing good performers can help to reduce long term maintenance and planting costs. The Relative Performance Index can help identify good performers that may not have been recognized or under performers that the neighborhood may wish to stop planting. For example, the presence of a significant number of newly planted Pin Oak (1.08) suggests that their good performance has been recognized by previous planting programs. It is heartening to see that the pin oak, as well as English oak (1.11), and willow oak (1.02) are performing well in the urban setting of Old Goucher because they represent the new wave of a more diverse tree canopy. Some of these are highlighted in Figure 8. On the other hand, Callery pear (0.93), Norway maple (0.93) and Kwanzan cherry (0.93) three of the top ten most common tree in Old Goucher, are performing slightly below average and the neighborhood may wish to explore their performance further before planting additional trees of these species.

Figure 8: Potentially under-utilized species based on Relative Performance Index values



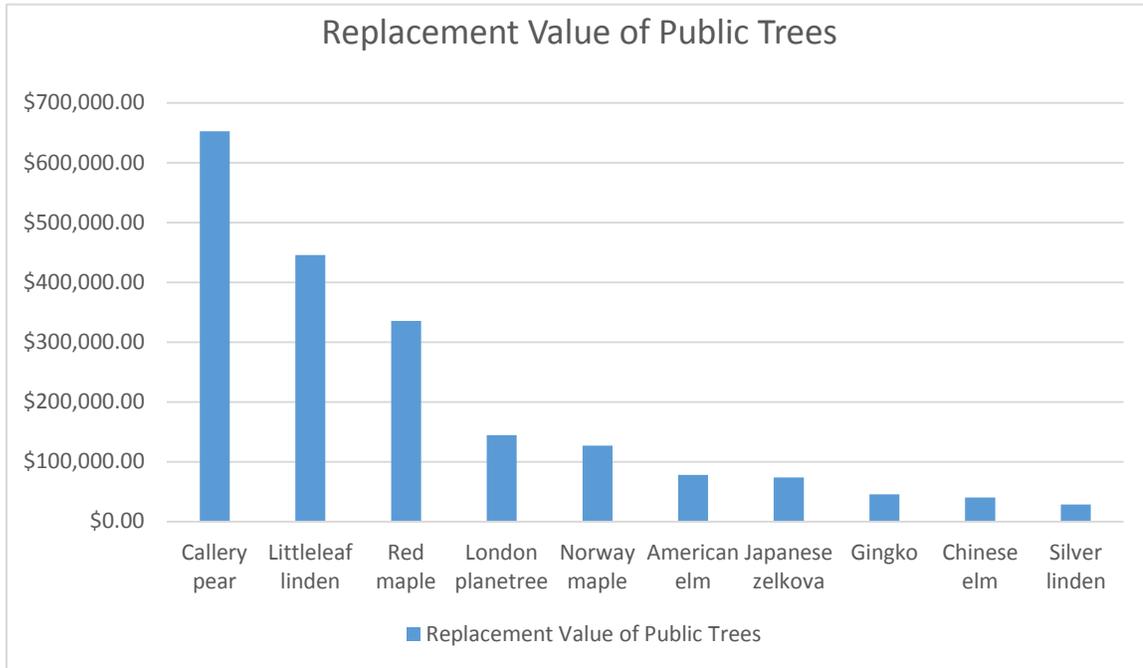
### Replacement Value

The Replacement Value of a tree assesses what it would cost to replace the tree in its current condition. The *i-Tree* analysis of Replacement Value is based on the Council of Tree and Landscape Appraisers (CTLA) Guide for Plant Appraisal, which uses a trunk formula methodology. The *i-Tree* manual states, “Because of the approximations used in these calculations, replacement values are first-order estimates for the population and are not intended to be definitive on a tree by tree basis.”<sup>7</sup> This valuation should not be confused nor combined with the measurement of the annual benefits provided to the neighborhood by the trees. Old Goucher’s street trees are part of Baltimore’s green infrastructure and as such are an important asset to the city. The replacement value allows policy makers, citizens, and funders to have a general idea of the value associated with a specific species. Understanding the cost to replace this resource helps clarify the importance of maintaining it.

<sup>7</sup> I-Tree Street v. 5.0 User’s Manual, 43

As they exist right now, the Replacement Value of Old Goucher’s trees amounts to \$2,213,789.00. Overall, Callery pear account for 29.48% of the total Replacement Value, Littleleaf lindens account for 20.12%, and red maples for 15.17%. After these species, the value drops off quickly to London planetree for 6.53%, and Norway Maple for 5.73%. No other species account for more than 5% of the total replacement value (See Figure 9).

**Figure 9: Replacement Value by Species (total population) in Dollars**



### Land Use and Site Type

The majority of trees are associated with addresses belonging to the single family residential and multi-family residential land use categories (See Table 4). The inventory team determined land use types based on the ground level occupants of each building. There are numerous properties in Old Goucher that are commercial on the ground level with residential use above. Therefore this data does not take into account the number of mixed use properties that exist in Old Goucher. Based on the inventory team’s in-field observation of land use and tree condition, these two factors seem to be unrelated. The only exception to this is the Howard Street corridor, where large commercial properties have only a few trees in poor condition or no trees at all. This is further discussed in Section 8.

Table 4: Trees by Land Use

| Land Use                                   | Tree Count | % of Street Trees |
|--|------------|-------------------|
| Single family residential                  | 269        | 25.02             |
| Multi-family residential                   | 245        | 22.79             |
| Small commercial                           | 261        | 24.28             |
| Industrial/large commercial                | 56         | 5.21              |
| Institutional (church, school, government) | 115        | 10.70             |
| Park/vacant/other                          | 76         | 7.07              |
| Parking lot                                | 53         | 4.93              |

The primary site type is sidewalk tree pit as seen in Table 5. Given the urban quality of the neighborhood, this is not surprising. The relationship between tree pits and properties is evident when walking down the street. Support and education for residents and property owners in caring for and understanding the neighborhood's street tree resource may be warranted, so that they can serve as the first line of care and maintenance.

Table 5: Trees by Site Type

| Site Type                    | Tree Count | % of Street Trees |
|------------------------------|------------|-------------------|
| Sidewalk                     | 1,001      | 93.12             |
| Planting strip               | 48         | 4.47              |
| Median                       | 2          | .19               |
| Other maintained locations   | 23         | 2.14              |
| Other unmaintained locations | 0          | 0                 |
| Backyard                     | 0          | 0                 |
| Front yard                   | 1          | .09               |

## Section 3: Costs of Managing Old Goucher's Street Trees

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Currently Old Goucher relies on a loose consortium of partners to manage the neighborhood's street trees. Citizens are often asked to water newly planted trees in the public right of way (primarily sidewalk tree pits) near their property. Those trees impacting electric utility lines are trimmed by BGE. Baltimore City's Urban Forestry Division under the auspices of the Department of Recreation and Parks has responded to 311 calls to handle maintenance calls in the past and is working toward a cyclical pruning schedule. The neighborhood and local associations have relied on outside sources to fund other contractors/organizations to plant and care for young trees as well.

For fiscal year 2014, the Urban Forestry Division's total budget is \$2,994,727.<sup>8</sup> The City of Baltimore does not currently provide a break down within the budget of expenditures related to tree management or maintenance on a per neighborhood or per tree basis. For the purposes of this report, the Urban Forestry budget is assessed per acre. Accordingly, the estimated FY2014 expenditure attributed to Old Goucher's street trees is \$8,034. This figure should be considered as a general estimate and used with the caveat that in any given year the need for maintenance may be greater or lesser, and with the understanding that certain areas of the city may be a higher or lesser priority than Old Goucher and therefore the monies put toward this neighborhood's street tree resource may fluctuate.

For citizens, policy makers, and funders it is important to recognize the necessity of maintaining the street tree resource. Delayed maintenance can mean tree related emergencies for citizens and the city that result in more significant costs in the long run. It can also mean a more negative perception of street trees among the citizenry, instead of a public understanding of the overwhelming benefits of this resource. These opportunity costs should not be underappreciated.

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<sup>8</sup> Baltimore City Fiscal 2014 Agency Detail, Volume II, pg. 148. <http://www.baltimorecity.gov/>

## Section 4: Benefits of Old Goucher's Street Trees

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What do the neighborhood's street trees do for Old Goucher and Baltimore? The street trees do many things including: helping conserve and reduce energy use, improving air quality, and mitigating storm water runoff. They also provide many non-ecological benefits related to their aesthetic qualities and psychological and social impacts. Quantifying the benefits of street trees in financial terms provides Old Goucher with data that allows the neighborhood and the city to assess the street tree resource's value as an investment.

This report uses *i-Tree Streets* software model to quantify and assess a monetary value for the beneficial functions the street tree resource provides annually. To understand how *i-Tree Streets* calculated the benefits refer to the *Piedmont Community Tree Guide* (McPherson and others, 2006).

### Energy Savings

There are three primary ways in which trees conserve energy and modify climate:

- 🌳 Tree shade reduces the amount of radiant energy absorbed and stored by built surfaces.
- 🌳 Transpiration converts moisture to water vapor and, thus, cools the air by using solar energy that would otherwise result in heating of the air.
- 🌳 Wind-speed reduction reduces the movement of outside air into interior spaces and reduces conductive heat loss where thermal conductivity is relatively high, for example, glass windows (Peper and others, 2008).

Shade and transpiration provided by trees in the built environment can lower air temperatures and reduce cooling requirements for buildings. By reducing air movement around buildings, trees protect buildings from conductive heat loss which translates into energy savings.

### Electricity and Natural Gas Result

The electricity and natural gas saved annually in Old Goucher from both shading and climate effects equal 54.9 MWh (\$4,168) and 2,219.4 therms (\$2,321) for a total annual savings of \$6,490 or an average of \$6.04 per tree. The three most populous trees, littleleaf linden, Callery pear, and red maple, account for 64.8% of the total annual savings. However their average per tree savings is lower than several species. For example, the average per tree savings for sawtooth oak is \$12.92 compared to \$9.62 for littleleaf linden. This is because there are a greater number of mature sawtooth oak than littleleaf linden. In examining the average per tree savings, it becomes clear how important size is; the larger trees are the better energy savers.

By examining the savings per tree, we see that numbers and species matter. Table 6 shows the top five species as regards percent of total energy savings. Understanding which species are performing well in terms of energy savings can help the neighborhood, not only in assessing the resource benefits, but increasing them with future plantings. For the full table see Appendix D.

**Table 6: Energy Savings by species in relation to the percentage of the total population—top five species**

| <b>Species</b>    | <b>Percent of Total Energy Cost Savings</b> | <b>Percent of Street Tree Population</b> | <b>Energy Savings per Tree</b> |
|-------------------|---|--|--------------------------------|
| Littleleaf linden | 28.8%                                       | 18.0%                                    | \$9.62                         |
| Callery pear      | 23.2%                                       | 17.7%                                    | \$7.94                         |
| Red maple         | 12.8%                                       | 16.7%                                    | \$4.63                         |
| Norway maple      | 5.0%  | 5.6%                                     | \$5.39                         |
| Japanese zelkova  | 2.8%  | 4.0%                                     | \$4.23                         |
| London planetree  | 6.5%  | 3.8%                                     | \$10.25                        |

### Atmospheric Carbon Dioxide Reduction

As the understanding of the environmental impacts of Carbon Dioxide grows, a wide variety of strategies have considered ways to reduce this pollutant in the atmosphere. Trees are often one part of the solution, because trees can reduce atmospheric carbon dioxide (CO<sub>2</sub>) in two ways:

- 🌳 Directly: trees sequester CO<sub>2</sub> in their wood and leaves.
- 🌳 Indirectly: trees moderate the environment so that the demand for heating and air conditioning decreases which, in turn, reduces the emissions associated with the electrical power usage.

It is important to recognize that the full life cycle of trees and their maintenance must be accounted for when calculating the CO<sub>2</sub> reduction benefits of trees, because CO<sub>2</sub> is released by the vehicles and equipment that maintain trees, as well as by the tree itself as it decomposes.

### Avoided and Sequestered Carbon Dioxide

After accounting for CO<sub>2</sub> emissions (3.2 tons) from tree decomposition, and tree maintenance (0.34 tons) for a net of 3.545 tons, Old Goucher’s street trees reduce atmospheric CO<sub>2</sub> by a net of 141.6 tons valued at \$2,124.00. On a per tree basis, the net benefit is \$1.98. Boxelder (\$5.92) and Eastern cottonwood (\$5.37) give the highest per tree benefits. This is likely due to their mature DBH class. The structural assessment of the tree resource clarifies the performance by species. However, the species with the most trees make up most of the benefit derived. The top three most populous trees (littleleaf linden, Callery pear and red maple) account for 65.9% of total monetary benefits (see Table 7).

**Table 7: Annual Carbon Dioxide reduction benefits for the five most common species**

| <b>Species</b>    | <b>Percent Total Annual CO2 Benefits</b> | <b>Percent of Street Tree Population</b> | <b>Savings per Tree</b> |
|-------------------|--|--|-------------------------|
| Littleleaf Linden | 36.87%                                   | 18.0%                                    | \$4.03                  |
| Callery Pear      | 18.0%                                    | 17.7%                                    | \$2.02                  |
| Red maple         | 11.1%                                    | 16.7%                                    | \$1.32                  |
| Norway Maple      | 5.0%                                     | 5.6%                                     | \$1.78                  |
| Japanese Zelkova  | 2.8%                                     | 4.0%                                     | \$1.36                  |
| London Planetree  | 6.3%                                     | 3.8%                                     | \$3.29                  |

### Stored Carbon Dioxide

*i-Tree Streets* also quantifies the amount of carbon stored over the life of a tree as a result of sequestration. This analysis gives a sense for how trees in Old Goucher perform over their lifetime. The results cannot be combined with the annual Carbon Dioxide reductions benefits reviewed above or double-counting will occur.<sup>9</sup>

As it currently stands, Old Goucher’s street tree resource will store a total of 920.7 tons of carbon at a value of \$13,811.00 over the lifetime of the trees. A review of the numbers by species reveals that large stature trees provide more benefits over a lifetime. See Appendix D for full data.

### Air Quality Improvement

The relationship between trees and air quality is often considered straightforward. The variety of ways trees influence air quality must be understood to get a full picture of how Old Goucher’s street tree resource functions and ways in which the resource can be improved.

Trees improve air quality in the following ways:

-  Absorbing gaseous pollutants, such as ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>) and sulfur oxide (SO<sub>2</sub>), through leaf surfaces.
-  Intercepting particulate matter (PM<sub>10</sub>), such as dust, ash, dirt, pollen, and smoke.
-  Reducing emissions from power generation by reducing energy consumption.
-  Releasing oxygen through photosynthesis.
-  Transpiring water and providing shade, resulting in lower local air temperatures, thereby reducing O<sub>3</sub> levels (Peper and others, 2008).

In summary, trees create oxygen, absorb pollutants and moderate temperatures. Trees are also a source of pollution in the form of biogenic volatile organic compounds (BVOCs). BVOCs can add to ozone formation. The net benefit numbers account for BVOCs emissions from Old Goucher’s street trees.

### Deposition and Interception

249.7 lbs of the above mentioned pollutants are deposited or intercepted annually, the value of which is \$1,160.00. Littleleaf linden (\$309) and Callery pear (\$335) provide the highest value, and together make up more than half of the total value to the neighborhood.

<sup>9</sup> I-Tree Streets User’s Manual v. 5.0, 47.

### Avoided Air Pollutants

412.2 lbs of such pollutants are avoided annually, the value of which is \$1,450.00. Again the littleleaf linden (\$422) and Callery pear (\$339) provide the greatest benefit. Here, the correlation between numbers and benefit provided per species is evident: The more populous species provide more benefit.

### BVOC Emissions

The total BVOCs emitted by Old Goucher's street trees is 189.9 lbs annually at a cost of \$1,189.00. The largest emitters are those species with a higher number of mature trees or those with a significant number of trees in poor condition. Additionally, a species with a large percentage of older trees that are also in poor condition contribute more BVOCs. For example, the American elms and the London plane are primarily mature tree populations and therefore beginning their decline and thus emit more BVOCs. Along with 12 other species, they emit more BVOCs than they make up for with their deposition and avoidance of other air pollutants. It may be tempting to think of these species as poor performers, but a species cannot be judged on Air Quality numbers alone. The full picture of their benefits in relation to their age and condition must be considered. Looking at the Relative Performance Index numbers is necessary for understand the value of a given species as it exists now.

### Total (Net) Air Quality Benefits

Once the costs of BVOC emissions are accounted for, the total annual Air Quality Benefit is \$1,422.00. As the street tree canopy improves, it can be reasonably expected that this annual benefit will increase as well. See Appendix D for the full *i-Tree Streets* data.

### Storm Water Runoff Reductions

Located in the Jones Falls Watershed in Baltimore City, all of Old Goucher's storm drains flow directly to the Jones Falls River and from there to the harbor and Chesapeake Bay. Like many municipalities, Baltimore is taking steps to comply with Clean Water Act regulations. Healthy urban trees can reduce the amount of runoff and pollutants in storm water runoff in the following ways:

- 🌿 Leaves and branch surfaces intercept and store rainfall, thereby reducing runoff volumes and delaying the onset of peak flows.
- 🌿 Root growth and decomposition increase the capacity and rate of soil infiltration by rainfall and reduce overland flow.
- 🌿 Tree canopies reduce soil erosion and surface transport by diminishing the impact of raindrops on barren surfaces (Peper and others, 2008).

Because Old Goucher, like most urban areas, is comprised primarily of impervious surfaces in the form of roofs, sidewalks, streets, alleys, parking lots, etc., the neighborhood street trees provide the primary stormwater mitigation for the neighborhood. Old Goucher's street trees intercept 1,425,527 gallons of water each year or 1,326 gallons per tree on average. The total value of this benefit to the neighborhood is \$14,113.00. Here, tree size, leaf size and tree condition matter. The best performing species, based on a benefits per tree basis are the London Plane (\$28.65) and the sawtooth oak and boxelder (both \$28.49). However, once again, the prevalence of littleleaf linden makes that species important to the overall interception benefit of the street trees to the neighborhood (See Table 8).

Table 8: Annual Stormwater Benefits by Species—for the full table see Appendix D

**Baltimore**

**Annual Stormwater Benefits of Public Trees**

9/12/2014

| Species            | Total rainfall interception (Gal) | Total (\$) | Standard Error | % of Total Trees | % of Total \$ | Avg. \$/tree |
|--------------------|-----------------------------------|------------|----------------|------------------|---------------|--------------|
| Littleleaf linden  | 397,243                           | 3,933      | (N/A)          | 18.0             | 27.9          | 20.27        |
| Callery pear       | 296,559                           | 2,936      | (N/A)          | 17.7             | 20.8          | 15.45        |
| Red maple          | 196,909                           | 1,949      | (N/A)          | 16.7             | 13.8          | 10.89        |
| Norway maple       | 74,844                            | 741        | (N/A)          | 5.6              | 5.3           | 12.35        |
| Japanese zelkova   | 41,331                            | 409        | (N/A)          | 4.0              | 2.9           | 9.52         |
| London planetree   | 118,632                           | 1,174      | (N/A)          | 3.8              | 8.3           | 28.65        |
| American elm       | 91,728                            | 908        | (N/A)          | 3.7              | 6.4           | 22.70        |
| Pin oak            | 2,233                             | 22         | (N/A)          | 2.5              | 0.2           | 0.82         |
| Chinese elm        | 25,431                            | 252        | (N/A)          | 2.4              | 1.8           | 9.68         |
| Kwanzan cherry     | 12,593                            | 125        | (N/A)          | 1.9              | 0.9           | 6.23         |
| Ginkgo             | 23,778                            | 235        | (N/A)          | 1.8              | 1.7           | 12.39        |
| Willow oak         | 991                               | 10         | (N/A)          | 1.7              | 0.1           | 0.55         |
| Eastern redbud     | 2,919                             | 29         | (N/A)          | 1.4              | 0.2           | 1.93         |
| Black tupelo       | 6,755                             | 67         | (N/A)          | 1.3              | 0.5           | 4.78         |
| Silver Linden      | 18,246                            | 181        | (N/A)          | 1.3              | 1.3           | 12.90        |
| Service berry      | 1,263                             | 13         | (N/A)          | 1.1              | 0.1           | 1.04         |
| Sweetgum           | 3,373                             | 33         | (N/A)          | 1.0              | 0.2           | 3.04         |
| White ash          | 15,665                            | 155        | (N/A)          | 1.0              | 1.1           | 14.10        |
| Freeman maple      | 4,264                             | 42         | (N/A)          | 0.9              | 0.3           | 4.22         |
| Honeylocust        | 8,076                             | 80         | (N/A)          | 0.8              | 0.6           | 8.88         |
| English oak        | 9,606                             | 95         | (N/A)          | 0.8              | 0.7           | 10.57        |
| Tulip tree         | 441                               | 4          | (N/A)          | 0.7              | 0.0           | 0.55         |
| Common crapemyrtle | 528                               | 5          | (N/A)          | 0.7              | 0.0           | 0.75         |

Recently, in determinations of value for natural resources or living organisms, the trend has been away from assigning a dollar value and using equivalencies. For example, if equivalencies were used in the 2010 Deepwater Horizon oil spill in the Gulf of Mexico, any one Heron lost is worth one Heron. In this way, the environment in the Gulf cannot be shortchanged. (If \$200 is not enough to settle a Heron in the Gulf and assure its survival, the responsible party is on the monetary hook until a Heron is established in the Gulf.)

However, while morally and, in certain instances, fiscally sound, such a method of equivalencies does not help a municipality quantify the value its trees provide to the community for budgetary or funding purposes. Many of the benefits of trees are considered intangible; they provide a pleasant atmosphere which in turn increases shop visits, or property values, or park beauty, or improve mental health, etc. *I-Tree Streets* estimates the value of these intangible benefits by using research which compares differences in housing prices and the contribution associated with trees. Varieties of factors are taken into consideration, such as stature of the tree and land use.

Maturity of the tree also impacts the value; an older tree being worth more than a younger. As this report captures only one moment in time, it is important to recognize that some trees will continue to increase in their value, while others are at their peak and will likely continue to provide maximum aesthetic value for many years if properly maintained.

The estimated total annual benefit associated with property value increases and other less tangible benefits is \$29,043.00 or an average of \$27.02 per tree. Boxelder and sawtooth oak tied for species providing the highest average per tree value (\$51.76) while the American holly and euonymous tied for lowest average per tree value (\$.79). It is important to note that a species may rank high due to their size and condition rates, but any individual tree may not be desirable for other reasons. Baltimore City provides a list of trees not to plant and this list should be referred to prior to making planting decisions (See Appendix D).

The littleleaf linden population provides the most value (see Table 9), followed by the red maple and Callery pear. Again, note the correlation between total population and/or population maturity and the benefit value. As the red maple and other species with overall young populations mature their aesthetic and other benefit value will continue grow, assuming the trees are well-maintained.

Table 9: Annual Aesthetic/Other Benefits

**Baltimore**

**Annual Aesthetic/Other Benefits of Public Trees**

9/12/2014

| Species             | Total (\$) | Standard Error | % of Total Trees | % of Total \$ | Avg. \$/tree |
|---------------------|------------|----------------|------------------|---------------|--------------|
| Littleleaf linden   | 7,593      | (N/A)          | 18.0             | 26.1          | 39.14        |
| Callery pear        | 4,437      | (N/A)          | 17.7             | 15.3          | 23.35        |
| Red maple           | 5,227      | (N/A)          | 16.7             | 18.0          | 29.20        |
| Norway maple        | 2,194      | (N/A)          | 5.6              | 7.6           | 36.56        |
| Japanese zelkova    | 1,200      | (N/A)          | 4.0              | 4.1           | 27.91        |
| London planetree    | 2,350      | (N/A)          | 3.8              | 8.1           | 57.33        |
| American elm        | 1,478      | (N/A)          | 3.7              | 5.1           | 36.95        |
| Pin oak             | 108        | (N/A)          | 2.5              | 0.4           | 4.00         |
| Chinese elm         | 627        | (N/A)          | 2.4              | 2.2           | 24.13        |
| Kwanzan cherry      | 150        | (N/A)          | 1.9              | 0.5           | 7.48         |
| Ginkgo              | 491        | (N/A)          | 1.8              | 1.7           | 25.84        |
| Willow oak          | 37         | (N/A)          | 1.7              | 0.1           | 2.07         |
| Eastern redbud      | 51         | (N/A)          | 1.4              | 0.2           | 3.40         |
| Black tupelo        | 189        | (N/A)          | 1.3              | 0.7           | 13.51        |
| Silver Linden       | 413        | (N/A)          | 1.3              | 1.4           | 29.46        |
| Service berry       | 31         | (N/A)          | 1.1              | 0.1           | 2.62         |
| Sweetgum            | 131        | (N/A)          | 1.0              | 0.5           | 11.93        |
| White ash           | 388        | (N/A)          | 1.0              | 1.3           | 35.30        |
| Freeman maple       | 182        | (N/A)          | 0.9              | 0.6           | 18.16        |
| Honeylocust         | 172        | (N/A)          | 0.8              | 0.6           | 19.15        |
| English oak         | 116        | (N/A)          | 0.8              | 0.4           | 12.91        |
| Tulip tree          | 17         | (N/A)          | 0.7              | 0.1           | 2.07         |
| Common crapemyrtle  | 8          | (N/A)          | 0.7              | 0.0           | 1.14         |
| Euonymus            | 6          | (N/A)          | 0.7              | 0.0           | 0.79         |
| Horsechestnut       | 247        | (N/A)          | 0.7              | 0.9           | 35.34        |
| Chestnut Oak        | 12         | (N/A)          | 0.6              | 0.0           | 2.07         |
| Swamp white oak     | 12         | (N/A)          | 0.6              | 0.0           | 2.07         |
| American sycamore   | 92         | (N/A)          | 0.5              | 0.3           | 18.31        |
| Yellowwood          | 24         | (N/A)          | 0.4              | 0.1           | 6.01         |
| Apple               | 46         | (N/A)          | 0.4              | 0.2           | 11.52        |
| Northern red oak    | 38         | (N/A)          | 0.4              | 0.1           | 9.47         |
| Green ash           | 126        | (N/A)          | 0.4              | 0.4           | 31.44        |
| Goldenrain tree     | 23         | (N/A)          | 0.4              | 0.1           | 5.65         |
| Black locust        | 120        | (N/A)          | 0.3              | 0.4           | 40.10        |
| Hawthorn            | 23         | (N/A)          | 0.3              | 0.1           | 7.70         |
| Red mulberry        | 19         | (N/A)          | 0.3              | 0.1           | 6.41         |
| Slippery elm        | 75         | (N/A)          | 0.3              | 0.3           | 24.85        |
| American holly      | 2          | (N/A)          | 0.3              | 0.0           | 0.79         |
| Sawtooth oak        | 104        | (N/A)          | 0.2              | 0.4           | 51.76        |
| Washington hawthorn | 15         | (N/A)          | 0.2              | 0.1           | 7.70         |
| Paperbark maple     | 15         | (N/A)          | 0.2              | 0.1           | 7.70         |
| River birch         | 36         | (N/A)          | 0.2              | 0.1           | 18.12        |
| Eastern cottonwood  | 167        | (N/A)          | 0.2              | 0.6           | 83.25        |
| Silver maple        | 87         | (N/A)          | 0.2              | 0.3           | 43.72        |
| Kentucky coffeetree | 4          | (N/A)          | 0.2              | 0.0           | 2.07         |
| Fringe tree         | 15         | (N/A)          | 0.2              | 0.1           | 7.70         |
| Rose-of-sharon      | 3          | (N/A)          | 0.1              | 0.0           | 2.62         |
| Forsythia           | 3          | (N/A)          | 0.1              | 0.0           | 2.62         |

## Section 5: Net Benefits and Benefit-Cost Ratio (BCR)

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What is the worth of Old Goucher's street trees? Replacement Value, discussed earlier, is one way of getting at the street tree resource's worth. Annual benefits are another way of understanding what value a community derives from the street tree resource. The two methods must be distinguished from one another. The Annual Benefits act like interest on an investment. Every year, the investment provides dividends. When taken together, the total annual benefits derived from Old Goucher's street tree resource equal \$53,191.00. Per tree, the value is \$49.48. Each person in Old Goucher derives \$16.89 of value each year from the trees. These are the gross values and do not represent costs associated with the annual care of the neighborhood's trees.

As presented in Section 3, the estimated 2014 expenditure associated with Old Goucher's street trees is \$8,034. When accounting for the expenditure, the annual net benefits are \$45,157. Per tree, annual net benefit is \$42.01 and each person in the neighborhood benefits to the amount of \$14.34. The benefit-cost ratio is \$6.62.

Looking forward, both the neighborhood and the city may wish to benefit from such a surefire investment. So long as the street tree resource is properly increased and managed, the potential for greater returns exists.

## Section 6: Potential Tree Planting Locations

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According to the theoretical exercise of increasing tree canopy in the Stocking Level and Canopy Coverage discussion of Section 2, 446 potential opportunities for planting trees exist. The actual number of opportunities may be less, depending on final approval of a given location.

While out in the field, the inventory team identified 152 existing empty tree pits, 271 potential locations for tree pits and 45 trees that should be removed, for a total of 468 planting opportunities. Parties responsible for tree planting will have to review each location to assure suitability for tree planting.

Old Goucher has 152 existing tree pits that are not planted. There are 77 that are completely empty and ready for planting. These empty tree pits should be given first consideration for planting this fall. By planting the 77 tree pits without stumps, the tree population increases by 7.2% to 1152 trees. Of the rest of the existing tree pits, a total of 75 have stumps left after the incomplete removal of a tree. More specifically, 53 have stumps over 5 inches in diameter and 22 have stumps under 5 inches in diameter. While it will ultimately be an important goal to remove these stumps and replant these 75 tree pits, the cost of grinding or digging the stump from these pits must be taken into consideration.

Throughout the neighborhood there are 45 trees recommended for removal. These include 33 identified as in either “dead or dying” or “poor” condition as well as several volunteer weed trees and other trees unsuitable for street planting. By addressing trees that are recommended for removal the neighborhood will be improving the overall condition and therefore function of the urban forest.

Once all existing tree pits have been cleared and planted, Old Goucher should consult the map (Appendix E) that accompanies this report for the potential location of new tree pits as identified in the field. The inventory team identified 271 potential tree pit locations. In preparing to cut new tree pits, consult with the Forestry Division in advance. Choosing a pattern that is consistent with the existing planted trees will be important. On most streets with street trees, the tree pits tend to sit in front of each rowhome, or every other rowhome. The pattern varies slightly depending on stair access, water lines, and overhead utilities. All of these things must be considered when planning to cut tree pits. Of course, submittal of the proposal to assure that no utilities will interfere is mandatory.

As of this writing, BTT already has a plan for new tree plantings in place related to some blocks in Old Goucher. Empty tree pits in the HCPI Spruce Up Grant Zone, an area of 6 blocks located in the heart of Old Goucher, will be the focus.

## Section 7: Management Implications

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The street tree resource of Old Goucher has the potential to show great improvement given proper care and long term planning. This section discusses the types of management activities warranted by the current state of the canopy. The recommendations of this report prioritize two activities for enhancing the tree canopy: continued planting of new trees and increasing maintenance of existing trees.

Moving forward, scheduled plantings that properly balance the establishing and mature trees are necessary. Without this important maintenance component, valuable trees who die may leave a gap in the relative age distribution of the canopy and it will be many years before enough trees have become mature enough to take their place. Additionally, maturing trees that have been more recently planted must receive appropriate maintenance to ensure they will reach maturity in the best possible shape. The Maryland Department of Natural Resources also recommends the immediate removal of all *Ailanthus altissima*, or Tree-of-Heaven, which were observed in private properties throughout the Old Goucher neighborhood. Perhaps a public awareness campaign is in order.

### **Resource structure challenges and management**

- 🌳 **Stocking Level:** This assessment reveals that the neighborhood has fewer trees per capita than national averages. Adequate planting is needed to correct this situation to the extent possible, by planting in the identified potential planting locations.
- 🌳 **Canopy Cover:** The neighborhood should support the city as it follows through on its goal to increase canopy coverage, set with regard to watershed goals. Actions to reach this goal should include a tree planting program; creating an active maintenance program to ensure maximum tree health; and on-going monitoring of the tree canopy. All these things contribute to sustainability of the street trees resource. Large stature trees provide the largest canopy and greatest benefits and should therefore be a greater focus of planting efforts than it has been up to the present. Specific species to be considered for planting are discussed below.
- 🌳 **Species Distribution:** Old Goucher would benefit from increasing the number of tree species. However, it is important to place the neighborhood in the broader context of the city; a similar inventory conducted on the whole of the city would surely reveal greater species diversity and could possible increase the per capita number of trees. That said, for the residents living in Old Goucher, the street trees in their neighborhood are those experienced on a daily basis and from which resident derive immediate benefits. As planting takes place and the street tree population grows, careful planning is required to ensure that greater species diversity achieved. Planting underutilized species that are performing well could be an effective strategy at the current stage. In addition, experimenting with new trees to plant could also provide insight into what trees are best suited to the conditions in Old Goucher.
- 🌳 **Relative Age Distribution:** Old Goucher should seek to plant a diversity of young trees according to time table that allows for the appropriate replacement of mature trees as they die off. As the forest stands now, a significant loss of Callery pear, littleleaf linden, or red maple trees could be devastating to the neighborhood's street tree assets. Mature trees that reach 30-40 feet in height are needed to support the role that the Callery pear and littleleaf linden now play. As these trees age, new trees must be ready to take their place, otherwise there will be an interruption in benefits while new trees mature. Achieving an uneven age distribution (more young trees to account for mortality when establishing) should be discussed with an arborist, forester, or other forestry management professional. A suitable goal might be

to have roughly four young trees for every one mature tree of any species, but the actual number depends on the goal.<sup>10</sup>

### **Maintenance Activities:**

- ✿ **Removal of dead and invasive trees:** Ideally, there would be no dead street trees and the entire population would consist of native/or non-invasive trees. Any trees that pose a hazard to property, utility wires, other healthy trees, etc. should be removed or pruned accordingly. In addition, invasive trees should be removed because of their detrimental effect on other desirable species. As the neighborhood is primarily impervious surface these trees may not pose as significant threat as they pose in other environments. A specialist should be consulted. The Maryland Department of Natural Resources can provide more information about treatment of invasive species.
- ✿ **Emerald Ash Borer:** An invasive insect of special concern is the Emerald Ash Borer Beetle whose larval form feeds upon the tree. The insect can spread quickly through an area. While 15 ash trees may not feel like a large number to lose, some of those trees are among the more mature class of trees for the neighborhood. The neighborhood can help the City identify when the trees become infected and understand that the trees may be taken down prior to infestation as a precaution.
- ✿ **Maintenance - pruning:** A proper pruning program will help to ensure that individual trees reach their fullest potential to provide benefits through maintaining good structure and form and to prevent unmanaged trees from become a problem to homes, utility wires, other trees, etc. A regular pruning program may require more frequent pruning, particularly for young trees, but will reduce the amount of overall costs associated with tree maintenance. Individual species and site conditions will vary for each tree.
- ✿ **New tree establishment:** Care is needed to ensure the survival of newly planted trees. Measures such as watering, pruning, mulching, and trunk protection help young trees to survive the critical years after planting. Dedicating funds to maintenance beyond planting is an important aspect of maintaining the tree resource.
- ✿ **Additional maintenance concerns:** Old Goucher's trees are predominately found in tree pits along the sidewalks. Fortunately, relatively few of them have significant adjacent sidewalk heaving due to tree root growth. Some tree pits show clear signs of having been repaired from past impacts due to trees, so it seems that the neighborhood and the city can continue to coordinate on this front. In the future, as the city and neighborhood make infrastructure repairs the opportunities to accommodate trees in systematic storm water management infrastructure should be considered and encouraged. Many options now exist due to innovations in green infrastructure.

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<sup>10</sup> Thompson, et al., 31

## Section 8: Issues Specific to Old Goucher

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Every neighborhood has different needs pertaining to its Street Tree Resource. Here, the report outlines some of the issues observed relating to the Old Goucher neighborhood Street Tree Resource. The issues observed tend to fall into one of two categories: maintenance and design.

### Maintenance

Maintenance issues include the expected concerns about weeds and trash in tree pits, sidewalk heaving, and dangerous limbs. Further issues specific to the neighborhood are:

- ❗ Poison ivy in tree pits: Poison ivy was found in a number of tree pits and a couple of other locations. The dangers of poison ivy are well known—contact with poison ivy can result in a variety of skin reactions. For some people, the reaction can be serious and require hospitalization. More importantly, if poison ivy is allowed to grow in tree pits and other locations in the neighborhood it can spread. Also, residents may begin to feel negatively toward trees and tree pits, if they perceive them as harboring poison ivy.
- ❗ Rats and other pests burrowing among the roots in tree pits: Because rats and other rodents often engage in burrowing behavior, tree pits or other exposed soil can be attractive to such pests. Aside from the potential physical dangers of having such pests live in the neighborhood, residents may begin to perceive tree and tree pits negatively.



**Figure 10: Tree pits are often considered dumping grounds for trash of all types including cigarette butts, pet waste, and construction debris.**

- ❗ Construction and other debris dumped in tree pits: Several instances of dumping of a variety of construction materials, from gravel and unused cement to plaster, wood, and unidentifiable materials were observed. These materials can not only harm the trees by changing the soil pH, but such dumping is unattractive and creates the appearance of neglect. If neighbors perceive tree pits as potential dumping grounds, they may feel less positive toward trees.

🌳 Tree volunteers/seedlings and suckers: Tree pits are often the only place in an urban environment where seedlings might find a foothold. While it is encouraging that street trees are producing viable seeds, seedlings can result in a combination of issues for trees and tree pits. Seedlings can grow quickly and in a more bush like form which can impact sidewalk widths. They take water and nutrients from the primary tree. Tree suckers can indicate that the parent tree is stressed, aging or needs care. Seedlings/tree volunteers and suckers often look messy, creating the appearance of neglect.

Options for addressing these maintenance issues are limited only by the will and interest of the residents. As a starting point, newly minted TreeKeepers could be an important resource for identifying and responding to trees and tree pits in need of weeding or other maintenance. Perhaps community meetings focused on educating residents about identification and safe eradication technique for poison ivy, rats and other pests could be offered. Block captains and/or other community leaders could be an important point of contact for compiling and addressing maintenance concerns. Churches and other institutions could serve as potential sources for maintenance help on neighborhood work days, etc. Already street cleaners work to keep the neighborhood streets and sidewalks clean through street sweeping and trash removal. Perhaps use and/or extension of Charles Village Benefit District street cleaners could result in increased tree pit maintenance and removal of trash/debris. Most important is the recognition that maintenance is an on-going task for which the community can embrace and provide support.

## Design

Design is not always considered part of the urban street tree experience. However, design or the lack thereof, impacts all parts of the urban landscape and street trees play an important role in the urban landscape. Design issues related to street trees responds to a variety of concerns, such as safety, traffic and pedestrian flow, a sense of place or identity, and aesthetic issues. ‘Right tree, right place’ is a phrase that is especially important in urban areas. Certain design choices pertaining to trees are already in place and impact Old Goucher. These include:

- 🌳 Using the same species of tree along certain blocks or corridors
- 🌳 Existing tree pit location and size
- 🌳 Existing tree pit grates and or tree wraps
- 🌳 Trees that impact utility wires, street lamps, or visibility of street signs

Based on in-field observations, the authors of this report recommend that the neighborhood take the following into consideration:

While using the same species of tree along a corridor can result in a lovely sight and sense of cohesiveness, this practice can result in a monoculture. This lack of diversity in the urban forest can have impacts on the long-term health and potential benefits provided by street trees. A planting approach that can result in a similar design experience is to utilize two to four species with similar structure and growing habits along a block. By having a different planting palette for each block, the neighborhood is ensuring diversity and aiming to avoid the large infestations or species die-off that can result from monocultures.



**Figure 11: Tree pits should be placed so that there is clear access for pedestrians especially near building entrances. There is barely enough room for a single person here, let alone a wheelchair.**

Tree pit size and location may seem insignificant. However, larger tree pits result in more pervious surface around a tree which allows for greater infiltration of rain and stormwater run-off, thus making more water available to the trees and keeping more water out of the storm drains. Baltimore City is now encouraging larger tree pit sizes and groups in Old Goucher have enlarged some existing tree pits and created several new larger tree pits. These are steps in the right direction. However, in-field observations noted some problems. Some tree pits are placed such that sidewalks become so narrow that pedestrian flow is impeded and universal access is impossible. Others have been newly cut or enlarged in an unprofessional manner resulting in broken pieces of sidewalk or rough edges around the tree pit.

While each property may have constraints such as driveways, signage, parking meters, and entryways that can impact the size and placement of tree pits, it is recommended that tree pits along any given block be of the same width. Length can vary if needed. This consistent design of tree pits assures that pedestrians will be able to walk down a sidewalk without having to look at every tree pit to see if it interrupts their path. Consistent tree pit widths result in a sense that the streetscape is not haphazard, but planned and ant for pedestrian use. A consistency of tree pit widths along a block will increase a feeling of cohesiveness and add to a sense of place.



**Figure 12: This recently expanded tree pit is unattractive and hazardous.**

Tree grates and tree wraps (or metal fencing) were originally intended to protect trees and promote pedestrian safety by aligning grates with the surrounding sidewalk. Unfortunately, many of the grates and tree wraps are

damaged or broken resulting in a look of neglect. For both tree health and neighborhood aesthetics, it is recommended that remnants of old tree grates and iron protective wraps be removed.

## Standards and Construction Details

In planning new tree pit locations and tree plantings following design and construction standards (Appendix F) can help create a cohesive streetscape. These standards include:

- 🌳 Maintain City standard of minimum of 4' clearance for pedestrian passage
- 🌳 Trees should be planted within the curb zone (4' wide area closest to the curb)
- 🌳 Visibility of traffic signals and signs maintained
- 🌳 Keep trees clear of overhead wires
- 🌳 No trees planted in bus stop zones

Standards and construction details also can be found at

<http://apps.baltimorecity.gov/transportation/bookofstandards/Default.aspx>

For an example of how a neighborhood utilizes streetscape design standards, see the streetscape design standards have been created by the Downtown Partnership of Baltimore at

<http://www.godowntownbaltimore.com/docs/StreetscapeGuidlelines.pdf>.

These standards could easily be adapted to the Old Goucher Neighborhood.

Finally, the Howard Street Corridor deserves particular attention due to the number of failed tree plantings. These failures could be due to a variety of factors including:

- 🌳 Lack of watering during establishment
- 🌳 General lack of care and maintenance
- 🌳 Vandalism
- 🌳 Increased CO<sub>2</sub> levels due to the high volume of traffic along the corridor
- 🌳 Damage from passing trucks and other vehicles

The impacts of tree proximity to significant traffic should not be underestimated. While trees planted along the curb can create a feeling of separation between pedestrians and vehicles and slow traffic speeds, in this case, the trees are not surviving long enough to fully experience these benefits. It may be that using alternative locations on private property for tree plantings along the Howard Street Corridor would result in healthier and longer lived trees. Areas on private property along the Howard Street Corridor where plantings could occur can be found on the map in Appendix E.

## Section 9: Conclusion and Recommendations

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Old Goucher's 1075 street trees are a valuable resource. To replace them would require \$2,213,789.00 or an average of \$2,059.34 per tree. This resource also provides \$45,157.00 in benefits annually (\$49.48 per tree) from stormwater run-off reduction to decreased energy costs. Quantifying the benefits of Old Goucher's street tree resource is important as this data reveals how valuable the street trees are to the neighborhood and the City of Baltimore; how much more valuable they can be; and how important it is to manage the resource appropriately. Working with its partners and the city, the Old Goucher neighborhood will be able to use the data in this report to consider next steps on both a policy and practical front for addressing the management of the resource.

### **Recommendations:**

- 🌳 Create a cyclical pruning program to improve the health of existing trees and extend their lifetime (the Urban Forestry Division is in the process of doing this citywide).
- 🌳 Implement a planting program to increase the numbers of street trees, to increase the neighborhood's total canopy cover, to increase large stature trees and to achieve an appropriate age distribution for desirable species.
- 🌳 Identify sites suitable for large stature, broadleaf deciduous trees and plant as many as possible.
- 🌳 Identify sites suitable only for medium or small trees, such as spaces under utility wires, sites in close proximity to buildings, or in areas where they can thrive as understory species to large shade trees.
- 🌳 Create goal for appropriate age distribution—such as 4 young to 1 mature—by working with the Forestry Division.
- 🌳 Develop suggested species to be involved in a planting program. It is difficult to definitively say which trees are the best performers in Old Goucher because the sample size is small. However, based on which trees appear to be performing well, and those known to perform well in similar environments, a list of potential options is presented in Appendix B. This list should not be used on its own, and it is recommended that the neighborhood consult with a certified arborist/horticulturist regarding species and siting before purchasing any new trees to plant.
- 🌳 Assure funding or volunteer staffing of establishment programs to increase survival chances for newly planted trees.
- 🌳 Maintain the database of the existing trees – update new plantings and removals in this database in excel/access and periodically re-analyze the data. Use the GIS map/database. Add maintenance costs, track success or failure of new species.
- 🌳 Continue citizen education programs to encourage participation in the ongoing development and care of Old Goucher's street tree resource.

# Appendix A: In field Data Collection Survey Form

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|                                      |                                      |                                      |                        |
|--------------------------------------|--------------------------------------|--------------------------------------|------------------------|
| <u>Date</u>                          |                                      | <u>GPS Location</u>                  |                        |
| <u>Surveyor</u>                      | <u>Species</u>                       |                                      |                        |
| <u>ID</u> ( <i>i-Tree</i> generated) | <u>DBH</u> (Diameter at Base Height) | (Gather with phone GPS capabilities) |                        |
| <u>Zone</u>                          | <u>Site Type</u>                     | <u>Note/Comment:</u>                 | <u>Canopy Diameter</u> |
| HCPI Spruce Up Grant                 | Front yard                           |                                      | 1-5'                   |
| OG Minus HCPI                        | Planting strip                       | <u>Priority Task</u>                 | 5-10'                  |
|                                      | Cutout                               | None                                 | 10-15'                 |
| <u>Street Name</u>                   | Median                               | Stake/train                          | 15-20'                 |
|                                      | Other maintained locations           | Crown cleaning                       | 20-25'                 |
| <u>Street Number</u>                 | Other un-maintained locations        | Crown raising                        | 25-30'                 |
|                                      | Backyard                             | Crown reduction/thinning             | 30-35'                 |
| <u>Location Number</u>               | Sidewalk tree pit                    | Remove                               | 35-40'                 |
| (Tree order follows traffic flow)    |                                      | Treat pest/disease                   | 40-45'                 |
|                                      |                                      |                                      | 45-50'                 |
| <u>City Managed</u>                  | <u>Wood Condition</u>                | <u>Sidewalk Damage</u>               | <u>Tree Height</u>     |
| Yes/No                               | Dead or Dying                        | 0-3/4 inches                         | 5-10'                  |
|                                      | Poor                                 | 3/4-1 1/2 inches                     | 10-15'                 |
| <u>Location Site</u>                 | Fair                                 | >1 1/2 inches                        | 15-20'                 |
| Front                                | Good                                 |                                      | 20-30'                 |
| Side-right                           | <u>Leaves Condition</u>              | <u>Wire Conflict</u>                 | 30-40'                 |
| Side-left                            | Dead or Dying                        | No lines                             | 40-50'                 |
| Side-left                            | Poor                                 | Present and no potential conflict    | 50-60'                 |
| Rear                                 | Fair                                 | Present and conflicting              |                        |
|                                      | Good                                 | Street lights                        |                        |
| <u>Land Use</u>                      | <u>Maintenance Recommendation</u>    | <u>Existing Tree Pit Size</u>        |                        |
| Single family residential            | Small tree (routine)                 | 4'x4'                                |                        |
| Multi-family residential             | Small tree (immediate)               | 4'x6'                                |                        |
| Small commercial                     | Large tree (routine)                 | 4'x8'                                |                        |
| Industrial/Large commercial          | Large tree (immediate)               | Other                                |                        |
| Park/Vacant/Other                    | Critical concern (public safety)     |                                      |                        |
| Parking lot                          |                                      |                                      |                        |

## Appendix B: Basic Tree Recommendations Based on Existing Trees

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The following tree recommendations are suggested for consideration in Old Goucher for future planting programs. These suggestions are based on the results of the *i-Tree Streets* analysis conducted for this report in August of 2014 and reflect results found in both the structural resource assessment and the cost-benefit assessment of the neighborhood's street tree resource. Recommendation of the trees in this document should be used only as a starting point for considering appropriate tree species and consultation with a certified arborist or other professional is highly recommended to ensure species suitability for site conditions, current disease outbreaks, utility conflicts, etc. The list does not recommend any trees currently not on Baltimore City's Approved Tree List.

Large stature trees: These trees are suitable for locations with no potential conflicts with utility wires or other large trees. The first 8 trees are already part of the Old Goucher tree population. The remainder lists trees that may prove to be good additions and are worth considering on a trial basis.

- **Willow oak** (*Quercus palustris*)—This and other oaks on the City's approved tree list (see the following) are worth experimenting with in Old Goucher. Many oaks have proven to be good performers in similar urban area.
- **Swamp white oak** (*Quercus bicolor*)
- **Scarlet oak** (*Quercus coccinea*)
- **Bur oak** (*Quercus macrocarpa*)
- **Shingle oak** (*Quercus imbricaria*)
- **Black tupelo** (*Nyssa sylvatica*)
- **Sweetgum 'Rotundiloba'** (*Liquidambar styraciflua* 'Rotundiloba')
- **DED resistant American elm** (*Ulmus americana* 'Valley Forge' or 'New Harmony') -- Some young American elms in the neighborhood seem to be doing well. More time is needed to see how they perform over their lifecycle, however.
- **Littleleaf linden 'Greenspire'** (*Tilia cordata* 'Greenspire') – This species plays an important role in Old Goucher. Young trees are needed to create an appropriate age distribution.
- **Redmund linden** (*Tilia americana* 'Redmund') – There are none of these currently in the neighborhood, but it may perform similarly to the smaller-leaved *Tilia cordata*.
- **London plane 'Bloodgood'** (*Plantanus x acerfolia*) – The few London plane in the neighborhood are generally performing well.
- **Ginkgo** (*Ginkgo biloba* 'Autumn Gold' or 'Sentry') – This tree is new to the neighborhood. The young population's performance should be observed. Ginkgoes have been known to perform well in similar urban circumstances.
- **Honeylocust 'Shademaster'** (*Gleditsia triacanthos* 'Shademaster') -- While not all existing honeylocust may be the same variety, overall the trees perform well.
- **River birch 'Heritage'** (*Betula nigra*)—Can perform well in urban areas. Worth experimenting with where a smaller stature tree is needed.
- **Japanese zelkova** (*Zelkova serrata*) – This tree has become a popular substitution for elm trees which continue to suffer from Dutch elm disease throughout the country. They resemble elms and also grow large and withstand the stresses of urban environments fairly well. Zelkovas are good performers in Old Goucher and are underutilized.

Large stature trees to be considered for select planting locations, such as larger properties or vacant lots.

- **American yellowwood** (*Cladratis lutea*)
- **Kentucky coffeetree** (*Gymnocladus dioicus*)
- **American basswood** (*Tilia americana*)

Medium and small trees: These trees may be suitable for planting in areas where there is not enough room for a large tree, such as in closer proximity to utility wires or between other trees. The first four are trees that exist in Old Goucher.

- **Serviceberry** (*Amelanchier sp.*) -- Several young trees have already been planted. It will be important to track their progress.
- **White fringetree** (*Chionanthus virginicus*)—Will support full sun. Worth experimenting with.
- **Flowering dogwood** (*Cornus florida*) –Full sun to partial shade. Has character in all four seasons. Excellent as specimen tree or used on the corner of a house or in a woodland group setting.
- **Eastern redbud** (*Cercis canadensis*) – Generally these perform best as understory trees.
- **Paperbark maple** (*Acer grisium*)—This tree has performed well in other urban locations.
- **Saucer magnolia** (*Magnolia x soulangiana*)
- **Red buckeye** (*Aesculus pavia*)
- **Okame flowering cherry** (*Prunus x incamp 'Okame'*)
- **Yoshino cherry** (*Prunus x yeodensis*)

# Appendix C: i-Tree Streets Reports (Resource Structure and Function)

Baltimore

Page 1 of 2

## Complete Population of Public Trees

9/12/2014

| Species                                 | DBH Class (in) |           |            |            |           |          |          |          |          | Total Standard Error |
|---|----------------|-----------|------------|------------|-----------|----------|----------|----------|----------|----------------------|
|   | 0-3            | 3-6       | 6-12       | 12-18      | 18-24     | 24-30    | 30-36    | 36-42    | > 42     |                      |
| <b>Broadleaf Deciduous Large (BDL)</b>  |                |           |            |            |           |          |          |          |          |                      |
| Norway maple                            | 3              | 15        | 29         | 12         | 1         | 0        | 0        | 0        | 0        | 60 (±0)              |
| Japanese zelkova                        | 11             | 12        | 11         | 9          | 0         | 0        | 0        | 0        | 0        | 43 (±0)              |
| London planetree                        | 1              | 4         | 8          | 18         | 10        | 0        | 0        | 0        | 0        | 41 (±0)              |
| American elm                            | 14             | 4         | 11         | 2          | 4         | 4        | 1        | 0        | 0        | 40 (±0)              |
| Pin oak                                 | 23             | 4         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 27 (±0)              |
| Willow oak                              | 18             | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 18 (±0)              |
| Sweetgum                                | 8              | 2         | 0          | 1          | 0         | 0        | 0        | 0        | 0        | 11 (±0)              |
| White ash                               | 1              | 4         | 3          | 2          | 1         | 0        | 0        | 0        | 0        | 11 (±0)              |
| Freeman maple                           | 3              | 4         | 3          | 0          | 0         | 0        | 0        | 0        | 0        | 10 (±0)              |
| English oak                             | 8              | 0         | 0          | 0          | 0         | 1        | 0        | 0        | 0        | 9 (±0)               |
| Honeylocust                             | 6              | 0         | 2          | 0          | 1         | 0        | 0        | 0        | 0        | 9 (±0)               |
| Tulip tree                              | 8              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 8 (±0)               |
| Horsechestnut                           | 0              | 2         | 4          | 1          | 0         | 0        | 0        | 0        | 0        | 7 (±0)               |
| Chestnut Oak                            | 6              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 6 (±0)               |
| Swamp white oak                         | 6              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 6 (±0)               |
| American sycamore                       | 4              | 0         | 0          | 0          | 1         | 0        | 0        | 0        | 0        | 5 (±0)               |
| Northern red oak                        | 3              | 0         | 1          | 0          | 0         | 0        | 0        | 0        | 0        | 4 (±0)               |
| Green ash                               | 2              | 0         | 1          | 0          | 1         | 0        | 0        | 0        | 0        | 4 (±0)               |
| Red mulberry                            | 2              | 1         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 3 (±0)               |
| Eastern cottonwood                      | 0              | 0         | 0          | 0          | 2         | 0        | 0        | 0        | 0        | 2 (±0)               |
| Silver maple                            | 0              | 0         | 1          | 1          | 0         | 0        | 0        | 0        | 0        | 2 (±0)               |
| Kentucky coffeetree                     | 2              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 2 (±0)               |
| Post oak                                | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Bur oak                                 | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Black oak                               | 0              | 0         | 1          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Scarlet oak                             | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| <b>Total</b>                            | <b>132</b>     | <b>52</b> | <b>75</b>  | <b>46</b>  | <b>21</b> | <b>5</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>332 (±0)</b>      |
| <b>Broadleaf Deciduous Medium (BDM)</b> |                |           |            |            |           |          |          |          |          |                      |
| Littleleaf linden                       | 5              | 26        | 74         | 75         | 13        | 1        | 0        | 0        | 0        | 194 (±0)             |
| Red maple                               | 58             | 30        | 62         | 25         | 3         | 1        | 0        | 0        | 0        | 179 (±0)             |
| Chinese elm                             | 3              | 8         | 14         | 1          | 0         | 0        | 0        | 0        | 0        | 26 (±0)              |
| Ginkgo                                  | 6              | 3         | 7          | 1          | 2         | 0        | 0        | 0        | 0        | 19 (±0)              |
| Silver Linden                           | 0              | 4         | 8          | 2          | 0         | 0        | 0        | 0        | 0        | 14 (±0)              |
| Black tupelo                            | 10             | 1         | 2          | 1          | 0         | 0        | 0        | 0        | 0        | 14 (±0)              |
| Yellowwood                              | 4              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 4 (±0)               |
| Black locust                            | 0              | 1         | 0          | 2          | 0         | 0        | 0        | 0        | 0        | 3 (±0)               |
| Slippery elm                            | 1              | 1         | 0          | 1          | 0         | 0        | 0        | 0        | 0        | 3 (±0)               |
| River birch                             | 1              | 0         | 1          | 0          | 0         | 0        | 0        | 0        | 0        | 2 (±0)               |
| Sawtooth oak                            | 0              | 0         | 0          | 2          | 0         | 0        | 0        | 0        | 0        | 2 (±0)               |
| Boxelder                                | 0              | 0         | 0          | 1          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Common persimmon                        | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Sassafras                               | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| <b>Total</b>                            | <b>90</b>      | <b>74</b> | <b>168</b> | <b>111</b> | <b>18</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>463 (±0)</b>      |
| <b>Broadleaf Deciduous Small (BDS)</b>  |                |           |            |            |           |          |          |          |          |                      |
| Callery pear                            | 5              | 21        | 79         | 48         | 26        | 10       | 1        | 0        | 0        | 190 (±0)             |
| Kwanzan cherry                          | 3              | 4         | 8          | 5          | 0         | 0        | 0        | 0        | 0        | 20 (±0)              |
| Eastern redbud                          | 13             | 1         | 0          | 1          | 0         | 0        | 0        | 0        | 0        | 15 (±0)              |
| Service berry                           | 12             | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 12 (±0)              |
| Common crapemyrtle                      | 5              | 2         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 7 (±0)               |
| Goldenrain tree                         | 1              | 1         | 2          | 0          | 0         | 0        | 0        | 0        | 0        | 4 (±0)               |
| Apple                                   | 0              | 0         | 2          | 2          | 0         | 0        | 0        | 0        | 0        | 4 (±0)               |
| Hawthorn                                | 0              | 0         | 3          | 0          | 0         | 0        | 0        | 0        | 0        | 3 (±0)               |
| Washington hawthorn                     | 0              | 0         | 2          | 0          | 0         | 0        | 0        | 0        | 0        | 2 (±0)               |
| Paperbark maple                         | 0              | 0         | 2          | 0          | 0         | 0        | 0        | 0        | 0        | 2 (±0)               |
| Fringe tree                             | 0              | 0         | 2          | 0          | 0         | 0        | 0        | 0        | 0        | 2 (±0)               |
| Rose-of-sharon                          | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Cherry plum                             | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Winged Euonymus                         | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Forsythia                               | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Dogwood                                 | 1              | 0         | 0          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |
| Amur maple                              | 0              | 0         | 1          | 0          | 0         | 0        | 0        | 0        | 0        | 1 (±0)               |

**Complete Population of Public Trees**

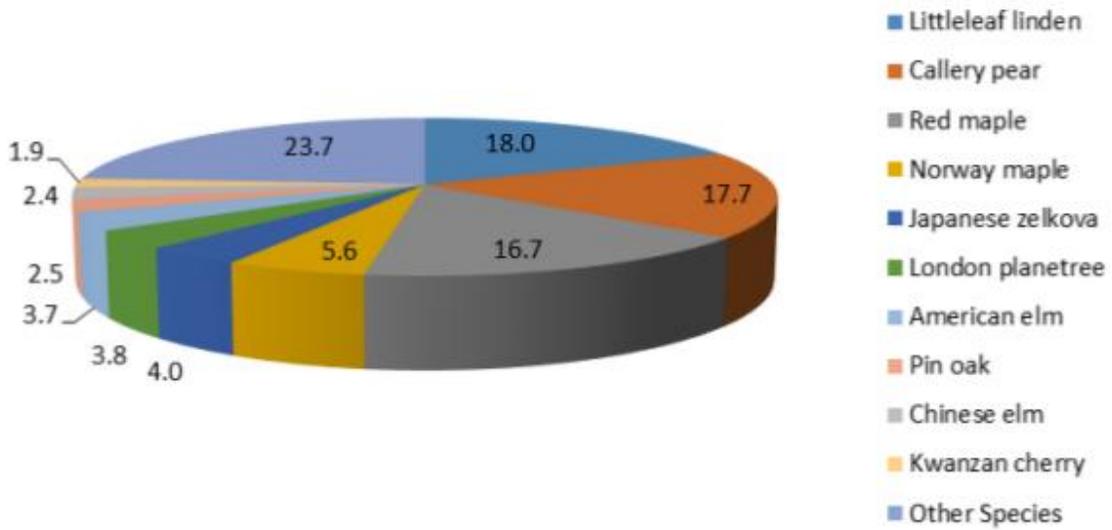
9/12/2014

| Species                                | DBH Class (in) |            |            |            |           |           |          |          |          | Total Standard Error |
|--|----------------|------------|------------|------------|-----------|-----------|----------|----------|----------|----------------------|
|  | 0-3            | 3-6        | 6-12       | 12-18      | 18-24     | 24-30     | 30-36    | 36-42    | > 42     |                      |
| Trident maple                          | 0              | 1          | 0          | 0          | 0         | 0         | 0        | 0        | 0        | 1 (±0)               |
| Higan cherry                           | 0              | 0          | 1          | 0          | 0         | 0         | 0        | 0        | 0        | 1 (±0)               |
| Flowering dogwood                      | 1              | 0          | 0          | 0          | 0         | 0         | 0        | 0        | 0        | 1 (±0)               |
| <b>Total</b>                           | <b>45</b>      | <b>30</b>  | <b>102</b> | <b>56</b>  | <b>26</b> | <b>10</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>270 (±0)</b>      |
| <b>Broadleaf Evergreen Small (BES)</b> |                |            |            |            |           |           |          |          |          |                      |
| Euonymus                               | 7              | 0          | 0          | 0          | 0         | 0         | 0        | 0        | 0        | 7 (±0)               |
| American holly                         | 2              | 1          | 0          | 0          | 0         | 0         | 0        | 0        | 0        | 3 (±0)               |
| <b>Total</b>                           | <b>9</b>       | <b>1</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>  | <b>0</b>  | <b>0</b> | <b>0</b> | <b>0</b> | <b>10 (±0)</b>       |
| <b>Grand Total</b>                     | <b>276</b>     | <b>157</b> | <b>345</b> | <b>213</b> | <b>65</b> | <b>17</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>1,075 (±0)</b>    |

**Baltimore**

**Species Distribution of Public Trees**

9/12/2014

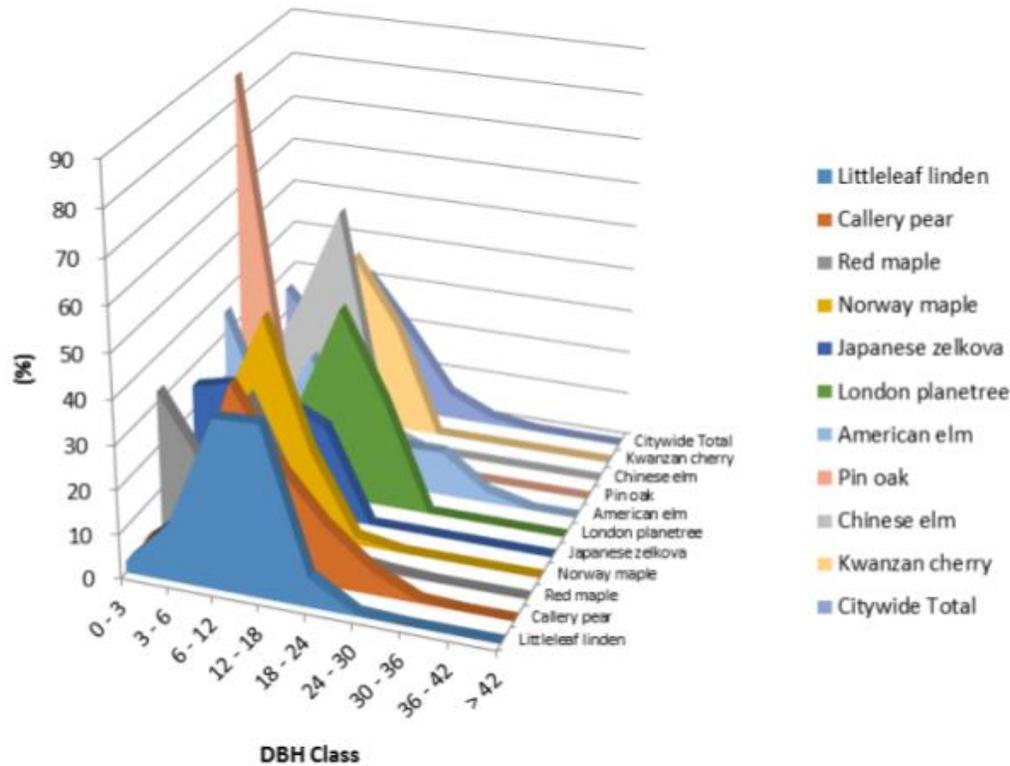


| Species           | Percent |
|-------------------|---------|
| Littleleaf linden | 18.0    |
| Callery pear      | 17.7    |
| Red maple         | 16.7    |
| Norway maple      | 5.6     |
| Japanese zelkova  | 4.0     |
| London planetree  | 3.8     |
| American elm      | 3.7     |
| Pin oak           | 2.5     |
| Chinese elm       | 2.4     |
| Kwanzan cherry    | 1.9     |
| Other Species     | 23.7    |
| Total             | 100.0   |

Baltimore

**Relative Age Distribution of Top 10 Public Tree Species for All Zones (%)**

9/12/2014



| Species           | DBH class (in) |       |       |       |       |       |       |       |      |
|-------------------|----------------|-------|-------|-------|-------|-------|-------|-------|------|
|                   | 0-3            | 3-6   | 6-12  | 12-18 | 18-24 | 24-30 | 30-36 | 36-42 | > 42 |
| Littleleaf linden | 2.58           | 13.40 | 38.14 | 38.66 | 6.70  | 0.52  | 0.00  | 0.00  | 0.00 |
| Callery pear      | 2.63           | 11.05 | 41.58 | 25.26 | 13.68 | 5.26  | 0.53  | 0.00  | 0.00 |
| Red maple         | 32.40          | 16.76 | 34.64 | 13.97 | 1.68  | 0.56  | 0.00  | 0.00  | 0.00 |
| Norway maple      | 5.00           | 25.00 | 48.33 | 20.00 | 1.67  | 0.00  | 0.00  | 0.00  | 0.00 |
| Japanese zelkova  | 25.58          | 27.91 | 25.58 | 20.93 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 |
| London planetree  | 2.44           | 9.76  | 19.51 | 43.90 | 24.39 | 0.00  | 0.00  | 0.00  | 0.00 |
| American elm      | 35.00          | 10.00 | 27.50 | 5.00  | 10.00 | 10.00 | 2.50  | 0.00  | 0.00 |
| Pin oak           | 85.19          | 14.81 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 |
| Chinese elm       | 11.54          | 30.77 | 53.85 | 3.85  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 |
| Kwanzan cherry    | 15.00          | 20.00 | 40.00 | 25.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 |
| Citywide Total    | 25.67          | 14.60 | 32.09 | 19.81 | 6.05  | 1.58  | 0.19  | 0.00  | 0.00 |

## Baltimore

### Importance Values of Public Trees

9/12/2014

| Species             | Number of Trees | % of Total Trees | Leaf Area (ft <sup>2</sup> ) | % of Total Leaf Area | Canopy Cover (ft <sup>2</sup> ) | % of Total Canopy Cover | Importance Value |
|---------------------|-----------------|------------------|------------------------------|----------------------|---------------------------------|-------------------------|------------------|
| Littleleaf linden   | 194             | 18.05            | 354,361                      | 26.53                | 139,311                         | 29.25                   | 24.61            |
| Callery pear        | 190             | 17.67            | 234,110                      | 17.53                | 113,960                         | 23.92                   | 19.71            |
| Red maple           | 179             | 16.65            | 207,086                      | 15.50                | 58,944                          | 12.37                   | 14.84            |
| Norway maple        | 60              | 5.58             | 76,468                       | 5.72                 | 22,163                          | 4.65                    | 5.32             |
| Japanese zelkova    | 43              | 4.00             | 41,916                       | 3.14                 | 12,396                          | 2.60                    | 3.25             |
| London planetree    | 41              | 3.81             | 134,264                      | 10.05                | 29,848                          | 6.27                    | 6.71             |
| American elm        | 40              | 3.72             | 109,288                      | 8.18                 | 21,481                          | 4.51                    | 5.47             |
| Pin oak             | 27              | 2.51             | 1,032                        | 0.08                 | 1,260                           | 0.26                    | 0.95             |
| Chinese elm         | 26              | 2.42             | 18,498                       | 1.38                 | 10,932                          | 2.29                    | 2.03             |
| Kwanzan cherry      | 20              | 1.86             | 7,172                        | 0.54                 | 6,392                           | 1.34                    | 1.25             |
| Ginkgo              | 19              | 1.77             | 20,811                       | 1.56                 | 8,541                           | 1.79                    | 1.71             |
| Willow oak          | 18              | 1.67             | 363                          | 0.03                 | 607                             | 0.13                    | 0.61             |
| Eastern redbud      | 15              | 1.40             | 1,235                        | 0.09                 | 1,699                           | 0.36                    | 0.61             |
| Black tupelo        | 14              | 1.30             | 5,211                        | 0.39                 | 2,761                           | 0.58                    | 0.76             |
| Silver Linden       | 14              | 1.30             | 14,166                       | 1.06                 | 7,410                           | 1.56                    | 1.31             |
| Service berry       | 12              | 1.12             | 284                          | 0.02                 | 862                             | 0.18                    | 0.44             |
| Sweetgum            | 11              | 1.02             | 3,059                        | 0.23                 | 1,168                           | 0.25                    | 0.50             |
| White ash           | 11              | 1.02             | 16,783                       | 1.26                 | 4,348                           | 0.91                    | 1.06             |
| Freeman maple       | 10              | 0.93             | 3,602                        | 0.27                 | 1,602                           | 0.34                    | 0.51             |
| Honeylocust         | 9               | 0.84             | 8,859                        | 0.66                 | 2,173                           | 0.46                    | 0.65             |
| English oak         | 9               | 0.84             | 11,743                       | 0.88                 | 2,164                           | 0.45                    | 0.72             |
| Tulip tree          | 8               | 0.74             | 161                          | 0.01                 | 270                             | 0.06                    | 0.27             |
| Common crapemyrtle  | 7               | 0.65             | 94                           | 0.01                 | 377                             | 0.08                    | 0.25             |
| Euonymus            | 7               | 0.65             | 13                           | 0.00                 | 202                             | 0.04                    | 0.23             |
| Horsechestnut       | 7               | 0.65             | 7,479                        | 0.56                 | 2,358                           | 0.50                    | 0.57             |
| Chestnut Oak        | 6               | 0.56             | 121                          | 0.01                 | 202                             | 0.04                    | 0.20             |
| Swamp white oak     | 6               | 0.56             | 121                          | 0.01                 | 202                             | 0.04                    | 0.20             |
| American sycamore   | 5               | 0.47             | 6,838                        | 0.51                 | 1,428                           | 0.30                    | 0.43             |
| Yellowwood          | 4               | 0.37             | 136                          | 0.01                 | 171                             | 0.04                    | 0.14             |
| Apple               | 4               | 0.37             | 1,569                        | 0.12                 | 2,184                           | 0.46                    | 0.32             |
| Northern red oak    | 4               | 0.37             | 825                          | 0.06                 | 370                             | 0.08                    | 0.17             |
| Green ash           | 4               | 0.37             | 7,788                        | 0.58                 | 1,699                           | 0.36                    | 0.44             |
| Goldenrain tree     | 4               | 0.37             | 770                          | 0.06                 | 845                             | 0.18                    | 0.20             |
| Black locust        | 3               | 0.28             | 5,577                        | 0.42                 | 2,167                           | 0.45                    | 0.38             |
| Hawthorn            | 3               | 0.28             | 963                          | 0.07                 | 937                             | 0.20                    | 0.18             |
| Red mulberry        | 3               | 0.28             | 183                          | 0.01                 | 188                             | 0.04                    | 0.11             |
| Slippery elm        | 3               | 0.28             | 2,951                        | 0.22                 | 1,247                           | 0.26                    | 0.25             |
| American holly      | 3               | 0.28             | 18                           | 0.00                 | 145                             | 0.03                    | 0.10             |
| Sawtooth oak        | 2               | 0.19             | 5,320                        | 0.40                 | 1,925                           | 0.40                    | 0.33             |
| Washington hawthorn | 2               | 0.19             | 642                          | 0.05                 | 624                             | 0.13                    | 0.12             |
| Paperbark maple     | 2               | 0.19             | 642                          | 0.05                 | 624                             | 0.13                    | 0.12             |
| River birch         | 2               | 0.19             | 1,011                        | 0.08                 | 607                             | 0.13                    | 0.13             |
| Eastern cottonwood  | 2               | 0.19             | 13,514                       | 1.01                 | 2,585                           | 0.54                    | 0.58             |
| Silver maple        | 2               | 0.19             | 3,326                        | 0.25                 | 1,573                           | 0.33                    | 0.26             |
| Kentucky coffeetree | 2               | 0.19             | 40                           | 0.00                 | 67                              | 0.01                    | 0.07             |
| Fringe tree         | 2               | 0.19             | 642                          | 0.05                 | 624                             | 0.13                    | 0.12             |
| Rose-of-sharon      | 1               | 0.09             | 24                           | 0.00                 | 72                              | 0.02                    | 0.04             |
| Forsythia           | 1               | 0.09             | 24                           | 0.00                 | 72                              | 0.02                    | 0.04             |
| Higan cherry        | 1               | 0.09             | 321                          | 0.02                 | 312                             | 0.07                    | 0.06             |
| Winged Euonymus     | 1               | 0.09             | 24                           | 0.00                 | 72                              | 0.02                    | 0.04             |
| Cherry plum         | 1               | 0.09             | 24                           | 0.00                 | 72                              | 0.02                    | 0.04             |
| Sassafras           | 1               | 0.09             | 34                           | 0.00                 | 43                              | 0.01                    | 0.03             |
| Common persimmon    | 1               | 0.09             | 34                           | 0.00                 | 43                              | 0.01                    | 0.03             |
| Bur oak             | 1               | 0.09             | 20                           | 0.00                 | 34                              | 0.01                    | 0.03             |
| Dogwood             | 1               | 0.09             | 24                           | 0.00                 | 72                              | 0.02                    | 0.04             |
| Boxelder            | 1               | 0.09             | 2,660                        | 0.20                 | 963                             | 0.20                    | 0.16             |
| Scarlet oak         | 1               | 0.09             | 20                           | 0.00                 | 34                              | 0.01                    | 0.03             |

## Importance Values of Public Trees

9/12/2014

| Species           | Number of Trees | % of Total Trees | Leaf Area (ft <sup>2</sup> ) | % of Total Leaf Area | Canopy Cover (ft <sup>2</sup> ) | % of Total Canopy Cover | Importance Value |
|-------------------|-----------------|------------------|------------------------------|----------------------|---------------------------------|-------------------------|------------------|
| Trident maple     | 1               | 0.09             | 104                          | 0.01                 | 148                             | 0.03                    | 0.04             |
| Amur maple        | 1               | 0.09             | 321                          | 0.02                 | 312                             | 0.07                    | 0.06             |
| Black oak         | 1               | 0.09             | 991                          | 0.07                 | 339                             | 0.07                    | 0.08             |
| Flowering dogwood | 1               | 0.09             | 24                           | 0.00                 | 72                              | 0.02                    | 0.04             |
| Post oak          | 1               | 0.09             | 20                           | 0.00                 | 34                              | 0.01                    | 0.03             |
| Total             | 1,075           | 100.00           | 1,335,722                    | 100.00               | 476,338                         | 100.00                  | 100.00           |

## Structural (Woody) Condition of Public Trees by Species

9/12/2014

| Species                  | Condition     | Tree Count | Standard Error | % of Species  | % of Public Trees |
|--------------------------|---------------|------------|----------------|---------------|-------------------|
| <b>American elm</b>      | Dead or Dying | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 9          | (N/A)          | 22.50         | 0.84              |
|                          | Good          | 31         | (N/A)          | 77.50         | 2.88              |
|                          | <b>Total</b>  | <b>40</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>3.72</b>       |
| <b>American holly</b>    | Dead or Dying | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 2          | (N/A)          | 66.67         | 0.19              |
|                          | Good          | 1          | (N/A)          | 33.33         | 0.09              |
|                          | <b>Total</b>  | <b>3</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.28</b>       |
| <b>American sycamore</b> | Dead or Dying | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Good          | 5          | (N/A)          | 100.00        | 0.47              |
|                          | <b>Total</b>  | <b>5</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.47</b>       |
| <b>Amur maple</b>        | Dead or Dying | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Good          | 1          | (N/A)          | 100.00        | 0.09              |
|                          | <b>Total</b>  | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Apple</b>             | Dead or Dying | 2          | (N/A)          | 50.00         | 0.19              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 1          | (N/A)          | 25.00         | 0.09              |
|                          | Good          | 1          | (N/A)          | 25.00         | 0.09              |
|                          | <b>Total</b>  | <b>4</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.37</b>       |
| <b>Black locust</b>      | Dead or Dying | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 2          | (N/A)          | 66.67         | 0.19              |
|                          | Good          | 1          | (N/A)          | 33.33         | 0.09              |
|                          | <b>Total</b>  | <b>3</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.28</b>       |
| <b>Black oak</b>         | Dead or Dying | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Good          | 1          | (N/A)          | 100.00        | 0.09              |
|                          | <b>Total</b>  | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Black tupelo</b>      | Dead or Dying | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 5          | (N/A)          | 35.71         | 0.47              |
|                          | Good          | 9          | (N/A)          | 64.29         | 0.84              |
|                          | <b>Total</b>  | <b>14</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>1.30</b>       |
| <b>Boxelder</b>          | Dead or Dying | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 1          | (N/A)          | 100.00        | 0.09              |
|                          | Good          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>  | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Bur oak</b>           | Dead or Dying | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Fair          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Good          | 1          | (N/A)          | 100.00        | 0.09              |
|                          | <b>Total</b>  | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Callery pear</b>      | Dead or Dying | 8          | (N/A)          | 4.21          | 0.74              |
|                          | Poor          | 25         | (N/A)          | 13.16         | 2.33              |
|                          | Fair          | 65         | (N/A)          | 34.21         | 6.05              |
|                          | Good          | 92         | (N/A)          | 48.42         | 8.56              |
|                          | <b>Total</b>  | <b>190</b> | <b>(N/A)</b>   | <b>100.00</b> | <b>17.67</b>      |

## Structural (Woody) Condition of Public Trees by Species

9/12/2014

| Species                   | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|---------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>Cherry plum</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Chestnut Oak</b>       | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 2          | (N/A)          | 33.33        | 0.19              |
|                           | Fair          | 1          | (N/A)          | 16.67        | 0.09              |
|                           | Good          | 3          | (N/A)          | 50.00        | 0.28              |
|                           | Total         | 6          | (N/A)          | 100.00       | 0.56              |
| <b>Chinese elm</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 1          | (N/A)          | 3.85         | 0.09              |
|                           | Fair          | 5          | (N/A)          | 19.23        | 0.47              |
|                           | Good          | 20         | (N/A)          | 76.92        | 1.86              |
|                           | Total         | 26         | (N/A)          | 100.00       | 2.42              |
| <b>Common crapemyrtle</b> | Dead or Dying | 1          | (N/A)          | 14.29        | 0.09              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 2          | (N/A)          | 28.57        | 0.19              |
|                           | Good          | 4          | (N/A)          | 57.14        | 0.37              |
|                           | Total         | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Common persimmon</b>   | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Dogwood</b>            | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Eastern cottonwood</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                           | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Eastern redbud</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 1          | (N/A)          | 6.67         | 0.09              |
|                           | Fair          | 2          | (N/A)          | 13.33        | 0.19              |
|                           | Good          | 12         | (N/A)          | 80.00        | 1.12              |
|                           | Total         | 15         | (N/A)          | 100.00       | 1.40              |
| <b>English oak</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 1          | (N/A)          | 11.11        | 0.09              |
|                           | Good          | 8          | (N/A)          | 88.89        | 0.74              |
|                           | Total         | 9          | (N/A)          | 100.00       | 0.84              |
| <b>Euonymus</b>           | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 1          | (N/A)          | 14.29        | 0.09              |
|                           | Good          | 6          | (N/A)          | 85.71        | 0.56              |
|                           | Total         | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Flowering dogwood</b>  | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Total         | 1          | (N/A)          | 100.00       | 0.09              |

## Structural (Woody) Condition of Public Trees by Species

9/12/2014

| Species                 | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|-------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>Forsythia</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                         | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Freeman maple</b>    | Dead or Dying | 1          | (N/A)          | 10.00        | 0.09              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 1          | (N/A)          | 10.00        | 0.09              |
|                         | Good          | 8          | (N/A)          | 80.00        | 0.74              |
|                         | Total         | 10         | (N/A)          | 100.00       | 0.93              |
| <b>Fringe tree</b>      | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 1          | (N/A)          | 50.00        | 0.09              |
|                         | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Good          | 1          | (N/A)          | 50.00        | 0.09              |
|                         | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Ginkgo</b>           | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 8          | (N/A)          | 42.11        | 0.74              |
|                         | Good          | 11         | (N/A)          | 57.89        | 1.02              |
|                         | Total         | 19         | (N/A)          | 100.00       | 1.77              |
| <b>Goldenrain tree</b>  | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 4          | (N/A)          | 100.00       | 0.37              |
|                         | Good          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Total         | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Green ash</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 2          | (N/A)          | 50.00        | 0.19              |
|                         | Good          | 2          | (N/A)          | 50.00        | 0.19              |
|                         | Total         | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Hawthorn</b>         | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 2          | (N/A)          | 66.67        | 0.19              |
|                         | Good          | 1          | (N/A)          | 33.33        | 0.09              |
|                         | Total         | 3          | (N/A)          | 100.00       | 0.28              |
| <b>Higan cherry</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                         | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Honeylocust</b>      | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 1          | (N/A)          | 11.11        | 0.09              |
|                         | Good          | 8          | (N/A)          | 88.89        | 0.74              |
|                         | Total         | 9          | (N/A)          | 100.00       | 0.84              |
| <b>Horsechestnut</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 3          | (N/A)          | 42.86        | 0.28              |
|                         | Good          | 4          | (N/A)          | 57.14        | 0.37              |
|                         | Total         | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Japanese zelkova</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 1          | (N/A)          | 2.33         | 0.09              |
|                         | Fair          | 18         | (N/A)          | 41.86        | 1.67              |
|                         | Good          | 24         | (N/A)          | 55.81        | 2.23              |
|                         | Total         | 43         | (N/A)          | 100.00       | 4.00              |

## Structural (Woody) Condition of Public Trees by Species

9/12/2014

| Species                    | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>Kentucky coffeetree</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                            | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Kwanzan cherry</b>      | Dead or Dying | 1          | (N/A)          | 5.00         | 0.09              |
|                            | Poor          | 3          | (N/A)          | 15.00        | 0.28              |
|                            | Fair          | 7          | (N/A)          | 35.00        | 0.65              |
|                            | Good          | 9          | (N/A)          | 45.00        | 0.84              |
|                            | Total         | 20         | (N/A)          | 100.00       | 1.86              |
| <b>Littleleaf linden</b>   | Dead or Dying | 2          | (N/A)          | 1.03         | 0.19              |
|                            | Poor          | 19         | (N/A)          | 9.79         | 1.77              |
|                            | Fair          | 63         | (N/A)          | 32.47        | 5.86              |
|                            | Good          | 110        | (N/A)          | 56.70        | 10.23             |
|                            | Total         | 194        | (N/A)          | 100.00       | 18.05             |
| <b>London planetree</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 2          | (N/A)          | 4.88         | 0.19              |
|                            | Good          | 39         | (N/A)          | 95.12        | 3.63              |
|                            | Total         | 41         | (N/A)          | 100.00       | 3.81              |
| <b>Northern red oak</b>    | Dead or Dying | 2          | (N/A)          | 50.00        | 0.19              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 2          | (N/A)          | 50.00        | 0.19              |
|                            | Total         | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Norway maple</b>        | Dead or Dying | 1          | (N/A)          | 1.67         | 0.09              |
|                            | Poor          | 11         | (N/A)          | 18.33        | 1.02              |
|                            | Fair          | 21         | (N/A)          | 35.00        | 1.95              |
|                            | Good          | 27         | (N/A)          | 45.00        | 2.51              |
|                            | Total         | 60         | (N/A)          | 100.00       | 5.58              |
| <b>Paperbark maple</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                            | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Pin oak</b>             | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 4          | (N/A)          | 14.81        | 0.37              |
|                            | Good          | 23         | (N/A)          | 85.19        | 2.14              |
|                            | Total         | 27         | (N/A)          | 100.00       | 2.51              |
| <b>Post oak</b>            | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                            | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Red maple</b>           | Dead or Dying | 2          | (N/A)          | 1.12         | 0.19              |
|                            | Poor          | 7          | (N/A)          | 3.91         | 0.65              |
|                            | Fair          | 36         | (N/A)          | 20.11        | 3.35              |
|                            | Good          | 134        | (N/A)          | 74.86        | 12.47             |
|                            | Total         | 179        | (N/A)          | 100.00       | 16.65             |
| <b>Red mulberry</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 3          | (N/A)          | 100.00       | 0.28              |
|                            | Total         | 3          | (N/A)          | 100.00       | 0.28              |

## Structural (Woody) Condition of Public Trees by Species

9/12/2014

| Species                | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>River birch</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                        | <b>Total</b>  |            | 2              | (N/A)        | 100.00            |
| <b>Rose-of-sharon</b>  | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                        | <b>Total</b>  |            | 1              | (N/A)        | 100.00            |
| <b>Sassafras</b>       | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                        | <b>Total</b>  |            | 1              | (N/A)        | 100.00            |
| <b>Sawtooth oak</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 1          | (N/A)          | 50.00        | 0.09              |
|                        | Good          | 1          | (N/A)          | 50.00        | 0.09              |
|                        | <b>Total</b>  |            | 2              | (N/A)        | 100.00            |
| <b>Scarlet oak</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                        | <b>Total</b>  |            | 1              | (N/A)        | 100.00            |
| <b>Service berry</b>   | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 5          | (N/A)          | 41.67        | 0.47              |
|                        | Good          | 7          | (N/A)          | 58.33        | 0.65              |
|                        | <b>Total</b>  |            | 12             | (N/A)        | 100.00            |
| <b>Silver Linden</b>   | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 1          | (N/A)          | 7.14         | 0.09              |
|                        | Good          | 13         | (N/A)          | 92.86        | 1.21              |
|                        | <b>Total</b>  |            | 14             | (N/A)        | 100.00            |
| <b>Silver maple</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                        | <b>Total</b>  |            | 2              | (N/A)        | 100.00            |
| <b>Slippery elm</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 2          | (N/A)          | 66.67        | 0.19              |
|                        | Good          | 1          | (N/A)          | 33.33        | 0.09              |
|                        | <b>Total</b>  |            | 3              | (N/A)        | 100.00            |
| <b>Swamp white oak</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 1          | (N/A)          | 16.67        | 0.09              |
|                        | Fair          | 1          | (N/A)          | 16.67        | 0.09              |
|                        | Good          | 4          | (N/A)          | 66.67        | 0.37              |
|                        | <b>Total</b>  |            | 6              | (N/A)        | 100.00            |
| <b>Sweetgum</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 2          | (N/A)          | 18.18        | 0.19              |
|                        | Fair          | 1          | (N/A)          | 9.09         | 0.09              |
|                        | Good          | 8          | (N/A)          | 72.73        | 0.74              |
|                        | <b>Total</b>  |            | 11             | (N/A)        | 100.00            |

## Structural (Woody) Condition of Public Trees by Species

9/12/2014

| Species                    | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>Trident maple</b>       | Dead or Dying | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Poor          | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Fair          | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Good          | 1 (N/A)    |                | 100.00       | 0.09              |
|                            | Total         | 1 (N/A)    |                | 100.00       | 0.09              |
| <b>Tulip tree</b>          | Dead or Dying | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Poor          | 1 (N/A)    |                | 12.50        | 0.09              |
|                            | Fair          | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Good          | 7 (N/A)    |                | 87.50        | 0.65              |
|                            | Total         | 8 (N/A)    |                | 100.00       | 0.74              |
| <b>Washington hawthorn</b> | Dead or Dying | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Poor          | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Fair          | 2 (N/A)    |                | 100.00       | 0.19              |
|                            | Good          | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total         | 2 (N/A)    |                | 100.00       | 0.19              |
| <b>White ash</b>           | Dead or Dying | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Poor          | 2 (N/A)    |                | 18.18        | 0.19              |
|                            | Fair          | 6 (N/A)    |                | 54.55        | 0.56              |
|                            | Good          | 3 (N/A)    |                | 27.27        | 0.28              |
|                            | Total         | 11 (N/A)   |                | 100.00       | 1.02              |
| <b>Willow oak</b>          | Dead or Dying | 1 (N/A)    |                | 5.56         | 0.09              |
|                            | Poor          | 1 (N/A)    |                | 5.56         | 0.09              |
|                            | Fair          | 1 (N/A)    |                | 5.56         | 0.09              |
|                            | Good          | 15 (N/A)   |                | 83.33        | 1.40              |
|                            | Total         | 18 (N/A)   |                | 100.00       | 1.67              |
| <b>Winged Euonymus</b>     | Dead or Dying | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Poor          | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Fair          | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Good          | 1 (N/A)    |                | 100.00       | 0.09              |
|                            | Total         | 1 (N/A)    |                | 100.00       | 0.09              |
| <b>Yellowwood</b>          | Dead or Dying | 1 (N/A)    |                | 25.00        | 0.09              |
|                            | Poor          | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Fair          | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Good          | 3 (N/A)    |                | 75.00        | 0.28              |
|                            | Total         | 4 (N/A)    |                | 100.00       | 0.37              |

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| <b>Functional (Foliage) Condition of Public Trees by Species</b> |
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9/12/2014

| Species                  | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|--------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>American elm</b>      | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Poor          | 4          | (N/A)          | 10.00        | 0.37              |
|                          | Fair          | 10         | (N/A)          | 25.00        | 0.93              |
|                          | Good          | 26         | (N/A)          | 65.00        | 2.42              |
|                          | Total         | 40         | (N/A)          | 100.00       | 3.72              |
| <b>American holly</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Fair          | 1          | (N/A)          | 33.33        | 0.09              |
|                          | Good          | 2          | (N/A)          | 66.67        | 0.19              |
|                          | Total         | 3          | (N/A)          | 100.00       | 0.28              |
| <b>American sycamore</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Good          | 5          | (N/A)          | 100.00       | 0.47              |
|                          | Total         | 5          | (N/A)          | 100.00       | 0.47              |
| <b>Amur maple</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                          | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Apple</b>             | Dead or Dying | 2          | (N/A)          | 50.00        | 0.19              |
|                          | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Fair          | 1          | (N/A)          | 25.00        | 0.09              |
|                          | Good          | 1          | (N/A)          | 25.00        | 0.09              |
|                          | Total         | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Black locust</b>      | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Fair          | 2          | (N/A)          | 66.67        | 0.19              |
|                          | Good          | 1          | (N/A)          | 33.33        | 0.09              |
|                          | Total         | 3          | (N/A)          | 100.00       | 0.28              |
| <b>Black oak</b>         | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                          | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Black tupelo</b>      | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Fair          | 6          | (N/A)          | 42.86        | 0.56              |
|                          | Good          | 8          | (N/A)          | 57.14        | 0.74              |
|                          | Total         | 14         | (N/A)          | 100.00       | 1.30              |
| <b>Boxelder</b>          | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                          | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Bur oak</b>           | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                          | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Callery pear</b>      | Dead or Dying | 6          | (N/A)          | 3.16         | 0.56              |
|                          | Poor          | 23         | (N/A)          | 12.11        | 2.14              |
|                          | Fair          | 42         | (N/A)          | 22.11        | 3.91              |
|                          | Good          | 119        | (N/A)          | 62.63        | 11.07             |
|                          | Total         | 190        | (N/A)          | 100.00       | 17.67             |

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| <b>Functional (Foliage) Condition of Public Trees by Species</b> |
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9/12/2014

| Species                   | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|---------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>Cherry plum</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Chestnut Oak</b>       | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 2          | (N/A)          | 33.33        | 0.19              |
|                           | Fair          | 3          | (N/A)          | 50.00        | 0.28              |
|                           | Good          | 1          | (N/A)          | 16.67        | 0.09              |
|                           | Total         | 6          | (N/A)          | 100.00       | 0.56              |
| <b>Chinese elm</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 1          | (N/A)          | 3.85         | 0.09              |
|                           | Fair          | 4          | (N/A)          | 15.38        | 0.37              |
|                           | Good          | 21         | (N/A)          | 80.77        | 1.95              |
|                           | Total         | 26         | (N/A)          | 100.00       | 2.42              |
| <b>Common crapemyrtle</b> | Dead or Dying | 1          | (N/A)          | 14.29        | 0.09              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 6          | (N/A)          | 85.71        | 0.56              |
|                           | Total         | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Common persimmon</b>   | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Dogwood</b>            | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Eastern cottonwood</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                           | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Eastern redbud</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 1          | (N/A)          | 6.67         | 0.09              |
|                           | Good          | 14         | (N/A)          | 93.33        | 1.30              |
|                           | Total         | 15         | (N/A)          | 100.00       | 1.40              |
| <b>English oak</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 1          | (N/A)          | 11.11        | 0.09              |
|                           | Good          | 8          | (N/A)          | 88.89        | 0.74              |
|                           | Total         | 9          | (N/A)          | 100.00       | 0.84              |
| <b>Euonymus</b>           | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Good          | 7          | (N/A)          | 100.00       | 0.65              |
|                           | Total         | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Flowering dogwood</b>  | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Fair          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Good          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total         | 1          | (N/A)          | 100.00       | 0.09              |

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| <b>Functional (Foliage) Condition of Public Trees by Species</b> |
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9/12/2014

| Species                 | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|-------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>Forsythia</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                         | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Freeman maple</b>    | Dead or Dying | 1          | (N/A)          | 10.00        | 0.09              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Good          | 9          | (N/A)          | 90.00        | 0.84              |
|                         | Total         | 10         | (N/A)          | 100.00       | 0.93              |
| <b>Fringe tree</b>      | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 1          | (N/A)          | 50.00        | 0.09              |
|                         | Good          | 1          | (N/A)          | 50.00        | 0.09              |
|                         | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Ginkgo</b>           | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 4          | (N/A)          | 21.05        | 0.37              |
|                         | Good          | 14         | (N/A)          | 73.68        | 1.30              |
|                         | Total         | 18         | (N/A)          | 94.74        | 1.67              |
| <b>Goldenrain tree</b>  | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 3          | (N/A)          | 75.00        | 0.28              |
|                         | Good          | 1          | (N/A)          | 25.00        | 0.09              |
|                         | Total         | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Green ash</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 2          | (N/A)          | 50.00        | 0.19              |
|                         | Good          | 2          | (N/A)          | 50.00        | 0.19              |
|                         | Total         | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Hawthorn</b>         | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 1          | (N/A)          | 33.33        | 0.09              |
|                         | Good          | 2          | (N/A)          | 66.67        | 0.19              |
|                         | Total         | 3          | (N/A)          | 100.00       | 0.28              |
| <b>Higan cherry</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                         | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Honeylocust</b>      | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Fair          | 4          | (N/A)          | 44.44        | 0.37              |
|                         | Good          | 5          | (N/A)          | 55.56        | 0.47              |
|                         | Total         | 9          | (N/A)          | 100.00       | 0.84              |
| <b>Horsechestnut</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 5          | (N/A)          | 71.43        | 0.47              |
|                         | Fair          | 2          | (N/A)          | 28.57        | 0.19              |
|                         | Good          | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Total         | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Japanese zelkova</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Poor          | 2          | (N/A)          | 4.65         | 0.19              |
|                         | Fair          | 15         | (N/A)          | 34.88        | 1.40              |
|                         | Good          | 26         | (N/A)          | 60.47        | 2.42              |
|                         | Total         | 43         | (N/A)          | 100.00       | 4.00              |

## Functional (Foliage) Condition of Public Trees by Species

9/12/2014

| Species                    | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>Kentucky coffeetree</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                            | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Kwanzan cherry</b>      | Dead or Dying | 1          | (N/A)          | 5.00         | 0.09              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 7          | (N/A)          | 35.00        | 0.65              |
|                            | Good          | 12         | (N/A)          | 60.00        | 1.12              |
|                            | Total         | 20         | (N/A)          | 100.00       | 1.86              |
| <b>Littleleaf linden</b>   | Dead or Dying | 2          | (N/A)          | 1.03         | 0.19              |
|                            | Poor          | 7          | (N/A)          | 3.61         | 0.65              |
|                            | Fair          | 44         | (N/A)          | 22.68        | 4.09              |
|                            | Good          | 141        | (N/A)          | 72.68        | 13.12             |
|                            | Total         | 194        | (N/A)          | 100.00       | 18.05             |
| <b>London planetree</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 1          | (N/A)          | 2.44         | 0.09              |
|                            | Fair          | 5          | (N/A)          | 12.20        | 0.47              |
|                            | Good          | 35         | (N/A)          | 85.37        | 3.26              |
|                            | Total         | 41         | (N/A)          | 100.00       | 3.81              |
| <b>Northern red oak</b>    | Dead or Dying | 2          | (N/A)          | 50.00        | 0.19              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 2          | (N/A)          | 50.00        | 0.19              |
|                            | Total         | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Norway maple</b>        | Dead or Dying | 1          | (N/A)          | 1.67         | 0.09              |
|                            | Poor          | 7          | (N/A)          | 11.67        | 0.65              |
|                            | Fair          | 14         | (N/A)          | 23.33        | 1.30              |
|                            | Good          | 38         | (N/A)          | 63.33        | 3.53              |
|                            | Total         | 60         | (N/A)          | 100.00       | 5.58              |
| <b>Paperbark maple</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                            | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Pin oak</b>             | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 2          | (N/A)          | 7.41         | 0.19              |
|                            | Fair          | 2          | (N/A)          | 7.41         | 0.19              |
|                            | Good          | 23         | (N/A)          | 85.19        | 2.14              |
|                            | Total         | 27         | (N/A)          | 100.00       | 2.51              |
| <b>Post oak</b>            | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                            | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Red maple</b>           | Dead or Dying | 3          | (N/A)          | 1.68         | 0.28              |
|                            | Poor          | 7          | (N/A)          | 3.91         | 0.65              |
|                            | Fair          | 40         | (N/A)          | 22.35        | 3.72              |
|                            | Good          | 128        | (N/A)          | 71.51        | 11.91             |
|                            | Total         | 178        | (N/A)          | 99.44        | 16.56             |
| <b>Red mulberry</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 3          | (N/A)          | 100.00       | 0.28              |
|                            | Total         | 3          | (N/A)          | 100.00       | 0.28              |

## Functional (Foliage) Condition of Public Trees by Species

9/12/2014

| Species                | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>River birch</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                        | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Rose-of-sharon</b>  | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                        | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Sassafras</b>       | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                        | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Sawtooth oak</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                        | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Scarlet oak</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                        | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Service berry</b>   | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 3          | (N/A)          | 25.00        | 0.28              |
|                        | Good          | 9          | (N/A)          | 75.00        | 0.84              |
|                        | Total         | 12         | (N/A)          | 100.00       | 1.12              |
| <b>Silver Linden</b>   | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 2          | (N/A)          | 14.29        | 0.19              |
|                        | Good          | 12         | (N/A)          | 85.71        | 1.12              |
|                        | Total         | 14         | (N/A)          | 100.00       | 1.30              |
| <b>Silver maple</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 2          | (N/A)          | 100.00       | 0.19              |
|                        | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Slippery elm</b>    | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 1          | (N/A)          | 33.33        | 0.09              |
|                        | Fair          | 1          | (N/A)          | 33.33        | 0.09              |
|                        | Good          | 1          | (N/A)          | 33.33        | 0.09              |
|                        | Total         | 3          | (N/A)          | 100.00       | 0.28              |
| <b>Swamp white oak</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Good          | 6          | (N/A)          | 100.00       | 0.56              |
|                        | Total         | 6          | (N/A)          | 100.00       | 0.56              |
| <b>Sweetgum</b>        | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | Fair          | 2          | (N/A)          | 18.18        | 0.19              |
|                        | Good          | 9          | (N/A)          | 81.82        | 0.84              |
|                        | Total         | 11         | (N/A)          | 100.00       | 1.02              |

**Functional (Foliage) Condition of Public Trees by Species**

9/12/2014

| Species                    | Condition     | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|---------------|------------|----------------|--------------|-------------------|
| <b>Trident maple</b>       | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                            | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Tulip tree</b>          | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 1          | (N/A)          | 12.50        | 0.09              |
|                            | Fair          | 1          | (N/A)          | 12.50        | 0.09              |
|                            | Good          | 6          | (N/A)          | 75.00        | 0.56              |
|                            | Total         | 8          | (N/A)          | 100.00       | 0.74              |
| <b>Washington hawthorn</b> | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 1          | (N/A)          | 50.00        | 0.09              |
|                            | Good          | 1          | (N/A)          | 50.00        | 0.09              |
|                            | Total         | 2          | (N/A)          | 100.00       | 0.19              |
| <b>White ash</b>           | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 1          | (N/A)          | 9.09         | 0.09              |
|                            | Fair          | 2          | (N/A)          | 18.18        | 0.19              |
|                            | Good          | 8          | (N/A)          | 72.73        | 0.74              |
|                            | Total         | 11         | (N/A)          | 100.00       | 1.02              |
| <b>Willow oak</b>          | Dead or Dying | 1          | (N/A)          | 5.56         | 0.09              |
|                            | Poor          | 1          | (N/A)          | 5.56         | 0.09              |
|                            | Fair          | 3          | (N/A)          | 16.67        | 0.28              |
|                            | Good          | 12         | (N/A)          | 66.67        | 1.12              |
|                            | Total         | 17         | (N/A)          | 94.44        | 1.58              |
| <b>Winged Euonymus</b>     | Dead or Dying | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 1          | (N/A)          | 100.00       | 0.09              |
|                            | Total         | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Yellowwood</b>          | Dead or Dying | 1          | (N/A)          | 25.00        | 0.09              |
|                            | Poor          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Fair          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | Good          | 3          | (N/A)          | 75.00        | 0.28              |
|                            | Total         | 4          | (N/A)          | 100.00       | 0.37              |

## Baltimore

### Relative Performance Index for Public Trees

9/12/2014

| Species             | Dead or Dying | Poor  | Fair  | Good   | RPI  | # of Standard Trees Error | % of Public |
|---------------------|---------------|-------|-------|--------|------|---------------------------|-------------|
| Littleleaf linden   | 1.03          | 2.58  | 20.62 | 75.77  | 1.00 | 194 (N/A)                 | 18.05       |
| Callery pear        | 3.16          | 10.00 | 22.11 | 64.74  | 0.93 | 190 (N/A)                 | 17.67       |
| Red maple           | 1.12          | 1.68  | 14.53 | 82.68  | 1.03 | 179 (N/A)                 | 16.65       |
| Norway maple        | 1.67          | 11.67 | 21.67 | 65.00  | 0.93 | 60 (N/A)                  | 5.58        |
| Japanese zelkova    | 0.00          | 2.33  | 27.91 | 69.77  | 0.99 | 43 (N/A)                  | 4.00        |
| London planetree    | 0.00          | 0.00  | 4.88  | 95.12  | 1.11 | 41 (N/A)                  | 3.81        |
| American elm        | 0.00          | 0.00  | 17.50 | 82.50  | 1.03 | 40 (N/A)                  | 3.72        |
| Pin oak             | 0.00          | 0.00  | 11.11 | 88.89  | 1.08 | 27 (N/A)                  | 2.51        |
| Chinese elm         | 0.00          | 3.85  | 11.54 | 84.62  | 1.06 | 26 (N/A)                  | 2.42        |
| Kwanzan cherry      | 5.00          | 0.00  | 25.00 | 70.00  | 0.93 | 20 (N/A)                  | 1.86        |
| Ginkgo              | 0.00          | 0.00  | 21.05 | 78.95  | 1.04 | 19 (N/A)                  | 1.77        |
| Willow oak          | 5.56          | 5.56  | 0.00  | 88.89  | 1.02 | 18 (N/A)                  | 1.67        |
| Eastern redbud      | 0.00          | 0.00  | 6.67  | 93.33  | 1.09 | 15 (N/A)                  | 1.40        |
| Black tupelo        | 0.00          | 0.00  | 28.57 | 71.43  | 1.01 | 14 (N/A)                  | 1.30        |
| Silver Linden       | 0.00          | 0.00  | 7.14  | 92.86  | 1.11 | 14 (N/A)                  | 1.30        |
| Service berry       | 0.00          | 0.00  | 25.00 | 75.00  | 1.03 | 12 (N/A)                  | 1.12        |
| White ash           | 0.00          | 9.09  | 27.27 | 63.64  | 0.93 | 11 (N/A)                  | 1.02        |
| Sweetgum            | 0.00          | 0.00  | 18.18 | 81.82  | 1.04 | 11 (N/A)                  | 1.02        |
| Freeman maple       | 10.00         | 0.00  | 0.00  | 90.00  | 1.03 | 10 (N/A)                  | 0.93        |
| Honeylocust         | 0.00          | 0.00  | 11.11 | 88.89  | 1.05 | 9 (N/A)                   | 0.84        |
| English oak         | 0.00          | 0.00  | 0.00  | 100.00 | 1.11 | 9 (N/A)                   | 0.84        |
| Tulip tree          | 0.00          | 12.50 | 0.00  | 87.50  | 1.04 | 8 (N/A)                   | 0.74        |
| Euonymus            | 0.00          | 0.00  | 0.00  | 100.00 | 1.12 | 7 (N/A)                   | 0.65        |
| Horsechestnut       | 0.00          | 0.00  | 71.43 | 28.57  | 0.79 | 7 (N/A)                   | 0.65        |
| Common crapemyrtle  | 14.29         | 0.00  | 0.00  | 85.71  | 0.95 | 7 (N/A)                   | 0.65        |
| Swamp white oak     | 0.00          | 0.00  | 16.67 | 83.33  | 1.06 | 6 (N/A)                   | 0.56        |
| Chestnut Oak        | 0.00          | 33.33 | 16.67 | 50.00  | 0.81 | 6 (N/A)                   | 0.56        |
| American sycamore   | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 5 (N/A)                   | 0.47        |
| Yellowwood          | 25.00         | 0.00  | 0.00  | 75.00  | 0.89 | 4 (N/A)                   | 0.37        |
| Northern red oak    | 50.00         | 0.00  | 0.00  | 50.00  | 0.64 | 4 (N/A)                   | 0.37        |
| Green ash           | 0.00          | 0.00  | 25.00 | 75.00  | 0.98 | 4 (N/A)                   | 0.37        |
| Apple               | 50.00         | 0.00  | 25.00 | 25.00  | 0.56 | 4 (N/A)                   | 0.37        |
| Goldenrain tree     | 0.00          | 0.00  | 75.00 | 25.00  | 0.85 | 4 (N/A)                   | 0.37        |
| Black locust        | 0.00          | 0.00  | 66.67 | 33.33  | 0.92 | 3 (N/A)                   | 0.28        |
| Red mulberry        | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 3 (N/A)                   | 0.28        |
| Slippery elm        | 0.00          | 0.00  | 66.67 | 33.33  | 0.87 | 3 (N/A)                   | 0.28        |
| Hawthorn            | 0.00          | 0.00  | 33.33 | 66.67  | 0.98 | 3 (N/A)                   | 0.28        |
| American holly      | 0.00          | 0.00  | 33.33 | 66.67  | 0.98 | 3 (N/A)                   | 0.28        |
| Eastern cottonwood  | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 2 (N/A)                   | 0.19        |
| Silver maple        | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 2 (N/A)                   | 0.19        |
| Fringe tree         | 0.00          | 0.00  | 50.00 | 50.00  | 0.89 | 2 (N/A)                   | 0.19        |
| Kentucky coffeetree | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 2 (N/A)                   | 0.19        |
| Paperbark maple     | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 2 (N/A)                   | 0.19        |
| Sawtooth oak        | 0.00          | 0.00  | 0.00  | 100.00 | 1.06 | 2 (N/A)                   | 0.19        |
| Washington hawthorn | 0.00          | 0.00  | 50.00 | 50.00  | 0.89 | 2 (N/A)                   | 0.19        |
| River birch         | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 2 (N/A)                   | 0.19        |
| Black oak           | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Bur oak             | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Scarlet oak         | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Boxelder            | 0.00          | 0.00  | 0.00  | 100.00 | 0.98 | 1 (N/A)                   | 0.09        |
| Amur maple          | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Dogwood             | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Trident maple       | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Flowering dogwood   | 0.00          | 0.00  | 0.00  | 100.00 | 0.98 | 1 (N/A)                   | 0.09        |
| Post oak            | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Higan cherry        | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Rose-of-Sharon      | 0.00          | 0.00  | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |

## Relative Performance Index for Public Trees

9/12/2014

| Species          | Dead or Dying | Poor | Fair  | Good   | RPI  | # of Standard Trees Error | % of Public |
|------------------|---------------|------|-------|--------|------|---------------------------|-------------|
| Forsythia        | 0.00          | 0.00 | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Sassafras        | 0.00          | 0.00 | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Common persimmon | 0.00          | 0.00 | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Winged Euonymus  | 0.00          | 0.00 | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Cherry plum      | 0.00          | 0.00 | 0.00  | 100.00 | 1.15 | 1 (N/A)                   | 0.09        |
| Citywide         | 1.86          | 3.81 | 17.86 | 76.47  | 1.00 | 1,075 (N/A)               | 100.00      |

|   |
|---|
| <b>Recommended Maintenance for Public Trees by Species (Critical concern (public safety))</b> |
|---|

9/12/2014

| Species                  | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|--------------------------|----------------|------------|----------------|--------------|-------------------|
| <b>American elm</b>      | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>American holly</b>    | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 1          | (N/A)          | 33.33        | 0.09              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b>   |            | 1              | (N/A)        | 33.33             |
| <b>American sycamore</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>Amur maple</b>        | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>Apple</b>             | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |

**Recommended Maintenance for Public Trees by Species (Critical concern (public safety))**

9/12/2014

| Species             | DBH Class (in) | Tree Count Standard Error | % of Species | % of Public Trees |
|---------------------|----------------|---------------------------|--------------|-------------------|
| <b>Black locust</b> | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                     | <b>Total</b>   | <b>0 (N/A)</b>            | <b>0.00</b>  | <b>0.00</b>       |
| <b>Black oak</b>    | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                     | <b>Total</b>   | <b>0 (N/A)</b>            | <b>0.00</b>  | <b>0.00</b>       |
| <b>Black tupelo</b> | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                     | <b>Total</b>   | <b>0 (N/A)</b>            | <b>0.00</b>  | <b>0.00</b>       |
| <b>Boxelder</b>     | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                     | <b>Total</b>   | <b>0 (N/A)</b>            | <b>0.00</b>  | <b>0.00</b>       |
| <b>Bur oak</b>      | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                     | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                     | <b>Total</b>   | <b>0 (N/A)</b>            | <b>0.00</b>  | <b>0.00</b>       |

**Recommended Maintenance for Public Trees by Species (Critical concern (public safety))**

9/12/2014

| Species                   | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|---------------------------|----------------|------------|----------------|--------------|-------------------|
| <b>Callery pear</b>       | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 6 - 12         | 4          | (N/A)          | 2.11         | 0.37              |
|                           | 12 - 18        | 2          | (N/A)          | 1.05         | 0.19              |
|                           | 18 - 24        | 1          | (N/A)          | 0.53         | 0.09              |
|                           | 24 - 30        | 2          | (N/A)          | 1.05         | 0.19              |
|                           | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>              |                | 9          | (N/A)          | 4.74         | 0.84              |
| <b>Cherry plum</b>        | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>              |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Chestnut Oak</b>       | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>              |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Chinese elm</b>        | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>              |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Common crapemyrtle</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>              |                | 0          | (N/A)          | 0.00         | 0.00              |

**Recommended Maintenance for Public Trees by Species (Critical concern (public safety))**

9/12/2014

| Species                   | DBH Class (in) | Tree Count Standard Error | % of Species | % of Public Trees |
|---------------------------|----------------|---------------------------|--------------|-------------------|
| <b>Common persimmon</b>   | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>   | 0 (N/A)                   | 0.00         | 0.00              |
| <b>Dogwood</b>            | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>   | 0 (N/A)                   | 0.00         | 0.00              |
| <b>Eastern cottonwood</b> | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 18 - 24        | 1 (N/A)                   | 50.00        | 0.09              |
|                           | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>   | 1 (N/A)                   | 50.00        | 0.09              |
| <b>Eastern redbud</b>     | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>   | 0 (N/A)                   | 0.00         | 0.00              |
| <b>English oak</b>        | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                           | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>   | 0 (N/A)                   | 0.00         | 0.00              |

**Recommended Maintenance for Public Trees by Species (Critical concern (public safety))**

9/12/2014

| Species                  | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|--------------------------|----------------|------------|----------------|--------------|-------------------|
| <b>Euonymus</b>          | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Flowering dogwood</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Forsythia</b>         | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Freeman maple</b>     | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 1          | (N/A)          | 10.00        | 0.09              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | 1          | (N/A)          | 10.00        | 0.09              |
| <b>Fringe tree</b>       | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | 0          | (N/A)          | 0.00         | 0.00              |

## Recommended Maintenance for Public Trees by Species (Critical concern (public safety))

9/12/2014

| Species                | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|------------------------|----------------|------------|----------------|--------------|-------------------|
| <b>Ginkgo</b>          | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Goldenrain tree</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Green ash</b>       | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Hawthorn</b>        | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Higan cherry</b>    | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | 0          | (N/A)          | 0.00         | 0.00              |

## Recommended Maintenance for Public Trees by Species (Critical concern (public safety))

9/12/2014

| Species                    | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|----------------|------------|----------------|--------------|-------------------|
| <b>Honeylocust</b>         | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>   | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Horsechestnut</b>       | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>   | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Japanese zelkova</b>    | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>   | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Kentucky coffeetree</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>   | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Kwanzan cherry</b>      | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 1          | (N/A)          | 5.00         | 0.09              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>   | <b>1</b>   | <b>(N/A)</b>   | <b>5.00</b>  | <b>0.09</b>       |

## Recommended Maintenance for Public Trees by Species (Critical concern (public safety))

9/12/2014

| Species                  | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|--------------------------|----------------|------------|----------------|--------------|-------------------|
| <b>Littleleaf linden</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 3          | (N/A)          | 1.55         | 0.28              |
|                          | 12 - 18        | 1          | (N/A)          | 0.52         | 0.09              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | <b>4</b>   | <b>(N/A)</b>   | <b>2.06</b>  | <b>0.37</b>       |
| <b>London planetree</b>  | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Northern red oak</b>  | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Norway maple</b>      | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 2          | (N/A)          | 3.33         | 0.19              |
|                          | 18 - 24        | 1          | (N/A)          | 1.67         | 0.09              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | <b>3</b>   | <b>(N/A)</b>   | <b>5.00</b>  | <b>0.28</b>       |
| <b>Paperbark maple</b>   | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>             |                | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |

**Recommended Maintenance for Public Trees by Species (Critical concern (public safety))**

9/12/2014

| Species             | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|---------------------|----------------|------------|----------------|--------------|-------------------|
| <b>Pin oak</b>      | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>Post oak</b>     | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>Red maple</b>    | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 6 - 12         | 2          | (N/A)          | 1.12         | 0.19              |
|                     | 12 - 18        | 2          | (N/A)          | 1.12         | 0.19              |
|                     | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b>   |            | 4              | (N/A)        | 2.23              |
| <b>Red mulberry</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>River birch</b>  | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |

**Recommended Maintenance for Public Trees by Species (Critical concern (public safety))**

9/12/2014

| Species               | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|-----------------------|----------------|------------|----------------|--------------|-------------------|
| <b>Rose-of-sharon</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>Sassafras</b>      | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>Sawtooth oak</b>   | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>Scarlet oak</b>    | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |
| <b>Service berry</b>  | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b>   |            | 0              | (N/A)        | 0.00              |

**Recommended Maintenance for Public Trees by Species (Critical concern (public safety))**

9/12/2014

| Species                | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|------------------------|----------------|------------|----------------|--------------|-------------------|
| <b>Silver Linden</b>   | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Silver maple</b>    | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Slippery elm</b>    | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Swamp white oak</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |
| <b>Sweetgum</b>        | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>   | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>  | <b>0.00</b>       |

## Recommended Maintenance for Public Trees by Species (Critical concern (public safety))

9/12/2014

| Species                    | DBH Class (in) | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|----------------|------------|----------------|--------------|-------------------|
| <b>Trident maple</b>       | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>               |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Tulip tree</b>          | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>               |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Washington hawthorn</b> | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>               |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>White ash</b>           | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>               |                | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Willow oak</b>          | 0 - 3          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3 - 6          | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 6 - 12         | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 12 - 18        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 18 - 24        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 24 - 30        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30 - 36        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 36 - 42        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | > 42           | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>               |                | 0          | (N/A)          | 0.00         | 0.00              |

|   |
|---|
| <b>Recommended Maintenance for Public Trees by Species (Critical concern (public safety))</b> |
|---|

9/12/2014

| Species                | DBH Class (in) | Tree Count Standard Error | % of Species | % of Public Trees |
|------------------------|----------------|---------------------------|--------------|-------------------|
| <b>Winged Euonymus</b> | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | <b>Total</b>   | 0 (N/A)                   | 0.00         | 0.00              |
| <b>Yellowwood</b>      | 0 - 3          | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 3 - 6          | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 6 - 12         | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 12 - 18        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 18 - 24        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 24 - 30        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 30 - 36        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | 36 - 42        | 0 (N/A)                   | 0.00         | 0.00              |
|                        | > 42           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | <b>Total</b>   | 0 (N/A)                   | 0.00         | 0.00              |

**Baltimore**

**Summary of Available Planting Sites for Public Trees**

9/19/2014

| Zone                 | No. of Standard<br>Unplanted Sites Error | No. of Standard<br>Planted Sites Error | Total No. Standard<br>of Sites Error | Stocking<br>(%) | No. of Unplanted Sites  |                          |                         |                             |                   |
|----------------------|--|--|--------------------------------------|-----------------|-------------------------|--------------------------|-------------------------|-----------------------------|-------------------|
|                      |  |  |                                      |                 | Standard<br>Small Error | Standard<br>Medium Error | Standard<br>Large Error | Standard<br>Undefined Error | Standard<br>Error |
| HCPI Spruce Up Grant | 56 (N/A)                                 | 262 (N/A)                              | 318 (N/A)                            | 82.39           | 0 (N/A)                 | 0 (N/A)                  | 0 (N/A)                 | 0 (N/A)                     | 56 (N/A)          |
| OG MINUS HCPI        | 367 (N/A)                                | 813 (N/A)                              | 1,180 (N/A)                          | 68.90           | 0 (N/A)                 | 0 (N/A)                  | 0 (N/A)                 | 0 (N/A)                     | 367 (N/A)         |
| Citywide Total       | 423 (N/A)                                | 1,075 (N/A)                            | 1,498 (N/A)                          | 71.76           | 0 (N/A)                 | 0 (N/A)                  | 0 (N/A)                 | 0 (N/A)                     | 423 (N/A)         |

## Land Use of Public Trees by Zone

9/12/2014

| Zone                        | Land Use                    | Tree Count | Standard Error | % of Zone    | % of Public Trees |
|-----------------------------|-----------------------------|------------|----------------|--------------|-------------------|
| <b>HCPI Spruce Up Grant</b> | Single family residential   | 32         | (N/A)          | 12.21        | 2.98              |
|                             | Multi-family residential    | 74         | (N/A)          | 28.24        | 6.88              |
|                             | Small commercial            | 86         | (N/A)          | 32.82        | 8.00              |
|                             | Industrial/Large commercial | 5          | (N/A)          | 1.91         | 0.47              |
|                             | Park/vacant/other           | 11         | (N/A)          | 4.20         | 1.02              |
|                             | Public/Institutional        | 40         | (N/A)          | 15.27        | 3.72              |
|                             | Parking lot                 | 14         | (N/A)          | 5.34         | 1.30              |
|                             | <b>Total</b>                |            | <b>262</b>     | <b>(N/A)</b> | <b>100.00</b>     |
| <b>OG MINUS HCPI</b>        | Single family residential   | 237        | (N/A)          | 29.15        | 22.05             |
|                             | Multi-family residential    | 171        | (N/A)          | 21.03        | 15.91             |
|                             | Small commercial            | 175        | (N/A)          | 21.53        | 16.28             |
|                             | Industrial/Large commercial | 51         | (N/A)          | 6.27         | 4.74              |
|                             | Park/vacant/other           | 65         | (N/A)          | 8.00         | 6.05              |
|                             | Public/Institutional        | 75         | (N/A)          | 9.23         | 6.98              |
|                             | Parking lot                 | 39         | (N/A)          | 4.80         | 3.63              |
|                             | <b>Total</b>                |            | <b>813</b>     | <b>(N/A)</b> | <b>100.00</b>     |
| <b>Citywide</b>             | Single family residential   | 269        | (N/A)          | 25.02        | 25.02             |
|                             | Multi-family residential    | 245        | (N/A)          | 22.79        | 22.79             |
|                             | Small commercial            | 261        | (N/A)          | 24.28        | 24.28             |
|                             | Industrial/Large commercial | 56         | (N/A)          | 5.21         | 5.21              |
|                             | Park/vacant/other           | 76         | (N/A)          | 7.07         | 7.07              |
|                             | Public/Institutional        | 115        | (N/A)          | 10.70        | 10.70             |
|                             | Parking lot                 | 53         | (N/A)          | 4.93         | 4.93              |
|                             | <b>Total</b>                |            | <b>1,075</b>   | <b>(N/A)</b> | <b>100.00</b>     |

## Site Type of Public Trees by Zone

9/12/2014

| Zone                        | Site Type                     | Tree Count   | Standard Error | % of Zone     | % of Public Trees |
|-----------------------------|-------------------------------|--------------|----------------|---------------|-------------------|
| <b>HCPI Spruce Up Grant</b> | Front yard                    | 1            | (N/A)          | 0.38          | 0.09              |
|                             | Planting strip                | 24           | (N/A)          | 9.16          | 2.23              |
|                             | Cutout                        | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Median                        | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Other maintained locations    | 1            | (N/A)          | 0.38          | 0.09              |
|                             | Other un-maintained locations | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Backyard                      | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Sidewalk Tree pit             | 236          | (N/A)          | 90.08         | 21.95             |
| <b>Total</b>                | <b>262</b>                    | <b>(N/A)</b> | <b>100.00</b>  | <b>24.37</b>  |                   |
| <b>OG MINUS HCPI</b>        | Front yard                    | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Planting strip                | 24           | (N/A)          | 2.95          | 2.23              |
|                             | Cutout                        | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Median                        | 2            | (N/A)          | 0.25          | 0.19              |
|                             | Other maintained locations    | 22           | (N/A)          | 2.71          | 2.05              |
|                             | Other un-maintained locations | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Backyard                      | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Sidewalk Tree pit             | 765          | (N/A)          | 94.10         | 71.16             |
| <b>Total</b>                | <b>813</b>                    | <b>(N/A)</b> | <b>100.00</b>  | <b>75.63</b>  |                   |
| <b>Citywide</b>             | Front yard                    | 1            | (N/A)          | 0.09          | 0.09              |
|                             | Planting strip                | 48           | (N/A)          | 4.47          | 4.47              |
|                             | Cutout                        | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Median                        | 2            | (N/A)          | 0.19          | 0.19              |
|                             | Other maintained locations    | 23           | (N/A)          | 2.14          | 2.14              |
|                             | Other un-maintained locations | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Backyard                      | 0            | (N/A)          | 0.00          | 0.00              |
|                             | Sidewalk Tree pit             | 1,001        | (N/A)          | 93.12         | 93.12             |
| <b>Total</b>                | <b>1,075</b>                  | <b>(N/A)</b> | <b>100.00</b>  | <b>100.00</b> |                   |

## Sidewalk Heave Conflicts by Species for Public Trees

9/12/2014

| Species                  | Conflict           | Tree Count | Standard Error | % of Species  | % of Public Trees |
|--------------------------|--------------------|------------|----------------|---------------|-------------------|
| <b>American elm</b>      | 0 - 3/4 inches     | 9          | (N/A)          | 22.50         | 0.84              |
|                          | 3/4 - 1 1/2 inches | 4          | (N/A)          | 10.00         | 0.37              |
|                          | >1 1/2 inches      | 4          | (N/A)          | 10.00         | 0.37              |
|                          | <b>Total</b>       | <b>17</b>  | <b>(N/A)</b>   | <b>42.50</b>  | <b>1.58</b>       |
| <b>American holly</b>    | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>American sycamore</b> | 0 - 3/4 inches     | 3          | (N/A)          | 60.00         | 0.28              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>       | <b>3</b>   | <b>(N/A)</b>   | <b>60.00</b>  | <b>0.28</b>       |
| <b>Amur maple</b>        | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Apple</b>             | 0 - 3/4 inches     | 1          | (N/A)          | 25.00         | 0.09              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>       | <b>1</b>   | <b>(N/A)</b>   | <b>25.00</b>  | <b>0.09</b>       |
| <b>Black locust</b>      | 0 - 3/4 inches     | 1          | (N/A)          | 33.33         | 0.09              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>       | <b>1</b>   | <b>(N/A)</b>   | <b>33.33</b>  | <b>0.09</b>       |
| <b>Black oak</b>         | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 1          | (N/A)          | 100.00        | 0.09              |
|                          | <b>Total</b>       | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Black tupelo</b>      | 0 - 3/4 inches     | 3          | (N/A)          | 21.43         | 0.28              |
|                          | 3/4 - 1 1/2 inches | 1          | (N/A)          | 7.14          | 0.09              |
|                          | >1 1/2 inches      | 2          | (N/A)          | 14.29         | 0.19              |
|                          | <b>Total</b>       | <b>6</b>   | <b>(N/A)</b>   | <b>42.86</b>  | <b>0.56</b>       |
| <b>Boxelder</b>          | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Bur oak</b>           | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Callery pear</b>      | 0 - 3/4 inches     | 54         | (N/A)          | 28.42         | 5.02              |
|                          | 3/4 - 1 1/2 inches | 15         | (N/A)          | 7.89          | 1.40              |
|                          | >1 1/2 inches      | 10         | (N/A)          | 5.26          | 0.93              |
|                          | <b>Total</b>       | <b>79</b>  | <b>(N/A)</b>   | <b>41.58</b>  | <b>7.35</b>       |
| <b>Cherry plum</b>       | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Chestnut Oak</b>      | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                          | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Chinese elm</b>       | 0 - 3/4 inches     | 4          | (N/A)          | 15.38         | 0.37              |

**Sidewalk Heave Conflicts by Species for Public Trees**

9/12/2014

| Species                   | Conflict           | Tree Count | Standard Error | % of Species  | % of Public Trees |
|---------------------------|--------------------|------------|----------------|---------------|-------------------|
| <b>Common crapemyrtle</b> | 0 - 3/4 inches     | 1          | (N/A)          | 14.29         | 0.09              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>1</b>   | <b>(N/A)</b>   | <b>14.29</b>  | <b>0.09</b>       |
| <b>Common persimmon</b>   | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Dogwood</b>            | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Eastern cottonwood</b> | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 3/4 - 1 1/2 inches | 1          | (N/A)          | 50.00         | 0.09              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>1</b>   | <b>(N/A)</b>   | <b>50.00</b>  | <b>0.09</b>       |
| <b>Eastern redbud</b>     | 0 - 3/4 inches     | 6          | (N/A)          | 40.00         | 0.56              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>6</b>   | <b>(N/A)</b>   | <b>40.00</b>  | <b>0.56</b>       |
| <b>English oak</b>        | 0 - 3/4 inches     | 2          | (N/A)          | 22.22         | 0.19              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>2</b>   | <b>(N/A)</b>   | <b>22.22</b>  | <b>0.19</b>       |
| <b>Euonymus</b>           | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Flowering dogwood</b>  | 0 - 3/4 inches     | 1          | (N/A)          | 100.00        | 0.09              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Forsythia</b>          | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Freeman maple</b>      | 0 - 3/4 inches     | 3          | (N/A)          | 30.00         | 0.28              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>3</b>   | <b>(N/A)</b>   | <b>30.00</b>  | <b>0.28</b>       |
| <b>Fringe tree</b>        | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Ginkgo</b>             | 0 - 3/4 inches     | 1          | (N/A)          | 5.26          | 0.09              |
|                           | 3/4 - 1 1/2 inches | 1          | (N/A)          | 5.26          | 0.09              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>2</b>   | <b>(N/A)</b>   | <b>10.53</b>  | <b>0.19</b>       |
| <b>Goldenrain tree</b>    | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Green ash</b>          | 0 - 3/4 inches     | 1          | (N/A)          | 25.00         | 0.09              |
|                           | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                           | >1 1/2 inches      | 1          | (N/A)          | 25.00         | 0.09              |
|                           | <b>Total</b>       | <b>2</b>   | <b>(N/A)</b>   | <b>50.00</b>  | <b>0.19</b>       |

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| <b>Sidewalk Heave Conflicts by Species for Public Trees</b> |
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9/12/2014

| Species                    | Conflict           | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|--------------------|------------|----------------|--------------|-------------------|
| <b>Hawthorn</b>            | 0 - 3/4 inches     | 1          | (N/A)          | 33.33        | 0.09              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 1          | (N/A)          | 33.33        | 0.09              |
| <b>Higan cherry</b>        | 0 - 3/4 inches     | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Honeylocust</b>         | 0 - 3/4 inches     | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Horsechestnut</b>       | 0 - 3/4 inches     | 4          | (N/A)          | 57.14        | 0.37              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 4          | (N/A)          | 57.14        | 0.37              |
| <b>Japanese zelkova</b>    | 0 - 3/4 inches     | 8          | (N/A)          | 18.60        | 0.74              |
|                            | 3/4 - 1 1/2 inches | 1          | (N/A)          | 2.33         | 0.09              |
|                            | >1 1/2 inches      | 2          | (N/A)          | 4.65         | 0.19              |
|                            | <b>Total</b>       | 11         | (N/A)          | 25.58        | 1.02              |
| <b>Kentucky coffeetree</b> | 0 - 3/4 inches     | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Kwanzan cherry</b>      | 0 - 3/4 inches     | 7          | (N/A)          | 35.00        | 0.65              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 1          | (N/A)          | 5.00         | 0.09              |
|                            | <b>Total</b>       | 8          | (N/A)          | 40.00        | 0.74              |
| <b>Littleleaf linden</b>   | 0 - 3/4 inches     | 71         | (N/A)          | 36.60        | 6.60              |
|                            | 3/4 - 1 1/2 inches | 14         | (N/A)          | 7.22         | 1.30              |
|                            | >1 1/2 inches      | 19         | (N/A)          | 9.79         | 1.77              |
|                            | <b>Total</b>       | 104        | (N/A)          | 53.61        | 9.67              |
| <b>London planetree</b>    | 0 - 3/4 inches     | 16         | (N/A)          | 39.02        | 1.49              |
|                            | 3/4 - 1 1/2 inches | 5          | (N/A)          | 12.20        | 0.47              |
|                            | >1 1/2 inches      | 6          | (N/A)          | 14.63        | 0.56              |
|                            | <b>Total</b>       | 27         | (N/A)          | 65.85        | 2.51              |
| <b>Northern red oak</b>    | 0 - 3/4 inches     | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Norway maple</b>        | 0 - 3/4 inches     | 9          | (N/A)          | 15.00        | 0.84              |
|                            | 3/4 - 1 1/2 inches | 2          | (N/A)          | 3.33         | 0.19              |
|                            | >1 1/2 inches      | 2          | (N/A)          | 3.33         | 0.19              |
|                            | <b>Total</b>       | 13         | (N/A)          | 21.67        | 1.21              |
| <b>Paperbark maple</b>     | 0 - 3/4 inches     | 2          | (N/A)          | 100.00       | 0.19              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Pin oak</b>             | 0 - 3/4 inches     | 7          | (N/A)          | 25.93        | 0.65              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 7          | (N/A)          | 25.93        | 0.65              |
| <b>Post oak</b>            | 0 - 3/4 inches     | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 0          | (N/A)          | 0.00         | 0.00              |

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|---|
| <b>Sidewalk Heave Conflicts by Species for Public Trees</b> |
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9/12/2014

| Species                | Conflict           | Tree Count | Standard Error | % of Species  | % of Public Trees |
|------------------------|--------------------|------------|----------------|---------------|-------------------|
| <b>Red maple</b>       | 0 - 3/4 inches     | 39         | (N/A)          | 21.79         | 3.63              |
|                        | 3/4 - 1 1/2 inches | 9          | (N/A)          | 5.03          | 0.84              |
|                        | >1 1/2 inches      | 14         | (N/A)          | 7.82          | 1.30              |
|                        | <b>Total</b>       | <b>62</b>  | <b>(N/A)</b>   | <b>34.64</b>  | <b>5.77</b>       |
| <b>Red mulberry</b>    | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>River birch</b>     | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Rose-of-sharon</b>  | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Sassafras</b>       | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Sawtooth oak</b>    | 0 - 3/4 inches     | 1          | (N/A)          | 50.00         | 0.09              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>1</b>   | <b>(N/A)</b>   | <b>50.00</b>  | <b>0.09</b>       |
| <b>Scarlet oak</b>     | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Service berry</b>   | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Silver Linden</b>   | 0 - 3/4 inches     | 6          | (N/A)          | 42.86         | 0.56              |
|                        | 3/4 - 1 1/2 inches | 1          | (N/A)          | 7.14          | 0.09              |
|                        | >1 1/2 inches      | 1          | (N/A)          | 7.14          | 0.09              |
|                        | <b>Total</b>       | <b>8</b>   | <b>(N/A)</b>   | <b>57.14</b>  | <b>0.74</b>       |
| <b>Silver maple</b>    | 0 - 3/4 inches     | 1          | (N/A)          | 50.00         | 0.09              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 1          | (N/A)          | 50.00         | 0.09              |
|                        | <b>Total</b>       | <b>2</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.19</b>       |
| <b>Slippery elm</b>    | 0 - 3/4 inches     | 1          | (N/A)          | 33.33         | 0.09              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>1</b>   | <b>(N/A)</b>   | <b>33.33</b>  | <b>0.09</b>       |
| <b>Swamp white oak</b> | 0 - 3/4 inches     | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>0</b>   | <b>(N/A)</b>   | <b>0.00</b>   | <b>0.00</b>       |
| <b>Sweetgum</b>        | 0 - 3/4 inches     | 2          | (N/A)          | 18.18         | 0.19              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>2</b>   | <b>(N/A)</b>   | <b>18.18</b>  | <b>0.19</b>       |
| <b>Trident maple</b>   | 0 - 3/4 inches     | 1          | (N/A)          | 100.00        | 0.09              |
|                        | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00          | 0.00              |
|                        | >1 1/2 inches      | 0          | (N/A)          | 0.00          | 0.00              |
|                        | <b>Total</b>       | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |

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|---|
| <b>Sidewalk Heave Conflicts by Species for Public Trees</b> |
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9/12/2014

| Species                    | Conflict           | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|--------------------|------------|----------------|--------------|-------------------|
| <b>Tulip tree</b>          | 0 - 3/4 inches     | 3          | (N/A)          | 37.50        | 0.28              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 3          | (N/A)          | 37.50        | 0.28              |
| <b>Washington hawthorn</b> | 0 - 3/4 inches     | 2          | (N/A)          | 100.00       | 0.19              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 2          | (N/A)          | 100.00       | 0.19              |
| <b>White ash</b>           | 0 - 3/4 inches     | 2          | (N/A)          | 18.18        | 0.19              |
|                            | 3/4 - 1 1/2 inches | 1          | (N/A)          | 9.09         | 0.09              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 3          | (N/A)          | 27.27        | 0.28              |
| <b>Willow oak</b>          | 0 - 3/4 inches     | 1          | (N/A)          | 5.56         | 0.09              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 2          | (N/A)          | 11.11        | 0.19              |
|                            | <b>Total</b>       | 3          | (N/A)          | 16.67        | 0.28              |
| <b>Winged Euonymus</b>     | 0 - 3/4 inches     | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Yellowwood</b>          | 0 - 3/4 inches     | 1          | (N/A)          | 25.00        | 0.09              |
|                            | 3/4 - 1 1/2 inches | 0          | (N/A)          | 0.00         | 0.00              |
|                            | >1 1/2 inches      | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b>       | 1          | (N/A)          | 25.00        | 0.09              |

## Overhead Utility Lines Conflicts by Species for Public Trees

9/12/2014

| Species                  | Conflict                          | Tree Count | Standard Error | % of Species | % of Public Trees |
|--------------------------|-----------------------------------|------------|----------------|--------------|-------------------|
| <b>American elm</b>      | No lines                          | 32         | (N/A)          | 80.00        | 2.98              |
|                          | Present and no potential conflict | 2          | (N/A)          | 5.00         | 0.19              |
|                          | Present and conflicting           | 1          | (N/A)          | 2.50         | 0.09              |
|                          | Street Lights                     | 5          | (N/A)          | 12.50        | 0.47              |
|                          | Total                             | 40         | (N/A)          | 100.00       | 3.72              |
| <b>American holly</b>    | No lines                          | 3          | (N/A)          | 100.00       | 0.28              |
|                          | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Total                             | 3          | (N/A)          | 100.00       | 0.28              |
| <b>American sycamore</b> | No lines                          | 5          | (N/A)          | 100.00       | 0.47              |
|                          | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Total                             | 5          | (N/A)          | 100.00       | 0.47              |
| <b>Amur maple</b>        | No lines                          | 1          | (N/A)          | 100.00       | 0.09              |
|                          | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Total                             | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Apple</b>             | No lines                          | 4          | (N/A)          | 100.00       | 0.37              |
|                          | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Total                             | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Black locust</b>      | No lines                          | 3          | (N/A)          | 100.00       | 0.28              |
|                          | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Total                             | 3          | (N/A)          | 100.00       | 0.28              |
| <b>Black oak</b>         | No lines                          | 1          | (N/A)          | 100.00       | 0.09              |
|                          | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Total                             | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Black tupelo</b>      | No lines                          | 14         | (N/A)          | 100.00       | 1.30              |
|                          | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Total                             | 14         | (N/A)          | 100.00       | 1.30              |
| <b>Boxelder</b>          | No lines                          | 1          | (N/A)          | 100.00       | 0.09              |
|                          | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Total                             | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Bur oak</b>           | No lines                          | 1          | (N/A)          | 100.00       | 0.09              |
|                          | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                          | Total                             | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Callery pear</b>      | No lines                          | 153        | (N/A)          | 80.53        | 14.23             |
|                          | Present and no potential conflict | 5          | (N/A)          | 2.63         | 0.47              |
|                          | Present and conflicting           | 14         | (N/A)          | 7.37         | 1.30              |
|                          | Street Lights                     | 14         | (N/A)          | 7.37         | 1.30              |
|                          | Total                             | 186        | (N/A)          | 97.89        | 17.30             |

|   |
|---|
| <b>Overhead Utility Lines Conflicts by Species for Public Trees</b> |
|---|

9/12/2014

| Species                   | Conflict                          | Tree Count | Standard Error | % of Species | % of Public Trees |
|---------------------------|-----------------------------------|------------|----------------|--------------|-------------------|
| <b>Cherry plum</b>        | No lines                          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                             | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Chestnut Oak</b>       | No lines                          | 6          | (N/A)          | 100.00       | 0.56              |
|                           | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                             | 6          | (N/A)          | 100.00       | 0.56              |
| <b>Chinese elm</b>        | No lines                          | 23         | (N/A)          | 88.46        | 2.14              |
|                           | Present and no potential conflict | 1          | (N/A)          | 3.85         | 0.09              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 1          | (N/A)          | 3.85         | 0.09              |
|                           | Total                             | 25         | (N/A)          | 96.15        | 2.33              |
| <b>Common crapemyrtle</b> | No lines                          | 6          | (N/A)          | 85.71        | 0.56              |
|                           | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 1          | (N/A)          | 14.29        | 0.09              |
|                           | Total                             | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Common persimmon</b>   | No lines                          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                             | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Dogwood</b>            | No lines                          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                             | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Eastern cottonwood</b> | No lines                          | 2          | (N/A)          | 100.00       | 0.19              |
|                           | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                             | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Eastern redbud</b>     | No lines                          | 15         | (N/A)          | 100.00       | 1.40              |
|                           | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                             | 15         | (N/A)          | 100.00       | 1.40              |
| <b>English oak</b>        | No lines                          | 8          | (N/A)          | 88.89        | 0.74              |
|                           | Present and no potential conflict | 1          | (N/A)          | 11.11        | 0.09              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                             | 9          | (N/A)          | 100.00       | 0.84              |
| <b>Euonymus</b>           | No lines                          | 7          | (N/A)          | 100.00       | 0.65              |
|                           | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                             | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Flowering dogwood</b>  | No lines                          | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Present and no potential conflict | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Present and conflicting           | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Street Lights                     | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                             | 1          | (N/A)          | 100.00       | 0.09              |

## Overhead Utility Lines Conflicts by Species for Public Trees

9/12/2014

| Species                 | Conflict                          | Tree Count | Standard Error | % of Species | % of Public Trees |
|-------------------------|-----------------------------------|------------|----------------|--------------|-------------------|
| <b>Forsythia</b>        | No lines                          | 1 (N/A)    |                | 100.00       | 0.09              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Total                             | 1 (N/A)    |                | 100.00       | 0.09              |
| <b>Freeman maple</b>    | No lines                          | 10 (N/A)   |                | 100.00       | 0.93              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Total                             | 10 (N/A)   |                | 100.00       | 0.93              |
| <b>Fringe tree</b>      | No lines                          | 2 (N/A)    |                | 100.00       | 0.19              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Total                             | 2 (N/A)    |                | 100.00       | 0.19              |
| <b>Ginkgo</b>           | No lines                          | 18 (N/A)   |                | 94.74        | 1.67              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 1 (N/A)    |                | 5.26         | 0.09              |
|                         | Total                             | 19 (N/A)   |                | 100.00       | 1.77              |
| <b>Goldenrain tree</b>  | No lines                          | 4 (N/A)    |                | 100.00       | 0.37              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Total                             | 4 (N/A)    |                | 100.00       | 0.37              |
| <b>Green ash</b>        | No lines                          | 4 (N/A)    |                | 100.00       | 0.37              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Total                             | 4 (N/A)    |                | 100.00       | 0.37              |
| <b>Hawthorn</b>         | No lines                          | 3 (N/A)    |                | 100.00       | 0.28              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Total                             | 3 (N/A)    |                | 100.00       | 0.28              |
| <b>Higan cherry</b>     | No lines                          | 1 (N/A)    |                | 100.00       | 0.09              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Total                             | 1 (N/A)    |                | 100.00       | 0.09              |
| <b>Honeylocust</b>      | No lines                          | 8 (N/A)    |                | 88.89        | 0.74              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Total                             | 8 (N/A)    |                | 88.89        | 0.74              |
| <b>Horsechestnut</b>    | No lines                          | 5 (N/A)    |                | 71.43        | 0.47              |
|                         | Present and no potential conflict | 2 (N/A)    |                | 28.57        | 0.19              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Total                             | 7 (N/A)    |                | 100.00       | 0.65              |
| <b>Japanese zelkova</b> | No lines                          | 40 (N/A)   |                | 93.02        | 3.72              |
|                         | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                         | Street Lights                     | 3 (N/A)    |                | 6.98         | 0.28              |
|                         | Total                             | 43 (N/A)   |                | 100.00       | 4.00              |

## Overhead Utility Lines Conflicts by Species for Public Trees

9/12/2014

| Species                    | Conflict                          | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|-----------------------------------|------------|----------------|--------------|-------------------|
| <b>Kentucky coffeetree</b> | No lines                          | 2 (N/A)    |                | 100.00       | 0.19              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 2 (N/A)    |                | 100.00       | 0.19              |
| <b>Kwanzan cherry</b>      | No lines                          | 18 (N/A)   |                | 90.00        | 1.67              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 1 (N/A)    |                | 5.00         | 0.09              |
|                            | Street Lights                     | 1 (N/A)    |                | 5.00         | 0.09              |
|                            | Total                             | 20 (N/A)   |                | 100.00       | 1.86              |
| <b>Littleleaf linden</b>   | No lines                          | 163 (N/A)  |                | 84.02        | 15.16             |
|                            | Present and no potential conflict | 4 (N/A)    |                | 2.06         | 0.37              |
|                            | Present and conflicting           | 6 (N/A)    |                | 3.09         | 0.56              |
|                            | Street Lights                     | 19 (N/A)   |                | 9.79         | 1.77              |
|                            | Total                             | 192 (N/A)  |                | 98.97        | 17.86             |
| <b>London planetree</b>    | No lines                          | 35 (N/A)   |                | 85.37        | 3.26              |
|                            | Present and no potential conflict | 1 (N/A)    |                | 2.44         | 0.09              |
|                            | Present and conflicting           | 1 (N/A)    |                | 2.44         | 0.09              |
|                            | Street Lights                     | 4 (N/A)    |                | 9.76         | 0.37              |
|                            | Total                             | 41 (N/A)   |                | 100.00       | 3.81              |
| <b>Northern red oak</b>    | No lines                          | 4 (N/A)    |                | 100.00       | 0.37              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 4 (N/A)    |                | 100.00       | 0.37              |
| <b>Norway maple</b>        | No lines                          | 55 (N/A)   |                | 91.67        | 5.12              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 2 (N/A)    |                | 3.33         | 0.19              |
|                            | Street Lights                     | 3 (N/A)    |                | 5.00         | 0.28              |
|                            | Total                             | 60 (N/A)   |                | 100.00       | 5.58              |
| <b>Paperbark maple</b>     | No lines                          | 1 (N/A)    |                | 50.00        | 0.09              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 1 (N/A)    |                | 50.00        | 0.09              |
|                            | Total                             | 2 (N/A)    |                | 100.00       | 0.19              |
| <b>Pin oak</b>             | No lines                          | 27 (N/A)   |                | 100.00       | 2.51              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 27 (N/A)   |                | 100.00       | 2.51              |
| <b>Post oak</b>            | No lines                          | 1 (N/A)    |                | 100.00       | 0.09              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 1 (N/A)    |                | 100.00       | 0.09              |
| <b>Red maple</b>           | No lines                          | 169 (N/A)  |                | 94.41        | 15.72             |
|                            | Present and no potential conflict | 1 (N/A)    |                | 0.56         | 0.09              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 8 (N/A)    |                | 4.47         | 0.74              |
|                            | Total                             | 178 (N/A)  |                | 99.44        | 16.56             |
| <b>Red mulberry</b>        | No lines                          | 3 (N/A)    |                | 100.00       | 0.28              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 3 (N/A)    |                | 100.00       | 0.28              |

## Overhead Utility Lines Conflicts by Species for Public Trees

9/12/2014

| Species                | Conflict                          | Tree Count Standard Error | % of Species | % of Public Trees |
|------------------------|-----------------------------------|---------------------------|--------------|-------------------|
| <b>River birch</b>     | No lines                          | 2 (N/A)                   | 100.00       | 0.19              |
|                        | Present and no potential conflict | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 2 (N/A)                   | 100.00       | 0.19              |
| <b>Rose-of-sharon</b>  | No lines                          | 1 (N/A)                   | 100.00       | 0.09              |
|                        | Present and no potential conflict | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 1 (N/A)                   | 100.00       | 0.09              |
| <b>Sassafras</b>       | No lines                          | 1 (N/A)                   | 100.00       | 0.09              |
|                        | Present and no potential conflict | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 1 (N/A)                   | 100.00       | 0.09              |
| <b>Sawtooth oak</b>    | No lines                          | 2 (N/A)                   | 100.00       | 0.19              |
|                        | Present and no potential conflict | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 2 (N/A)                   | 100.00       | 0.19              |
| <b>Scarlet oak</b>     | No lines                          | 1 (N/A)                   | 100.00       | 0.09              |
|                        | Present and no potential conflict | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 1 (N/A)                   | 100.00       | 0.09              |
| <b>Service berry</b>   | No lines                          | 12 (N/A)                  | 100.00       | 1.12              |
|                        | Present and no potential conflict | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 12 (N/A)                  | 100.00       | 1.12              |
| <b>Silver Linden</b>   | No lines                          | 13 (N/A)                  | 92.86        | 1.21              |
|                        | Present and no potential conflict | 1 (N/A)                   | 7.14         | 0.09              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 14 (N/A)                  | 100.00       | 1.30              |
| <b>Silver maple</b>    | No lines                          | 1 (N/A)                   | 50.00        | 0.09              |
|                        | Present and no potential conflict | 1 (N/A)                   | 50.00        | 0.09              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 2 (N/A)                   | 100.00       | 0.19              |
| <b>Slippery elm</b>    | No lines                          | 3 (N/A)                   | 100.00       | 0.28              |
|                        | Present and no potential conflict | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 3 (N/A)                   | 100.00       | 0.28              |
| <b>Swamp white oak</b> | No lines                          | 6 (N/A)                   | 100.00       | 0.56              |
|                        | Present and no potential conflict | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 6 (N/A)                   | 100.00       | 0.56              |
| <b>Sweetgum</b>        | No lines                          | 10 (N/A)                  | 90.91        | 0.93              |
|                        | Present and no potential conflict | 1 (N/A)                   | 9.09         | 0.09              |
|                        | Present and conflicting           | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Street Lights                     | 0 (N/A)                   | 0.00         | 0.00              |
|                        | Total                             | 11 (N/A)                  | 100.00       | 1.02              |

## Overhead Utility Lines Conflicts by Species for Public Trees

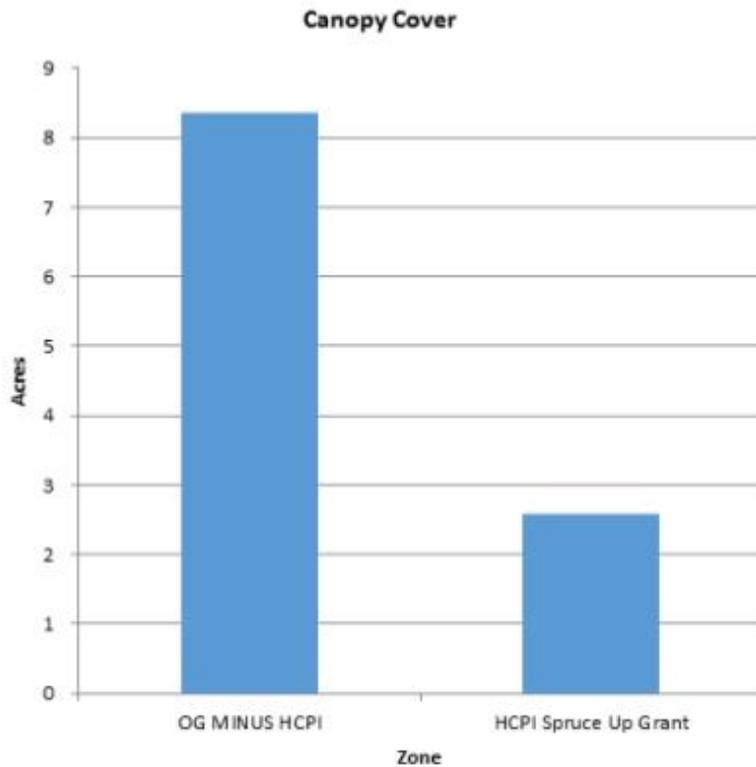
9/12/2014

| Species                    | Conflict                          | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|-----------------------------------|------------|----------------|--------------|-------------------|
| <b>Trident maple</b>       | No lines                          | 1 (N/A)    |                | 100.00       | 0.09              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 1 (N/A)    |                | 100.00       | 0.09              |
| <b>Tulip tree</b>          | No lines                          | 7 (N/A)    |                | 87.50        | 0.65              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 1 (N/A)    |                | 12.50        | 0.09              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 8 (N/A)    |                | 100.00       | 0.74              |
| <b>Washington hawthorn</b> | No lines                          | 2 (N/A)    |                | 100.00       | 0.19              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 2 (N/A)    |                | 100.00       | 0.19              |
| <b>White ash</b>           | No lines                          | 9 (N/A)    |                | 81.82        | 0.84              |
|                            | Present and no potential conflict | 1 (N/A)    |                | 9.09         | 0.09              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 1 (N/A)    |                | 9.09         | 0.09              |
|                            | Total                             | 11 (N/A)   |                | 100.00       | 1.02              |
| <b>Willow oak</b>          | No lines                          | 18 (N/A)   |                | 100.00       | 1.67              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 18 (N/A)   |                | 100.00       | 1.67              |
| <b>Winged Euonymus</b>     | No lines                          | 1 (N/A)    |                | 100.00       | 0.09              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 1 (N/A)    |                | 100.00       | 0.09              |
| <b>Yellowwood</b>          | No lines                          | 4 (N/A)    |                | 100.00       | 0.37              |
|                            | Present and no potential conflict | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Present and conflicting           | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Street Lights                     | 0 (N/A)    |                | 0.00         | 0.00              |
|                            | Total                             | 4 (N/A)    |                | 100.00       | 0.37              |

**Baltimore**

**Canopy Cover of Public Trees (Acres)**

9/17/2014



| Zone              | Acres | % of Total Canopy Cover |
|-------------------|-------|-------------------------|
| OG MINUS HCPI     | 8     | 76.4                    |
| HCPI Spruce Up Gr | 3     | 23.6                    |
| Citywide total    | 11    | 100.0                   |

|                | Total Land Area | Total Street and Sidewalk Area | Total Canopy Cover | Canopy Cover as % of Total Land Area | Canopy Cover as % of Total Streets and Sidewalks |
|----------------|-----------------|--------------------------------|--------------------|--------------------------------------|--|
| Citywide Total | 139             | 28                             | 11                 | 7.88                                 | 38.86  |

## Canopy Diameter for Public Trees by Species

9/12/2014

| Species           | Canopy Diameter | Tree Count | Standard Error | % of Species  | % of Public Trees |
|-------------------|-----------------|------------|----------------|---------------|-------------------|
| American elm      | 1-5'            | 9          | (N/A)          | 22.50         | 0.84              |
|                   | 5-10'           | 6          | (N/A)          | 15.00         | 0.56              |
|                   | 10-15'          | 4          | (N/A)          | 10.00         | 0.37              |
|                   | 15-20'          | 5          | (N/A)          | 12.50         | 0.47              |
|                   | 20-25'          | 5          | (N/A)          | 12.50         | 0.47              |
|                   | 25-30'          | 4          | (N/A)          | 10.00         | 0.37              |
|                   | 30-35'          | 1          | (N/A)          | 2.50          | 0.09              |
|                   | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 40-45'          | 3          | (N/A)          | 7.50          | 0.28              |
|                   | 45-50'          | 3          | (N/A)          | 7.50          | 0.28              |
|                   | <b>Total</b>    | <b>40</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>3.72</b>       |
| American holly    | 1-5'            | 2          | (N/A)          | 66.67         | 0.19              |
|                   | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 10-15'          | 1          | (N/A)          | 33.33         | 0.09              |
|                   | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | <b>Total</b>    | <b>3</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.28</b>       |
| American sycamore | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 5-10'           | 3          | (N/A)          | 60.00         | 0.28              |
|                   | 10-15'          | 1          | (N/A)          | 20.00         | 0.09              |
|                   | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 35-40'          | 1          | (N/A)          | 20.00         | 0.09              |
|                   | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | <b>Total</b>    | <b>5</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.47</b>       |
| Amur maple        | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 15-20'          | 1          | (N/A)          | 100.00        | 0.09              |
|                   | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | <b>Total</b>    | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| Apple             | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 10-15'          | 2          | (N/A)          | 50.00         | 0.19              |
|                   | 15-20'          | 1          | (N/A)          | 25.00         | 0.09              |
|                   | 20-25'          | 1          | (N/A)          | 25.00         | 0.09              |
|                   | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                   | <b>Total</b>    | <b>4</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.37</b>       |

**Canopy Diameter for Public Trees by Species**

9/12/2014

| Species             | Canopy Diameter | Tree Count | Standard Error | % of Species  | % of Public Trees |
|---------------------|-----------------|------------|----------------|---------------|-------------------|
| <b>Black locust</b> | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 15-20'          | 1          | (N/A)          | 33.33         | 0.09              |
|                     | 20-25'          | 1          | (N/A)          | 33.33         | 0.09              |
|                     | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 40-45'          | 1          | (N/A)          | 33.33         | 0.09              |
|                     | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | <b>Total</b>    | <b>3</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.28</b>       |
| <b>Black oak</b>    | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 25-30'          | 1          | (N/A)          | 100.00        | 0.09              |
|                     | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | <b>Total</b>    | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Black tupelo</b> | 1-5'            | 6          | (N/A)          | 42.86         | 0.56              |
|                     | 5-10'           | 3          | (N/A)          | 21.43         | 0.28              |
|                     | 10-15'          | 1          | (N/A)          | 7.14          | 0.09              |
|                     | 15-20'          | 2          | (N/A)          | 14.29         | 0.19              |
|                     | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 25-30'          | 1          | (N/A)          | 7.14          | 0.09              |
|                     | 30-35'          | 1          | (N/A)          | 7.14          | 0.09              |
|                     | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | <b>Total</b>    | <b>14</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>1.30</b>       |
| <b>Boxelder</b>     | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 30-35'          | 1          | (N/A)          | 100.00        | 0.09              |
|                     | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | <b>Total</b>    | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Bur oak</b>      | 1-5'            | 1          | (N/A)          | 100.00        | 0.09              |
|                     | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | <b>Total</b>    | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |

## Canopy Diameter for Public Trees by Species

9/12/2014

| Species                   | Canopy Diameter | Tree Count | Standard Error | % of Species  | % of Public Trees |
|---------------------------|-----------------|------------|----------------|---------------|-------------------|
| <b>Callery pear</b>       | 1-5'            | 1          | (N/A)          | 0.53          | 0.09              |
|                           | 5-10'           | 14         | (N/A)          | 7.37          | 1.30              |
|                           | 10-15'          | 20         | (N/A)          | 10.53         | 1.86              |
|                           | 15-20'          | 41         | (N/A)          | 21.58         | 3.81              |
|                           | 20-25'          | 32         | (N/A)          | 16.84         | 2.98              |
|                           | 25-30'          | 27         | (N/A)          | 14.21         | 2.51              |
|                           | 30-35'          | 18         | (N/A)          | 9.47          | 1.67              |
|                           | 35-40'          | 14         | (N/A)          | 7.37          | 1.30              |
|                           | 40-45'          | 12         | (N/A)          | 6.32          | 1.12              |
|                           | 45-50'          | 11         | (N/A)          | 5.79          | 1.02              |
|                           | <b>Total</b>    | <b>190</b> | <b>(N/A)</b>   | <b>100.00</b> | <b>17.67</b>      |
| <b>Cherry plum</b>        | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 5-10'           | 1          | (N/A)          | 100.00        | 0.09              |
|                           | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>    | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Chestnut Oak</b>       | 1-5'            | 6          | (N/A)          | 100.00        | 0.56              |
|                           | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>    | <b>6</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.56</b>       |
| <b>Chinese elm</b>        | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 5-10'           | 5          | (N/A)          | 19.23         | 0.47              |
|                           | 10-15'          | 7          | (N/A)          | 26.92         | 0.65              |
|                           | 15-20'          | 1          | (N/A)          | 3.85          | 0.09              |
|                           | 20-25'          | 9          | (N/A)          | 34.62         | 0.84              |
|                           | 25-30'          | 3          | (N/A)          | 11.54         | 0.28              |
|                           | 30-35'          | 1          | (N/A)          | 3.85          | 0.09              |
|                           | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>    | <b>26</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>2.42</b>       |
| <b>Common crapemyrtle</b> | 1-5'            | 2          | (N/A)          | 28.57         | 0.19              |
|                           | 5-10'           | 4          | (N/A)          | 57.14         | 0.37              |
|                           | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 15-20'          | 1          | (N/A)          | 14.29         | 0.09              |
|                           | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                           | <b>Total</b>    | <b>7</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.65</b>       |

## Canopy Diameter for Public Trees by Species

9/12/2014

| Species                   | Canopy Diameter | Tree Count Standard Error | % of Species | % of Public Trees |
|---------------------------|-----------------|---------------------------|--------------|-------------------|
| <b>Common persimmon</b>   | 1-5'            | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 5-10'           | 1 (N/A)                   | 100.00       | 0.09              |
|                           | 10-15'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 15-20'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 20-25'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 25-30'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 30-35'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 35-40'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 40-45'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 45-50'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>    | 1 (N/A)                   | 100.00       | 0.09              |
| <b>Dogwood</b>            | 1-5'            | 1 (N/A)                   | 100.00       | 0.09              |
|                           | 5-10'           | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 10-15'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 15-20'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 20-25'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 25-30'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 30-35'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 35-40'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 40-45'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 45-50'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>    | 1 (N/A)                   | 100.00       | 0.09              |
| <b>Eastern cottonwood</b> | 1-5'            | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 5-10'           | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 10-15'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 15-20'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 20-25'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 25-30'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 30-35'          | 2 (N/A)                   | 100.00       | 0.19              |
|                           | 35-40'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 40-45'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 45-50'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>    | 2 (N/A)                   | 100.00       | 0.19              |
| <b>Eastern redbud</b>     | 1-5'            | 7 (N/A)                   | 46.67        | 0.65              |
|                           | 5-10'           | 6 (N/A)                   | 40.00        | 0.56              |
|                           | 10-15'          | 1 (N/A)                   | 6.67         | 0.09              |
|                           | 15-20'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 20-25'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 25-30'          | 1 (N/A)                   | 6.67         | 0.09              |
|                           | 30-35'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 35-40'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 40-45'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 45-50'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>    | 15 (N/A)                  | 100.00       | 1.40              |
| <b>English oak</b>        | 1-5'            | 8 (N/A)                   | 88.89        | 0.74              |
|                           | 5-10'           | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 10-15'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 15-20'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 20-25'          | 1 (N/A)                   | 11.11        | 0.09              |
|                           | 25-30'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 30-35'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 35-40'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 40-45'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | 45-50'          | 0 (N/A)                   | 0.00         | 0.00              |
|                           | <b>Total</b>    | 9 (N/A)                   | 100.00       | 0.84              |

**Canopy Diameter for Public Trees by Species**

9/12/2014

| Species                  | Canopy Diameter | Tree Count | Standard Error | % of Species  | % of Public Trees |
|--------------------------|-----------------|------------|----------------|---------------|-------------------|
| <b>Euonymus</b>          | 1-5'            | 3          | (N/A)          | 42.86         | 0.28              |
|                          | 5-10'           | 4          | (N/A)          | 57.14         | 0.37              |
|                          | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>    | <b>7</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.65</b>       |
| <b>Flowering dogwood</b> | 1-5'            | 1          | (N/A)          | 100.00        | 0.09              |
|                          | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>    | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Forsythia</b>         | 1-5'            | 1          | (N/A)          | 100.00        | 0.09              |
|                          | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>    | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Freeman maple</b>     | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 5-10'           | 2          | (N/A)          | 20.00         | 0.19              |
|                          | 10-15'          | 2          | (N/A)          | 20.00         | 0.19              |
|                          | 15-20'          | 4          | (N/A)          | 40.00         | 0.37              |
|                          | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 25-30'          | 2          | (N/A)          | 20.00         | 0.19              |
|                          | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>    | <b>10</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>0.93</b>       |
| <b>Fringe tree</b>       | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 10-15'          | 2          | (N/A)          | 100.00        | 0.19              |
|                          | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>    | <b>2</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.19</b>       |

**Canopy Diameter for Public Trees by Species**

9/12/2014

| Species                | Canopy Diameter | Tree Count | Standard Error | % of Species | % of Public Trees |
|------------------------|-----------------|------------|----------------|--------------|-------------------|
| <b>Ginkgo</b>          | 1-5'            | 5 (N/A)    |                | 26.32        | 0.47              |
|                        | 5-10'           | 2 (N/A)    |                | 10.53        | 0.19              |
|                        | 10-15'          | 8 (N/A)    |                | 42.11        | 0.74              |
|                        | 15-20'          | 1 (N/A)    |                | 5.26         | 0.09              |
|                        | 20-25'          | 1 (N/A)    |                | 5.26         | 0.09              |
|                        | 25-30'          | 1 (N/A)    |                | 5.26         | 0.09              |
|                        | 30-35'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 35-40'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 40-45'          | 1 (N/A)    |                | 5.26         | 0.09              |
|                        | 45-50'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | <b>Total</b>    | 19 (N/A)   |                | 100.00       | 1.77              |
| <b>Goldenrain tree</b> | 1-5'            | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 5-10'           | 1 (N/A)    |                | 25.00        | 0.09              |
|                        | 10-15'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 15-20'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 20-25'          | 2 (N/A)    |                | 50.00        | 0.19              |
|                        | 25-30'          | 1 (N/A)    |                | 25.00        | 0.09              |
|                        | 30-35'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 35-40'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 40-45'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 45-50'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | <b>Total</b>    | 4 (N/A)    |                | 100.00       | 0.37              |
| <b>Green ash</b>       | 1-5'            | 1 (N/A)    |                | 25.00        | 0.09              |
|                        | 5-10'           | 1 (N/A)    |                | 25.00        | 0.09              |
|                        | 10-15'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 15-20'          | 1 (N/A)    |                | 25.00        | 0.09              |
|                        | 20-25'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 25-30'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 30-35'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 35-40'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 40-45'          | 1 (N/A)    |                | 25.00        | 0.09              |
|                        | 45-50'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | <b>Total</b>    | 4 (N/A)    |                | 100.00       | 0.37              |
| <b>Hawthorn</b>        | 1-5'            | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 5-10'           | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 10-15'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 15-20'          | 2 (N/A)    |                | 66.67        | 0.19              |
|                        | 20-25'          | 1 (N/A)    |                | 33.33        | 0.09              |
|                        | 25-30'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 30-35'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 35-40'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 40-45'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 45-50'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | <b>Total</b>    | 3 (N/A)    |                | 100.00       | 0.28              |
| <b>Higan cherry</b>    | 1-5'            | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 5-10'           | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 10-15'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 15-20'          | 1 (N/A)    |                | 100.00       | 0.09              |
|                        | 20-25'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 25-30'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 30-35'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 35-40'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 40-45'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | 45-50'          | 0 (N/A)    |                | 0.00         | 0.00              |
|                        | <b>Total</b>    | 1 (N/A)    |                | 100.00       | 0.09              |

## Canopy Diameter for Public Trees by Species

9/12/2014

| Species                    | Canopy Diameter | Tree Count | Standard Error | % of Species  | % of Public Trees |
|----------------------------|-----------------|------------|----------------|---------------|-------------------|
| <b>Honeylocust</b>         | 1-5'            | 2          | (N/A)          | 22.22         | 0.19              |
|                            | 5-10'           | 4          | (N/A)          | 44.44         | 0.37              |
|                            | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 25-30'          | 1          | (N/A)          | 11.11         | 0.09              |
|                            | 30-35'          | 1          | (N/A)          | 11.11         | 0.09              |
|                            | 35-40'          | 1          | (N/A)          | 11.11         | 0.09              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>9</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.84</b>       |
| <b>Horsechestnut</b>       | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 10-15'          | 2          | (N/A)          | 28.57         | 0.19              |
|                            | 15-20'          | 2          | (N/A)          | 28.57         | 0.19              |
|                            | 20-25'          | 2          | (N/A)          | 28.57         | 0.19              |
|                            | 25-30'          | 1          | (N/A)          | 14.29         | 0.09              |
|                            | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>7</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.65</b>       |
| <b>Japanese zelkova</b>    | 1-5'            | 7          | (N/A)          | 16.28         | 0.65              |
|                            | 5-10'           | 9          | (N/A)          | 20.93         | 0.84              |
|                            | 10-15'          | 5          | (N/A)          | 11.63         | 0.47              |
|                            | 15-20'          | 6          | (N/A)          | 13.95         | 0.56              |
|                            | 20-25'          | 7          | (N/A)          | 16.28         | 0.65              |
|                            | 25-30'          | 5          | (N/A)          | 11.63         | 0.47              |
|                            | 30-35'          | 2          | (N/A)          | 4.65          | 0.19              |
|                            | 35-40'          | 2          | (N/A)          | 4.65          | 0.19              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>43</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>4.00</b>       |
| <b>Kentucky coffeetree</b> | 1-5'            | 1          | (N/A)          | 50.00         | 0.09              |
|                            | 5-10'           | 1          | (N/A)          | 50.00         | 0.09              |
|                            | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>2</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.19</b>       |
| <b>Kwanzan cherry</b>      | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 5-10'           | 3          | (N/A)          | 15.00         | 0.28              |
|                            | 10-15'          | 4          | (N/A)          | 20.00         | 0.37              |
|                            | 15-20'          | 5          | (N/A)          | 25.00         | 0.47              |
|                            | 20-25'          | 4          | (N/A)          | 20.00         | 0.37              |
|                            | 25-30'          | 2          | (N/A)          | 10.00         | 0.19              |
|                            | 30-35'          | 2          | (N/A)          | 10.00         | 0.19              |
|                            | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>20</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>1.86</b>       |

## Canopy Diameter for Public Trees by Species

9/12/2014

| Species                  | Canopy Diameter | Tree Count | Standard Error | % of Species  | % of Public Trees |
|--------------------------|-----------------|------------|----------------|---------------|-------------------|
| <b>Littleleaf linden</b> | 1-5'            | 4          | (N/A)          | 2.06          | 0.37              |
|                          | 5-10'           | 16         | (N/A)          | 8.25          | 1.49              |
|                          | 10-15'          | 22         | (N/A)          | 11.34         | 2.05              |
|                          | 15-20'          | 39         | (N/A)          | 20.10         | 3.63              |
|                          | 20-25'          | 44         | (N/A)          | 22.68         | 4.09              |
|                          | 25-30'          | 41         | (N/A)          | 21.13         | 3.81              |
|                          | 30-35'          | 20         | (N/A)          | 10.31         | 1.86              |
|                          | 35-40'          | 5          | (N/A)          | 2.58          | 0.47              |
|                          | 40-45'          | 2          | (N/A)          | 1.03          | 0.19              |
|                          | 45-50'          | 1          | (N/A)          | 0.52          | 0.09              |
| <b>Total</b>             |                 | <b>194</b> | <b>(N/A)</b>   | <b>100.00</b> | <b>18.05</b>      |
| <b>London planetree</b>  | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 10-15'          | 2          | (N/A)          | 4.88          | 0.19              |
|                          | 15-20'          | 1          | (N/A)          | 2.44          | 0.09              |
|                          | 20-25'          | 8          | (N/A)          | 19.51         | 0.74              |
|                          | 25-30'          | 6          | (N/A)          | 14.63         | 0.56              |
|                          | 30-35'          | 9          | (N/A)          | 21.95         | 0.84              |
|                          | 35-40'          | 9          | (N/A)          | 21.95         | 0.84              |
|                          | 40-45'          | 3          | (N/A)          | 7.32          | 0.28              |
|                          | 45-50'          | 3          | (N/A)          | 7.32          | 0.28              |
| <b>Total</b>             |                 | <b>41</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>3.81</b>       |
| <b>Northern red oak</b>  | 1-5'            | 1          | (N/A)          | 25.00         | 0.09              |
|                          | 5-10'           | 2          | (N/A)          | 50.00         | 0.19              |
|                          | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 15-20'          | 1          | (N/A)          | 25.00         | 0.09              |
|                          | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
| <b>Total</b>             |                 | <b>4</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.37</b>       |
| <b>Norway maple</b>      | 1-5'            | 3          | (N/A)          | 5.00          | 0.28              |
|                          | 5-10'           | 3          | (N/A)          | 5.00          | 0.28              |
|                          | 10-15'          | 13         | (N/A)          | 21.67         | 1.21              |
|                          | 15-20'          | 16         | (N/A)          | 26.67         | 1.49              |
|                          | 20-25'          | 11         | (N/A)          | 18.33         | 1.02              |
|                          | 25-30'          | 7          | (N/A)          | 11.67         | 0.65              |
|                          | 30-35'          | 7          | (N/A)          | 11.67         | 0.65              |
|                          | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
| <b>Total</b>             |                 | <b>60</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>5.58</b>       |
| <b>Paperbark maple</b>   | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 15-20'          | 2          | (N/A)          | 100.00        | 0.19              |
|                          | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
| <b>Total</b>             |                 | <b>2</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.19</b>       |

## Canopy Diameter for Public Trees by Species

9/12/2014

| Species             | Canopy Diameter | Tree Count | Standard Error | % of Species  | % of Public Trees |
|---------------------|-----------------|------------|----------------|---------------|-------------------|
| <b>Pin oak</b>      | 1-5'            | 9          | (N/A)          | 33.33         | 0.84              |
|                     | 5-10'           | 12         | (N/A)          | 44.44         | 1.12              |
|                     | 10-15'          | 4          | (N/A)          | 14.81         | 0.37              |
|                     | 15-20'          | 2          | (N/A)          | 7.41          | 0.19              |
|                     | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | <b>Total</b>    | <b>27</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>2.51</b>       |
| <b>Post oak</b>     | 1-5'            | 1          | (N/A)          | 100.00        | 0.09              |
|                     | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | <b>Total</b>    | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Red maple</b>    | 1-5'            | 14         | (N/A)          | 7.82          | 1.30              |
|                     | 5-10'           | 43         | (N/A)          | 24.02         | 4.00              |
|                     | 10-15'          | 37         | (N/A)          | 20.67         | 3.44              |
|                     | 15-20'          | 17         | (N/A)          | 9.50          | 1.58              |
|                     | 20-25'          | 23         | (N/A)          | 12.85         | 2.14              |
|                     | 25-30'          | 20         | (N/A)          | 11.17         | 1.86              |
|                     | 30-35'          | 11         | (N/A)          | 6.15          | 1.02              |
|                     | 35-40'          | 7          | (N/A)          | 3.91          | 0.65              |
|                     | 40-45'          | 4          | (N/A)          | 2.23          | 0.37              |
|                     | 45-50'          | 3          | (N/A)          | 1.68          | 0.28              |
|                     | <b>Total</b>    | <b>179</b> | <b>(N/A)</b>   | <b>100.00</b> | <b>16.65</b>      |
| <b>Red mulberry</b> | 1-5'            | 1          | (N/A)          | 33.33         | 0.09              |
|                     | 5-10'           | 2          | (N/A)          | 66.67         | 0.19              |
|                     | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | <b>Total</b>    | <b>3</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.28</b>       |
| <b>River birch</b>  | 1-5'            | 1          | (N/A)          | 50.00         | 0.09              |
|                     | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 20-25'          | 1          | (N/A)          | 50.00         | 0.09              |
|                     | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                     | <b>Total</b>    | <b>2</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.19</b>       |

### Canopy Diameter for Public Trees by Species

9/12/2014

| Species               | Canopy Diameter | Tree Count | Standard Error | % of Species | % of Public Trees |
|-----------------------|-----------------|------------|----------------|--------------|-------------------|
| <b>Rose-of-sharon</b> | 1-5'            | 1          | (N/A)          | 100.00       | 0.09              |
|                       | 5-10'           | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 10-15'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 15-20'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-25'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 25-30'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-35'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 35-40'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 40-45'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 45-50'          | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>          |                 | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Sassafras</b>      | 1-5'            | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 5-10'           | 1          | (N/A)          | 100.00       | 0.09              |
|                       | 10-15'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 15-20'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-25'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 25-30'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-35'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 35-40'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 40-45'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 45-50'          | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>          |                 | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Sawtooth oak</b>   | 1-5'            | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 5-10'           | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 10-15'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 15-20'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-25'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 25-30'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-35'          | 1          | (N/A)          | 50.00        | 0.09              |
|                       | 35-40'          | 1          | (N/A)          | 50.00        | 0.09              |
|                       | 40-45'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 45-50'          | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>          |                 | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Scarlet oak</b>    | 1-5'            | 1          | (N/A)          | 100.00       | 0.09              |
|                       | 5-10'           | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 10-15'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 15-20'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-25'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 25-30'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-35'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 35-40'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 40-45'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 45-50'          | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>          |                 | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Service berry</b>  | 1-5'            | 4          | (N/A)          | 33.33        | 0.37              |
|                       | 5-10'           | 7          | (N/A)          | 58.33        | 0.65              |
|                       | 10-15'          | 1          | (N/A)          | 8.33         | 0.09              |
|                       | 15-20'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-25'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 25-30'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-35'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 35-40'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 40-45'          | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 45-50'          | 0          | (N/A)          | 0.00         | 0.00              |
| <b>Total</b>          |                 | 12         | (N/A)          | 100.00       | 1.12              |

## Canopy Diameter for Public Trees by Species

9/12/2014

| Species                | Canopy Diameter | Tree Count | Standard Error | % of Species  | % of Public Trees |
|------------------------|-----------------|------------|----------------|---------------|-------------------|
| <b>Silver Linden</b>   | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 5-10'           | 3          | (N/A)          | 21.43         | 0.28              |
|                        | 10-15'          | 3          | (N/A)          | 21.43         | 0.28              |
|                        | 15-20'          | 2          | (N/A)          | 14.29         | 0.19              |
|                        | 20-25'          | 2          | (N/A)          | 14.29         | 0.19              |
|                        | 25-30'          | 3          | (N/A)          | 21.43         | 0.28              |
|                        | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 35-40'          | 1          | (N/A)          | 7.14          | 0.09              |
|                        | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
| <b>Total</b>           |                 | <b>14</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>1.30</b>       |
| <b>Silver maple</b>    | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 30-35'          | 1          | (N/A)          | 50.00         | 0.09              |
|                        | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 40-45'          | 1          | (N/A)          | 50.00         | 0.09              |
|                        | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
| <b>Total</b>           |                 | <b>2</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.19</b>       |
| <b>Slippery elm</b>    | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 10-15'          | 2          | (N/A)          | 66.67         | 0.19              |
|                        | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 20-25'          | 1          | (N/A)          | 33.33         | 0.09              |
|                        | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
| <b>Total</b>           |                 | <b>3</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.28</b>       |
| <b>Swamp white oak</b> | 1-5'            | 6          | (N/A)          | 100.00        | 0.56              |
|                        | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
| <b>Total</b>           |                 | <b>6</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.56</b>       |
| <b>Sweetgum</b>        | 1-5'            | 5          | (N/A)          | 45.45         | 0.47              |
|                        | 5-10'           | 3          | (N/A)          | 27.27         | 0.28              |
|                        | 10-15'          | 2          | (N/A)          | 18.18         | 0.19              |
|                        | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 25-30'          | 1          | (N/A)          | 9.09          | 0.09              |
|                        | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                        | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
| <b>Total</b>           |                 | <b>11</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>1.02</b>       |

## Canopy Diameter for Public Trees by Species

9/12/2014

| Species                    | Canopy Diameter | Tree Count | Standard Error | % of Species  | % of Public Trees |
|----------------------------|-----------------|------------|----------------|---------------|-------------------|
| <b>Trident maple</b>       | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 15-20'          | 1          | (N/A)          | 100.00        | 0.09              |
|                            | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Tulip tree</b>          | 1-5'            | 5          | (N/A)          | 62.50         | 0.47              |
|                            | 5-10'           | 3          | (N/A)          | 37.50         | 0.28              |
|                            | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>8</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.74</b>       |
| <b>Washington hawthorn</b> | 1-5'            | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 5-10'           | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 10-15'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 20-25'          | 1          | (N/A)          | 50.00         | 0.09              |
|                            | 25-30'          | 1          | (N/A)          | 50.00         | 0.09              |
|                            | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>2</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.19</b>       |
| <b>White ash</b>           | 1-5'            | 2          | (N/A)          | 18.18         | 0.19              |
|                            | 5-10'           | 2          | (N/A)          | 18.18         | 0.19              |
|                            | 10-15'          | 1          | (N/A)          | 9.09          | 0.09              |
|                            | 15-20'          | 2          | (N/A)          | 18.18         | 0.19              |
|                            | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 30-35'          | 3          | (N/A)          | 27.27         | 0.28              |
|                            | 35-40'          | 1          | (N/A)          | 9.09          | 0.09              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>11</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>1.02</b>       |
| <b>Willow oak</b>          | 1-5'            | 7          | (N/A)          | 38.89         | 0.65              |
|                            | 5-10'           | 8          | (N/A)          | 44.44         | 0.74              |
|                            | 10-15'          | 3          | (N/A)          | 16.67         | 0.28              |
|                            | 15-20'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 20-25'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 25-30'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 30-35'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 35-40'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 40-45'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 45-50'          | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>    | <b>18</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>1.67</b>       |

## Canopy Diameter for Public Trees by Species

9/12/2014

| Species                | Canopy Diameter | Tree Count | Standard Error | % of Species | % of Public Trees |
|------------------------|-----------------|------------|----------------|--------------|-------------------|
| <b>Winged Euonymus</b> | 1-5'            | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 5-10'           | 1          | (N/A)          | 100.00       | 0.09              |
|                        | 10-15'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 15-20'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 20-25'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 25-30'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30-35'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 35-40'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 40-45'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 45-50'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>    | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Yellowwood</b>      | 1-5'            | 3          | (N/A)          | 75.00        | 0.28              |
|                        | 5-10'           | 1          | (N/A)          | 25.00        | 0.09              |
|                        | 10-15'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 15-20'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 20-25'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 25-30'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30-35'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 35-40'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 40-45'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 45-50'          | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b>    | 4          | (N/A)          | 100.00       | 0.37              |

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|--|
| <b>Tree Height for Public Trees by Species</b> |
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9/12/2014

| Species                  | Tree Height  | Tree Count | Standard Error | % of Species | % of Public Trees |
|--------------------------|--------------|------------|----------------|--------------|-------------------|
| <b>American elm</b>      | 5-10'        | 4          | (N/A)          | 10.00        | 0.37              |
|                          | 10-15'       | 10         | (N/A)          | 25.00        | 0.93              |
|                          | 15-20'       | 7          | (N/A)          | 17.50        | 0.65              |
|                          | 20-30'       | 9          | (N/A)          | 22.50        | 0.84              |
|                          | 30-40'       | 6          | (N/A)          | 15.00        | 0.56              |
|                          | 40-50'       | 2          | (N/A)          | 5.00         | 0.19              |
|                          | 50-60'       | 2          | (N/A)          | 5.00         | 0.19              |
|                          | <b>Total</b> |            | <b>40</b>      | <b>(N/A)</b> | <b>100.00</b>     |
| <b>American holly</b>    | 5-10'        | 2          | (N/A)          | 66.67        | 0.19              |
|                          | 10-15'       | 1          | (N/A)          | 33.33        | 0.09              |
|                          | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | <b>3</b>       | <b>(N/A)</b> | <b>100.00</b>     |
| <b>American sycamore</b> | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 10-15'       | 3          | (N/A)          | 60.00        | 0.28              |
|                          | 15-20'       | 1          | (N/A)          | 20.00        | 0.09              |
|                          | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30-40'       | 1          | (N/A)          | 20.00        | 0.09              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | <b>5</b>       | <b>(N/A)</b> | <b>100.00</b>     |
| <b>Amur maple</b>        | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 10-15'       | 1          | (N/A)          | 100.00       | 0.09              |
|                          | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | <b>1</b>       | <b>(N/A)</b> | <b>100.00</b>     |
| <b>Apple</b>             | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 15-20'       | 2          | (N/A)          | 50.00        | 0.19              |
|                          | 20-30'       | 2          | (N/A)          | 50.00        | 0.19              |
|                          | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | <b>4</b>       | <b>(N/A)</b> | <b>100.00</b>     |
| <b>Black locust</b>      | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 20-30'       | 2          | (N/A)          | 66.67        | 0.19              |
|                          | 30-40'       | 1          | (N/A)          | 33.33        | 0.09              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | <b>3</b>       | <b>(N/A)</b> | <b>100.00</b>     |
| <b>Black oak</b>         | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30-40'       | 1          | (N/A)          | 100.00       | 0.09              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | <b>1</b>       | <b>(N/A)</b> | <b>100.00</b>     |

**Tree Height for Public Trees by Species**

9/12/2014

| Species             | Tree Height  | Tree Count | Standard Error | % of Species | % of Public Trees |
|---------------------|--------------|------------|----------------|--------------|-------------------|
| <b>Black tupelo</b> | 5-10'        | 5          | (N/A)          | 35.71        | 0.47              |
|                     | 10-15'       | 5          | (N/A)          | 35.71        | 0.47              |
|                     | 15-20'       | 2          | (N/A)          | 14.29        | 0.19              |
|                     | 20-30'       | 1          | (N/A)          | 7.14         | 0.09              |
|                     | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 40-50'       | 1          | (N/A)          | 7.14         | 0.09              |
|                     | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b> |            | 14             | (N/A)        | 100.00            |
| <b>Boxelder</b>     | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 20-30'       | 1          | (N/A)          | 100.00       | 0.09              |
|                     | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b> |            | 1              | (N/A)        | 100.00            |
| <b>Bur oak</b>      | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 10-15'       | 1          | (N/A)          | 100.00       | 0.09              |
|                     | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b> |            | 1              | (N/A)        | 100.00            |
| <b>Callery pear</b> | 5-10'        | 3          | (N/A)          | 1.58         | 0.28              |
|                     | 10-15'       | 12         | (N/A)          | 6.32         | 1.12              |
|                     | 15-20'       | 24         | (N/A)          | 12.63        | 2.23              |
|                     | 20-30'       | 93         | (N/A)          | 48.95        | 8.65              |
|                     | 30-40'       | 56         | (N/A)          | 29.47        | 5.21              |
|                     | 40-50'       | 2          | (N/A)          | 1.05         | 0.19              |
|                     | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b> |            | 190            | (N/A)        | 100.00            |
| <b>Cherry plum</b>  | 5-10'        | 1          | (N/A)          | 100.00       | 0.09              |
|                     | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b> |            | 1              | (N/A)        | 100.00            |
| <b>Chestnut Oak</b> | 5-10'        | 6          | (N/A)          | 100.00       | 0.56              |
|                     | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b> |            | 6              | (N/A)        | 100.00            |
| <b>Chinese elm</b>  | 5-10'        | 1          | (N/A)          | 3.85         | 0.09              |
|                     | 10-15'       | 4          | (N/A)          | 15.38        | 0.37              |
|                     | 15-20'       | 9          | (N/A)          | 34.62        | 0.84              |
|                     | 20-30'       | 12         | (N/A)          | 46.15        | 1.12              |
|                     | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                     | <b>Total</b> |            | 26             | (N/A)        | 100.00            |

## Tree Height for Public Trees by Species

9/12/2014

| Species                   | Tree Height  | Tree Count | Standard Error | % of Species | % of Public Trees |
|---------------------------|--------------|------------|----------------|--------------|-------------------|
| <b>Common crapemyrtle</b> | 5-10'        | 4          | (N/A)          | 57.14        | 0.37              |
|                           | 10-15'       | 2          | (N/A)          | 28.57        | 0.19              |
|                           | 15-20'       | 1          | (N/A)          | 14.29        | 0.09              |
|                           | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | <b>Total</b> |            | 7              | (N/A)        | 100.00            |
| <b>Common persimmon</b>   | 5-10'        | 1          | (N/A)          | 100.00       | 0.09              |
|                           | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | <b>Total</b> |            | 1              | (N/A)        | 100.00            |
| <b>Dogwood</b>            | 5-10'        | 1          | (N/A)          | 100.00       | 0.09              |
|                           | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | <b>Total</b> |            | 1              | (N/A)        | 100.00            |
| <b>Eastern cottonwood</b> | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 20-30'       | 1          | (N/A)          | 50.00        | 0.09              |
|                           | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 40-50'       | 1          | (N/A)          | 50.00        | 0.09              |
|                           | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | <b>Total</b> |            | 2              | (N/A)        | 100.00            |
| <b>Eastern redbud</b>     | 5-10'        | 12         | (N/A)          | 80.00        | 1.12              |
|                           | 10-15'       | 2          | (N/A)          | 13.33        | 0.19              |
|                           | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 20-30'       | 1          | (N/A)          | 6.67         | 0.09              |
|                           | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | <b>Total</b> |            | 15             | (N/A)        | 100.00            |
| <b>English oak</b>        | 5-10'        | 7          | (N/A)          | 77.78        | 0.65              |
|                           | 10-15'       | 1          | (N/A)          | 11.11        | 0.09              |
|                           | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 40-50'       | 1          | (N/A)          | 11.11        | 0.09              |
|                           | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | <b>Total</b> |            | 9              | (N/A)        | 100.00            |
| <b>Euonymus</b>           | 5-10'        | 7          | (N/A)          | 100.00       | 0.65              |
|                           | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                           | <b>Total</b> |            | 7              | (N/A)        | 100.00            |

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| <b>Tree Height for Public Trees by Species</b> |
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9/12/2014

| Species                  | Tree Height | Tree Count Standard Error | % of Species | % of Public Trees |
|--------------------------|-------------|---------------------------|--------------|-------------------|
| <b>Flowering dogwood</b> | 5-10'       | 1 (N/A)                   | 100.00       | 0.09              |
|                          | 10-15'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 15-20'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 20-30'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 30-40'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 40-50'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 50-60'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | Total       | 1 (N/A)                   | 100.00       | 0.09              |
| <b>Forsythia</b>         | 5-10'       | 1 (N/A)                   | 100.00       | 0.09              |
|                          | 10-15'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 15-20'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 20-30'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 30-40'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 40-50'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 50-60'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | Total       | 1 (N/A)                   | 100.00       | 0.09              |
| <b>Freeman maple</b>     | 5-10'       | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 10-15'      | 2 (N/A)                   | 20.00        | 0.19              |
|                          | 15-20'      | 3 (N/A)                   | 30.00        | 0.28              |
|                          | 20-30'      | 5 (N/A)                   | 50.00        | 0.47              |
|                          | 30-40'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 40-50'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 50-60'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | Total       | 10 (N/A)                  | 100.00       | 0.93              |
| <b>Fringe tree</b>       | 5-10'       | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 10-15'      | 1 (N/A)                   | 50.00        | 0.09              |
|                          | 15-20'      | 1 (N/A)                   | 50.00        | 0.09              |
|                          | 20-30'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 30-40'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 40-50'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 50-60'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | Total       | 2 (N/A)                   | 100.00       | 0.19              |
| <b>Ginkgo</b>            | 5-10'       | 4 (N/A)                   | 21.05        | 0.37              |
|                          | 10-15'      | 2 (N/A)                   | 10.53        | 0.19              |
|                          | 15-20'      | 3 (N/A)                   | 15.79        | 0.28              |
|                          | 20-30'      | 3 (N/A)                   | 15.79        | 0.28              |
|                          | 30-40'      | 6 (N/A)                   | 31.58        | 0.56              |
|                          | 40-50'      | 1 (N/A)                   | 5.26         | 0.09              |
|                          | 50-60'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | Total       | 19 (N/A)                  | 100.00       | 1.77              |
| <b>Goldenrain tree</b>   | 5-10'       | 1 (N/A)                   | 25.00        | 0.09              |
|                          | 10-15'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 15-20'      | 2 (N/A)                   | 50.00        | 0.19              |
|                          | 20-30'      | 1 (N/A)                   | 25.00        | 0.09              |
|                          | 30-40'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 40-50'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 50-60'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | Total       | 4 (N/A)                   | 100.00       | 0.37              |
| <b>Green ash</b>         | 5-10'       | 1 (N/A)                   | 25.00        | 0.09              |
|                          | 10-15'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 15-20'      | 2 (N/A)                   | 50.00        | 0.19              |
|                          | 20-30'      | 1 (N/A)                   | 25.00        | 0.09              |
|                          | 30-40'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 40-50'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | 50-60'      | 0 (N/A)                   | 0.00         | 0.00              |
|                          | Total       | 4 (N/A)                   | 100.00       | 0.37              |

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| <b>Tree Height for Public Trees by Species</b> |
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9/12/2014

| Species                    | Tree Height  | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|--------------|------------|----------------|--------------|-------------------|
| <b>Hawthorn</b>            | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 10-15'       | 2          | (N/A)          | 66.67        | 0.19              |
|                            | 15-20'       | 1          | (N/A)          | 33.33        | 0.09              |
|                            | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 3              | (N/A)        | 100.00            |
| <b>Higan cherry</b>        | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 10-15'       | 1          | (N/A)          | 100.00       | 0.09              |
|                            | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 1              | (N/A)        | 100.00            |
| <b>Honeylocust</b>         | 5-10'        | 1          | (N/A)          | 11.11        | 0.09              |
|                            | 10-15'       | 2          | (N/A)          | 22.22        | 0.19              |
|                            | 15-20'       | 3          | (N/A)          | 33.33        | 0.28              |
|                            | 20-30'       | 3          | (N/A)          | 33.33        | 0.28              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 9              | (N/A)        | 100.00            |
| <b>Horsechestnut</b>       | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 10-15'       | 2          | (N/A)          | 28.57        | 0.19              |
|                            | 15-20'       | 4          | (N/A)          | 57.14        | 0.37              |
|                            | 20-30'       | 1          | (N/A)          | 14.29        | 0.09              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 7              | (N/A)        | 100.00            |
| <b>Japanese zelkova</b>    | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 10-15'       | 11         | (N/A)          | 25.58        | 1.02              |
|                            | 15-20'       | 11         | (N/A)          | 25.58        | 1.02              |
|                            | 20-30'       | 18         | (N/A)          | 41.86        | 1.67              |
|                            | 30-40'       | 3          | (N/A)          | 6.98         | 0.28              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 43             | (N/A)        | 100.00            |
| <b>Kentucky coffeetree</b> | 5-10'        | 2          | (N/A)          | 100.00       | 0.19              |
|                            | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 2              | (N/A)        | 100.00            |
| <b>Kwanzan cherry</b>      | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 10-15'       | 7          | (N/A)          | 35.00        | 0.65              |
|                            | 15-20'       | 10         | (N/A)          | 50.00        | 0.93              |
|                            | 20-30'       | 3          | (N/A)          | 15.00        | 0.28              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 20             | (N/A)        | 100.00            |

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| <b>Tree Height for Public Trees by Species</b> |
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9/12/2014

| Species                  | Tree Height  | Tree Count | Standard Error | % of Species | % of Public Trees |
|--------------------------|--------------|------------|----------------|--------------|-------------------|
| <b>Littleleaf linden</b> | 5-10'        | 7          | (N/A)          | 3.61         | 0.65              |
|                          | 10-15'       | 20         | (N/A)          | 10.31        | 1.86              |
|                          | 15-20'       | 35         | (N/A)          | 18.04        | 3.26              |
|                          | 20-30'       | 89         | (N/A)          | 45.88        | 8.28              |
|                          | 30-40'       | 42         | (N/A)          | 21.65        | 3.91              |
|                          | 40-50'       | 1          | (N/A)          | 0.52         | 0.09              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | 194            | (N/A)        | 100.00            |
| <b>London planetree</b>  | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 15-20'       | 3          | (N/A)          | 7.32         | 0.28              |
|                          | 20-30'       | 5          | (N/A)          | 12.20        | 0.47              |
|                          | 30-40'       | 17         | (N/A)          | 41.46        | 1.58              |
|                          | 40-50'       | 16         | (N/A)          | 39.02        | 1.49              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | 41             | (N/A)        | 100.00            |
| <b>Northern red oak</b>  | 5-10'        | 1          | (N/A)          | 25.00        | 0.09              |
|                          | 10-15'       | 2          | (N/A)          | 50.00        | 0.19              |
|                          | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30-40'       | 1          | (N/A)          | 25.00        | 0.09              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | 4              | (N/A)        | 100.00            |
| <b>Norway maple</b>      | 5-10'        | 1          | (N/A)          | 1.67         | 0.09              |
|                          | 10-15'       | 10         | (N/A)          | 16.67        | 0.93              |
|                          | 15-20'       | 13         | (N/A)          | 21.67        | 1.21              |
|                          | 20-30'       | 27         | (N/A)          | 45.00        | 2.51              |
|                          | 30-40'       | 9          | (N/A)          | 15.00        | 0.84              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | 60             | (N/A)        | 100.00            |
| <b>Paperbark maple</b>   | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 15-20'       | 1          | (N/A)          | 50.00        | 0.09              |
|                          | 20-30'       | 1          | (N/A)          | 50.00        | 0.09              |
|                          | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | 2              | (N/A)        | 100.00            |
| <b>Pin oak</b>           | 5-10'        | 13         | (N/A)          | 48.15        | 1.21              |
|                          | 10-15'       | 10         | (N/A)          | 37.04        | 0.93              |
|                          | 15-20'       | 4          | (N/A)          | 14.81        | 0.37              |
|                          | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | 27             | (N/A)        | 100.00            |
| <b>Post oak</b>          | 5-10'        | 1          | (N/A)          | 100.00       | 0.09              |
|                          | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                          | <b>Total</b> |            | 1              | (N/A)        | 100.00            |

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| <b>Tree Height for Public Trees by Species</b> |
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9/12/2014

| Species               | Tree Height  | Tree Count | Standard Error | % of Species | % of Public Trees |
|-----------------------|--------------|------------|----------------|--------------|-------------------|
| <b>Red maple</b>      | 5-10'        | 11         | (N/A)          | 6.15         | 1.02              |
|                       | 10-15'       | 49         | (N/A)          | 27.37        | 4.56              |
|                       | 15-20'       | 34         | (N/A)          | 18.99        | 3.16              |
|                       | 20-30'       | 63         | (N/A)          | 35.20        | 5.86              |
|                       | 30-40'       | 19         | (N/A)          | 10.61        | 1.77              |
|                       | 40-50'       | 3          | (N/A)          | 1.68         | 0.28              |
|                       | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b> |            | 179            | (N/A)        | 100.00            |
| <b>Red mulberry</b>   | 5-10'        | 1          | (N/A)          | 33.33        | 0.09              |
|                       | 10-15'       | 1          | (N/A)          | 33.33        | 0.09              |
|                       | 15-20'       | 1          | (N/A)          | 33.33        | 0.09              |
|                       | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b> |            | 3              | (N/A)        | 100.00            |
| <b>River birch</b>    | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 10-15'       | 1          | (N/A)          | 50.00        | 0.09              |
|                       | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-30'       | 1          | (N/A)          | 50.00        | 0.09              |
|                       | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b> |            | 2              | (N/A)        | 100.00            |
| <b>Rose-of-sharon</b> | 5-10'        | 1          | (N/A)          | 100.00       | 0.09              |
|                       | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b> |            | 1              | (N/A)        | 100.00            |
| <b>Sassafras</b>      | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 10-15'       | 1          | (N/A)          | 100.00       | 0.09              |
|                       | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b> |            | 1              | (N/A)        | 100.00            |
| <b>Sawtooth oak</b>   | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-40'       | 2          | (N/A)          | 100.00       | 0.19              |
|                       | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b> |            | 2              | (N/A)        | 100.00            |
| <b>Scarlet oak</b>    | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 10-15'       | 1          | (N/A)          | 100.00       | 0.09              |
|                       | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                       | <b>Total</b> |            | 1              | (N/A)        | 100.00            |

## Tree Height for Public Trees by Species

9/12/2014

| Species                | Tree Height  | Tree Count | Standard Error | % of Species | % of Public Trees |
|------------------------|--------------|------------|----------------|--------------|-------------------|
| <b>Service berry</b>   | 5-10'        | 4          | (N/A)          | 33.33        | 0.37              |
|                        | 10-15'       | 8          | (N/A)          | 66.67        | 0.74              |
|                        | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b> |            | 12             | (N/A)        | 100.00            |
| <b>Silver Linden</b>   | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 10-15'       | 3          | (N/A)          | 21.43        | 0.28              |
|                        | 15-20'       | 5          | (N/A)          | 35.71        | 0.47              |
|                        | 20-30'       | 5          | (N/A)          | 35.71        | 0.47              |
|                        | 30-40'       | 1          | (N/A)          | 7.14         | 0.09              |
|                        | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b> |            | 14             | (N/A)        | 100.00            |
| <b>Silver maple</b>    | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30-40'       | 2          | (N/A)          | 100.00       | 0.19              |
|                        | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b> |            | 2              | (N/A)        | 100.00            |
| <b>Slippery elm</b>    | 5-10'        | 1          | (N/A)          | 33.33        | 0.09              |
|                        | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 15-20'       | 1          | (N/A)          | 33.33        | 0.09              |
|                        | 20-30'       | 1          | (N/A)          | 33.33        | 0.09              |
|                        | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b> |            | 3              | (N/A)        | 100.00            |
| <b>Swamp white oak</b> | 5-10'        | 6          | (N/A)          | 100.00       | 0.56              |
|                        | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b> |            | 6              | (N/A)        | 100.00            |
| <b>Sweetgum</b>        | 5-10'        | 6          | (N/A)          | 54.55        | 0.56              |
|                        | 10-15'       | 2          | (N/A)          | 18.18        | 0.19              |
|                        | 15-20'       | 2          | (N/A)          | 18.18        | 0.19              |
|                        | 20-30'       | 1          | (N/A)          | 9.09         | 0.09              |
|                        | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b> |            | 11             | (N/A)        | 100.00            |
| <b>Trident maple</b>   | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 20-30'       | 1          | (N/A)          | 100.00       | 0.09              |
|                        | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                        | <b>Total</b> |            | 1              | (N/A)        | 100.00            |

**Tree Height for Public Trees by Species**

9/12/2014

| Species                    | Tree Height  | Tree Count | Standard Error | % of Species | % of Public Trees |
|----------------------------|--------------|------------|----------------|--------------|-------------------|
| <b>Tulip tree</b>          | 5-10'        | 5          | (N/A)          | 62.50        | 0.47              |
|                            | 10-15'       | 3          | (N/A)          | 37.50        | 0.28              |
|                            | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 8              | (N/A)        | 100.00            |
| <b>Washington hawthorn</b> | 5-10'        | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 15-20'       | 1          | (N/A)          | 50.00        | 0.09              |
|                            | 20-30'       | 1          | (N/A)          | 50.00        | 0.09              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 2              | (N/A)        | 100.00            |
| <b>White ash</b>           | 5-10'        | 1          | (N/A)          | 9.09         | 0.09              |
|                            | 10-15'       | 4          | (N/A)          | 36.36        | 0.37              |
|                            | 15-20'       | 1          | (N/A)          | 9.09         | 0.09              |
|                            | 20-30'       | 4          | (N/A)          | 36.36        | 0.37              |
|                            | 30-40'       | 1          | (N/A)          | 9.09         | 0.09              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 11             | (N/A)        | 100.00            |
| <b>Willow oak</b>          | 5-10'        | 8          | (N/A)          | 44.44        | 0.74              |
|                            | 10-15'       | 7          | (N/A)          | 38.89        | 0.65              |
|                            | 15-20'       | 3          | (N/A)          | 16.67        | 0.28              |
|                            | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 18             | (N/A)        | 100.00            |
| <b>Winged Euonymus</b>     | 5-10'        | 1          | (N/A)          | 100.00       | 0.09              |
|                            | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 1              | (N/A)        | 100.00            |
| <b>Yellowwood</b>          | 5-10'        | 4          | (N/A)          | 100.00       | 0.37              |
|                            | 10-15'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 15-20'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 20-30'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 30-40'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 40-50'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | 50-60'       | 0          | (N/A)          | 0.00         | 0.00              |
|                            | <b>Total</b> |            | 4              | (N/A)        | 100.00            |

|   |
|---|
| <b>Existing Tree Pit Size for Public Trees by Species</b> |
|---|

9/12/2014

| Species                  | Existing Tree Pit Size | Tree Count | Standard Error | % of Species  | % of Public Trees |
|--------------------------|------------------------|------------|----------------|---------------|-------------------|
| <b>American elm</b>      | 4X4                    | 7          | (N/A)          | 17.50         | 0.65              |
|                          | 4X8                    | 9          | (N/A)          | 22.50         | 0.84              |
|                          | 4X6                    | 7          | (N/A)          | 17.50         | 0.65              |
|                          | Other                  | 17         | (N/A)          | 42.50         | 1.58              |
|                          | <b>Total</b>           | <b>40</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>3.72</b>       |
| <b>American holly</b>    | 4X4                    | 1          | (N/A)          | 33.33         | 0.09              |
|                          | 4X8                    | 1          | (N/A)          | 33.33         | 0.09              |
|                          | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Other                  | 1          | (N/A)          | 33.33         | 0.09              |
|                          | <b>Total</b>           | <b>3</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.28</b>       |
| <b>American sycamore</b> | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 4X8                    | 2          | (N/A)          | 40.00         | 0.19              |
|                          | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Other                  | 3          | (N/A)          | 60.00         | 0.28              |
|                          | <b>Total</b>           | <b>5</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.47</b>       |
| <b>Amur maple</b>        | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 4X8                    | 1          | (N/A)          | 100.00        | 0.09              |
|                          | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Other                  | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>           | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Apple</b>             | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 4X8                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 4X6                    | 1          | (N/A)          | 25.00         | 0.09              |
|                          | Other                  | 3          | (N/A)          | 75.00         | 0.28              |
|                          | <b>Total</b>           | <b>4</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.37</b>       |
| <b>Black locust</b>      | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 4X8                    | 2          | (N/A)          | 66.67         | 0.19              |
|                          | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Other                  | 1          | (N/A)          | 33.33         | 0.09              |
|                          | <b>Total</b>           | <b>3</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.28</b>       |
| <b>Black oak</b>         | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 4X8                    | 1          | (N/A)          | 100.00        | 0.09              |
|                          | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Other                  | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>           | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Black tupelo</b>      | 4X4                    | 4          | (N/A)          | 28.57         | 0.37              |
|                          | 4X8                    | 3          | (N/A)          | 21.43         | 0.28              |
|                          | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Other                  | 7          | (N/A)          | 50.00         | 0.65              |
|                          | <b>Total</b>           | <b>14</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>1.30</b>       |
| <b>Boxelder</b>          | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 4X8                    | 1          | (N/A)          | 100.00        | 0.09              |
|                          | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Other                  | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>           | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Bur oak</b>           | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | 4X8                    | 1          | (N/A)          | 100.00        | 0.09              |
|                          | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                          | Other                  | 0          | (N/A)          | 0.00          | 0.00              |
|                          | <b>Total</b>           | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Callery pear</b>      | 4X4                    | 68         | (N/A)          | 35.79         | 6.33              |
|                          | 4X8                    | 27         | (N/A)          | 14.21         | 2.51              |
|                          | 4X6                    | 65         | (N/A)          | 34.21         | 6.05              |
|                          | Other                  | 29         | (N/A)          | 15.26         | 2.70              |
|                          | <b>Total</b>           | <b>189</b> | <b>(N/A)</b>   | <b>99.47</b>  | <b>17.58</b>      |

## Existing Tree Pit Size for Public Trees by Species

9/12/2014

| Species                   | Existing Tree Pit Size | Tree Count | Standard Error | % of Species | % of Public Trees |
|---------------------------|------------------------|------------|----------------|--------------|-------------------|
| <b>Cherry plum</b>        | 4X4                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Other                  | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Total                  | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Chestnut Oak</b>       | 4X4                    | 1          | (N/A)          | 16.67        | 0.09              |
|                           | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Other                  | 5          | (N/A)          | 83.33        | 0.47              |
|                           | Total                  | 6          | (N/A)          | 100.00       | 0.56              |
| <b>Chinese elm</b>        | 4X4                    | 8          | (N/A)          | 30.77        | 0.74              |
|                           | 4X8                    | 6          | (N/A)          | 23.08        | 0.56              |
|                           | 4X6                    | 8          | (N/A)          | 30.77        | 0.74              |
|                           | Other                  | 4          | (N/A)          | 15.38        | 0.37              |
|                           | Total                  | 26         | (N/A)          | 100.00       | 2.42              |
| <b>Common crapemyrtle</b> | 4X4                    | 1          | (N/A)          | 14.29        | 0.09              |
|                           | 4X8                    | 1          | (N/A)          | 14.29        | 0.09              |
|                           | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Other                  | 5          | (N/A)          | 71.43        | 0.47              |
|                           | Total                  | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Common persimmon</b>   | 4X4                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Other                  | 1          | (N/A)          | 100.00       | 0.09              |
|                           | Total                  | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Dogwood</b>            | 4X4                    | 1          | (N/A)          | 100.00       | 0.09              |
|                           | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Other                  | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                  | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Eastern cottonwood</b> | 4X4                    | 1          | (N/A)          | 50.00        | 0.09              |
|                           | 4X8                    | 1          | (N/A)          | 50.00        | 0.09              |
|                           | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Other                  | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                  | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Eastern redbud</b>     | 4X4                    | 2          | (N/A)          | 13.33        | 0.19              |
|                           | 4X8                    | 3          | (N/A)          | 20.00        | 0.28              |
|                           | 4X6                    | 3          | (N/A)          | 20.00        | 0.28              |
|                           | Other                  | 7          | (N/A)          | 46.67        | 0.65              |
|                           | Total                  | 15         | (N/A)          | 100.00       | 1.40              |
| <b>English oak</b>        | 4X4                    | 5          | (N/A)          | 55.56        | 0.47              |
|                           | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Other                  | 4          | (N/A)          | 44.44        | 0.37              |
|                           | Total                  | 9          | (N/A)          | 100.00       | 0.84              |
| <b>Euonymus</b>           | 4X4                    | 1          | (N/A)          | 14.29        | 0.09              |
|                           | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 4X6                    | 2          | (N/A)          | 28.57        | 0.19              |
|                           | Other                  | 4          | (N/A)          | 57.14        | 0.37              |
|                           | Total                  | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Flowering dogwood</b>  | 4X4                    | 1          | (N/A)          | 100.00       | 0.09              |
|                           | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Other                  | 0          | (N/A)          | 0.00         | 0.00              |
|                           | Total                  | 1          | (N/A)          | 100.00       | 0.09              |

|   |
|---|
| <b>Existing Tree Pit Size for Public Trees by Species</b> |
|---|

9/12/2014

| Species                 | Existing Tree Pit Size | Tree Count | Standard Error | % of Species | % of Public Trees |
|-------------------------|------------------------|------------|----------------|--------------|-------------------|
| <b>Forsythia</b>        | 4X4                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | 4X6                    | 1          | (N/A)          | 100.00       | 0.09              |
|                         | Other                  | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Total                  | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Freeman maple</b>    | 4X4                    | 3          | (N/A)          | 30.00        | 0.28              |
|                         | 4X8                    | 1          | (N/A)          | 10.00        | 0.09              |
|                         | 4X6                    | 4          | (N/A)          | 40.00        | 0.37              |
|                         | Other                  | 2          | (N/A)          | 20.00        | 0.19              |
|                         | Total                  | 10         | (N/A)          | 100.00       | 0.93              |
| <b>Fringe tree</b>      | 4X4                    | 2          | (N/A)          | 100.00       | 0.19              |
|                         | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Other                  | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Total                  | 2          | (N/A)          | 100.00       | 0.19              |
| <b>Ginkgo</b>           | 4X4                    | 6          | (N/A)          | 31.58        | 0.56              |
|                         | 4X8                    | 2          | (N/A)          | 10.53        | 0.19              |
|                         | 4X6                    | 1          | (N/A)          | 5.26         | 0.09              |
|                         | Other                  | 10         | (N/A)          | 52.63        | 0.93              |
|                         | Total                  | 19         | (N/A)          | 100.00       | 1.77              |
| <b>Goldenrain tree</b>  | 4X4                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Other                  | 4          | (N/A)          | 100.00       | 0.37              |
|                         | Total                  | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Green ash</b>        | 4X4                    | 2          | (N/A)          | 50.00        | 0.19              |
|                         | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | 4X6                    | 1          | (N/A)          | 25.00        | 0.09              |
|                         | Other                  | 1          | (N/A)          | 25.00        | 0.09              |
|                         | Total                  | 4          | (N/A)          | 100.00       | 0.37              |
| <b>Hawthorn</b>         | 4X4                    | 1          | (N/A)          | 33.33        | 0.09              |
|                         | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | 4X6                    | 1          | (N/A)          | 33.33        | 0.09              |
|                         | Other                  | 1          | (N/A)          | 33.33        | 0.09              |
|                         | Total                  | 3          | (N/A)          | 100.00       | 0.28              |
| <b>Higan cherry</b>     | 4X4                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | 4X8                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | 4X6                    | 1          | (N/A)          | 100.00       | 0.09              |
|                         | Other                  | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Total                  | 1          | (N/A)          | 100.00       | 0.09              |
| <b>Honeylocust</b>      | 4X4                    | 2          | (N/A)          | 22.22        | 0.19              |
|                         | 4X8                    | 1          | (N/A)          | 11.11        | 0.09              |
|                         | 4X6                    | 2          | (N/A)          | 22.22        | 0.19              |
|                         | Other                  | 4          | (N/A)          | 44.44        | 0.37              |
|                         | Total                  | 9          | (N/A)          | 100.00       | 0.84              |
| <b>Horsechestnut</b>    | 4X4                    | 1          | (N/A)          | 14.29        | 0.09              |
|                         | 4X8                    | 1          | (N/A)          | 14.29        | 0.09              |
|                         | 4X6                    | 0          | (N/A)          | 0.00         | 0.00              |
|                         | Other                  | 5          | (N/A)          | 71.43        | 0.47              |
|                         | Total                  | 7          | (N/A)          | 100.00       | 0.65              |
| <b>Japanese zelkova</b> | 4X4                    | 5          | (N/A)          | 11.63        | 0.47              |
|                         | 4X8                    | 14         | (N/A)          | 32.56        | 1.30              |
|                         | 4X6                    | 15         | (N/A)          | 34.88        | 1.40              |
|                         | Other                  | 9          | (N/A)          | 20.93        | 0.84              |
|                         | Total                  | 43         | (N/A)          | 100.00       | 4.00              |

**Existing Tree Pit Size for Public Trees by Species**

9/12/2014

| Species                    | Existing Tree Pit Size | Tree Count | Standard Error | % of Species  | % of Public Trees |
|----------------------------|------------------------|------------|----------------|---------------|-------------------|
| <b>Kentucky coffeetree</b> | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 4X8                    | 2          | (N/A)          | 100.00        | 0.19              |
|                            | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | Other                  | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>           | <b>2</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.19</b>       |
| <b>Kwanzan cherry</b>      | 4X4                    | 6          | (N/A)          | 30.00         | 0.56              |
|                            | 4X8                    | 3          | (N/A)          | 15.00         | 0.28              |
|                            | 4X6                    | 3          | (N/A)          | 15.00         | 0.28              |
|                            | Other                  | 8          | (N/A)          | 40.00         | 0.74              |
|                            | <b>Total</b>           | <b>20</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>1.86</b>       |
| <b>Littleleaf linden</b>   | 4X4                    | 52         | (N/A)          | 26.80         | 4.84              |
|                            | 4X8                    | 20         | (N/A)          | 10.31         | 1.86              |
|                            | 4X6                    | 69         | (N/A)          | 35.57         | 6.42              |
|                            | Other                  | 52         | (N/A)          | 26.80         | 4.84              |
|                            | <b>Total</b>           | <b>193</b> | <b>(N/A)</b>   | <b>99.48</b>  | <b>17.95</b>      |
| <b>London planetree</b>    | 4X4                    | 27         | (N/A)          | 65.85         | 2.51              |
|                            | 4X8                    | 6          | (N/A)          | 14.63         | 0.56              |
|                            | 4X6                    | 6          | (N/A)          | 14.63         | 0.56              |
|                            | Other                  | 2          | (N/A)          | 4.88          | 0.19              |
|                            | <b>Total</b>           | <b>41</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>3.81</b>       |
| <b>Northern red oak</b>    | 4X4                    | 1          | (N/A)          | 25.00         | 0.09              |
|                            | 4X8                    | 1          | (N/A)          | 25.00         | 0.09              |
|                            | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | Other                  | 2          | (N/A)          | 50.00         | 0.19              |
|                            | <b>Total</b>           | <b>4</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.37</b>       |
| <b>Norway maple</b>        | 4X4                    | 9          | (N/A)          | 15.00         | 0.84              |
|                            | 4X8                    | 7          | (N/A)          | 11.67         | 0.65              |
|                            | 4X6                    | 11         | (N/A)          | 18.33         | 1.02              |
|                            | Other                  | 33         | (N/A)          | 55.00         | 3.07              |
|                            | <b>Total</b>           | <b>60</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>5.58</b>       |
| <b>Paperbark maple</b>     | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 4X8                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | Other                  | 2          | (N/A)          | 100.00        | 0.19              |
|                            | <b>Total</b>           | <b>2</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.19</b>       |
| <b>Pin oak</b>             | 4X4                    | 5          | (N/A)          | 18.52         | 0.47              |
|                            | 4X8                    | 6          | (N/A)          | 22.22         | 0.56              |
|                            | 4X6                    | 6          | (N/A)          | 22.22         | 0.56              |
|                            | Other                  | 10         | (N/A)          | 37.04         | 0.93              |
|                            | <b>Total</b>           | <b>27</b>  | <b>(N/A)</b>   | <b>100.00</b> | <b>2.51</b>       |
| <b>Post oak</b>            | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 4X8                    | 1          | (N/A)          | 100.00        | 0.09              |
|                            | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | Other                  | 0          | (N/A)          | 0.00          | 0.00              |
|                            | <b>Total</b>           | <b>1</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.09</b>       |
| <b>Red maple</b>           | 4X4                    | 60         | (N/A)          | 33.52         | 5.58              |
|                            | 4X8                    | 33         | (N/A)          | 18.44         | 3.07              |
|                            | 4X6                    | 28         | (N/A)          | 15.64         | 2.60              |
|                            | Other                  | 58         | (N/A)          | 32.40         | 5.40              |
|                            | <b>Total</b>           | <b>179</b> | <b>(N/A)</b>   | <b>100.00</b> | <b>16.65</b>      |
| <b>Red mulberry</b>        | 4X4                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | 4X8                    | 1          | (N/A)          | 33.33         | 0.09              |
|                            | 4X6                    | 0          | (N/A)          | 0.00          | 0.00              |
|                            | Other                  | 2          | (N/A)          | 66.67         | 0.19              |
|                            | <b>Total</b>           | <b>3</b>   | <b>(N/A)</b>   | <b>100.00</b> | <b>0.28</b>       |

## Existing Tree Pit Size for Public Trees by Species

9/12/2014

| Species                | Existing Tree Pit Size | Tree Count Standard Error | % of Species  | % of Public Trees |
|------------------------|------------------------|---------------------------|---------------|-------------------|
| <b>River birch</b>     | 4X4                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X8                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X6                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | Other                  | 2 (N/A)                   | 100.00        | 0.19              |
|                        | <b>Total</b>           | <b>2 (N/A)</b>            | <b>100.00</b> | <b>0.19</b>       |
| <b>Rose-of-sharon</b>  | 4X4                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X8                    | 1 (N/A)                   | 100.00        | 0.09              |
|                        | 4X6                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | Other                  | 0 (N/A)                   | 0.00          | 0.00              |
|                        | <b>Total</b>           | <b>1 (N/A)</b>            | <b>100.00</b> | <b>0.09</b>       |
| <b>Sassafras</b>       | 4X4                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X8                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X6                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | Other                  | 1 (N/A)                   | 100.00        | 0.09              |
|                        | <b>Total</b>           | <b>1 (N/A)</b>            | <b>100.00</b> | <b>0.09</b>       |
| <b>Sawtooth oak</b>    | 4X4                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X8                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X6                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | Other                  | 2 (N/A)                   | 100.00        | 0.19              |
|                        | <b>Total</b>           | <b>2 (N/A)</b>            | <b>100.00</b> | <b>0.19</b>       |
| <b>Scarlet oak</b>     | 4X4                    | 1 (N/A)                   | 100.00        | 0.09              |
|                        | 4X8                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X6                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | Other                  | 0 (N/A)                   | 0.00          | 0.00              |
|                        | <b>Total</b>           | <b>1 (N/A)</b>            | <b>100.00</b> | <b>0.09</b>       |
| <b>Service berry</b>   | 4X4                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X8                    | 5 (N/A)                   | 41.67         | 0.47              |
|                        | 4X6                    | 2 (N/A)                   | 16.67         | 0.19              |
|                        | Other                  | 5 (N/A)                   | 41.67         | 0.47              |
|                        | <b>Total</b>           | <b>12 (N/A)</b>           | <b>100.00</b> | <b>1.12</b>       |
| <b>Silver Linden</b>   | 4X4                    | 7 (N/A)                   | 50.00         | 0.65              |
|                        | 4X8                    | 2 (N/A)                   | 14.29         | 0.19              |
|                        | 4X6                    | 1 (N/A)                   | 7.14          | 0.09              |
|                        | Other                  | 4 (N/A)                   | 28.57         | 0.37              |
|                        | <b>Total</b>           | <b>14 (N/A)</b>           | <b>100.00</b> | <b>1.30</b>       |
| <b>Silver maple</b>    | 4X4                    | 2 (N/A)                   | 100.00        | 0.19              |
|                        | 4X8                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X6                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | Other                  | 0 (N/A)                   | 0.00          | 0.00              |
|                        | <b>Total</b>           | <b>2 (N/A)</b>            | <b>100.00</b> | <b>0.19</b>       |
| <b>Slippery elm</b>    | 4X4                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X8                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | 4X6                    | 1 (N/A)                   | 33.33         | 0.09              |
|                        | Other                  | 2 (N/A)                   | 66.67         | 0.19              |
|                        | <b>Total</b>           | <b>3 (N/A)</b>            | <b>100.00</b> | <b>0.28</b>       |
| <b>Swamp white oak</b> | 4X4                    | 4 (N/A)                   | 66.67         | 0.37              |
|                        | 4X8                    | 2 (N/A)                   | 33.33         | 0.19              |
|                        | 4X6                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | Other                  | 0 (N/A)                   | 0.00          | 0.00              |
|                        | <b>Total</b>           | <b>6 (N/A)</b>            | <b>100.00</b> | <b>0.56</b>       |
| <b>Sweetgum</b>        | 4X4                    | 2 (N/A)                   | 18.18         | 0.19              |
|                        | 4X8                    | 6 (N/A)                   | 54.55         | 0.56              |
|                        | 4X6                    | 0 (N/A)                   | 0.00          | 0.00              |
|                        | Other                  | 3 (N/A)                   | 27.27         | 0.28              |
|                        | <b>Total</b>           | <b>11 (N/A)</b>           | <b>100.00</b> | <b>1.02</b>       |

## Existing Tree Pit Size for Public Trees by Species

9/12/2014

| Species                    | Existing Tree Pit Size | Tree Count Standard Error | % of Species | % of Public Trees |
|----------------------------|------------------------|---------------------------|--------------|-------------------|
| <b>Trident maple</b>       | 4X4                    | 1 (N/A)                   | 100.00       | 0.09              |
|                            | 4X8                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | 4X6                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | Other                  | 0 (N/A)                   | 0.00         | 0.00              |
|                            | Total                  | 1 (N/A)                   | 100.00       | 0.09              |
| <b>Tulip tree</b>          | 4X4                    | 3 (N/A)                   | 37.50        | 0.28              |
|                            | 4X8                    | 1 (N/A)                   | 12.50        | 0.09              |
|                            | 4X6                    | 4 (N/A)                   | 50.00        | 0.37              |
|                            | Other                  | 0 (N/A)                   | 0.00         | 0.00              |
|                            | Total                  | 8 (N/A)                   | 100.00       | 0.74              |
| <b>Washington hawthorn</b> | 4X4                    | 2 (N/A)                   | 100.00       | 0.19              |
|                            | 4X8                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | 4X6                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | Other                  | 0 (N/A)                   | 0.00         | 0.00              |
|                            | Total                  | 2 (N/A)                   | 100.00       | 0.19              |
| <b>White ash</b>           | 4X4                    | 5 (N/A)                   | 45.45        | 0.47              |
|                            | 4X8                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | 4X6                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | Other                  | 6 (N/A)                   | 54.55        | 0.56              |
|                            | Total                  | 11 (N/A)                  | 100.00       | 1.02              |
| <b>Willow oak</b>          | 4X4                    | 6 (N/A)                   | 33.33        | 0.56              |
|                            | 4X8                    | 5 (N/A)                   | 27.78        | 0.47              |
|                            | 4X6                    | 6 (N/A)                   | 33.33        | 0.56              |
|                            | Other                  | 1 (N/A)                   | 5.56         | 0.09              |
|                            | Total                  | 18 (N/A)                  | 100.00       | 1.67              |
| <b>Winged Euonymus</b>     | 4X4                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | 4X8                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | 4X6                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | Other                  | 1 (N/A)                   | 100.00       | 0.09              |
|                            | Total                  | 1 (N/A)                   | 100.00       | 0.09              |
| <b>Yellowwood</b>          | 4X4                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | 4X8                    | 4 (N/A)                   | 100.00       | 0.37              |
|                            | 4X6                    | 0 (N/A)                   | 0.00         | 0.00              |
|                            | Other                  | 0 (N/A)                   | 0.00         | 0.00              |
|                            | Total                  | 4 (N/A)                   | 100.00       | 0.37              |

**Appendix D: i-Tree Streets Reports  
(Resource Benefits-Cost Analysis and Replacement Value)**

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**Baltimore**

**Annual Energy Benefits of Public Trees**

9/12/2014

| Species             | Total Electricity (MWh) | Electricity (\$) | Total Natural Gas (Therms) | Natural Gas (\$) | Total (\$) | Standard Error | % of Total Trees | % of Total \$ | Avg. \$/tree |
|---------------------|-------------------------|------------------|----------------------------|------------------|------------|----------------|------------------|---------------|--------------|
| Littleleaf linden   | 16.1                    | 1,219            | 619.6                      | 648              | 1,867      | (N/A)          | 18.0             | 28.8          | 9.62         |
| Callery pear        | 12.9                    | 981              | 504.1                      | 527              | 1,508      | (N/A)          | 17.7             | 23.2          | 7.94         |
| Red maple           | 6.9                     | 522              | 292.5                      | 306              | 828        | (N/A)          | 16.7             | 12.8          | 4.63         |
| Norway maple        | 2.7                     | 204              | 114.0                      | 119              | 323        | (N/A)          | 5.6              | 5.0           | 5.39         |
| Japanese zelkova    | 1.5                     | 115              | 64.0                       | 67               | 182        | (N/A)          | 4.0              | 2.8           | 4.23         |
| London planetree    | 3.6                     | 274              | 139.7                      | 146              | 420        | (N/A)          | 3.8              | 6.5           | 10.25        |
| American elm        | 2.5                     | 187              | 92.2                       | 96               | 284        | (N/A)          | 3.7              | 4.4           | 7.09         |
| Pin oak             | 0.1                     | 10               | 7.9                        | 8                | 18         | (N/A)          | 2.5              | 0.3           | 0.66         |
| Chinese elm         | 1.2                     | 93               | 53.8                       | 56               | 149        | (N/A)          | 2.4              | 2.3           | 5.75         |
| Kwanzan cherry      | 0.7                     | 54               | 34.3                       | 36               | 90         | (N/A)          | 1.9              | 1.4           | 4.52         |
| Ginkgo              | 1.0                     | 73               | 39.2                       | 41               | 114        | (N/A)          | 1.8              | 1.8           | 5.99         |
| Willow oak          | 0.1                     | 4                | 4.1                        | 4                | 9          | (N/A)          | 1.7              | 0.1           | 0.48         |
| Eastern redbud      | 0.2                     | 13               | 10.2                       | 11               | 24         | (N/A)          | 1.4              | 0.4           | 1.60         |
| Black tupelo        | 0.3                     | 23               | 13.7                       | 14               | 37         | (N/A)          | 1.3              | 0.6           | 2.68         |
| Silver Linden       | 0.8                     | 64               | 35.4                       | 37               | 101        | (N/A)          | 1.3              | 1.6           | 7.21         |
| Service berry       | 0.1                     | 6                | 5.7                        | 6                | 12         | (N/A)          | 1.1              | 0.2           | 1.00         |
| Sweetgum            | 0.1                     | 11               | 6.5                        | 7                | 17         | (N/A)          | 1.0              | 0.3           | 1.59         |
| White ash           | 0.5                     | 39               | 21.3                       | 22               | 62         | (N/A)          | 1.0              | 1.0           | 5.62         |
| Freeman maple       | 0.2                     | 14               | 8.8                        | 9                | 23         | (N/A)          | 0.9              | 0.4           | 2.32         |
| Honeylocust         | 0.2                     | 19               | 10.6                       | 11               | 30         | (N/A)          | 0.8              | 0.5           | 3.31         |
| English oak         | 0.2                     | 18               | 8.9                        | 9                | 28         | (N/A)          | 0.8              | 0.4           | 3.06         |
| Tulip tree          | 0.0                     | 2                | 1.8                        | 2                | 4          | (N/A)          | 0.7              | 0.1           | 0.48         |
| Common crapemyrtle  | 0.0                     | 3                | 2.4                        | 2                | 5          | (N/A)          | 0.7              | 0.1           | 0.76         |
| Euonymus            | 0.0                     | 1                | 1.4                        | 1                | 3          | (N/A)          | 0.7              | 0.0           | 0.42         |
| Horsechestnut       | 0.3                     | 22               | 12.4                       | 13               | 35         | (N/A)          | 0.7              | 0.5           | 4.94         |
| Chestnut Oak        | 0.0                     | 1                | 1.4                        | 1                | 3          | (N/A)          | 0.6              | 0.0           | 0.48         |
| Swamp white oak     | 0.0                     | 1                | 1.4                        | 1                | 3          | (N/A)          | 0.6              | 0.0           | 0.48         |
| American sycamore   | 0.2                     | 12               | 6.5                        | 7                | 19         | (N/A)          | 0.5              | 0.3           | 3.79         |
| Yellowwood          | 0.0                     | 1                | 1.1                        | 1                | 2          | (N/A)          | 0.4              | 0.0           | 0.58         |
| Apple               | 0.2                     | 19               | 12.0                       | 13               | 31         | (N/A)          | 0.4              | 0.5           | 7.81         |
| Northern red oak    | 0.0                     | 3                | 2.0                        | 2                | 5          | (N/A)          | 0.4              | 0.1           | 1.35         |
| Green ash           | 0.2                     | 15               | 7.8                        | 8                | 23         | (N/A)          | 0.4              | 0.4           | 5.74         |
| Goldenrain tree     | 0.1                     | 7                | 4.8                        | 5                | 12         | (N/A)          | 0.4              | 0.2           | 2.92         |
| Black locust        | 0.3                     | 19               | 9.6                        | 10               | 29         | (N/A)          | 0.3              | 0.5           | 9.75         |
| Hawthorn            | 0.1                     | 8                | 5.2                        | 5                | 13         | (N/A)          | 0.3              | 0.2           | 4.34         |
| Red mulberry        | 0.0                     | 2                | 1.1                        | 1                | 3          | (N/A)          | 0.3              | 0.0           | 0.89         |
| Slippery elm        | 0.1                     | 11               | 5.7                        | 6                | 17         | (N/A)          | 0.3              | 0.3           | 5.64         |
| American holly      | 0.0                     | 1                | 0.9                        | 1                | 2          | (N/A)          | 0.3              | 0.0           | 0.68         |
| Sawtooth oak        | 0.2                     | 17               | 8.2                        | 9                | 26         | (N/A)          | 0.2              | 0.4           | 12.92        |
| Washington hawthorn | 0.1                     | 5                | 3.5                        | 4                | 9          | (N/A)          | 0.2              | 0.1           | 4.34         |
| Paperbark maple     | 0.1                     | 5                | 3.5                        | 4                | 9          | (N/A)          | 0.2              | 0.1           | 4.34         |
| River birch         | 0.1                     | 5                | 3.0                        | 3                | 8          | (N/A)          | 0.2              | 0.1           | 4.13         |
| Eastern cottonwood  | 0.3                     | 22               | 11.1                       | 12               | 34         | (N/A)          | 0.2              | 0.5           | 17.03        |
| Silver maple        | 0.2                     | 14               | 7.4                        | 8                | 22         | (N/A)          | 0.2              | 0.3           | 10.83        |
| Kentucky coffeetree | 0.0                     | 0                | 0.5                        | 0                | 1          | (N/A)          | 0.2              | 0.0           | 0.48         |
| Fringe tree         | 0.1                     | 5                | 3.5                        | 4                | 9          | (N/A)          | 0.2              | 0.1           | 4.34         |
| Rose-of-sharon      | 0.0                     | 1                | 0.5                        | 0                | 1          | (N/A)          | 0.1              | 0.0           | 1.00         |
| Forsythia           | 0.0                     | 1                | 0.5                        | 0                | 1          | (N/A)          | 0.1              | 0.0           | 1.00         |
| Higan cherry        | 0.0                     | 3                | 1.7                        | 2                | 4          | (N/A)          | 0.1              | 0.1           | 4.34         |
| Winged Euonymus     | 0.0                     | 1                | 0.5                        | 0                | 1          | (N/A)          | 0.1              | 0.0           | 1.00         |
| Cherry plum         | 0.0                     | 1                | 0.5                        | 0                | 1          | (N/A)          | 0.1              | 0.0           | 1.00         |
| Sassafras           | 0.0                     | 0                | 0.3                        | 0                | 1          | (N/A)          | 0.1              | 0.0           | 0.58         |
| Common persimmon    | 0.0                     | 0                | 0.3                        | 0                | 1          | (N/A)          | 0.1              | 0.0           | 0.58         |
| Bur oak             | 0.0                     | 0                | 0.2                        | 0                | 0          | (N/A)          | 0.1              | 0.0           | 0.48         |
| Dogwood             | 0.0                     | 1                | 0.5                        | 0                | 1          | (N/A)          | 0.1              | 0.0           | 1.00         |
| Boxelder            | 0.1                     | 9                | 4.1                        | 4                | 13         | (N/A)          | 0.1              | 0.2           | 12.92        |

## Annual Energy Benefits of Public Trees

9/12/2014

| Species           | Total Electricity<br>(MWh) | Electricity<br>(\$) | Total Natural<br>Gas (Therms) | Natural<br>Gas (\$) | Total<br>(\$) | Standard<br>Error | % of Total<br>Trees | % of<br>Total \$ | Avg.<br>\$/tree |
|-------------------|----------------------------|---------------------|-------------------------------|---------------------|---------------|-------------------|---------------------|------------------|-----------------|
| Scarlet oak       | 0.0                        | 0                   | 0.2                           | 0                   | 0             | (N/A)             | 0.1                 | 0.0              | 0.48            |
| Trident maple     | 0.0                        | 1                   | 0.9                           | 1                   | 2             | (N/A)             | 0.1                 | 0.0              | 2.01            |
| Amur maple        | 0.0                        | 3                   | 1.7                           | 2                   | 4             | (N/A)             | 0.1                 | 0.1              | 4.34            |
| Black oak         | 0.0                        | 3                   | 1.8                           | 2                   | 5             | (N/A)             | 0.1                 | 0.1              | 4.96            |
| Flowering dogwood | 0.0                        | 1                   | 0.5                           | 0                   | 1             | (N/A)             | 0.1                 | 0.0              | 1.00            |
| Post oak          | 0.0                        | 0                   | 0.2                           | 0                   | 0             | (N/A)             | 0.1                 | 0.0              | 0.48            |
| Total             | 54.9                       | 4,168               | 2,219.4                       | 2,321               | 6,490         | (N/A)             | 100.0               | 100.0            | 6.04            |

## Baltimore

### Annual Stormwater Benefits of Public Trees

9/12/2014

| Species             | Total rainfall interception (Gal) | Total (\$) | Standard Error | % of Total Trees | % of Total \$ | Avg. \$/tree |
|---------------------|-----------------------------------|------------|----------------|------------------|---------------|--------------|
| Littleleaf linden   | 397,243                           | 3,933      | (N/A)          | 18.0             | 27.9          | 20.27        |
| Callery pear        | 296,559                           | 2,936      | (N/A)          | 17.7             | 20.8          | 15.45        |
| Red maple           | 196,909                           | 1,949      | (N/A)          | 16.7             | 13.8          | 10.89        |
| Norway maple        | 74,844                            | 741        | (N/A)          | 5.6              | 5.3           | 12.35        |
| Japanese zelkova    | 41,331                            | 409        | (N/A)          | 4.0              | 2.9           | 9.52         |
| London planetree    | 118,632                           | 1,174      | (N/A)          | 3.8              | 8.3           | 28.65        |
| American elm        | 91,728                            | 908        | (N/A)          | 3.7              | 6.4           | 22.70        |
| Pin oak             | 2,233                             | 22         | (N/A)          | 2.5              | 0.2           | 0.82         |
| Chinese elm         | 25,431                            | 252        | (N/A)          | 2.4              | 1.8           | 9.68         |
| Kwanzan cherry      | 12,593                            | 125        | (N/A)          | 1.9              | 0.9           | 6.23         |
| Ginkgo              | 23,778                            | 235        | (N/A)          | 1.8              | 1.7           | 12.39        |
| Willow oak          | 991                               | 10         | (N/A)          | 1.7              | 0.1           | 0.55         |
| Eastern redbud      | 2,919                             | 29         | (N/A)          | 1.4              | 0.2           | 1.93         |
| Black tupelo        | 6,755                             | 67         | (N/A)          | 1.3              | 0.5           | 4.78         |
| Silver Linden       | 18,246                            | 181        | (N/A)          | 1.3              | 1.3           | 12.90        |
| Service berry       | 1,263                             | 13         | (N/A)          | 1.1              | 0.1           | 1.04         |
| Sweetgum            | 3,373                             | 33         | (N/A)          | 1.0              | 0.2           | 3.04         |
| White ash           | 15,665                            | 155        | (N/A)          | 1.0              | 1.1           | 14.10        |
| Freeman maple       | 4,264                             | 42         | (N/A)          | 0.9              | 0.3           | 4.22         |
| Honeylocust         | 8,076                             | 80         | (N/A)          | 0.8              | 0.6           | 8.88         |
| English oak         | 9,606                             | 95         | (N/A)          | 0.8              | 0.7           | 10.57        |
| Tulip tree          | 441                               | 4          | (N/A)          | 0.7              | 0.0           | 0.55         |
| Common crapemyrtle  | 528                               | 5          | (N/A)          | 0.7              | 0.0           | 0.75         |
| Euonymus            | 265                               | 3          | (N/A)          | 0.7              | 0.0           | 0.37         |
| Horsechestnut       | 7,586                             | 75         | (N/A)          | 0.7              | 0.5           | 10.73        |
| Chestnut Oak        | 330                               | 3          | (N/A)          | 0.6              | 0.0           | 0.55         |
| Swamp white oak     | 330                               | 3          | (N/A)          | 0.6              | 0.0           | 0.55         |
| American sycamore   | 5,878                             | 58         | (N/A)          | 0.5              | 0.4           | 11.64        |
| Yellowwood          | 302                               | 3          | (N/A)          | 0.4              | 0.0           | 0.75         |
| Apple               | 3,545                             | 35         | (N/A)          | 0.4              | 0.2           | 8.77         |
| Northern red oak    | 984                               | 10         | (N/A)          | 0.4              | 0.1           | 2.44         |
| Green ash           | 6,811                             | 67         | (N/A)          | 0.4              | 0.5           | 16.86        |
| Goldenrain tree     | 1,551                             | 15         | (N/A)          | 0.4              | 0.1           | 3.84         |
| Black locust        | 6,223                             | 62         | (N/A)          | 0.3              | 0.4           | 20.53        |
| Hawthorn            | 1,790                             | 18         | (N/A)          | 0.3              | 0.1           | 5.91         |
| Red mulberry        | 352                               | 3          | (N/A)          | 0.3              | 0.0           | 1.16         |
| Slippery elm        | 3,421                             | 34         | (N/A)          | 0.3              | 0.2           | 11.29        |
| American holly      | 198                               | 2          | (N/A)          | 0.3              | 0.0           | 0.65         |
| Sawtooth oak        | 5,755                             | 57         | (N/A)          | 0.2              | 0.4           | 28.49        |
| Washington hawthorn | 1,193                             | 12         | (N/A)          | 0.2              | 0.1           | 5.91         |
| Paperbark maple     | 1,193                             | 12         | (N/A)          | 0.2              | 0.1           | 5.91         |
| River birch         | 1,403                             | 14         | (N/A)          | 0.2              | 0.1           | 6.95         |
| Eastern cottonwood  | 11,315                            | 112        | (N/A)          | 0.2              | 0.8           | 56.01        |
| Silver maple        | 4,075                             | 40         | (N/A)          | 0.2              | 0.3           | 20.17        |
| Kentucky coffeetree | 110                               | 1          | (N/A)          | 0.2              | 0.0           | 0.55         |
| Fringe tree         | 1,193                             | 12         | (N/A)          | 0.2              | 0.1           | 5.91         |
| Rose-of-sharon      | 105                               | 1          | (N/A)          | 0.1              | 0.0           | 1.04         |
| Forsythia           | 105                               | 1          | (N/A)          | 0.1              | 0.0           | 1.04         |
| Higan cherry        | 597                               | 6          | (N/A)          | 0.1              | 0.0           | 5.91         |

## Annual Stormwater Benefits of Public Trees

9/12/2014

| Species           | Total rainfall<br>interception (Gal) | Total<br>(\$) | Standard<br>Error | % of Total<br>Trees | % of Total<br>\$ | Avg.<br>\$/tree |
|-------------------|--------------------------------------|---------------|-------------------|---------------------|------------------|-----------------|
| Winged Euonymus   | 105                                  | 1             | (N/A)             | 0.1                 | 0.0              | 1.04            |
| Cherry plum       | 105                                  | 1             | (N/A)             | 0.1                 | 0.0              | 1.04            |
| Sassafras         | 75                                   | 1             | (N/A)             | 0.1                 | 0.0              | 0.75            |
| Common persimmon  | 75                                   | 1             | (N/A)             | 0.1                 | 0.0              | 0.75            |
| Bur oak           | 55                                   | 1             | (N/A)             | 0.1                 | 0.0              | 0.55            |
| Dogwood           | 105                                  | 1             | (N/A)             | 0.1                 | 0.0              | 1.04            |
| Boxelder          | 2,878                                | 28            | (N/A)             | 0.1                 | 0.2              | 28.49           |
| Scarlet oak       | 55                                   | 1             | (N/A)             | 0.1                 | 0.0              | 0.55            |
| Trident maple     | 253                                  | 3             | (N/A)             | 0.1                 | 0.0              | 2.50            |
| Amur maple        | 597                                  | 6             | (N/A)             | 0.1                 | 0.0              | 5.91            |
| Black oak         | 1,044                                | 10            | (N/A)             | 0.1                 | 0.1              | 10.33           |
| Flowering dogwood | 105                                  | 1             | (N/A)             | 0.1                 | 0.0              | 1.04            |
| Post oak          | 55                                   | 1             | (N/A)             | 0.1                 | 0.0              | 0.55            |
| Citywide total    | 1,425,527                            | 14,113        | (N/A)             | 100.0               | 100.0            | 13.13           |

Baltimore

Annual CO Benefits of Public Trees

9/12/2014

| Species            | Sequestered (lb) | Sequestered (\$) | Decomposition Release (lb) | Maintenance Release (lb) | Total Released (\$) | Avoided (lb) | Avoided (\$) | Net Total (lb) | Total Standard (\$) | % of Total Trees | % of Total \$ | Avg. \$/tree |
|--------------------|------------------|------------------|----------------------------|--------------------------|---------------------|--------------|--------------|----------------|---------------------|------------------|---------------|--------------|
| Littleleaf linden  | 92,469           | 694              | -1,660                     | -164                     | -1                  | 13,574       | 102          | 104,219        | 782 (N/A)           | 18.0             | 36.8          | 4.03         |
| Gallery pear       | 41,941           | 315              | -1,632                     | -176                     | -1                  | 10,922       | 82           | 51,055         | 383 (N/A)           | 17.7             | 18.0          | 2.02         |
| Red maple          | 26,454           | 198              | -736                       | -92                      | -1                  | 5,816        | 44           | 31,443         | 236 (N/A)           | 16.7             | 11.1          | 1.32         |
| Norway maple       | 12,268           | 92               | -288                       | -39                      | 0                   | 2,273        | 17           | 14,214         | 107 (N/A)           | 5.6              | 5.0           | 1.78         |
| Japanese zelkova   | 6,707            | 50               | -158                       | -23                      | 0                   | 1,280        | 10           | 7,806          | 59 (N/A)            | 4.0              | 2.8           | 1.36         |
| London planetree   | 15,494           | 116              | -534                       | -42                      | 0                   | 3,053        | 23           | 17,970         | 135 (N/A)           | 3.8              | 6.3           | 3.29         |
| American elm       | 10,162           | 76               | -475                       | -29                      | 0                   | 2,084        | 16           | 11,742         | 88 (N/A)            | 3.7              | 4.1           | 2.20         |
| Pin oak            | 421              | 3                | -5                         | -4                       | 0                   | 107          | 1            | 519            | 4 (N/A)             | 2.5              | 0.2           | 0.14         |
| Chinese elm        | 5,091            | 38               | -80                        | -13                      | 0                   | 1,038        | 8            | 6,035          | 45 (N/A)            | 2.4              | 2.1           | 1.74         |
| Kwanzan cherry     | 2,888            | 22               | -128                       | -13                      | 0                   | 606          | 5            | 3,354          | 25 (N/A)            | 1.9              | 1.2           | 1.26         |
| Ginkgo             | 5,285            | 40               | -99                        | -11                      | 0                   | 811          | 6            | 5,986          | 45 (N/A)            | 1.8              | 2.1           | 2.36         |
| Willow oak         | 149              | 1                | -2                         | -2                       | 0                   | 48           | 0            | 193            | 1 (N/A)             | 1.7              | 0.1           | 0.08         |
| Eastern redbud     | 429              | 3                | -20                        | -3                       | 0                   | 148          | 1            | 555            | 4 (N/A)             | 1.4              | 0.2           | 0.28         |
| Black tupelo       | 1,376            | 10               | -23                        | -4                       | 0                   | 257          | 2            | 1,606          | 12 (N/A)            | 1.3              | 0.6           | 0.86         |
| Silver Linden      | 3,861            | 29               | -62                        | -9                       | 0                   | 712          | 5            | 4,502          | 34 (N/A)            | 1.3              | 1.6           | 2.41         |
| Service berry      | 74               | 1                | -1                         | -1                       | 0                   | 67           | 1            | 138            | 1 (N/A)             | 1.1              | 0.0           | 0.09         |
| Sweetgum           | 315              | 2                | -7                         | -3                       | 0                   | 119          | 1            | 424            | 3 (N/A)             | 1.0              | 0.1           | 0.29         |
| White ash          | 2,286            | 17               | -66                        | -7                       | 0                   | 440          | 3            | 2,653          | 20 (N/A)            | 1.0              | 0.9           | 1.81         |
| Freeman maple      | 854              | 6                | -13                        | -4                       | 0                   | 155          | 1            | 992            | 7 (N/A)             | 0.9              | 0.4           | 0.74         |
| Honeylocust        | 1,069            | 8                | -36                        | -4                       | 0                   | 208          | 2            | 1,238          | 9 (N/A)             | 0.8              | 0.4           | 1.03         |
| English oak        | 900              | 7                | -53                        | -3                       | 0                   | 203          | 2            | 1,047          | 8 (N/A)             | 0.8              | 0.4           | 0.87         |
| Tulip tree         | 66               | 0                | -1                         | -1                       | 0                   | 21           | 0            | 86             | 1 (N/A)             | 0.7              | 0.0           | 0.08         |
| Common crapemyrtle | 42               | 0                | -1                         | -1                       | 0                   | 31           | 0            | 71             | 1 (N/A)             | 0.7              | 0.0           | 0.08         |
| Euonymus           | 30               | 0                | -1                         | -1                       | 0                   | 16           | 0            | 45             | 0 (N/A)             | 0.7              | 0.0           | 0.05         |
| Horsechestnut      | 1,328            | 10               | -28                        | -4                       | 0                   | 240          | 2            | 1,536          | 12 (N/A)            | 0.7              | 0.5           | 1.65         |
| Chestnut Oak       | 50               | 0                | -1                         | -1                       | 0                   | 16           | 0            | 64             | 0 (N/A)             | 0.6              | 0.0           | 0.08         |
| Swamp white oak    | 50               | 0                | -1                         | -1                       | 0                   | 16           | 0            | 64             | 0 (N/A)             | 0.6              | 0.0           | 0.08         |
| American sycamore  | 653              | 5                | -29                        | -2                       | 0                   | 136          | 1            | 758            | 6 (N/A)             | 0.5              | 0.3           | 1.14         |
| Yellowwood         | 23               | 0                | -1                         | 0                        | 0                   | 13           | 0            | 35             | 0 (N/A)             | 0.4              | 0.0           | 0.06         |
| Apple              | 1,051            | 8                | -27                        | -4                       | 0                   | 208          | 2            | 1,228          | 9 (N/A)             | 0.4              | 0.4           | 2.30         |
| Northern red oak   | 274              | 2                | -4                         | -1                       | 0                   | 37           | 0            | 306            | 2 (N/A)             | 0.4              | 0.1           | 0.57         |
| Green ash          | 836              | 6                | -32                        | -2                       | 0                   | 164          | 1            | 966            | 7 (N/A)             | 0.4              | 0.3           | 1.81         |
| Goldenrain tree    | 354              | 3                | -10                        | -2                       | 0                   | 74           | 1            | 417            | 3 (N/A)             | 0.4              | 0.1           | 0.78         |

# Annual CO Benefits of Public Trees

9/12/2014

| Species             | Sequestered (lb) | Sequestered (\$) | Decomposition Release (lb) | Maintenance Release (lb) | Total Released (\$) | Avoided (lb) | Avoided (\$) | Net Total (lb) | Total Standard (\$ Error) | % of Total Trees | % of Total \$ | Avg. \$/tree |
|---------------------|------------------|------------------|----------------------------|--------------------------|---------------------|--------------|--------------|----------------|---------------------------|------------------|---------------|--------------|
| Black locust        | 1,496            | 11               | -27                        | -3                       | 0                   | 214          | 2            | 1,681          | 13 (N/A)                  | 0.3              | 0.6           | 4.20         |
| Hawthorn            | 441              | 3                | -14                        | -2                       | 0                   | 84           | 1            | 510            | 4 (N/A)                   | 0.3              | 0.2           | 1.27         |
| Red mulberry        | 74               | 1                | -1                         | -1                       | 0                   | 17           | 0            | 90             | 1 (N/A)                   | 0.3              | 0.0           | 0.22         |
| Slippery elm        | 795              | 6                | -14                        | -2                       | 0                   | 121          | 1            | 901            | 7 (N/A)                   | 0.3              | 0.3           | 2.25         |
| American holly      | 36               | 0                | -1                         | -1                       | 0                   | 12           | 0            | 47             | 0 (N/A)                   | 0.3              | 0.0           | 0.12         |
| Sawtooth oak        | 1,413            | 11               | -25                        | -2                       | 0                   | 192          | 1            | 1,578          | 12 (N/A)                  | 0.2              | 0.6           | 5.92         |
| Washington hawthorn | 294              | 2                | -9                         | -1                       | 0                   | 56           | 0            | 340            | 3 (N/A)                   | 0.2              | 0.1           | 1.27         |
| Paperbark maple     | 294              | 2                | -9                         | -1                       | 0                   | 56           | 0            | 340            | 3 (N/A)                   | 0.2              | 0.1           | 1.27         |
| River birch         | 270              | 2                | -4                         | -1                       | 0                   | 57           | 0            | 323            | 2 (N/A)                   | 0.2              | 0.1           | 1.21         |
| Eastern cottonwood  | 1,240            | 9                | -56                        | -3                       | 0                   | 250          | 2            | 1,431          | 11 (N/A)                  | 0.2              | 0.5           | 5.37         |
| Silver maple        | 651              | 5                | -16                        | -2                       | 0                   | 155          | 1            | 789            | 6 (N/A)                   | 0.2              | 0.3           | 2.96         |
| Kentucky coffeetree | 17               | 0                | 0                          | 0                        | 0                   | 5            | 0            | 21             | 0 (N/A)                   | 0.2              | 0.0           | 0.08         |
| Fringe tree         | 294              | 2                | -9                         | -1                       | 0                   | 56           | 0            | 340            | 3 (N/A)                   | 0.2              | 0.1           | 1.27         |
| Rose-of-sharon      | 6                | 0                | 0                          | 0                        | 0                   | 6            | 0            | 12             | 0 (N/A)                   | 0.1              | 0.0           | 0.09         |
| Forsythia           | 6                | 0                | 0                          | 0                        | 0                   | 6            | 0            | 12             | 0 (N/A)                   | 0.1              | 0.0           | 0.09         |
| Higan cherry        | 147              | 1                | -5                         | -1                       | 0                   | 28           | 0            | 170            | 1 (N/A)                   | 0.1              | 0.1           | 1.27         |
| Winged Euonymus     | 6                | 0                | 0                          | 0                        | 0                   | 6            | 0            | 12             | 0 (N/A)                   | 0.1              | 0.0           | 0.09         |
| Cherry plum         | 6                | 0                | 0                          | 0                        | 0                   | 6            | 0            | 12             | 0 (N/A)                   | 0.1              | 0.0           | 0.09         |
| Sassafras           | 6                | 0                | 0                          | 0                        | 0                   | 3            | 0            | 9              | 0 (N/A)                   | 0.1              | 0.0           | 0.06         |
| Common persimmon    | 6                | 0                | 0                          | 0                        | 0                   | 3            | 0            | 9              | 0 (N/A)                   | 0.1              | 0.0           | 0.06         |
| Bur oak             | 8                | 0                | 0                          | 0                        | 0                   | 3            | 0            | 11             | 0 (N/A)                   | 0.1              | 0.0           | 0.08         |
| Dogwood             | 6                | 0                | 0                          | 0                        | 0                   | 6            | 0            | 12             | 0 (N/A)                   | 0.1              | 0.0           | 0.09         |
| Box elder           | 706              | 5                | -12                        | -1                       | 0                   | 96           | 1            | 789            | 6 (N/A)                   | 0.1              | 0.3           | 5.92         |
| Scarlet oak         | 8                | 0                | 0                          | 0                        | 0                   | 3            | 0            | 11             | 0 (N/A)                   | 0.1              | 0.0           | 0.08         |
| Trident maple       | 54               | 0                | -1                         | 0                        | 0                   | 12           | 0            | 65             | 0 (N/A)                   | 0.1              | 0.0           | 0.49         |
| Amur maple          | 147              | 1                | -5                         | -1                       | 0                   | 28           | 0            | 170            | 1 (N/A)                   | 0.1              | 0.1           | 1.27         |
| Black oak           | 200              | 1                | -4                         | -1                       | 0                   | 34           | 0            | 229            | 2 (N/A)                   | 0.1              | 0.1           | 1.72         |
| Flowering dogwood   | 6                | 0                | 0                          | 0                        | 0                   | 6            | 0            | 12             | 0 (N/A)                   | 0.1              | 0.0           | 0.09         |
| Post oak            | 8                | 0                | 0                          | 0                        | 0                   | 3            | 0            | 11             | 0 (N/A)                   | 0.1              | 0.0           | 0.08         |
| Citywide total      | 243,892          | 1,829            | -6,421                     | -688                     | -5                  | 46,414       | 348          | 283,197        | 2,124 (N/A)               | 100.0            | 100.0         | 1.98         |

## Baltimore

### Stored CO2 Benefits of Public Trees

9/12/2014

| Species             | Total Stored<br>CO2 (lbs) | Total<br>(\$) | Standard<br>Error | % of Total<br>Trees | % of<br>Total \$ | Avg.<br>\$/tree |
|---------------------|---------------------------|---------------|-------------------|---------------------|------------------|-----------------|
| Littleleaf linden   | 476,595                   | 3,574         | (N/A)             | 18.0                | 25.9             | 18.43           |
| Callery pear        | 470,791                   | 3,531         | (N/A)             | 17.7                | 25.6             | 18.58           |
| Red maple           | 204,492                   | 1,534         | (N/A)             | 16.7                | 11.1             | 8.57            |
| Norway maple        | 83,909                    | 629           | (N/A)             | 5.6                 | 4.6              | 10.49           |
| Japanese zelkova    | 46,003                    | 345           | (N/A)             | 4.0                 | 2.5              | 8.02            |
| London planetree    | 155,846                   | 1,169         | (N/A)             | 3.8                 | 8.5              | 28.51           |
| American elm        | 138,162                   | 1,036         | (N/A)             | 3.7                 | 7.5              | 25.91           |
| Pin oak             | 1,035                     | 8             | (N/A)             | 2.5                 | 0.1              | 0.29            |
| Chinese elm         | 20,832                    | 156           | (N/A)             | 2.4                 | 1.1              | 6.01            |
| Kwanzan cherry      | 37,208                    | 279           | (N/A)             | 1.9                 | 2.0              | 13.95           |
| Ginkgo              | 27,976                    | 210           | (N/A)             | 1.8                 | 1.5              | 11.04           |
| Willow oak          | 226                       | 2             | (N/A)             | 1.7                 | 0.0              | 0.09            |
| Eastern redbud      | 5,507                     | 41            | (N/A)             | 1.4                 | 0.3              | 2.75            |
| Black tupelo        | 6,212                     | 47            | (N/A)             | 1.3                 | 0.3              | 3.33            |
| Silver Linden       | 16,928                    | 127           | (N/A)             | 1.3                 | 0.9              | 9.07            |
| Service berry       | 134                       | 1             | (N/A)             | 1.1                 | 0.0              | 0.08            |
| Sweetgum            | 2,014                     | 15            | (N/A)             | 1.0                 | 0.1              | 1.37            |
| White ash           | 19,241                    | 144           | (N/A)             | 1.0                 | 1.0              | 13.12           |
| Freeman maple       | 3,858                     | 29            | (N/A)             | 0.9                 | 0.2              | 2.89            |
| Honeylocust         | 10,343                    | 78            | (N/A)             | 0.8                 | 0.6              | 8.62            |
| English oak         | 15,339                    | 115           | (N/A)             | 0.8                 | 0.8              | 12.78           |
| Tulip tree          | 100                       | 1             | (N/A)             | 0.7                 | 0.0              | 0.09            |
| Common crapemyrtle  | 134                       | 1             | (N/A)             | 0.7                 | 0.0              | 0.14            |
| Euonymus            | 96                        | 1             | (N/A)             | 0.7                 | 0.0              | 0.10            |
| Horsechestnut       | 8,067                     | 61            | (N/A)             | 0.7                 | 0.4              | 8.64            |
| Chestnut Oak        | 75                        | 1             | (N/A)             | 0.6                 | 0.0              | 0.09            |
| Swamp white oak     | 75                        | 1             | (N/A)             | 0.6                 | 0.0              | 0.09            |
| American sycamore   | 8,268                     | 62            | (N/A)             | 0.5                 | 0.4              | 12.40           |
| Yellowwood          | 67                        | 1             | (N/A)             | 0.4                 | 0.0              | 0.13            |
| Apple               | 7,890                     | 59            | (N/A)             | 0.4                 | 0.4              | 14.79           |
| Northern red oak    | 1,062                     | 8             | (N/A)             | 0.4                 | 0.1              | 1.99            |
| Green ash           | 9,268                     | 70            | (N/A)             | 0.4                 | 0.5              | 17.38           |
| Goldenrain tree     | 2,864                     | 21            | (N/A)             | 0.4                 | 0.2              | 5.37            |
| Black locust        | 7,467                     | 56            | (N/A)             | 0.3                 | 0.4              | 18.67           |
| Hawthorn            | 3,966                     | 30            | (N/A)             | 0.3                 | 0.2              | 9.91            |
| Red mulberry        | 212                       | 2             | (N/A)             | 0.3                 | 0.0              | 0.53            |
| Slippery elm        | 3,859                     | 29            | (N/A)             | 0.3                 | 0.2              | 9.65            |
| American holly      | 205                       | 2             | (N/A)             | 0.3                 | 0.0              | 0.51            |
| Sawtooth oak        | 7,248                     | 54            | (N/A)             | 0.2                 | 0.4              | 27.18           |
| Washington hawthorn | 2,644                     | 20            | (N/A)             | 0.2                 | 0.1              | 9.91            |
| Paperbark maple     | 2,644                     | 20            | (N/A)             | 0.2                 | 0.1              | 9.91            |
| River birch         | 1,118                     | 8             | (N/A)             | 0.2                 | 0.1              | 4.19            |
| Eastern cottonwood  | 16,436                    | 123           | (N/A)             | 0.2                 | 0.9              | 61.63           |
| Silver maple        | 4,725                     | 35            | (N/A)             | 0.2                 | 0.3              | 17.72           |
| Kentucky coffeetree | 25                        | 0             | (N/A)             | 0.2                 | 0.0              | 0.09            |
| Fringe tree         | 2,644                     | 20            | (N/A)             | 0.2                 | 0.1              | 9.91            |
| Rose-of-sharon      | 11                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.08            |
| Forsythia           | 11                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.08            |
| Higan cherry        | 1,322                     | 10            | (N/A)             | 0.1                 | 0.1              | 9.91            |
| Winged Euonymus     | 11                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.08            |
| Cherry plum         | 11                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.08            |
| Sassafras           | 17                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.13            |
| Common persimmon    | 17                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.13            |
| Bur oak             | 13                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.09            |
| Dogwood             | 11                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.08            |
| Boxelder            | 3,624                     | 27            | (N/A)             | 0.1                 | 0.2              | 27.18           |

The value of stored carbon dioxide is calculated as the total amount of carbon dioxide sequestered annually over the life of each tree, summed for the population. This value should not be added to the Replacement Value or double-counting of the carbon dioxide storage benefit will occur.

## Stored CO2 Benefits of Public Trees

9/12/2014

| Species           | Total Stored<br>CO2 (lbs) | Total<br>(\$) | Standard<br>Error | % of Total<br>Trees | % of<br>Total \$ | Avg.<br>\$/tree |
|-------------------|---------------------------|---------------|-------------------|---------------------|------------------|-----------------|
| Scarlet oak       | 13                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.09            |
| Trident maple     | 209                       | 2             | (N/A)             | 0.1                 | 0.0              | 1.56            |
| Amur maple        | 1,322                     | 10            | (N/A)             | 0.1                 | 0.1              | 9.91            |
| Black oak         | 1,025                     | 8             | (N/A)             | 0.1                 | 0.1              | 7.68            |
| Flowering dogwood | 11                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.08            |
| Post oak          | 13                        | 0             | (N/A)             | 0.1                 | 0.0              | 0.09            |
| Citywide total    | 1,841,450                 | 13,811        | (N/A)             | 100.0               | 100.0            | 12.85           |

The value of stored carbon dioxide is calculated as the total amount of carbon dioxide sequestered annually over the life of each tree, summed for the population. This value should not be added to the Replacement Value or double-counting of the carbon dioxide storage benefit will occur.

**Baltimore**

**Annual Aesthetic/Other Benefits of Public Trees**

9/12/2014

| Species             | Total (\$) | Standard Error | % of Total Trees | % of Total \$ | Avg. \$/tree |
|---------------------|------------|----------------|------------------|---------------|--------------|
| Littleleaf linden   | 7,593      | (N/A)          | 18.0             | 26.1          | 39.14        |
| Callery pear        | 4,437      | (N/A)          | 17.7             | 15.3          | 23.35        |
| Red maple           | 5,227      | (N/A)          | 16.7             | 18.0          | 29.20        |
| Norway maple        | 2,194      | (N/A)          | 5.6              | 7.6           | 36.56        |
| Japanese zelkova    | 1,200      | (N/A)          | 4.0              | 4.1           | 27.91        |
| London planetree    | 2,350      | (N/A)          | 3.8              | 8.1           | 57.33        |
| American elm        | 1,478      | (N/A)          | 3.7              | 5.1           | 36.95        |
| Pin oak             | 108        | (N/A)          | 2.5              | 0.4           | 4.00         |
| Chinese elm         | 627        | (N/A)          | 2.4              | 2.2           | 24.13        |
| Kwanzan cherry      | 150        | (N/A)          | 1.9              | 0.5           | 7.48         |
| Ginkgo              | 491        | (N/A)          | 1.8              | 1.7           | 25.84        |
| Willow oak          | 37         | (N/A)          | 1.7              | 0.1           | 2.07         |
| Eastern redbud      | 51         | (N/A)          | 1.4              | 0.2           | 3.40         |
| Black tupelo        | 189        | (N/A)          | 1.3              | 0.7           | 13.51        |
| Silver Linden       | 413        | (N/A)          | 1.3              | 1.4           | 29.46        |
| Service berry       | 31         | (N/A)          | 1.1              | 0.1           | 2.62         |
| Sweetgum            | 131        | (N/A)          | 1.0              | 0.5           | 11.93        |
| White ash           | 388        | (N/A)          | 1.0              | 1.3           | 35.30        |
| Freeman maple       | 182        | (N/A)          | 0.9              | 0.6           | 18.16        |
| Honeylocust         | 172        | (N/A)          | 0.8              | 0.6           | 19.15        |
| English oak         | 116        | (N/A)          | 0.8              | 0.4           | 12.91        |
| Tulip tree          | 17         | (N/A)          | 0.7              | 0.1           | 2.07         |
| Common crapemyrtle  | 8          | (N/A)          | 0.7              | 0.0           | 1.14         |
| Euonymus            | 6          | (N/A)          | 0.7              | 0.0           | 0.79         |
| Horsechestnut       | 247        | (N/A)          | 0.7              | 0.9           | 35.34        |
| Chestnut Oak        | 12         | (N/A)          | 0.6              | 0.0           | 2.07         |
| Swamp white oak     | 12         | (N/A)          | 0.6              | 0.0           | 2.07         |
| American sycamore   | 92         | (N/A)          | 0.5              | 0.3           | 18.31        |
| Yellowwood          | 24         | (N/A)          | 0.4              | 0.1           | 6.01         |
| Apple               | 46         | (N/A)          | 0.4              | 0.2           | 11.52        |
| Northern red oak    | 38         | (N/A)          | 0.4              | 0.1           | 9.47         |
| Green ash           | 126        | (N/A)          | 0.4              | 0.4           | 31.44        |
| Goldenrain tree     | 23         | (N/A)          | 0.4              | 0.1           | 5.65         |
| Black locust        | 120        | (N/A)          | 0.3              | 0.4           | 40.10        |
| Hawthorn            | 23         | (N/A)          | 0.3              | 0.1           | 7.70         |
| Red mulberry        | 19         | (N/A)          | 0.3              | 0.1           | 6.41         |
| Slippery elm        | 75         | (N/A)          | 0.3              | 0.3           | 24.85        |
| American holly      | 2          | (N/A)          | 0.3              | 0.0           | 0.79         |
| Sawtooth oak        | 104        | (N/A)          | 0.2              | 0.4           | 51.76        |
| Washington hawthorn | 15         | (N/A)          | 0.2              | 0.1           | 7.70         |
| Paperbark maple     | 15         | (N/A)          | 0.2              | 0.1           | 7.70         |
| River birch         | 36         | (N/A)          | 0.2              | 0.1           | 18.12        |
| Eastern cottonwood  | 167        | (N/A)          | 0.2              | 0.6           | 83.25        |
| Silver maple        | 87         | (N/A)          | 0.2              | 0.3           | 43.72        |
| Kentucky coffeetree | 4          | (N/A)          | 0.2              | 0.0           | 2.07         |
| Fringe tree         | 15         | (N/A)          | 0.2              | 0.1           | 7.70         |
| Rose-of-sharon      | 3          | (N/A)          | 0.1              | 0.0           | 2.62         |
| Forsythia           | 3          | (N/A)          | 0.1              | 0.0           | 2.62         |

## Annual Aesthetic/Other Benefits of Public Trees

9/12/2014

| Species           | Standard<br>Total (\$) | Error | % of Total<br>Trees | % of Total<br>\$ | Avg.<br>\$/tree |
|-------------------|------------------------|-------|---------------------|------------------|-----------------|
| Higan cherry      | 8                      | (N/A) | 0.1                 | 0.0              | 7.70            |
| Winged Euonymus   | 3                      | (N/A) | 0.1                 | 0.0              | 2.62            |
| Cherry plum       | 3                      | (N/A) | 0.1                 | 0.0              | 2.62            |
| Sassafras         | 6                      | (N/A) | 0.1                 | 0.0              | 6.01            |
| Common persimmon  | 6                      | (N/A) | 0.1                 | 0.0              | 6.01            |
| Bur oak           | 2                      | (N/A) | 0.1                 | 0.0              | 2.07            |
| Dogwood           | 3                      | (N/A) | 0.1                 | 0.0              | 2.62            |
| Boxelder          | 52                     | (N/A) | 0.1                 | 0.2              | 51.76           |
| Scarlet oak       | 2                      | (N/A) | 0.1                 | 0.0              | 2.07            |
| Trident maple     | 5                      | (N/A) | 0.1                 | 0.0              | 4.60            |
| Amur maple        | 8                      | (N/A) | 0.1                 | 0.0              | 7.70            |
| Black oak         | 38                     | (N/A) | 0.1                 | 0.1              | 38.35           |
| Flowering dogwood | 3                      | (N/A) | 0.1                 | 0.0              | 2.62            |
| Post oak          | 2                      | (N/A) | 0.1                 | 0.0              | 2.07            |
| Citywide total    | 29,043                 | (N/A) | 100.0               | 100.0            | 27.02           |

**Baltimore**

**Annual Benefits of Public Trees by Species (\$/tree)**

9/12/2014

| Species             | Energy | CO2  | Air Quality | Stormwater | Aesthetic/Other | Total (\$) | Standard Error |
|---------------------|--------|------|-------------|------------|-----------------|------------|----------------|
| Littleleaf linden   | 9.62   | 4.03 | 3.72        | 20.27      | 39.14           | 76.78      | (N/A)          |
| Callery pear        | 7.94   | 2.02 | 3.55        | 15.45      | 23.35           | 52.30      | (N/A)          |
| Red maple           | 4.63   | 1.32 | 1.33        | 10.89      | 29.20           | 47.37      | (N/A)          |
| Norway maple        | 5.39   | 1.78 | -1.08       | 12.35      | 36.56           | 55.00      | (N/A)          |
| Japanese zelkova    | 4.23   | 1.36 | -0.79       | 9.52       | 27.91           | 42.23      | (N/A)          |
| London planetree    | 10.25  | 3.29 | -4.04       | 28.65      | 57.33           | 95.48      | (N/A)          |
| American elm        | 7.09   | 2.20 | -3.86       | 22.70      | 36.95           | 65.08      | (N/A)          |
| Pin oak             | 0.66   | 0.14 | 0.15        | 0.82       | 4.00            | 5.77       | (N/A)          |
| Chinese elm         | 5.75   | 1.74 | 2.17        | 9.68       | 24.13           | 43.47      | (N/A)          |
| Kwanzan cherry      | 4.52   | 1.26 | 1.81        | 6.23       | 7.48            | 21.30      | (N/A)          |
| Ginkgo              | 5.99   | 2.36 | 2.30        | 12.39      | 25.84           | 48.89      | (N/A)          |
| Willow oak          | 0.48   | 0.08 | 0.12        | 0.55       | 2.07            | 3.29       | (N/A)          |
| Eastern redbud      | 1.60   | 0.28 | 0.62        | 1.93       | 3.40            | 7.82       | (N/A)          |
| Black tupelo        | 2.68   | 0.86 | 1.01        | 4.78       | 13.51           | 22.83      | (N/A)          |
| Silver Linden       | 7.21   | 2.41 | 2.74        | 12.90      | 29.46           | 54.73      | (N/A)          |
| Service berry       | 1.00   | 0.09 | 0.38        | 1.04       | 2.62            | 5.12       | (N/A)          |
| Sweetgum            | 1.59   | 0.29 | -0.41       | 3.04       | 11.93           | 16.44      | (N/A)          |
| White ash           | 5.62   | 1.81 | -1.58       | 14.10      | 35.30           | 55.25      | (N/A)          |
| Freeman maple       | 2.32   | 0.74 | -0.02       | 4.22       | 18.16           | 25.43      | (N/A)          |
| Honeylocust         | 3.31   | 1.03 | -1.13       | 8.88       | 19.15           | 31.25      | (N/A)          |
| English oak         | 3.06   | 0.87 | -1.95       | 10.57      | 12.91           | 25.45      | (N/A)          |
| Tulip tree          | 0.48   | 0.08 | 0.12        | 0.55       | 2.07            | 3.29       | (N/A)          |
| Common crapemyrtle  | 0.76   | 0.08 | 0.27        | 0.75       | 1.14            | 2.99       | (N/A)          |
| Euonymus            | 0.42   | 0.05 | 0.23        | 0.37       | 0.79            | 1.87       | (N/A)          |
| Horsechestnut       | 4.94   | 1.65 | -0.76       | 10.73      | 35.34           | 51.89      | (N/A)          |
| Chestnut Oak        | 0.48   | 0.08 | 0.12        | 0.55       | 2.07            | 3.29       | (N/A)          |
| Swamp white oak     | 0.48   | 0.08 | 0.12        | 0.55       | 2.07            | 3.29       | (N/A)          |
| American sycamore   | 3.79   | 1.14 | -1.85       | 11.64      | 18.31           | 33.02      | (N/A)          |
| Yellowwood          | 0.58   | 0.06 | 0.20        | 0.75       | 6.01            | 7.60       | (N/A)          |
| Apple               | 7.81   | 2.30 | 2.87        | 8.77       | 11.52           | 33.27      | (N/A)          |
| Northern red oak    | 1.35   | 0.57 | 0.27        | 2.44       | 9.47            | 14.11      | (N/A)          |
| Green ash           | 5.74   | 1.81 | -2.52       | 16.86      | 31.44           | 53.32      | (N/A)          |
| Goldenrain tree     | 2.92   | 0.78 | 1.16        | 3.84       | 5.65            | 14.35      | (N/A)          |
| Black locust        | 9.75   | 4.20 | 3.77        | 20.53      | 40.10           | 78.36      | (N/A)          |
| Hawthorn            | 4.34   | 1.27 | 1.73        | 5.91       | 7.70            | 20.95      | (N/A)          |
| Red mulberry        | 0.89   | 0.22 | 0.18        | 1.16       | 6.41            | 8.86       | (N/A)          |
| Slippery elm        | 5.64   | 2.25 | 2.16        | 11.29      | 24.85           | 46.19      | (N/A)          |
| American holly      | 0.68   | 0.12 | 0.39        | 0.65       | 0.79            | 2.64       | (N/A)          |
| Sawtooth oak        | 12.92  | 5.92 | 5.04        | 28.49      | 51.76           | 104.12     | (N/A)          |
| Washington hawthorn | 4.34   | 1.27 | 1.73        | 5.91       | 7.70            | 20.95      | (N/A)          |
| Paperbark maple     | 4.34   | 1.27 | 1.73        | 5.91       | 7.70            | 20.95      | (N/A)          |
| River birch         | 4.13   | 1.21 | 1.56        | 6.95       | 18.12           | 31.96      | (N/A)          |
| Eastern cottonwood  | 17.03  | 5.37 | -9.74       | 56.01      | 83.25           | 151.92     | (N/A)          |
| Silver maple        | 10.83  | 2.96 | 3.58        | 20.17      | 43.72           | 81.26      | (N/A)          |
| Kentucky coffeetree | 0.48   | 0.08 | 0.12        | 0.55       | 2.07            | 3.29       | (N/A)          |
| Fringe tree         | 4.34   | 1.27 | 1.73        | 5.91       | 7.70            | 20.95      | (N/A)          |
| Rose-of-sharon      | 1.00   | 0.09 | 0.38        | 1.04       | 2.62            | 5.12       | (N/A)          |
| Forsythia           | 1.00   | 0.09 | 0.38        | 1.04       | 2.62            | 5.12       | (N/A)          |
| Higan cherry        | 4.34   | 1.27 | 1.73        | 5.91       | 7.70            | 20.95      | (N/A)          |
| Winged Euonymus     | 1.00   | 0.09 | 0.38        | 1.04       | 2.62            | 5.12       | (N/A)          |
| Cherry plum         | 1.00   | 0.09 | 0.38        | 1.04       | 2.62            | 5.12       | (N/A)          |
| Sassafras           | 0.58   | 0.06 | 0.20        | 0.75       | 6.01            | 7.60       | (N/A)          |
| Common persimmon    | 0.58   | 0.06 | 0.20        | 0.75       | 6.01            | 7.60       | (N/A)          |

## Annual Benefits of Public Trees by Species (\$/tree)

9/12/2014

| Species               | Energy      | CO <sub>2</sub> | Air Quality | Stormwater   | Aesthetic/Other | Total (\$)   | Standard Error |
|-----------------------|-------------|-----------------|-------------|--------------|-----------------|--------------|----------------|
| Bur oak               | 0.48        | 0.08            | 0.12        | 0.55         | 2.07            | 3.29         | (N/A)          |
| Dogwood               | 1.00        | 0.09            | 0.38        | 1.04         | 2.62            | 5.12         | (N/A)          |
| Boxelder              | 12.92       | 5.92            | 5.04        | 28.49        | 51.76           | 104.12       | (N/A)          |
| Scarlet oak           | 0.48        | 0.08            | 0.12        | 0.55         | 2.07            | 3.29         | (N/A)          |
| Trident maple         | 2.01        | 0.49            | 0.80        | 2.50         | 4.60            | 10.40        | (N/A)          |
| Amur maple            | 4.34        | 1.27            | 1.73        | 5.91         | 7.70            | 20.95        | (N/A)          |
| Black oak             | 4.96        | 1.72            | -0.57       | 10.33        | 38.35           | 54.78        | (N/A)          |
| Flowering dogwood     | 1.00        | 0.09            | 0.38        | 1.04         | 2.62            | 5.12         | (N/A)          |
| Post oak              | 0.48        | 0.08            | 0.12        | 0.55         | 2.07            | 3.29         | (N/A)          |
| <b>Citywide Total</b> | <b>6.04</b> | <b>1.98</b>     | <b>1.32</b> | <b>13.13</b> | <b>27.02</b>    | <b>49.48</b> | <b>(N/A)</b>   |

## Baltimore

### Total Annual Benefits of Public Trees by Species (\$)

9/12/2014

| Species             | Energy | CO <sub>2</sub> | Air Quality | Stormwater | Aesthetic/Other | Total (\$) | Standard Error | % of Total \$ |
|---------------------|--------|-----------------|-------------|------------|-----------------|------------|----------------|---------------|
| Littleleaf linden   | 1,867  | 782             | 722         | 3,933      | 7,593           | 14,896     | (N/A)          | 28.0          |
| Callery pear        | 1,508  | 383             | 674         | 2,936      | 4,437           | 9,938      | (N/A)          | 18.7          |
| Red maple           | 828    | 236             | 238         | 1,949      | 5,227           | 8,479      | (N/A)          | 15.9          |
| Norway maple        | 323    | 107             | -65         | 741        | 2,194           | 3,300      | (N/A)          | 6.2           |
| Japanese zelkova    | 182    | 59              | -34         | 409        | 1,200           | 1,816      | (N/A)          | 3.4           |
| London planetree    | 420    | 135             | -166        | 1,174      | 2,350           | 3,914      | (N/A)          | 7.4           |
| American elm        | 284    | 88              | -154        | 908        | 1,478           | 2,603      | (N/A)          | 4.9           |
| Pin oak             | 18     | 4               | 4           | 22         | 108             | 156        | (N/A)          | 0.3           |
| Chinese elm         | 149    | 45              | 56          | 252        | 627             | 1,130      | (N/A)          | 2.1           |
| Kwanzan cherry      | 90     | 25              | 36          | 125        | 150             | 426        | (N/A)          | 0.8           |
| Ginkgo              | 114    | 45              | 44          | 235        | 491             | 929        | (N/A)          | 1.7           |
| Willow oak          | 9      | 1               | 2           | 10         | 37              | 59         | (N/A)          | 0.1           |
| Eastern redbud      | 24     | 4               | 9           | 29         | 51              | 117        | (N/A)          | 0.2           |
| Black tupelo        | 37     | 12              | 14          | 67         | 189             | 320        | (N/A)          | 0.6           |
| Silver Linden       | 101    | 34              | 38          | 181        | 413             | 766        | (N/A)          | 1.4           |
| Service berry       | 12     | 1               | 5           | 13         | 31              | 61         | (N/A)          | 0.1           |
| Sweetgum            | 17     | 3               | -4          | 33         | 131             | 181        | (N/A)          | 0.3           |
| White ash           | 62     | 20              | -17         | 155        | 388             | 608        | (N/A)          | 1.1           |
| Freeman maple       | 23     | 7               | 0           | 42         | 182             | 254        | (N/A)          | 0.5           |
| Honeylocust         | 30     | 9               | -10         | 80         | 172             | 281        | (N/A)          | 0.5           |
| English oak         | 28     | 8               | -18         | 95         | 116             | 229        | (N/A)          | 0.4           |
| Tulip tree          | 4      | 1               | 1           | 4          | 17              | 26         | (N/A)          | 0.0           |
| Common crapemyrtle  | 5      | 1               | 2           | 5          | 8               | 21         | (N/A)          | 0.0           |
| Euonymus            | 3      | 0               | 2           | 3          | 6               | 13         | (N/A)          | 0.0           |
| Horsechestnut       | 35     | 12              | -5          | 75         | 247             | 363        | (N/A)          | 0.7           |
| Chestnut Oak        | 3      | 0               | 1           | 3          | 12              | 20         | (N/A)          | 0.0           |
| Swamp white oak     | 3      | 0               | 1           | 3          | 12              | 20         | (N/A)          | 0.0           |
| American sycamore   | 19     | 6               | -9          | 58         | 92              | 165        | (N/A)          | 0.3           |
| Yellowwood          | 2      | 0               | 1           | 3          | 24              | 30         | (N/A)          | 0.1           |
| Apple               | 31     | 9               | 11          | 35         | 46              | 133        | (N/A)          | 0.3           |
| Northern red oak    | 5      | 2               | 1           | 10         | 38              | 56         | (N/A)          | 0.1           |
| Green ash           | 23     | 7               | -10         | 67         | 126             | 213        | (N/A)          | 0.4           |
| Goldenrain tree     | 12     | 3               | 5           | 15         | 23              | 57         | (N/A)          | 0.1           |
| Black locust        | 29     | 13              | 11          | 62         | 120             | 235        | (N/A)          | 0.4           |
| Hawthorn            | 13     | 4               | 5           | 18         | 23              | 63         | (N/A)          | 0.1           |
| Red mulberry        | 3      | 1               | 1           | 3          | 19              | 27         | (N/A)          | 0.0           |
| Slippery elm        | 17     | 7               | 6           | 34         | 75              | 139        | (N/A)          | 0.3           |
| American holly      | 2      | 0               | 1           | 2          | 2               | 8          | (N/A)          | 0.0           |
| Sawtooth oak        | 26     | 12              | 10          | 57         | 104             | 208        | (N/A)          | 0.4           |
| Washington hawthorn | 9      | 3               | 3           | 12         | 15              | 42         | (N/A)          | 0.1           |
| Paperbark maple     | 9      | 3               | 3           | 12         | 15              | 42         | (N/A)          | 0.1           |
| River birch         | 8      | 2               | 3           | 14         | 36              | 64         | (N/A)          | 0.1           |
| Eastern cottonwood  | 34     | 11              | -19         | 112        | 167             | 304        | (N/A)          | 0.6           |
| Silver maple        | 22     | 6               | 7           | 40         | 87              | 163        | (N/A)          | 0.3           |
| Kentucky coffeetree | 1      | 0               | 0           | 1          | 4               | 7          | (N/A)          | 0.0           |
| Fringe tree         | 9      | 3               | 3           | 12         | 15              | 42         | (N/A)          | 0.1           |
| Rose-of-sharon      | 1      | 0               | 0           | 1          | 3               | 5          | (N/A)          | 0.0           |
| Forsythia           | 1      | 0               | 0           | 1          | 3               | 5          | (N/A)          | 0.0           |

## Total Annual Benefits of Public Trees by Species (\$)

9/12/2014

| Species               | Energy       | CO <sub>2</sub> | Air Quality  | Stormwater    | Aesthetic/Other | Total (\$)    | Standard Error | % of Total \$ |
|-----------------------|--------------|-----------------|--------------|---------------|-----------------|---------------|----------------|---------------|
| Higan cherry          | 4            | 1               | 2            | 6             | 8               | 21            | (N/A)          | 0.0           |
| Winged Euonymus       | 1            | 0               | 0            | 1             | 3               | 5             | (N/A)          | 0.0           |
| Cherry plum           | 1            | 0               | 0            | 1             | 3               | 5             | (N/A)          | 0.0           |
| Sassafras             | 1            | 0               | 0            | 1             | 6               | 8             | (N/A)          | 0.0           |
| Common persimmon      | 1            | 0               | 0            | 1             | 6               | 8             | (N/A)          | 0.0           |
| Bur oak               | 0            | 0               | 0            | 1             | 2               | 3             | (N/A)          | 0.0           |
| Dogwood               | 1            | 0               | 0            | 1             | 3               | 5             | (N/A)          | 0.0           |
| Box elder             | 13           | 6               | 5            | 28            | 52              | 104           | (N/A)          | 0.2           |
| Scarlet oak           | 0            | 0               | 0            | 1             | 2               | 3             | (N/A)          | 0.0           |
| Trident maple         | 2            | 0               | 1            | 3             | 5               | 10            | (N/A)          | 0.0           |
| Amur maple            | 4            | 1               | 2            | 6             | 8               | 21            | (N/A)          | 0.0           |
| Black oak             | 5            | 2               | -1           | 10            | 38              | 55            | (N/A)          | 0.1           |
| Flowering dogwood     | 1            | 0               | 0            | 1             | 3               | 5             | (N/A)          | 0.0           |
| Post oak              | 0            | 0               | 0            | 1             | 2               | 3             | (N/A)          | 0.0           |
| <b>Citywide Total</b> | <b>6,490</b> | <b>2,124</b>    | <b>1,422</b> | <b>14,113</b> | <b>29,043</b>   | <b>53,191</b> | <b>(N/A)</b>   | <b>100.0</b>  |

Baltimore

Replacement Value of Public Trees

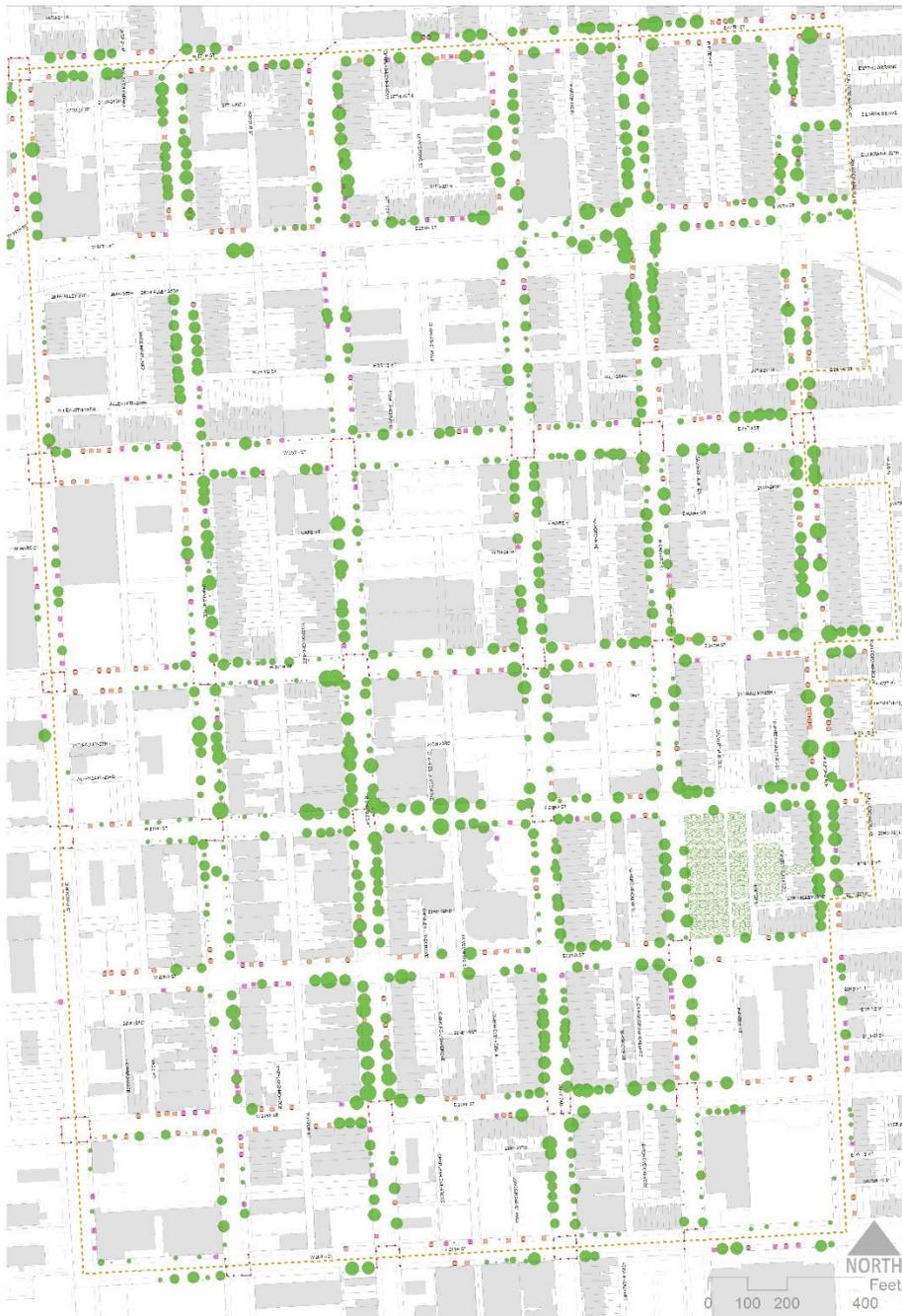
9/12/2014

| Species             | DBH Class (in) |        |         |         |         |         |        |       |     |   | Total Standard Error | % of Total |
|---------------------|----------------|--------|---------|---------|---------|---------|--------|-------|-----|---|----------------------|------------|
|                     | 0-3            | 3-6    | 6-12    | 12-18   | 18-24   | 24-30   | 30-36  | 36-42 | >42 |   |                      |            |
| Callery pear        | 821            | 9,454  | 105,843 | 180,637 | 209,617 | 127,976 | 18,296 | 0     | 0   | 0 | 652,644 (±0)         | 29.48      |
| Littleleaf linden   | 818            | 10,339 | 89,571  | 247,742 | 85,576  | 11,419  | 0      | 0     | 0   | 0 | 445,465 (±0)         | 20.12      |
| Red maple           | 7,131          | 16,795 | 125,130 | 134,811 | 32,220  | 19,635  | 0      | 0     | 0   | 0 | 335,722 (±0)         | 15.17      |
| London planetree    | 180            | 1,884  | 11,406  | 62,418  | 68,748  | 0       | 0      | 0     | 0   | 0 | 144,636 (±0)         | 6.53       |
| Norway maple        | 384            | 7,755  | 54,517  | 59,029  | 5,068   | 0       | 0      | 0     | 0   | 0 | 126,752 (±0)         | 5.73       |
| American elm        | 3,324          | 1,480  | 9,980   | 4,516   | 16,986  | 29,972  | 11,696 | 0     | 0   | 0 | 77,915 (±0)          | 3.52       |
| Japanese zelkova    | 1,331          | 6,506  | 19,013  | 46,655  | 0       | 0       | 0      | 0     | 0   | 0 | 73,505 (±0)          | 3.32       |
| Ginkgo              | 648            | 1,852  | 14,741  | 6,111   | 22,064  | 0       | 0      | 0     | 0   | 0 | 45,416 (±0)          | 2.05       |
| Chinese elm         | 403            | 4,303  | 29,481  | 6,111   | 0       | 0       | 0      | 0     | 0   | 0 | 40,299 (±0)          | 1.82       |
| Silver Linden       | 0              | 2,133  | 15,556  | 10,624  | 0       | 0       | 0      | 0     | 0   | 0 | 28,314 (±0)          | 1.28       |
| Kwanzan cherry      | 541            | 1,740  | 8,051   | 16,087  | 0       | 0       | 0      | 0     | 0   | 0 | 26,419 (±0)          | 1.19       |
| Eastern cottonwood  | 0              | 0      | 0       | 0       | 24,614  | 0       | 0      | 0     | 0   | 0 | 24,614 (±0)          | 1.11       |
| White ash           | 170            | 1,576  | 4,785   | 9,226   | 6,806   | 0       | 0      | 0     | 0   | 0 | 22,563 (±0)          | 1.02       |
| English oak         | 1,308          | 0      | 0       | 0       | 0       | 15,860  | 0      | 0     | 0   | 0 | 17,168 (±0)          | 0.78       |
| Black tupelo        | 1,181          | 610    | 4,082   | 5,978   | 0       | 0       | 0      | 0     | 0   | 0 | 11,852 (±0)          | 0.54       |
| Honeylocust         | 1,058          | 0      | 3,074   | 0       | 7,644   | 0       | 0      | 0     | 0   | 0 | 11,775 (±0)          | 0.53       |
| Green ash           | 290            | 0      | 1,320   | 0       | 9,642   | 0       | 0      | 0     | 0   | 0 | 11,252 (±0)          | 0.51       |
| Sawtooth oak        | 0              | 0      | 0       | 10,460  | 0       | 0       | 0      | 0     | 0   | 0 | 10,460 (±0)          | 0.47       |
| Horsechestnut       | 0              | 662    | 4,653   | 3,044   | 0       | 0       | 0      | 0     | 0   | 0 | 8,359 (±0)           | 0.38       |
| American sycamore   | 845            | 0      | 0       | 0       | 6,977   | 0       | 0      | 0     | 0   | 0 | 7,823 (±0)           | 0.35       |
| Freeman maple       | 384            | 2,419  | 4,900   | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 7,703 (±0)           | 0.35       |
| Eastern redbud      | 2,055          | 565    | 0       | 4,360   | 0       | 0       | 0      | 0     | 0   | 0 | 6,980 (±0)           | 0.32       |
| Sweetgum            | 1,400          | 951    | 0       | 4,113   | 0       | 0       | 0      | 0     | 0   | 0 | 6,464 (±0)           | 0.29       |
| Pin oak             | 4,643          | 1,740  | 0       | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 6,383 (±0)           | 0.29       |
| Silver maple        | 0              | 0      | 1,537   | 3,980   | 0       | 0       | 0      | 0     | 0   | 0 | 5,516 (±0)           | 0.25       |
| Black locust        | 0              | 472    | 0       | 4,678   | 0       | 0       | 0      | 0     | 0   | 0 | 5,149 (±0)           | 0.23       |
| Hawthorn            | 0              | 0      | 5,069   | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 5,069 (±0)           | 0.23       |
| Paperbark maple     | 0              | 0      | 4,628   | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 4,628 (±0)           | 0.21       |
| Apple               | 0              | 0      | 3,190   | 1,171   | 0       | 0       | 0      | 0     | 0   | 0 | 4,361 (±0)           | 0.20       |
| Fringe tree         | 0              | 0      | 3,607   | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 3,607 (±0)           | 0.16       |
| Washington hawthorn | 0              | 0      | 3,607   | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 3,607 (±0)           | 0.16       |
| Goldenrain tree     | 145            | 394    | 2,640   | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 3,179 (±0)           | 0.14       |
| Slippery elm        | 149            | 489    | 0       | 2,038   | 0       | 0       | 0      | 0     | 0   | 0 | 2,676 (±0)           | 0.12       |
| Higan cherry        | 0              | 0      | 2,314   | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 2,314 (±0)           | 0.10       |
| Black oak           | 0              | 0      | 2,314   | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 2,314 (±0)           | 0.10       |
| River birch         | 159            | 0      | 1,981   | 0       | 0       | 0       | 0      | 0     | 0   | 0 | 2,140 (±0)           | 0.10       |

| Species               | DBH Class (in) |               |                |                |                |                |               |          |          |          | Total Standard Error  | % of Total    |
|-----------------------|----------------|---------------|----------------|----------------|----------------|----------------|---------------|----------|----------|----------|-----------------------|---------------|
|                       | 0-3            | 3-6           | 6-12           | 12-18          | 18-24          | 24-30          | 30-36         | 36-42    | > 42     |          |                       |               |
| Willow oak            | 2,106          | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 2,106 (±0)            | 0.10          |
| Amar maple            | 0              | 0             | 2,092          | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 2,092 (±0)            | 0.09          |
| Northern red oak      | 323            | 0             | 1,648          | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 1,970 (±0)            | 0.09          |
| Service berry         | 1,612          | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 1,612 (±0)            | 0.07          |
| Boxelder              | 0              | 0             | 0              | 1,519          | 0              | 0              | 0             | 0        | 0        | 0        | 1,519 (±0)            | 0.07          |
| Common cranesyrle     | 622            | 609           | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 1,231 (±0)            | 0.06          |
| Tulip tree            | 1,086          | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 1,086 (±0)            | 0.05          |
| Red mulberry          | 256            | 628           | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 884 (±0)              | 0.04          |
| Euonymus              | 878            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 878 (±0)              | 0.04          |
| Swamp white oak       | 828            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 828 (±0)              | 0.04          |
| American holly        | 200            | 628           | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 827 (±0)              | 0.04          |
| Trident maple         | 0              | 617           | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 617 (±0)              | 0.03          |
| Chestnut Oak          | 569            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 569 (±0)              | 0.03          |
| Yellowwood            | 544            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 544 (±0)              | 0.02          |
| Kentucky coffeetree   | 381            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 381 (±0)              | 0.02          |
| Scarlet oak           | 180            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 180 (±0)              | 0.01          |
| Common persimmon      | 180            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 180 (±0)              | 0.01          |
| Sassafras             | 170            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 170 (±0)              | 0.01          |
| Post oak              | 170            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 170 (±0)              | 0.01          |
| Bar oak               | 149            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 149 (±0)              | 0.01          |
| Winged Euonymus       | 128            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 128 (±0)              | 0.01          |
| Cherry plum           | 128            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 128 (±0)              | 0.01          |
| Dogwood               | 128            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 128 (±0)              | 0.01          |
| Forsythia             | 128            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 128 (±0)              | 0.01          |
| Rose-of-sharon        | 128            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 128 (±0)              | 0.01          |
| Flowering dogwood     | 109            | 0             | 0              | 0              | 0              | 0              | 0             | 0        | 0        | 0        | 109 (±0)              | 0.00          |
| <b>Citywide Total</b> | <b>40,373</b>  | <b>76,612</b> | <b>540,680</b> | <b>825,308</b> | <b>495,962</b> | <b>204,862</b> | <b>20,992</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>2,213,789 (±0)</b> | <b>100.00</b> |

# Appendix E: Location of Existing Trees, Empty and Potential Tree Pits

The map Legend identifies empty tree pits with stumps, empty tree pits with no stumps and potential tree pits. All potential planting areas must be determined in accordance with Baltimore City Urban Forestry Division regulations. For a full size map and the list of all trees and tree pits by address, contact the Baltimore Tree Trust.



Old Goucher  
Tree Inventory  
Summer 2014  
Map of Existing Trees  
Plus Other Information

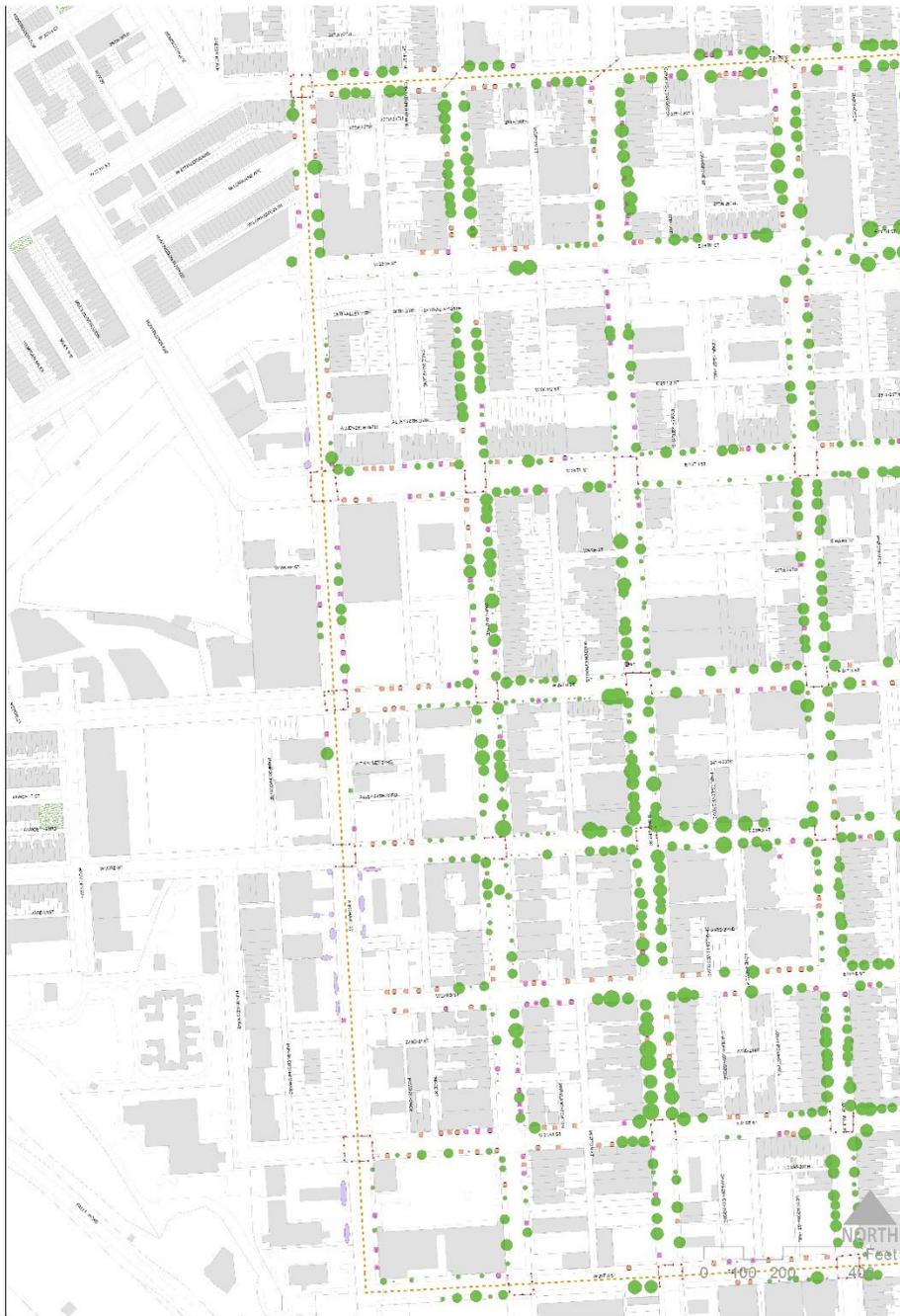
## Legend

- Old Goucher Neighborhood Boundary
- Existing Trees by Canopy Diameter
  - 45' - 50'
  - 40' - 45'
  - 35' - 40'
  - 30' - 35'
  - 25' - 30'
  - 20' - 25'
  - 15' - 20'
  - 10' - 15'
  - 5' - 10'
  - 1' - 5'
- Empty Tree Pit No Stump
- Empty Tree Pit With Stump
- Potential Tree Pit
- Overhead Lines

Map created by Rain Underground, LLC. Data freely available from City and State sources (Baltimore City GIS 2005), well as data feature created by Rain Underground users/analysts. All data is created by Rain Underground, LLC belongs to Baltimore Tree Trust. More information about Rain Underground, LLC can be found at [www.rainunderground.com](http://www.rainunderground.com)

# Appendix F: Potential Tree Planting Areas on Private Property along the Howard Street Corridor

In these locations (private property), consultation with the property owners would be necessary. Appropriate tree selection for location, height and care would be important. While the trees would not be on the sidewalk, their presence would likely offer similar benefits.



Old Goucher  
Tree Inventory  
Summer 2014  
Map of Potential  
Planting Areas  
on Private Property  
along Howard St.  
Corridor

## Legend

- Old Goucher Neighborhood Boundary
- Existing Trees by Canopy Diameter
- 45' - 50'
- 40' - 45'
- 35' - 40'
- 30' - 35'
- 25' - 30'
- 20' - 25'
- 15' - 20'
- 10' - 15'
- 5' - 10'
- 1' - 5'
- Empty Tree Pit No Stump
- Empty Tree Pit With Stump
- Potential Tree Pit
- Potential Planting Areas On Howard St.
- Overhead Lines

Map created by Rain Underground, LLC. Data freely available from City and State sources (Baltimore City GIS 2008), well as data features created by Rain Underground were used. All data collected by Rain Underground, LLC belongs to Baltimore Tree Trust. More information about Rain Underground, LLC can be found at [www.rainunderground.com](http://www.rainunderground.com)

# Appendix G: Baltimore City Recommended Tree List

## Baltimore City Street Tree Species List 7/8/2013



TreeBaltimore

Department of  
Parks & Recreation

**Thank you for your interest in Baltimore City's trees!** Please obtain permission from the Urban Forestry Division prior to planting a tree in a public right of way. We promise to make this as easy and painless as possible, and permits from the Urban Forestry Division are free. We will add your new tree(s) to the Baltimore City street tree inventory, plus we want to be sure the species you select is appropriate for your location so that it can live a long and healthy life. Here are a few things to consider:

- Native species provide addition benefits over non-native species. If you are planting more than 3 trees, at least 50 percent should be native.
- We need diversity and prefer a variety of species. For larger plantings no single species should be more than 20% of the mix.
- Shade trees provide more benefits than smaller trees, and should be planted where there is room.
- Some trees that are not listed may be acceptable. Check with the Urban Forestry Division.
- Minimum size at planting time is a 1/4 inch caliper inch trunk, but we encourage you to plant a larger size. If the planting is part of a construction or development project or for environmental mitigation, a larger minimum size will be dictated by the applicable regulations.
- Please follow the current City specifications for tree pit size, soil, planting, and maintenance.
- It's worth repeating: Continued maintenance over several years is the key to a successful planting, and this includes weeding, mulching and straightening. Most importantly, routine watering of your new tree is the most important thing you can do for it.
- We review the species list and specifications annually. Please send us your comments, and contact us if you have any questions or concerns.

Urban Forestry Division  
Baltimore City Recreation and Parks  
2600 Madison Ave  
Baltimore, Maryland 21217  
410 396-6109

<http://treebaltimore.org/>  
<http://bcpr.baltimorecity.gov/ForestryTreeServices.aspx>

| Common Name   | Species                            | Native<br>Exotic | Spread<br>(feet) | Height<br>(feet) | Comments   |
|---|------------------------------------|------------------|------------------|------------------|--|
| <b>Small Street Tree Species for Under Powerlines</b> |                                    |                  |                  |                  |  |
| Trident Maple   | <i>Acer buergerianum</i>           | E                | 25 to 30         | 25 to 30         | <i>Hybrids, redwoods and ginkgos aren't defined.</i> |
| Hedge Maple   | <i>Acer campestre</i>              | E                | 30 to 35         | 25 to 30         |  |
| Amur Maple  | <i>Acer ginnala</i>                | E                | 20 to 25         | 20 to 30         |  |
| Three Flower Maple                                    | <i>Acer triflorum</i>              | E                | 20 to 30         | 20 to 30         |  |
| Shantung Maple  | <i>Acer truncatum</i>              | E                | 20 to 25         | 20 to 25         |  |
| Red Buckeye   | <i>Aesculus pavia</i>              | N                | 15 to 25         | 25 to 30         |  |
| Shadblow Serviceberry*                                | <i>Amelanchier canadensis</i>      | N                | 15 to 20         | 20 to 25         |  |
| Allegheny Serviceberry*                               | <i>Amelanchier laevis</i>          | N                | 10 to 15         | 15 to 25         |  |
| Eastern Redbud  | <i>Cercis canadensis</i>           | N                | 15 to 25         | 20 to 30         |  |
| White Eastern Redbud                                  | <i>Cercis canadensis var. alba</i> | N                | 15 to 25         | 20 to 30         |  |
| Kousa Dogwood*  | <i>Cornus kousa</i>                | E                | 15 to 20         | 15 to 20         |  |
| Cornelian cherry dogwood                              | <i>Cornus mas</i>                  | E                | 15 to 20         | 15 to 25         |  |

| Common Name                      | Species   | Native Exotic | Spread (feet) | Height (feet) | Comments   |
|----------------------------------|---|---------------|---------------|---------------|--|
| English Hawthorn                 | <i>Crataegus laevigata</i>                      | E             | 15 to 25      | 20 to 25      |  |
| Thornless Cockspar Hawthorn      | <i>Crataegus cras-galli</i> var. <i>inermis</i> | N             | 20 to 30      | 20 to 30      | Thornless  |
| Washington Hawthorn              | <i>Crataegus phaenopyrum</i>                    | N             | 20 to 25      | 20 to 35      |  |
| Southern Hawthorn                | <i>Crataegus viridis</i>                        | N             | 20 to 30      | 20 to 30      |  |
| Lavalle Hawthorn                 | <i>Crataegus x lavallei</i>                     | N             | 15 to 25      | 20 to 30      |  |
| Korean Evodia                    | <i>Evodia danielli</i>                          | E             | 25 to 30      | 25 to 30      |  |
| Crape-Myrtle*                    | <i>Lagerstroemia indica</i>                     | E             | 15 to 25      | 10 to 30      | Check cultivar for height and spread               |
| Little Gem Magnolia              | <i>Magnolia grandiflora</i> 'Little Gem'        | N             | 10 to 15      | 20 to 30      |  |
| Star Magnolia*                   | <i>Magnolia kobus</i> var. <i>stellata</i>      | E             | 10 to 15      | 15 to 20      |  |
| Sweetbay Magnolia \ Bay Magnolia | <i>Magnolia virginiana</i>                      | N             | 12 to 20      | 12 to 20      | There are larger cultivars that can reach 50' tall |
| Saucer Magnolia*                 | <i>Magnolia x soulangeana</i>                   | E             | 20 to 25      | 20 to 30      |  |
| Chinese Pistache                 | <i>Pistacia chinensis</i>                       | E             | 25 to 35      | 25 to 35      |  |
| Flowering Purple Plum            | <i>Prunus cerasifera</i>                        | E             | 15 to 20      | 20 to 30      |  |
| Kwanzan Cherry                   | <i>Prunus serrulata</i> "Kwanzan"               | E             | 15 to 25      | 20 to 30      |  |
| Okame' Cherry                    | <i>Prunus x incamp</i> 'Okame'                  | E             | 15 to 20      | 15 to 20      |  |
| Yoshino Cherry                   | <i>Prunus x yedoensis</i>                       | E             | 30 to 40      | 30 to 35      |  |
| Japanese Tree Lilac              | <i>Syringa reticulata</i>                       | E             | 15 to 18      | 20 to 30      |  |
| Blackhaw Viburnum*               | <i>Viburnum prunifolium</i>                     | N             | 8 to 12       | 12 to 15      |  |
| Rusty Blackhaw Viburnum*         | <i>Viburnum rufidulum</i>                       | N             | 20 to 25      | 20 to 25      |  |

(\* Due to naturally low or multi-limb structure, these species may only be planted in open wide areas. Check with the Urban Forestry Division.)

### Medium and Large Street Tree Species

|                          |  |   |          |          |  |
|--------------------------|--|---|----------|----------|--|
| Red Maple                | <i>Acer rubrum</i>                               | N | 25 to 35 | 60 to 75 | Avoid because of overplanting \ Check cultivar characteristics |
| Sugar Maple              | <i>Acer saccharum</i>                            | N | 35 to 50 | 50 to 75 | Avoid northern cultivars, avoid in harsh inner city locations  |
| Legacy Sugar Maple       | <i>Acer saccharum</i> "Legacy"                   | N | 30 to 40 | 40 to 50 | Southern cultivar, avoid in harsh inner city locations         |
| Horse Chestnut           | <i>Aesculus hippocastanum</i>                    | E | 40 to 50 | 50 to 75 |  |
| Armstrong Maple          | <i>Acer x freemanii</i> "Armstrong"              | E | 15 to 25 | 50 to 60 | Avoid because of overplanting                                  |
| Red Maple 'Autumn Blaze' | <i>Acer x freemanii</i> "Autumn Blaze"           | E | 30 to 50 | 50 to 60 | Avoid because of overplanting                                  |
| Red Horsechestnut        | <i>Aesculus x carnea</i>                         | E | 30 to 45 | 30 to 45 |  |
| Ruby Red Horsechestnut   | <i>Aesculus x carnea</i> "Briotii"               | E | 35 to 45 | 35 to 45 |  |
| Allegheny Serviceberry   | <i>Amelanchier laevis</i>                        | N | 15 to 20 | 30 to 40 |  |
| River Birch              | <i>Betula nigra</i>                              | N | 25 to 35 | 40 to 50 | Single trunk only. Multi-trunks may be planted in medians.     |
| European Hornbeam        | <i>Carpinus betulus</i>                          | E | 30 to 40 | 40 to 60 |  |
| American Hornbeam        | <i>Carpinus caroliniana</i>                      | N | 20 to 35 | 35 to 50 |  |
| Common Hackberry         | <i>Celtis occidentalis</i>                       | N | 40 to 50 | 40 to 55 |  |
| Katsura                  | <i>Cercidiphyllum japonicum</i>                  | E | 20 to 40 | 40 to 60 |  |
| American Yellowwood      | <i>Cladrastis kentuckea</i>                      | N | 25 to 35 | 25 to 40 |  |
| Turkish Filbert          | <i>Corylus colurna</i>                           | E | 20 to 25 | 40 to 50 |  |
| Hardy Rubber Tree        | <i>Eucommia ulmoides</i>                         | E | 25 to 35 | 40 to 60 |  |
| Ginkgo, male only        | <i>Ginkgo biloba</i> (male)                      | E | 50 to 60 | 50 to 75 |  |
| Honey Locust             | <i>Gleditsia triacanthos</i> var. <i>inermis</i> | N | 35 to 50 | 60 to 70 | Only thornless variety (i.e. inermis)                          |
| SweetGum                 | <i>Liquidambar styraciflua</i>                   | N | 35 to 50 | 60 to 75 | Drops sweetgum balls   |
| 'Rotundiloba' Sweetgum   | <i>Liquidambar styraciflua</i> 'Rotundiloba'     | N | 35 to 45 | 50 to 70 | Produces few sweetgum balls, leaves have rounded lobes         |
| Southern Magnolia        | <i>Magnolia grandiflora</i>                      | N | to 40    | 60 to 80 | Evergreen  |

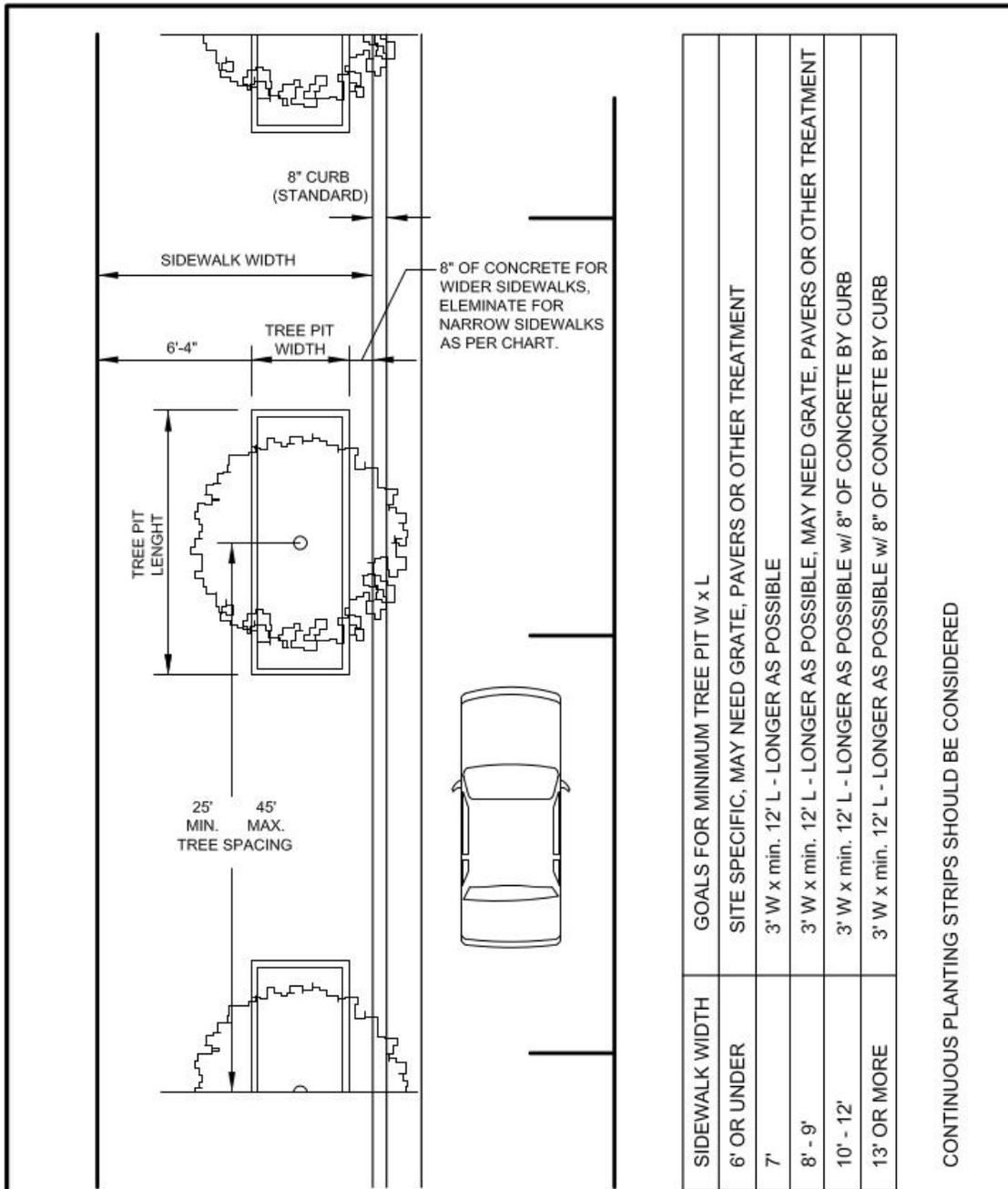
| Common Name                     | Species  | Native Exotic | Spread (feet) | Height (feet) | Comments   |
|---------------------------------|--|---------------|---------------|---------------|--|
| 'Henry Hicks' Sweetbay Magnolia | <i>Magnolia virginiana 'Henry Hicks'</i>       | N             | 15 to 25      | 40 to 50      | Evergreen \ Smaller cultivar                                     |
| Black gum \ Tupelo              | <i>Nyssa sylvatica</i>                         | N             | 30 to 40      | 30 to 50      |  |
| American Hophornbeam            | <i>Ostrya virginiana</i>                       | N             | 25 to 30      | 30 to 40      |  |
| American Sycamore               | <i>Platanus occidentalis</i>                   | N             | 50 to 80      | 80 to 100     |  |
| Oriental Planetree              | <i>Platanus orientalis</i>                     | E             | 50 - 60       | 70 - 80       |  |
| Sycamore, all species           | <i>Platanus spp.</i>                           |               |               |               | Check w\ Forestry Division, most sycamore species are acceptable |
| 'Bloodgood' London Planetree    | <i>Platanus x acerifolia 'Bloodgood'</i>       |               |               |               |  |
| Sargent Cherry                  | <i>Prunus sargentii</i>                        | E             | 15 to 20      | 25 to 40      |  |
| White Oak                       | <i>Quercus alba</i>                            | N             | 60 to 80      | 80 to 90      | Maryland State tree  |
| Swamp White Oak                 | <i>Quercus bicolor</i>                         | N             | 50 to 70      | 50 to 70      |  |
| Northern Red Oak                | <i>Quercus borealis</i>                        | N             | 50 to 60      | 75 to 90      | Avoid in harsh, inner city locations                             |
| Scarlet Oak                     | <i>Quercus coccinea</i>                        | N             | 60 to 75      | 50 to 75      |  |
| Southern Red Oak                | <i>Quercus falcata</i>                         | N             | 60 to 70      | 60 to 80      |  |
| Shingle Oak                     | <i>Quercus imbricaria</i>                      | N             | 40 to 60      | 40 to 60      |  |
| Laurel Oak                      | <i>Quercus laurifolia</i>                      | N             | 35 to 45      | 60 to 80      |  |
| Overcup Oak                     | <i>Quercus lyrata</i>                          | N             | 30 to 40      | 30 to 40      |  |
| Burr Oak                        | <i>Quercus macrocarpa</i>                      | N             | 60 to 80      | 70 to 90      |  |
| Willow Oak                      | <i>Quercus phellos</i>                         | N             | 40 to 50      | 50 to 75      |  |
| Chestnut Oak                    | <i>Quercus prinus</i>                          | N             | 50 to 70      | 50 to 70      |  |
| English Oak                     | <i>Quercus robur</i>                           | E             | 40 to 60      | 50 to 60      | Check cultivar for height and spread                             |
| Shumard Oak                     | <i>Quercus shumardii</i>                       | N             | 40 - 60       | 40 - 60       |  |
| Oak Species                     | <i>Quercus spp.</i>                            |               |               |               | Oaks promote biodiversity \ Most species are acceptable          |
| Regal Prince Oak                | <i>Quercus x warei "Regal Prince"</i>          | E             | 20 to 25      | 40 to 60      | Columnar   |
| Silver Linden                   | <i>Tilia tomentosa</i>                         | N             | 40 to 60      | 50 to 70      |  |
| American Linden                 | <i>Tilia americana</i>                         | N             | 30 to 45      | 75 to 90      |  |
| Littleleaf Linden               | <i>Tilia cordata</i>                           | E             | 30 to 40      | 40 to 60      | Not good in the inner city or sites w\ smaller soil volumes      |
| Crimean Linden                  | <i>Tilia X euclora</i>                         |               | 20 to 30      | 40 to 60      |  |
| American Elm                    | <i>Ulmus americana DED</i> resistant cultivars | N             | 50 to 70      | 70 to 90      |  |
| Slippery Elm                    | <i>Ulmus rubra</i>                             | N             | 30 to 50      | 60 to 80      |  |
| Zelkova                         | <i>Zelkova serrata</i>                         | E             | 50 to 60      | 60 to 80      | Avoid because of overplanting                                    |

**Trees for Wide Medians--15' or Wider (all species listed above may also be planted on medians)**

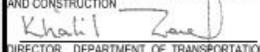
|                      |                                     |     |          |           |  |
|----------------------|-------------------------------------|-----|----------|-----------|--|
| Japanese Maple       | <i>Acer palmatum</i>                | E   |          |           | Varies greatly in size and form                                    |
| Catalpa (southern)   | <i>Catalpa bignonioides</i>         | N   | 20 to 40 | 40 to 60  | Drops flowers and pods   |
| Catalpa (northern)   | <i>Catalpa speciosa</i>             | N   | 20 to 40 | 50 to 70  | Drops flowers and pods   |
| Fringetree           | <i>Chionanthus virginicus</i>       | N   | 10 to 15 | 12 to 20  | Multi trunked and can be visual block                              |
| Persimmons           | <i>Diospyros virginiana</i>         | N   | 30 to 40 | 40 to 60  | Fruit good for wildlife  |
| Kentucky Coffee Tree | <i>Gymnocladus dioica</i>           | N   | 40 to 50 | 70 to 80  | Females drop beans   |
| Carolina Silverbell  | <i>Halesia carolina</i>             | N   | 15 to 30 | 30 to 40  | May be sensitive to urban stress                                   |
| Crabapple            | <i>Malus spp.</i>                   | N/E |          |           | Bears fruit, good for biodiversity, all species function as native |
| Dawn Redwood         | <i>Metasequoia glyptostroboides</i> | N   | 25 to 50 | 70 to 100 | Huge tree, must have plenty of room\ deciduous conifer             |
| Pin Oak              | <i>Quercus palustris</i>            | N   | 40 to 50 | 60 to 80  | Visual block without repeat raising of lower branches              |
| Pond Cypress         | <i>Taxodium ascendens</i>           | N   | 20 to 25 | 40 to 60  | Similar to Bald Cypress with less spread.                          |

| Common Name  | Species                                | Native<br>Exotic | Spread<br>(feet) | Height<br>(feet) | Comments   |
|--|--|------------------|------------------|------------------|--|
| Bald Cypress   | <i>Taxodium distichum</i>              | N                | 20 to 30         | 50 to 100        | Deciduous conifer  |
| <b>Trees Not to be Planted Along Baltimore Streets</b> |  |                  |                  |                  |  |
| Box Elder  | <i>Acer negundo</i>                    |                  |                  |                  | Storm Damage\ Structural problems                                  |
| Silver Maple   | <i>Acer saccharinum</i>                |                  |                  |                  | Storm Damage\ Structural problems                                  |
| Norway Maple --all varieties                           | <i>Acer platanoides</i>                |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Silk Tree\ Mimosa                                      | <i>Albizia julibrissin</i>             |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Tree of Heaven   | <i>Ailanthus altissima</i>             |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Japanese Angelica Tree                                 | <i>Aralia elata</i>                    |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Paper Mulberry   | <i>Broussonetia papyrifera</i>         |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Autumn Olive\ Russian Olive                            | <i>Elaeagnus umbellat</i>              |                  |                  |                  | Blighted by Emerald Ash Borer                                      |
| White Ash -- all varieties                             | <i>Fraxinus americana</i>              |                  |                  |                  | Blighted by Emerald Ash Borer                                      |
| Green Ash -all varieties                               | <i>Fraxinus pennsylvanica 'Summit'</i> |                  |                  |                  | Blighted by Emerald Ash Borer                                      |
| Ash -- all species                                     | <i>Fraxinus spp.</i>                   |                  |                  |                  | Fruit has bad odor   |
| Ginkgo female  | <i>Ginkgo biloba</i>                   |                  |                  |                  | Dangerous when nuts drop, good for less traffice areas in parks    |
| Black Walnut   | <i>Juglans nigra</i>                   |                  |                  |                  | Storm Damage\ Structural problems                                  |
| Tuliptree  | <i>Liriodendron tulipifera</i>         |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| White Mulberry   | <i>Morus alba</i>                      |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Paulownia \ Princess Tree                              | <i>Paulownia tomentosa</i>             |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Amur Cork  | <i>Phellodendron amurense</i>          |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Poplars  | <i>Populus (all species)</i>           |                  |                  |                  | Storm Damage\ Structural problems                                  |
| Wild Cherry  | <i>Prunus serotina</i>                 |                  |                  |                  | Storm Damage\ Structural problems                                  |
| Calery Pear --all cultivars                            | <i>Pyrus calleryana</i>                |                  |                  |                  | Invasive: do not plant anywhere in Baltimore \ Structural problems |
| Sawtooth Oak   | <i>Quercus acutissima</i>              |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Black Locust   | <i>Robinia pseudoacacia</i>            |                  |                  |                  | Storm Damage\ Structural problems                                  |
| All Willows  | <i>Salix spp.</i>                      |                  |                  |                  | Storm Damage\ Structural problems                                  |
| Scholar Tree   | <i>Sophora japonica</i>                |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Chinese Elm, all cultivars                             | <i>Ulmus parvifolia</i>                |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |
| Siberian Elm   | <i>Ulmus pumila</i>                    |                  |                  |                  | Invasive: do not plant anywhere in Baltimore                       |

# Appendix H: Baltimore City Tree Planting Standards

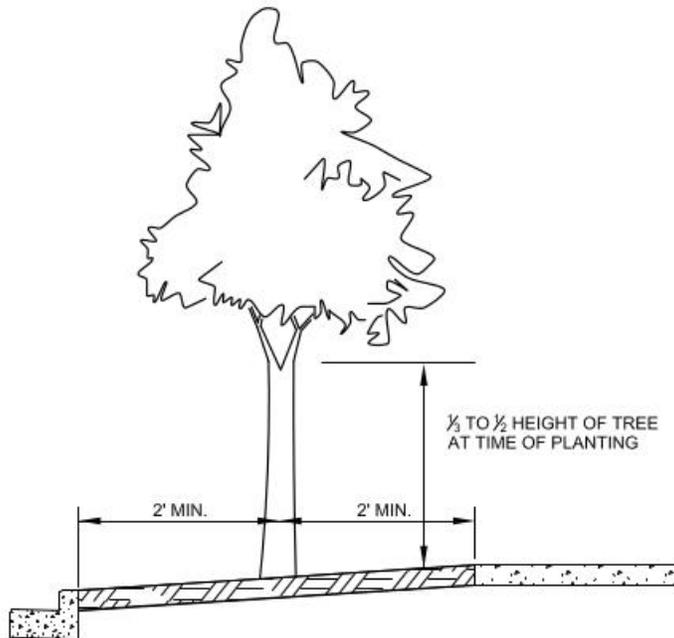


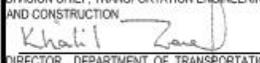
TREE PIT DIMENSIONS PER SIDEWALK WIDTH

|   |   |  |                          |              |         |
|---|---|--|--------------------------|--------------|---------|
|  | APPROVED:<br><br>DIVISION CHIEF, TRANSPORTATION ENGINEERING AND CONSTRUCTION | CITY OF BALTIMORE<br>DEPARTMENT OF TRANSPORTATION<br>TRANSPORTATION ENGINEERING AND CONSTRUCTION | ISSUED                   | REVISED      | REVISED |
|   | <br>DIRECTOR, DEPARTMENT OF TRANSPORTATION                                   | TREE PLANTING STANDARDS<br>FOR SITE PLAN PROJECTS  | 8 / 2010                 |              |         |
|   |   |  | STANDARD NO. BC 701.61-1 |              |         |
|   |   |  | SCALE : NONE             | SHEET 1 OF 4 |         |

NOTES:

1. WHEN TREES ARE PLANTED IN PUBLIC RIGHT-OF-WAY OR IN A PUBLIC EASEMENT A PERMIT SHALL BE REQUIRED. SUCH PERMIT WILL BE ISSUED AT THE DEPARTMENT OF GENERAL SERVICES ACCORDING TO THE PROVISIONS OF THE CURRENT BALTIMORE CITY CODE.
2. SPECIES SHALL BE SELECTED FROM THOSE LISTED IN THE REGULATION CITED ABOVE SPACING REQUIREMENTS SHALL BE DETERMINED BY THE SIZE AND HABIT OF THE PLANTS CHOSEN AND SHALL BE SPECIFIED IN THE PERMIT WHEN IT IS ISSUED.
3. PLANTING WILL NOT BE PERMITTED ON PUBLIC PROPERTY WHICH WOULD ENDANGER THE PUBLIC SAFETY BY OBSTRUCTING THE VISION OF VEHICULAR OR PEDESTRIAN TRAFFIC OR CONFLICTING WITH THE SAFE FUNCTION OR UTILITY WIRES.
4. STREET TREE PLANS WHICH ENVISION SPECIAL ARCHITECTURAL OR VISUAL AESTHETIC EFFECTS SHALL BE REVIEWED BY THE DEPARTMENT OF RECREATION AND PARKS AND WHEN JUSTIFIED SPECIAL PERMITS WILL BE ISSUED.
5. STREET TREE SHALL BE NURSERY GROWN SPECIMENS WHICH MEET THE REQUIREMENTS FOR STREET TREES SET FORTH IN THE AMERICAN STANDARD FOR NURSERY STOCK - ANSI Z60 AND SHALL BE TYPICAL OF THEIR SPECIES HAVING FULLY DEVELOPED CROWNS AND SINGLE LEADERS, THEY SHALL BE BRANCHED TO ONE THIRD OF THEIR HEIGHT AT THE TIME OF PLANTING AND ELEVATED AS NECESSARY DURING THEIR GROWTH TO ASSURE A CLEARANCE FOR PEDESTRIANS AT MATURITY. GREATER CLEARANCE MAY BE REQUIRED IN SITUATIONS WHERE TRUCK AND BUS TRAFFIC MUST BE ACCOMMODATED.
6. ALL NURSERY STOCK USED AS STREET TREES SHALL BE VIGOROUS, HEALTHY AND FREE OF DISEASE OR INFESTATION. ALL PLANTS SHALL BE INSPECTED AT THE NURSERY AND SHIPMENTS SHALL BEAR THE APPROPRIATE CERTIFICATE OF INSPECTION PROVIDED BY THE STATE OF ORIGIN FOR PLANTING MATERIALS. ALL PLANTING MUST BE DONE TO CURRENT ANSI STANDARDS.



|   |   |  |                        |              |         |
|---|---|--|------------------------|--------------|---------|
|  | APPROVED:<br><br>DIVISION CHIEF, TRANSPORTATION ENGINEERING AND CONSTRUCTION | CITY OF BALTIMORE<br>DEPARTMENT OF TRANSPORTATION<br>TRANSPORTATION ENGINEERING AND CONSTRUCTION | ISSUED                 | REVISED      | REVISED |
|   | <br>DIRECTOR, DEPARTMENT OF TRANSPORTATION                                   |  | 8 / 2010               |              |         |
| GENERAL STANDARD FOR TREE PLANTING  |   |  | STANDARD NO. BC 702.01 |              |         |
|   |   |  | SCALE: NONE            | SHEET 1 OF 1 |         |

AT PLANTING PRUNE ONLY CROSSING LIMBS, CO-DOMINANT LEADERS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS

CENTER TRUNK OF TREE IN PIT

WATER THOROUGHLY TWICE WITHIN THE FIRST 48 HOURS

TOP OF BALL TO BE SET 2"-3" ABOVE THE LEVEL OF THE SURROUNDING SOIL AND NOT MORE THAN 4" BELOW THE TOP OF THE SIDEWALK.

TREES 5" CAL AND OVER USE GUY WIRE

REMOVE BURLAP AND BASKET FROM TOP 1/3 OF BALL AND REMOVE FROM SITE

2" TO 4" SHREDDED HARDWOOD MULCH

BACKFILL WITH 1/2 CLEAN EXISTING SOIL CERTIFIED 1/4 TOP SOIL & 1/4 ORGANIC MATERIAL APPROVED BY THE CITY

1'-0"

4' MIN.

AGGREGATE BASE

12"

DRAINAGE: 4" PERFORATED PLASTIC PIPE CONNECTED TO STORM DRAIN SYSTEM

SUBGRADE OR SUBGRADE STRUCTURE; MUST ENSURE 5' STRUCTURE FREE ZONE FROM FINISHED GRADE TO TOP OF ANY SUBGRADE STRUCTURE

DRAINAGE AGGREGATE SEE TREE PIT DRAINAGE DETAIL, BC 704.03

SECTION



APPROVED:  
*Bimal Datta*  
 DIVISION CHIEF, TRANSPORTATION ENGINEERING AND CONSTRUCTION  
*Khalil Zayed*  
 DIRECTOR, DEPARTMENT OF TRANSPORTATION

CITY OF BALTIMORE  
 DEPARTMENT OF TRANSPORTATION  
 TRANSPORTATION ENGINEERING AND CONSTRUCTION

TREE PLANTING DETAIL  
 FOR STREET TREE IN PIT

| ISSUED                    | REVISED      | REVISED |
|---------------------------|--------------|---------|
| 8 / 2010                  |              |         |
| STANDARD NO.<br>BC 702.04 |              |         |
| SCALE: NONE               | SHEET 1 OF 1 |         |

## Appendix I: References and Additional Resources

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- Davey Resource Group. *City of St. Louis, Missouri Street Tree Resource Analysis*. 2009. St. Louis Forestry Division. [www.stlouis.missouri.org](http://www.stlouis.missouri.org).
- Davey Resource Group. *City of Pittsburgh, Pennsylvania Municipal Forest Resource Analysis*. 2008. Friends of the Pittsburgh Urban Forest. [www.pittsburghforest.org](http://www.pittsburghforest.org)
- Dirr, Michael. *Manual of Woody Landscape Plants*. Stipes Publishing Company, Champaign, Illinois: 1983.
- I-Tree. *i-Tree Streets User's Manual, v.5.0*. [www.itreetools.org/resources/manuals/i-Tree Streets Users Manual.pdf](http://www.itreetools.org/resources/manuals/i-Tree%20Streets%20Users%20Manual.pdf). Accessed August-September 2014.
- I-Tree. [www.i-Treetools.org](http://www.i-Treetools.org). Accessed August-September 2014.
- Kershner, Bruce, et al. *Field Guide to Trees of North America*. National Overgrownlife Federation. Sterling, New York, 2008.
- Little, Elbert. *National Audobon Society Field Guide to North American Trees*. Chanticleer Press, New York: 2008.
- McPherson, E and Rowntree, R. "Using structural measures to compare twenty two U.S. street tree populations." *Land*. 1989. J 8:13-23.
- McPherson, E.G.; Simpson, J.R.; Peper, P.J.; Gardner, S.L.; Vargas, K.E.; Xiao, Q. *Northeast community tree guide: benefits, costs, and strategic planting*. 2007.
- Nowak, David, et al. *The Urban Forest Effects (UFORE) Model: Field Data Collection Manual, version 1.0*. USDA Forest Service. Syracuse, NY: 2003.
- Peper, P.J.; McPherson, E.G.; Simpson, J.R.; Gardner, S.L.; Vargas, K.E.; Xiao, Q. *New York City, New York Municipal Forest Resource Analysis*. Internal Report. April 2007.
- Peper, P.J.; McPherson, E.G.; Simpson, J.R.; Gardner, S.L.; Vargas, K.E.; Xiao, Q. *City of Indianapolis, Indiana Municipal Forest Resource Analysis*. Technical Report, Davis, CA: USDA Forest Service, Pacific Southwest, 2008.
- Petrides, George and Wehr, Janet. *Eastern Trees*. Peterson Field Guides. Houghton Mifflin, New York: 1998.
- Richards, N. "Diversity and stability in a street tree population." *Urban Ecology*. 1982/83. 7: 159-171.
- Sibley, David Allen. *The Sibley Guide to Trees*. Knopf, New York: 2009.
- Thompson, Richard; Pillsbury, Norman; Hanna Richard. *The Elements of Sustainable Urban Forestry*. Technical Report, California Polytechnic State University, San Luis Obispo, 1994.
- United States Department of Agriculture PLANTS database. [www.usda.gov](http://www.usda.gov). Accessed August-September 2014.