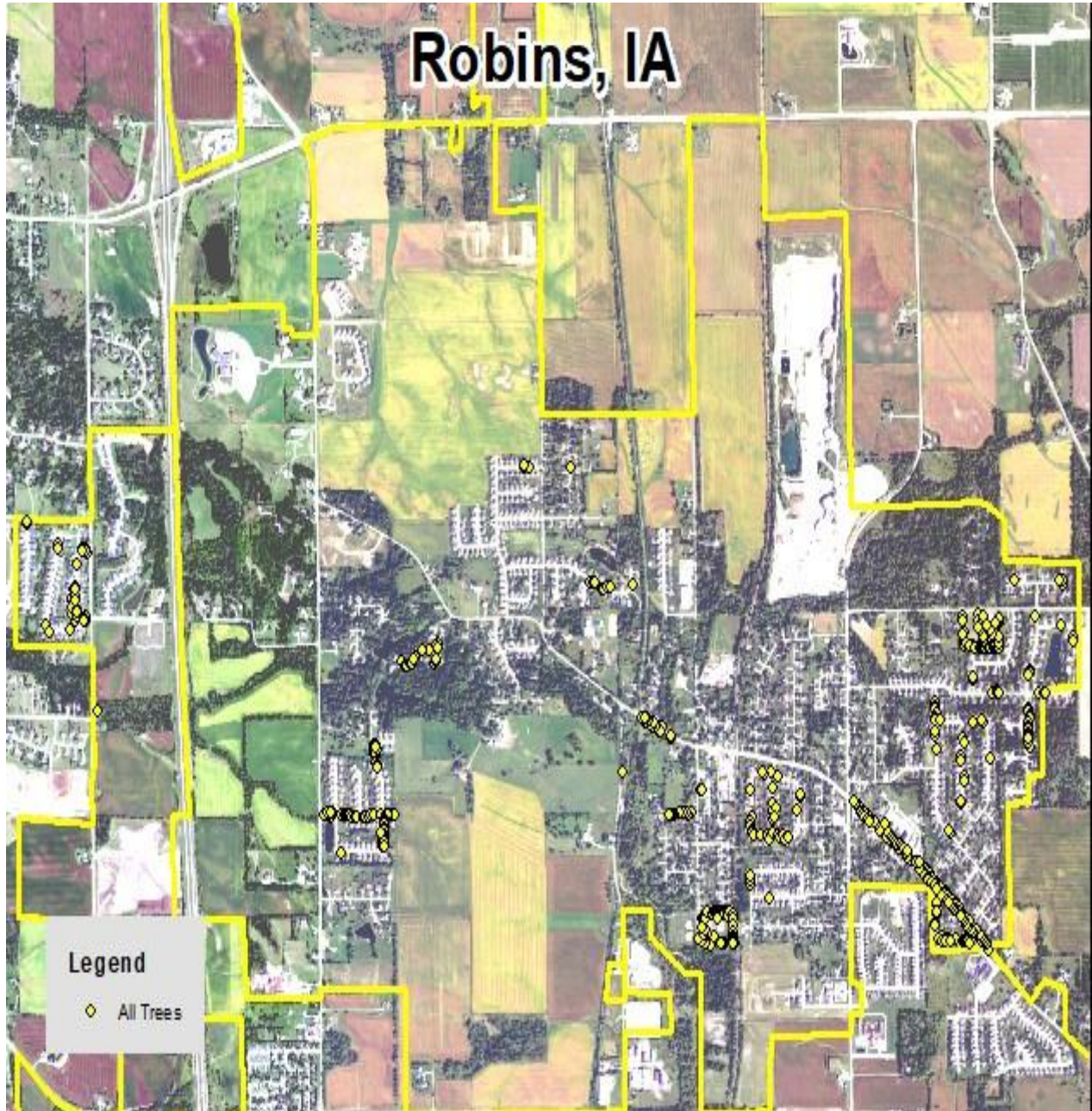


Robins, IA



2022 Urban Forest Management Plan
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Executive Summary

Overview

This plan was developed to assist the City of Robins with managing its urban forest, including budgeting and future planning. Trees can provide a multitude of benefits to the community, and sound management allows a community to best take advantage of these benefits. Management is especially important considering the loss of ash due to the emerald ash borer (EAB). EAB has been established in Robins for multiple years and over 42% of the ash identified in the 2012 inventory have been removed/lost and many of the remaining ash were showing EAB related infestation symptoms in late 2021. The August 10, 2020 Derecho also caused significant tree loss in Robins. Between the 2012 inventory and the 2021 inventory 25% (148) of the public trees were removed/lost in Robins. Since tree planting is no longer allowed in the public right-of-way the number of public trees along the streets will continue to decline, and eventually the only remaining public trees will be located in the public parks of Robins. To maintain quality tree canopy cover in the community, management of park trees will be important and promotion of proper tree planting and care on private property will be significantly beneficial.

Inventory and Results

In late summer of 2021, a tree inventory was conducted using Global Positioning System (GPS) data collectors. The inventory was a complete inventory of street and park trees. Below are some key findings of the 439 trees inventoried.

- Robins' trees provide \$35,689 of benefits annually, an average of \$81 a tree
- There are over 27 species of trees
- The top three genera are: Maple 29%, Pear 10%, and Ash 8%
- 22% of trees are in need of some type of management
- 33 trees are recommended for removal and at least 18 are 12 inches in diameter or less

Recommendations

The core recommendations are detailed in the Recommendations Section. The Emerald Ash Borer Plan includes management recommendations as well. Below are some key recommendations.

- Of the 33 trees needing removal, 4 trees are between 18 and 24 inches in diameter at 4.5 ft. There are 18 trees on this list that are only 12 inches in diameter or less. [*City ownership of the trees recommended for removal should be verified prior to any removal*](#)
- 19 of the 37 ash trees had symptoms that could be related to an EAB infestation in late 2021 so they should be continued to be closely evaluated. Any ash that are not being treated will most likely die within the next 2 to 3 years.
- All trees should be pruned on a routine schedule- one third of the city every other year
- Plant a diverse mix of trees in park areas that do not include: ash, cottonwood, poplar, boxelder, Siberian elm, black locust, Norway maple, callery pear, Amur corktree, Amur maple, and tree-of-heaven because they can have issues or be invasive.
- Check any remaining ash trees with a visual survey yearly.
- With the current budget it could take 5 years to remove ash – Suggestion: most remaining ash will most likely die within the next 2 to 3 years so request a budget increase to \$12,950 annually for the next two years and apply for grants to plant replacement trees.

Introduction

This plan was developed to assist Robins with the management, budgeting, and future planning of their urban forest. The impact of the Emerald Ash Borer (EAB) infestation and the August 2020 Derecho has caused significant public and private tree loss in Robins. Any remaining ash that is not treated will most likely die within the next few years and require removal. Continued management and planning will be needed in Robins to manage future tree loss and maintain any remaining public trees.

Trees are an important component of Robins' infrastructure and one of the greatest assets to the community. The benefits of trees are immense. Trees provide the community with improved air quality, stormwater runoff interception, energy conservation, lower traffic speeds, increased property values, reduced crime, improved mental health and create a desirable place to live, to name just a few benefits. It is essential that these benefits be maintained for the people of Robins and future generations through good urban forestry management.

Good urban forestry management involves setting goals and developing management strategies to achieve these goals. An essential part of developing management strategies is a comprehensive public tree inventory. The inventory supplies information that will be used for maintenance, removal schedules, tree planting and budgeting. Basing actions on this information will help meet Robins' urban forestry goals.

Inventory

In late summer of 2021, a tree inventory was conducted that included 100% of the city owned trees on both streets and parks. The tree data was collected using a handheld Global Positioning System (GPS) receiver. The data collector gives Geographic Information Systems (GIS) coordinates with an accuracy of 3 meters, which can be used in Arc GIS as an active GIS data layer. Because the inventory is a digital document the data can be updated with new information and become a working document.

The programming used to collect tree information on the data collectors was written to be compatible with a state-of-the-art software suite called i-Tree. i-Tree was developed by the USDA Forest Service to quantify the structure of community trees and the environmental services that trees provide. The i-Tree suite is a public domain which can be accessed for free.

To quantify the urban forest structure and benefits, specific data is collected for each tree. This data includes: location, land use, species, diameter at 4.5 ft., recommended maintenance, priority of that maintenance, leaf health, and wood condition. Additionally, signs and symptoms associated with EAB were noted for all ash trees. The signs and symptoms noted were canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage.

Inventory Results

The data collected for the 439 city trees was entered into the USDA Forest service program Street Tree Resource Analysis Tool for Urban Forestry Management as part of the i-Tree suite. The following are results from the i-Tree STREETS analysis.

Annual Benefits

Annual Energy Benefits

Trees conserve energy by shading buildings and blocking winds. Robins' trees reduce energy related costs by approximately \$10,298 annually (Appendix A, Table 1). These savings are both in Electricity (49.0 MWh) and in Natural Gas (6,710.0 Therms).

Annual Stormwater Benefits

Robins' trees intercept about 348,741 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides \$9,451 of benefits to the city.

Annual Air Quality Benefits

Air quality is a persistent public health issue in Iowa. The urban forest improves air quality by removing pollutants, lowering air temperature, and reducing energy consumption, which in turn reduces emissions from power plants, and emitting volatile organic matter (ozone). In Robins, it is estimated that trees remove 582.7 lbs of air pollution (ozone (O₃), particulate matter less than 10 microns (PM₁₀), carbon monoxide (CO), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂)) per year with a net value of \$1,630 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Robins, trees sequester about 178,251 lbs of carbon a year with an associated value of \$1,337 (Appendix A, Table 5). In addition, the trees store 838,104 lbs of carbon, with a yearly benefit of \$6,286 (Appendix A, Table 4).

Annual Aesthetics Benefits

Social benefits of trees are hard to capture. The analysis does have a calculation for this area that includes: aesthetic value, property values, lowered rates of mental illness and crime, city livability and much more. Robins receives \$12,973 in annual social benefits from trees (Appendix A, Table 6).

Financial Summary of all Benefits

According to the USDA Forest Service i-Tree STREETS analysis, Robins' trees provide \$35,689 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 439 trees in Robins provide approximately \$81 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Robins has at least 30 different tree species along city streets and parks (Appendix A, Figure 1). The distribution of trees by genera is as follows:

Maple (Red, Silver, Norway, Other)	129	29%
Callery Pear	42	10%
Ash (Green, White, Other)	37	8%
Honeylocust	32	7%
Spruce	32	7%
Apple (Crab)	30	7%
Deciduous Other (S, M, L)	28	6%
Oak (Swamp, Bur, Red, Other)	23	5%
Arborvitae	21	5%
Elm	16	4%
Ginkgo	12	3%
Other Large Evergreen	7	1%
Linden/Little Leaf Linden	6	1%
Hackberry	5	1%
Japanese Tree Lilac	4	<1%
White Pine	4	<1%
River Birch	4	<1%
Eastern Redbud	4	<1%
Kentucky Coffeetree	2	<1%
Black Walnut	1	<1%

Age Class

Most of Robins' trees (73%) are between 1 and 12 inches in diameter at 4.5 ft. (Appendix A, Figure 2). For age, it is preferred that the highest amounts of trees are in the smallest size category (a downward slope) to prepare for natural mortality and to maintain canopy cover. Robins' size curve is on the smaller side, indicating a younger than average stand. The challenge is a good amount (16%) of these small trees are crabapple and callery pear that have a mature small size so they will not become large trees will significant tree canopy.

Condition: Wood and Foliage

Both wood condition and leaf condition are good indicators of the overall health of the urban forest. The foliage condition results for Robins indicate that 66% of the trees are in good health, with only 3% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Looking at wood condition only 34% of Robins' trees are in good health for wood condition and 15% in poor health, dead or dying (appendix A, Figure 4 & Appendix B, Figure 3). This 15% is an estimate of trees that need management follow up.

Management Needs

The following outlines the specific management needs of the street and park trees by number of trees and percent of canopy (Appendix B, Figure 5).

Crown Raising	41	9%
Tree Removal	33	8%
Crown Cleaning	16	4%
Crown Reduction	5	1%
Treat Pest/Disease	2	<1%

Canopy Cover

The total canopy with both private and public trees is 18%, 667 acres. The canopy cover on city own properties included in the Robins inventory includes approximately 4.66 acres (Appendix A, Figure 5). If the City's Canopy goal is to increase canopy by 1%, in 30 years on all lands it is estimated that 91 trees would need to be planted annually on public and/or private lands.

Land Use and Location

The majority of Robins' city and park trees are in planting strips in single family residential neighborhoods (Appendix A, Figure 6 & Appendix A, Figure7). The following describes the land use and locations for the street and park trees.

<u>Land Use</u>	
Single family residential	63%
Park/vacant/other	33%
Industrial/Large commercial	3.5%
<u>Location</u>	
Planting strip	65%
Median	<1%
Cutout (surrounded by pavement)	1.5%
Front yard	33%

Changes in Forest Structure Since plan in 2012

The Emerald Ash Borer (EAB) infestation and the August 2020 Derecho have caused significant public and private tree loss in Robins. Between the 2012 inventory and the 2021 inventory 25% (148) of the public trees were removed/lost in Robins. EAB has been established in Robins for multiple years and over 42% of the ash identified in the 2012 inventory have been removed/lost and many of the remaining ash were showing EAB related infestation symptoms in late 2021. In recent years the city tree ordinance has been updated and trees are no longer allowed to be planted in the public right-of-way, which means that as trees along the streets are removed they will no longer be allowed to be replaced.

Recommendations

Risk Management

Risk trees can be a significant threat to both people and property. Trees that are dead or dying, or that have large issues such as trunk cracks longer than 18 inches should be removed. Broken branches and branches that interfere with motorist's vision of pedestrians, vehicles, traffic signs and signals, etc. should be removed.

Risk Trees

Robins has 1 critical concern tree (At the time of the inventory) that needs immediate removal and there are 33 total suggested for removal. These trees can be seen on the Location of Trees with Recommended Maintenance map (Appendix B, Figure 4). It is recommended to start with the large diameter critical concern trees first. There are 4 trees between 18 and 24 inches in diameter inches in diameter at 4.5 ft. that should be addressed. Please refer to the six-year maintenance plan at the end of this section. After all of the critical concern trees are addressed, there should be follow up on the trees marked as needing immediate or routine removal.

Poor Tree Species

After the removal of the critical concern trees, ash trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, Figure 4). Of the 33 removals 18 of the trees are between 1 and 12 inches in diameter. Also of the 33 removals 4 are ash trees. As of late 2021 there were a total of 37 ash trees remaining, and 19 of those had signs and symptoms that have been associated with EAB so the majority of the remaining ash will most likely need to be removed within the next few years unless there are individual trees being treated. [*City ownership of the trees recommended for removal should be verified prior to any removal*](#)

Pruning Cycle

Proper pruning can extend the life and good health of trees, as well as reduce public safety issues. In the Management Needs section of the Findings there are four main maintenance issues to be addressed: routine pruning, crown cleaning, crown raising, and crown reduction. Crown cleaning removes dead, diseased, and damaged limbs. Crown raising is the removal of lower branches that are 2 inches in diameter or larger in the case of providing clearance for pedestrians or vehicles. Crown reduction is removing individual limbs from structures or utility wires. It is recommended that all trees be pruned on a routine schedule every five to seven years. Please refer to the six-year maintenance plan for further information.

Planting

Since tree planting is no longer allowed in the public right-of-way it will be very difficult to meet the recommended goal to plant 1.2 trees for every tree removed, since survival rates will not be 100%. Where feasible attempt to plant new trees within the parks in plantable spaces over the next 5 to 10 years. Attempting to replace some of the removed public trees will help promote the benefits of the existing forest in Robins. There are some community forestry grants available at different times through the Iowa Department of Natural Resources for public tree plantings and information on these programs can be found at <https://www.iowadnr.gov/Conservation/Forestry/Urban-Forestry>.

It is important to plant a diverse mix of species in the urban forest to maintain canopy health, since most insects and diseases target a genus (ash) or species (green ash) of trees. Current diversity recommendations advise that a genus (i.e. maple, oak) not make up more than 10 to 20% of the urban forest and a single species (i.e. silver maple, sugar maple, white oak, bur oak) not make up more than 10% of the total urban forest. Presently, the community forest is heavily planted with maple (29%) (Appendix A, Figure 1). Maples should not be planted on public property until this percentage can be lowered. Also, ash trees have not been recommended since 2002, due to the threat of EAB. Other species to avoid because they can have issues or be invasive include: cottonwood, poplar, boxelder, Siberian elm, black locust, Norway maple, callery pear, Amur corktree, Amur maple, or tree-of-heaven. Under section 151.04 of the city ordinance (Appendix C) trees can no longer be planted in the city right-of-way.

Continual Monitoring

Since EAB has been in Robins for multiple years it is important to continuously check the health of any remaining public ash trees. It is recommended that ash trees be checked with a visual survey every year for tree decline and for the following signs and symptoms: canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage. In Robins 19 of the remaining 37 public ash trees had symptoms that could be related to an EAB infestation in late 2021.

Budget and Emerald Ash Borer Plan

Six Year Maintenance Plan with No Additional Funding

Current Budget \$5,000/year, Total \$30,000 over 6 years

FY 2023

Removal: 7 largest critical concern or immediate need or poor health ash trees, \$4,900 (estimated \$700/tree)

Planting and Replacement: \$100 or If funds are available/raised

Young Tree Pruning & Maintenance: If funds are available

Visual Survey for signs and symptoms of EAB

FY 2024

Removal: 7 largest trees of immediate need or poor health ash trees, \$4,900 (estimated \$700/tree)

Planting and Replacement: \$100 or If funds are available

Young Tree Pruning & Maintenance: If funds are available/raised

Routine trimming: Contract to trim 1/3 of the city trees, if funds are available

Visual Survey for signs and symptoms of EAB

FY 2025

Removal: 7 largest trees of immediate need or poor health ash trees, \$4,900 (estimated \$700/tree)

Planting and Replacement: \$100 or If funds are available/raised

Young Tree Pruning & Maintenance: If funds are available

Visual Survey for signs and symptoms of EAB

FY 2026

Removal: 7 largest trees of immediate need or poor health ash trees, \$4,900 (estimated \$700/tree)
Planting and Replacement: \$100 or If funds are available/raised
Routine trimming: Contract to trim 1/3 of the city trees, if funds are available
Young Tree Pruning & Maintenance: If funds are available
Visual Survey for signs and symptoms of EAB **Most non-treated ash will most likely be dead

FY 2027

Removal: 7 largest trees of immediate need or poor health ash trees, \$4,900 (estimated \$700/tree)
Planting and Replacement: \$100 or If funds are available/raised
Young Tree Pruning & Maintenance: If funds are available
Visual Survey for signs and symptoms of EAB **Most non-treated ash will most likely be dead

FY 2028

Removal: 7 largest trees of immediate need or poor health ash trees, \$4,900 (estimated \$700/tree)
Planting and Replacement: \$100 or If funds are available/raised
Routine trimming: Contract to trim 1/3 of the city trees, if funds are available
Young Tree Pruning & Maintenance: If funds are available
Visual Survey for signs and symptoms of EAB **Most non-treated ash will most likely be dead

*If they are not treated most of the remaining ash will most likely die within the next few years. To remove all remaining ash trees (37 based on 2021 inventory) within 2 years, the budget would need to be increased to \$12,950 (@\$700/tree) a year.

Ash Tree Removal

Tree removal will be prioritized with dead, dying, risk trees to be removed first (Appendix B, Figure 4). Next will be all ash in poor condition and displaying signs and symptoms of EAB (Appendix B, Figure 2 & Appendix B, Figure 3). [*City ownership of the tree recommended for removal should be verified prior to any removal*](#)

Treatment of Ash Trees

If chemical treatment has not already been started on an individual tree in Robins, it is most likely too late for treatment.

EAB Quarantines

There are no longer USDA domestic quarantine regulations for EAB. It should be noted there are individual states (not Iowa) that still have some regulations.

Wood Disposal

There are no longer USDA domestic quarantine regulations for EAB. It should be noted there are individual states (not Iowa) that still have some regulations. Wood waste can be disposed of as you normally would since there are no EAB quarantines in Iowa. With that said attempt to utilize ash wood waste locally.

Canopy Replacement

As budget permits, attempt to increase the amount of trees planted in the public park areas to maintain canopy cover within the community. All trees will meet the restrictions in city ordinance 151.04 (Appendix C). The new plantings will be a diverse mix and will not include cottonwood, poplar, boxelder, Siberian elm, black locust, Norway maple, callery pear, Amur corktree, Amur maple, or tree-of-heaven.

Postponed Work

While finances, staffing and equipment are focused on the management of ash, usual services may be delayed. Tree removal requests on genera other than ash will be prioritized by risk or emergency situations only.

Monitoring

It is recommended that ash trees be checked with a visual survey every year for tree death and for the following signs and symptoms: canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage. In Robins 19 of the remaining 37 public ash trees had symptoms that could be related to an EAB infestation in late 2021.

Private Ash Trees

It is strongly recommended that private property owners start removing ash trees on their property upon arrival of EAB if preventative treatments are not being used. City Code **151.10 states** "If it is determined with reasonable certainty that any such condition exists on private property and that the danger to other Trees/Shrubs or to adjoining property or passing motorists or pedestrians is imminent, the Council shall notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14 days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property, or municipal infraction may be filed."

Proposed Budget Increase

EAB could potentially kill all remaining untreated ash trees in Robins within the next 2 to 3 years. To remove all public ash trees (37 based on 2021 inventory) within 2 years the budget would need to be increased to \$12,950 (@\$700/tree) a year. Additionally, it is recommended that Robins apply for grants to fund replacement trees. Utility Company grants are usually between \$500 and \$10,000 for community-based, tree-planting projects that include parks, gateways, cemeteries, nature trails, libraries, nursing homes, and schools. There are also community forestry grants available at different times through the Iowa Department of Natural Resources and information on these programs can be found at <https://www.iowadnr.gov/Conservation/Forestry/Urban-Forestry>.

Works Cited

Census Bureau. 2010. <http://censtats.census.gov/data/IA/1601964290.pdf> (April, 2013)

USDA Forest Service, et al. 2006. i-Tree Software Suite v1.0 User's Manual. Pp. 27-40.

McPherson EG, Simpson JR, Peper PJ, Gardner SL, Vargas KE, Ho J, Maco S, Xiao Q. 2005b. City of Charleston, South Carolina, municipal forest resource analysis. Internal Tech Rep. Davis, CA: U.S. Department of Agriculture, Center for Urban Forest Research. p. 57

Nowak, DJ and JF Dwyer. 2007. Understanding the benefits and costs of urban forest ecosystems. In: Kuser, J. (ed.) Urban and Community Forestry in the Northeast. New York: Springer. Pp. 25-46.

Peper, Paula J; McPherson, E Gregory; Simpson, James R; Vargas, Kelaine E; Xiao, Qingfu 2009. Lower Midwest community tree guide: benefits, costs, and strategic planting. Gen. Tech. Rep. PSW-GTR-219. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. p.115

Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Robins

Annual Energy Benefits of Public Trees

4/3/2022

Species	Total Electricity (MWh)	Electricity (\$)	Total Natural Gas (Therms)	Natural Gas (\$)	Total Standard (\$)	Error	% of Total Trees	% of Total \$	Avg. \$/tree
Maple	13.0	987	1,663.0	1,630	2,617	(N/A)	17.4	25.4	34.43
Callery pear	4.2	319	658.4	645	964	(N/A)	9.6	9.4	22.95
Honeylocust	6.2	474	807.2	791	1,265	(N/A)	7.3	12.3	39.53
Apple	0.9	69	149.0	146	215	(N/A)	6.6	2.1	7.41
Broadleaf Deciduous Small	0.4	33	74.8	73	106	(N/A)	5.5	1.0	4.42
Red maple	2.5	187	338.4	332	518	(N/A)	5.5	5.0	21.59
Northern white cedar	0.6	47	107.8	106	153	(N/A)	4.8	1.5	7.28
Silver maple	5.3	405	696.7	683	1,087	(N/A)	3.9	10.6	63.96
Green ash	2.9	218	395.7	388	606	(N/A)	3.7	5.9	37.89
Elm	1.4	109	199.6	196	304	(N/A)	3.7	3.0	19.01
Ash	2.2	169	316.0	310	479	(N/A)	3.4	4.6	31.91
Spruce	0.3	24	53.5	52	76	(N/A)	3.2	0.7	5.45
Ginkgo	0.1	11	20.2	20	30	(N/A)	2.7	0.3	2.54
Swamp white oak	0.6	47	99.1	97	144	(N/A)	2.3	1.4	14.39
Blue spruce	0.6	45	86.5	85	129	(N/A)	2.1	1.3	14.38
Norway spruce	0.5	38	69.7	68	106	(N/A)	1.8	1.0	13.23
Conifer Evergreen Large	0.4	33	66.1	65	98	(N/A)	1.6	0.9	13.95
Norway maple	0.2	17	37.0	36	54	(N/A)	1.4	0.5	8.94
White ash	1.5	112	169.8	166	278	(N/A)	1.4	2.7	46.36
Littleleaf linden	0.5	40	68.2	67	107	(N/A)	1.1	1.0	21.46
Sugar maple	0.1	11	21.5	21	32	(N/A)	1.1	0.3	6.47
Northern red oak	0.2	14	27.4	27	41	(N/A)	1.1	0.4	8.19
Northern hackberry	1.1	82	149.9	147	229	(N/A)	1.1	2.2	45.72
Bur oak	0.8	59	101.8	100	159	(N/A)	1.1	1.5	31.70
Eastern white pine	0.1	5	12.6	12	18	(N/A)	0.9	0.2	4.44
River birch	0.7	52	92.7	91	142	(N/A)	0.9	1.4	35.62
Japanese tree lilac	0.2	19	42.3	41	60	(N/A)	0.9	0.6	15.00
Eastern redbud	0.2	15	33.3	33	47	(N/A)	0.9	0.5	11.80
Oak	0.1	7	11.1	11	17	(N/A)	0.7	0.2	5.82
Broadleaf Deciduous Medium	0.2	16	33.7	33	49	(N/A)	0.5	0.5	24.47
Broadleaf Deciduous Large	0.4	27	51.8	51	78	(N/A)	0.5	0.8	38.98
Kentucky coffeetree	0.0	0	0.9	1	1	(N/A)	0.5	0.0	0.66
Black walnut	0.2	18	27.0	26	44	(N/A)	0.2	0.4	44.23
American basswood	0.2	16	26.1	26	42	(N/A)	0.2	0.4	41.84
Black spruce	0.0	0	1.2	1	2	(N/A)	0.2	0.0	1.65
Total	49.0	3,722	6,710.0	6,576	10,298	(N/A)	100.0	100.0	23.57

Table 2: Annual Stormwater Benefits

Robins

Annual Stormwater Benefits of Public Trees

4/3/2022

Species	Total rainfall interception (Gal)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Maple	84,174	2,281	(N/A)	17.4	24.1	30.01
Callery pear	23,294	631	(N/A)	9.6	6.7	15.03
Honeylocust	33,160	899	(N/A)	7.3	9.5	28.08
Apple	2,981	81	(N/A)	6.6	0.9	2.79
Broadleaf Deciduous Small	1,354	37	(N/A)	5.5	0.4	1.53
Red maple	15,053	408	(N/A)	5.5	4.3	17.00
Northern white cedar	6,218	169	(N/A)	4.8	1.8	8.02
Silver maple	66,928	1,814	(N/A)	3.9	19.2	106.69
Green ash	23,760	644	(N/A)	3.7	6.8	40.24
Elm	9,121	247	(N/A)	3.7	2.6	15.45
Ash	12,905	350	(N/A)	3.4	3.7	23.32
Spruce	3,416	93	(N/A)	3.2	1.0	6.61
Ginkgo	533	14	(N/A)	2.7	0.2	1.20
Swamp white oak	3,170	86	(N/A)	2.3	0.9	8.59
Blue spruce	7,823	212	(N/A)	2.1	2.2	23.56
Norway spruce	5,502	149	(N/A)	1.8	1.6	18.64
Conifer Evergreen Large	4,729	128	(N/A)	1.6	1.4	18.31
Norway maple	1,098	30	(N/A)	1.4	0.3	4.96
White ash	10,489	284	(N/A)	1.4	3.0	47.37
Littleleaf linden	3,167	86	(N/A)	1.1	0.9	17.17
Sugar maple	719	19	(N/A)	1.1	0.2	3.90
Northern red oak	902	24	(N/A)	1.1	0.3	4.89
Northern hackberry	6,519	177	(N/A)	1.1	1.9	35.33
Bur oak	7,907	214	(N/A)	1.1	2.3	42.86
Eastern white pine	687	19	(N/A)	0.9	0.2	4.65
River birch	3,990	108	(N/A)	0.9	1.1	27.03
Japanese tree lilac	862	23	(N/A)	0.9	0.2	5.84
Eastern redbud	666	18	(N/A)	0.9	0.2	4.51
Oak	515	14	(N/A)	0.7	0.1	4.65
Broadleaf Deciduous Medium	1,172	32	(N/A)	0.5	0.3	15.88
Broadleaf Deciduous Large	3,199	87	(N/A)	0.5	0.9	43.34
Kentucky coffeetree	36	1	(N/A)	0.5	0.0	0.48
Black walnut	1,466	40	(N/A)	0.2	0.4	39.72
American basswood	1,189	32	(N/A)	0.2	0.3	32.21
Black spruce	38	1	(N/A)	0.2	0.0	1.03
Citywide total	348,741	9,451	(N/A)	100.0	100.0	21.63

Table 3: Annual Air Quality Benefits

Robins

Annual Air Quality Benefits of Public Trees

4/3/2022

Species	Deposition (lb)				Total Depos. (\$)	Avoided (lb)				Total Avoided (\$)	BVOC Emissions (lb)	BVOC Emissions (\$)	Total (lb)	Total Standard (\$ Error)	% of Total Trees	Avg. \$/tree
	O ₃	NO ₂	PM ₁₀	SO ₂		NO ₂	PM ₁₀	VOC	SO ₂							
Maple	16.3	2.8	8.0	0.7	88	61.0	9.0	8.6	58.9	383	-6.0	-23	159.3	448 (N/A)	17.4	5.90
Callery pear	2.3	0.4	1.5	0.1	14	20.8	3.0	2.8	19.1	128	-0.8	-3	49.3	139 (N/A)	9.6	3.30
Honeylocust	4.9	0.8	2.6	0.2	27	29.4	4.3	4.1	28.3	184	-2.9	-11	71.7	200 (N/A)	7.3	6.25
Apple	0.4	0.1	0.3	0.0	2	4.5	0.6	0.6	4.1	28	0.0	0	10.7	30 (N/A)	6.6	1.04
BroadleafDeciduous Small	0.1	0.0	0.1	0.0	1	2.2	0.3	0.3	2.0	13	0.0	0	5.0	14 (N/A)	5.5	0.59
Red maple	2.6	0.4	1.3	0.1	14	11.7	1.7	1.6	11.1	73	-1.0	-4	29.7	83 (N/A)	5.5	3.48
Northern white cedar	0.4	0.1	0.5	0.0	3	3.2	0.4	0.4	2.8	19	-1.7	-6	6.1	16 (N/A)	4.8	0.75
Silver maple	10.9	1.8	5.5	0.5	59	25.1	3.7	3.5	24.1	157	-6.0	-23	69.0	193 (N/A)	3.9	11.38
Green ash	2.1	0.3	1.2	0.1	11	13.8	2.0	1.9	13.0	86	0.0	0	34.4	97 (N/A)	3.7	6.07
Elm	0.4	0.1	0.3	0.0	3	6.9	1.0	0.9	6.5	43	0.0	0	16.1	45 (N/A)	3.7	2.82
Ash	1.7	0.3	1.0	0.1	9	10.8	1.6	1.5	10.1	67	-0.5	-2	26.4	74 (N/A)	3.4	4.95
Spruce	0.3	0.1	0.3	0.0	2	1.6	0.2	0.2	1.4	10	-1.0	-4	3.1	8 (N/A)	3.2	0.56
Ginkgo	0.0	0.0	0.0	0.0	0	0.7	0.1	0.1	0.6	4	0.0	0	1.5	4 (N/A)	2.7	0.36
Swamp white oak	0.3	0.0	0.2	0.0	2	3.1	0.4	0.4	2.8	19	-0.1	0	7.1	20 (N/A)	2.3	2.01
Blue spruce	1.0	0.2	0.9	0.1	7	2.9	0.4	0.4	2.7	18	-2.7	-10	5.8	14 (N/A)	2.1	1.59
Norway spruce	0.5	0.1	0.5	0.1	4	2.4	0.3	0.3	2.2	15	-1.8	-7	4.7	12 (N/A)	1.8	1.47
Conifer Evergreen Large	0.4	0.1	0.4	0.1	3	2.1	0.3	0.3	2.0	13	-1.4	-5	4.2	11 (N/A)	1.6	1.54
Norway maple	0.1	0.0	0.1	0.0	0	1.1	0.2	0.2	1.0	7	0.0	0	2.6	7 (N/A)	1.4	1.23
White ash	0.8	0.1	0.5	0.0	5	6.7	1.0	1.0	6.7	43	0.0	0	16.9	47 (N/A)	1.4	7.89
Littleleaf linden	0.4	0.1	0.2	0.0	2	2.5	0.4	0.4	2.4	16	-0.2	-1	6.1	17 (N/A)	1.1	3.40
Sugar maple	0.0	0.0	0.0	0.0	0	0.7	0.1	0.1	0.7	4	0.0	0	1.6	5 (N/A)	1.1	0.90
Northern red oak	0.1	0.0	0.1	0.0	1	0.9	0.1	0.1	0.8	6	-0.1	-1	2.0	6 (N/A)	1.1	1.12
Northern hackberry	0.6	0.1	0.4	0.0	4	5.2	0.8	0.7	4.9	32	0.0	0	12.7	36 (N/A)	1.1	7.17
Bur oak	0.9	0.1	0.5	0.0	5	3.7	0.5	0.5	3.5	23	0.0	0	9.8	28 (N/A)	1.1	5.57
Eastern white pine	0.0	0.0	0.0	0.0	0	0.4	0.1	0.0	0.3	2	-0.2	-1	0.7	2 (N/A)	0.9	0.43
River birch	0.5	0.1	0.3	0.0	3	3.3	0.5	0.5	3.1	20	-0.2	-1	8.1	23 (N/A)	0.9	5.69
Japanese tree lilac	0.1	0.0	0.1	0.0	1	1.2	0.2	0.2	1.1	8	0.0	0	2.9	8 (N/A)	0.9	2.09
Eastern redbud	0.1	0.0	0.1	0.0	1	1.0	0.1	0.1	0.9	6	0.0	0	2.3	7 (N/A)	0.9	1.63
Oak	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.4	3	0.0	0	0.9	3 (N/A)	0.7	0.87
BroadleafDeciduous Medium	0.1	0.0	0.1	0.0	1	1.0	0.1	0.1	1.0	6	0.0	0	2.5	7 (N/A)	0.5	3.47
BroadleafDeciduous Large	0.3	0.0	0.2	0.0	2	1.7	0.3	0.2	1.6	11	0.0	0	4.4	12 (N/A)	0.5	6.17
Kentucky coffeetree	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.1	0 (N/A)	0.5	0.08
Black walnut	0.1	0.0	0.1	0.0	1	1.1	0.2	0.2	1.1	7	0.0	0	2.6	7 (N/A)	0.2	7.42
American basswood	0.1	0.0	0.1	0.0	1	1.0	0.1	0.1	1.0	6	-0.1	0	2.3	6 (N/A)	0.2	6.46
Black spruce	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.1	0 (N/A)	0.2	0.18
Citywide total	48.9	8.3	27.1	2.4	273	234.0	34.1	32.5	222.3	1,458	-26.8	-101	582.7	1,630 (N/A)	100.0	3.73

Table 4: Annual Carbon Stored

Robins

Stored CO2 Benefits of Public Trees

4/3/2022

Species	Total Stored CO2 (lbs)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Maple	188,115	1,411	(N/A)	17.4	22.4	18.56
Callery pear	45,100	338	(N/A)	9.6	5.4	8.05
Honeylocust	60,201	452	(N/A)	7.3	7.2	14.11
Apple	9,476	71	(N/A)	6.6	1.1	2.45
Broadleaf Deciduous	3,685	28	(N/A)	5.5	0.4	1.15
Red maple	31,606	237	(N/A)	5.5	3.8	9.88
Northern white cedar	1,859	14	(N/A)	4.8	0.2	0.66
Silver maple	253,186	1,899	(N/A)	3.9	30.2	111.70
Green ash	68,154	511	(N/A)	3.7	8.1	31.95
Elm	16,469	124	(N/A)	3.7	2.0	7.72
Ash	29,127	218	(N/A)	3.4	3.5	14.56
Spruce	1,306	10	(N/A)	3.2	0.2	0.70
Ginkgo	491	4	(N/A)	2.7	0.1	0.31
Swamp white oak	5,512	41	(N/A)	2.3	0.7	4.13
Blue spruce	7,196	54	(N/A)	2.1	0.9	6.00
Norway spruce	3,225	24	(N/A)	1.8	0.4	3.02
Conifer Evergreen La	2,492	19	(N/A)	1.6	0.3	2.67
Norway maple	1,790	13	(N/A)	1.4	0.2	2.24
White ash	24,180	181	(N/A)	1.4	2.9	30.22
Littleleaf linden	8,588	64	(N/A)	1.1	1.0	12.88
Sugar maple	1,370	10	(N/A)	1.1	0.2	2.05
Northern red oak	1,423	11	(N/A)	1.1	0.2	2.13
Northern hackberry	8,352	63	(N/A)	1.1	1.0	12.53
Bur oak	31,020	233	(N/A)	1.1	3.7	46.53
Eastern white pine	117	1	(N/A)	0.9	0.0	0.22
River birch	9,450	71	(N/A)	0.9	1.1	17.72
Japanese tree lilac	2,902	22	(N/A)	0.9	0.3	5.44
Eastern redbud	2,171	16	(N/A)	0.9	0.3	4.07
Oak	556	4	(N/A)	0.7	0.1	1.39
Broadleaf Deciduous	2,201	17	(N/A)	0.5	0.3	8.26
Broadleaf Deciduous	9,492	71	(N/A)	0.5	1.1	35.60
Kentucky coffeetree	24	0	(N/A)	0.5	0.0	0.09
Black walnut	3,672	28	(N/A)	0.2	0.4	27.54
American basswood	3,595	27	(N/A)	0.2	0.4	26.96
Black spruce	2	0	(N/A)	0.2	0.0	0.02
Citywide total	838,104	6,286	(N/A)	100.0	100.0	14.38

Table 5: Annual Carbon Sequestered

Robins

Annual CO Benefits of Public Trees

4/3/2022

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
Maple	24,989	187	-903	-114	-8	21,818	164	45,790	343 (N/A)	17.4	25.7	4.52
Callery pear	8,831	66	-221	-47	-2	7,045	53	15,608	117 (N/A)	9.6	8.8	2.79
Honeylocust	10,184	76	-291	-48	-3	10,472	79	20,316	152 (N/A)	7.3	11.4	4.76
Apple	1,482	11	-45	-20	0	1,524	11	2,941	22 (N/A)	6.6	1.6	0.76
Broadleaf Deciduous Smal	752	6	-18	-12	0	727	5	1,450	11 (N/A)	5.5	0.8	0.45
Red maple	4,341	33	-152	-25	-1	4,122	31	8,286	62 (N/A)	5.5	4.6	2.59
Northern white cedar	537	4	-9	-15	0	1,045	8	1,558	12 (N/A)	4.8	0.9	0.56
Silver maple	20,292	152	-1,215	-56	-10	8,940	67	27,962	210 (N/A)	3.9	15.7	12.34
Green ash	6,621	50	-327	-30	-3	4,828	36	11,092	83 (N/A)	3.7	6.2	5.20
Elm	3,102	23	-79	-17	-1	2,400	18	5,405	41 (N/A)	3.7	3.0	2.53
Ash	4,169	31	-140	-21	-1	3,734	28	7,742	58 (N/A)	3.4	4.3	3.87
Spruce	295	2	-6	-8	0	527	4	808	6 (N/A)	3.2	0.5	0.43
Ginkgo	111	1	-2	-5	0	234	2	337	3 (N/A)	2.7	0.2	0.21
Swamp white oak	1,379	10	-30	-8	0	1,033	8	2,375	18 (N/A)	2.3	1.3	1.78
Blue spruce	261	2	-35	-11	0	987	7	1,202	9 (N/A)	2.1	0.7	1.00
Norway spruce	443	3	-15	-9	0	830	6	1,248	9 (N/A)	1.8	0.7	1.17
Conifer Evergreen Large	397	3	-12	-8	0	726	5	1,103	8 (N/A)	1.6	0.6	1.18
Norway maple	522	4	-11	-3	0	384	3	891	7 (N/A)	1.4	0.5	1.11
White ash	3,002	23	-116	-12	-1	2,469	19	5,343	40 (N/A)	1.4	3.0	6.68
Littleleaf linden	1,371	10	-42	-6	0	894	7	2,217	17 (N/A)	1.1	1.2	3.32
Sugar maple	262	2	-7	-2	0	248	2	501	4 (N/A)	1.1	0.3	0.75
Northern red oak	267	2	-7	-3	0	311	2	569	4 (N/A)	1.1	0.3	0.85
Northern hackberry	910	7	-40	-9	0	1,805	14	2,666	20 (N/A)	1.1	1.5	4.00
Bur oak	1,762	13	-149	-9	-1	1,299	10	2,904	22 (N/A)	1.1	1.6	4.36
Eastern white pine	58	0	-1	-2	0	119	1	174	1 (N/A)	0.9	0.1	0.33
River birch	1,220	9	-45	-6	0	1,142	9	2,310	17 (N/A)	0.9	1.3	4.33
Japanese tree lilac	380	3	-14	-4	0	410	3	771	6 (N/A)	0.9	0.4	1.45
Eastern redbud	304	2	-10	-4	0	323	2	612	5 (N/A)	0.9	0.3	1.15
Oak	223	2	-3	-2	0	146	1	364	3 (N/A)	0.7	0.2	0.91
Broadleaf Deciduous Medi	448	3	-11	-2	0	352	3	787	6 (N/A)	0.5	0.4	2.95
Broadleaf Deciduous Large	868	7	-46	-4	0	600	5	1,419	11 (N/A)	0.5	0.8	5.32
Kentucky coffeetree	5	0	0	0	0	9	0	13	0 (N/A)	0.5	0.0	0.05
Black walnut	445	3	-18	-2	0	393	3	819	6 (N/A)	0.2	0.5	6.14
American basswood	316	2	-17	-2	0	360	3	657	5 (N/A)	0.2	0.4	4.93
Black spruce	2	0	0	0	0	10	0	12	0 (N/A)	0.2	0.0	0.09
Citywide total	100,550	754	-4,039	-524	-34	82,264	617	178,251	1,337 (N/A)	100.0	100.0	3.06

Table 6: Annual Social and Aesthetic Benefits

Robins

Annual Aesthetic/Other Benefits of Public Trees

4/3/2022

Species	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Maple	3,540	(N/A)	17.4	27.3	46.58
Callery pear	1,034	(N/A)	9.6	8.0	24.62
Honeylocust	2,052	(N/A)	7.3	15.8	64.11
Apple	82	(N/A)	6.6	0.6	2.82
Broadleaf Deciduous Small	38	(N/A)	5.5	0.3	1.56
Red maple	663	(N/A)	5.5	5.1	27.64
Northern white cedar	185	(N/A)	4.8	1.4	8.83
Silver maple	1,624	(N/A)	3.9	12.5	95.52
Green ash	670	(N/A)	3.7	5.2	41.86
Elm	423	(N/A)	3.7	3.3	26.45
Ash	458	(N/A)	3.4	3.5	30.53
Spruce	129	(N/A)	3.2	1.0	9.21
Ginkgo	19	(N/A)	2.7	0.1	1.56
Swamp white oak	172	(N/A)	2.3	1.3	17.21
Blue spruce	132	(N/A)	2.1	1.0	14.66
Norway spruce	131	(N/A)	1.8	1.0	16.43
Conifer Evergreen Large	116	(N/A)	1.6	0.9	16.61
Norway maple	70	(N/A)	1.4	0.5	11.73
White ash	390	(N/A)	1.4	3.0	64.96
Littleleaf linden	162	(N/A)	1.1	1.3	32.49
Sugar maple	30	(N/A)	1.1	0.2	6.01
Northern red oak	34	(N/A)	1.1	0.3	6.75
Northern hackberry	180	(N/A)	1.1	1.4	35.98
Bur oak	170	(N/A)	1.1	1.3	34.10
Eastern white pine	26	(N/A)	0.9	0.2	6.57
River birch	131	(N/A)	0.9	1.0	32.69
Japanese tree lilac	21	(N/A)	0.9	0.2	5.32
Eastern redbud	17	(N/A)	0.9	0.1	4.23
Oak	44	(N/A)	0.7	0.3	14.73
Broadleaf Deciduous Medium	52	(N/A)	0.5	0.4	26.22
Broadleaf Deciduous Large	86	(N/A)	0.5	0.7	43.12
Kentucky coffeetree	11	(N/A)	0.5	0.1	5.26
Black walnut	46	(N/A)	0.2	0.4	45.86
American basswood	29	(N/A)	0.2	0.2	28.70
Black spruce	5	(N/A)	0.2	0.0	5.03
Citywide total	12,973	(N/A)	100.0	100.0	29.69

Table 7: Summary of Benefits in Dollars

Robins

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

4/3/2022

Species	Energy	CO ₂	Air Quality	Stormwater	Aesthetic/Other	Total (\$)	Standard Error	% of Total \$
Maple	2,617	343	448	2,281	3,540	9,230	(N/A)	25.9
Callery pear	964	117	139	631	1,034	2,885	(N/A)	8.1
Honeylocust	1,265	152	200	899	2,052	4,568	(N/A)	12.8
Apple	215	22	30	81	82	430	(N/A)	1.2
Broadleaf Deciduous Sm	106	11	14	37	38	205	(N/A)	0.6
Red maple	518	62	83	408	663	1,735	(N/A)	4.9
Northern white cedar	153	12	16	169	185	534	(N/A)	1.5
Silver maple	1,087	210	193	1,814	1,624	4,928	(N/A)	13.8
Green ash	606	83	97	644	670	2,100	(N/A)	5.9
Elm	304	41	45	247	423	1,060	(N/A)	3.0
Ash	479	58	74	350	458	1,419	(N/A)	4.0
Spruce	76	6	8	93	129	312	(N/A)	0.9
Ginkgo	30	3	4	14	19	70	(N/A)	0.2
Swamp white oak	144	18	20	86	172	440	(N/A)	1.2
Blue spruce	129	9	14	212	132	497	(N/A)	1.4
Norway spruce	106	9	12	149	131	407	(N/A)	1.1
Conifer Evergreen Large	98	8	11	128	116	361	(N/A)	1.0
Norway maple	54	7	7	30	70	168	(N/A)	0.5
White ash	278	40	47	284	390	1,040	(N/A)	2.9
Littleleaf linden	107	17	17	86	162	389	(N/A)	1.1
Sugar maple	32	4	5	19	30	90	(N/A)	0.3
Northern red oak	41	4	6	24	34	109	(N/A)	0.3
Northern hackberry	229	20	36	177	180	641	(N/A)	1.8
Bur oak	159	22	28	214	170	593	(N/A)	1.7
Eastern white pine	18	1	2	19	26	66	(N/A)	0.2
River birch	142	17	23	108	131	421	(N/A)	1.2
Japanese tree lilac	60	6	8	23	21	119	(N/A)	0.3
Eastern redbud	47	5	7	18	17	93	(N/A)	0.3
Oak	17	3	3	14	44	81	(N/A)	0.2
Broadleaf Deciduous M	49	6	7	32	52	146	(N/A)	0.4
Broadleaf Deciduous La	78	11	12	87	86	274	(N/A)	0.8
Kentucky coffeetree	1	0	0	1	11	13	(N/A)	0.0
Black walnut	44	6	7	40	46	143	(N/A)	0.4
American basswood	42	5	6	32	29	114	(N/A)	0.3
Black spruce	2	0	0	1	5	8	(N/A)	0.0
Citywide Total	10,298	1,337	1,630	9,451	12,973	35,689	(N/A)	100.0

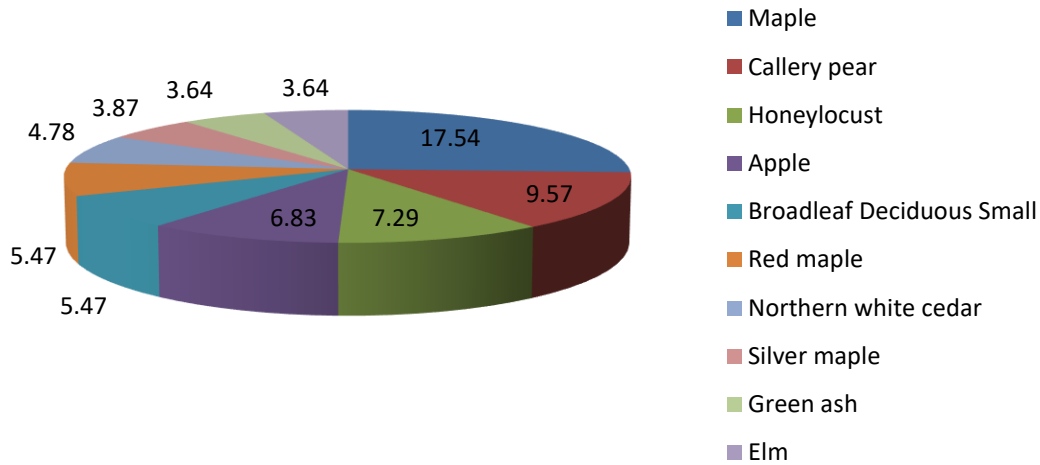


Figure 1: Species Distribution

Relative Age Distribution of Top 10 Public Tree Species (%)

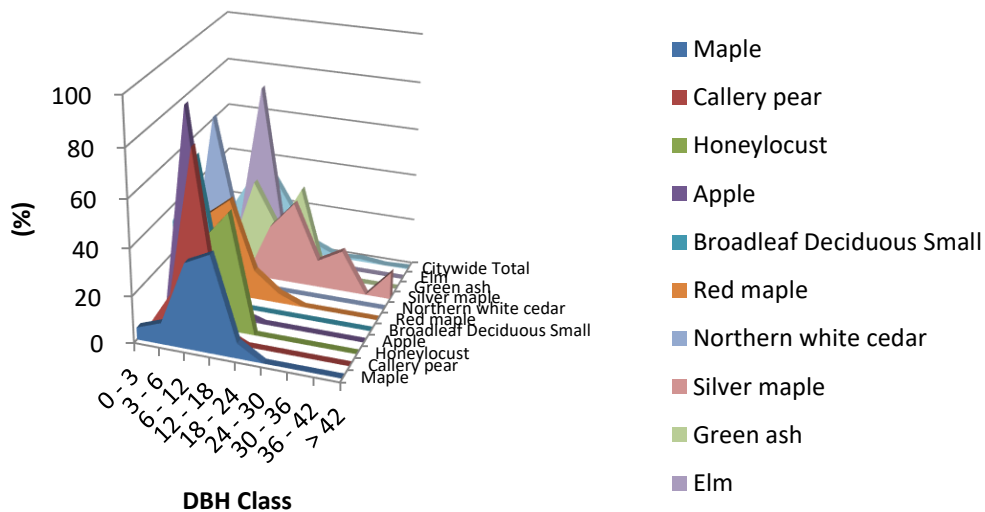


Figure 2: Relative Age Class

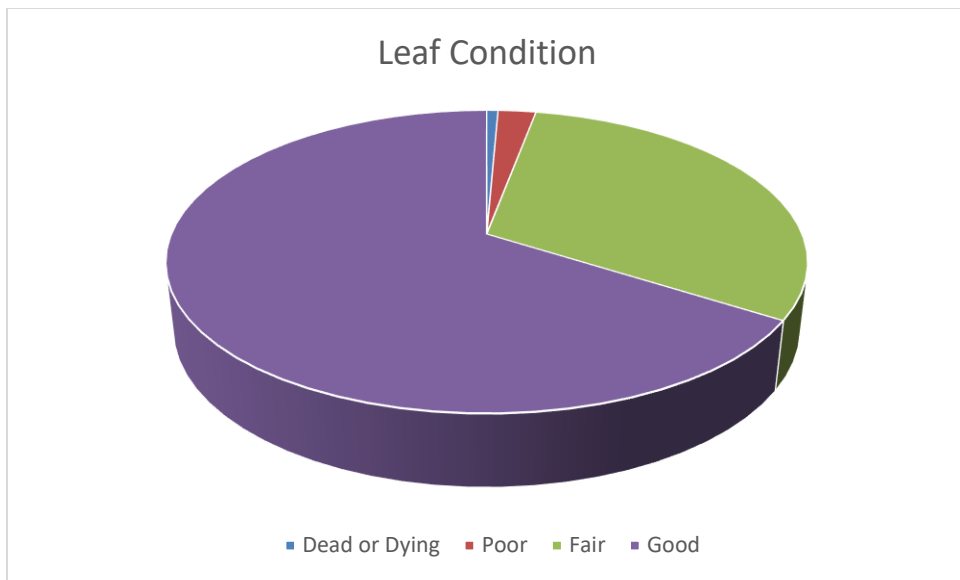


Figure 3: Foliage Condition

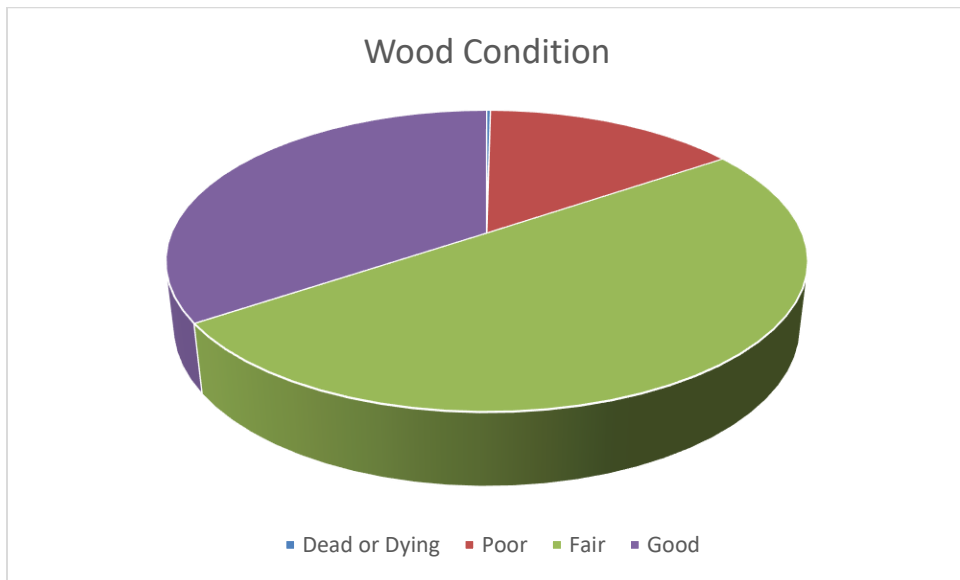


Figure 4: Wood Condition

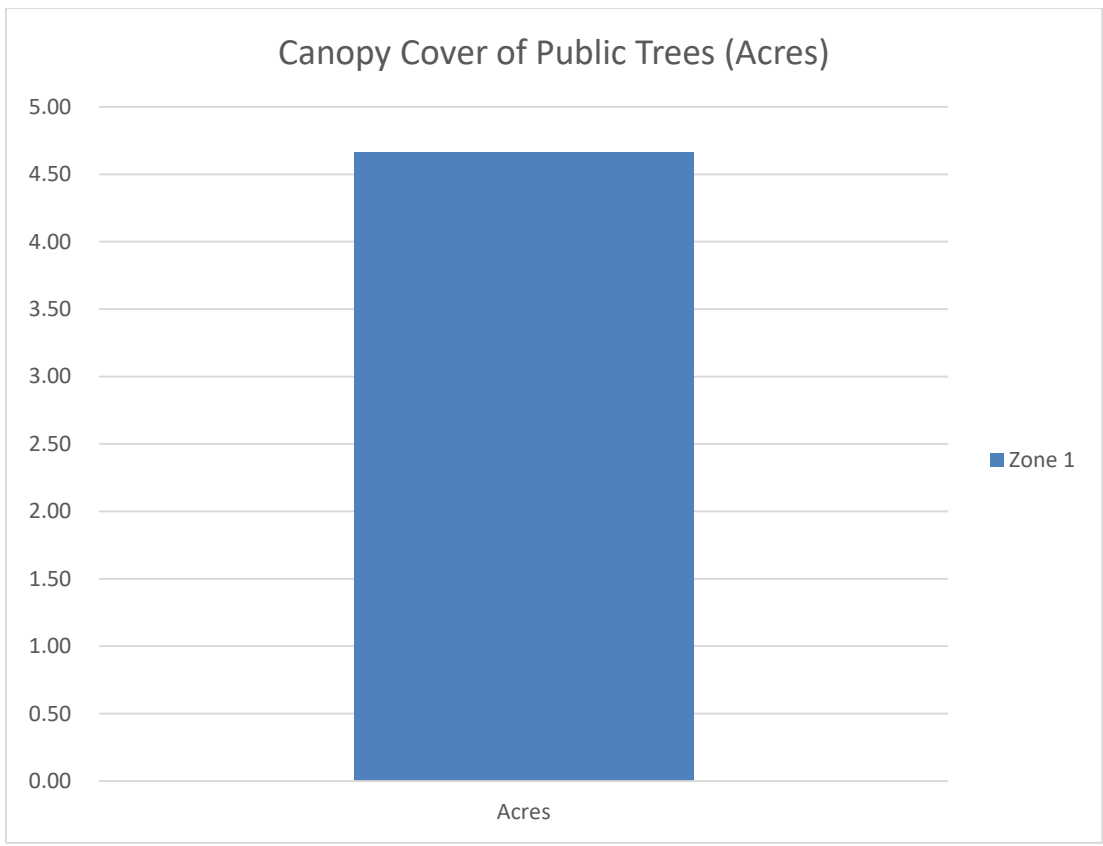


Figure 5: Canopy Cover in Acres

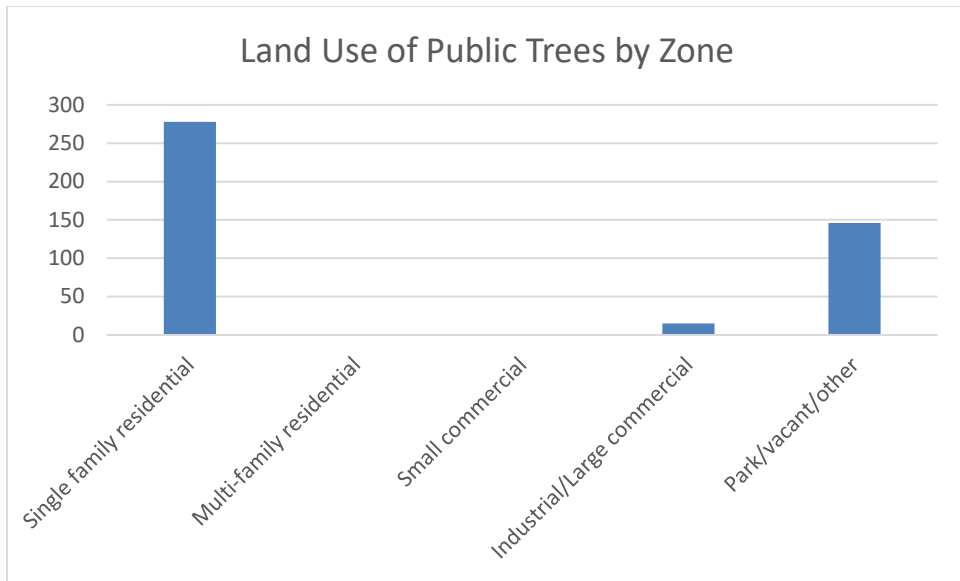


Figure 6: Land Use of city/park trees

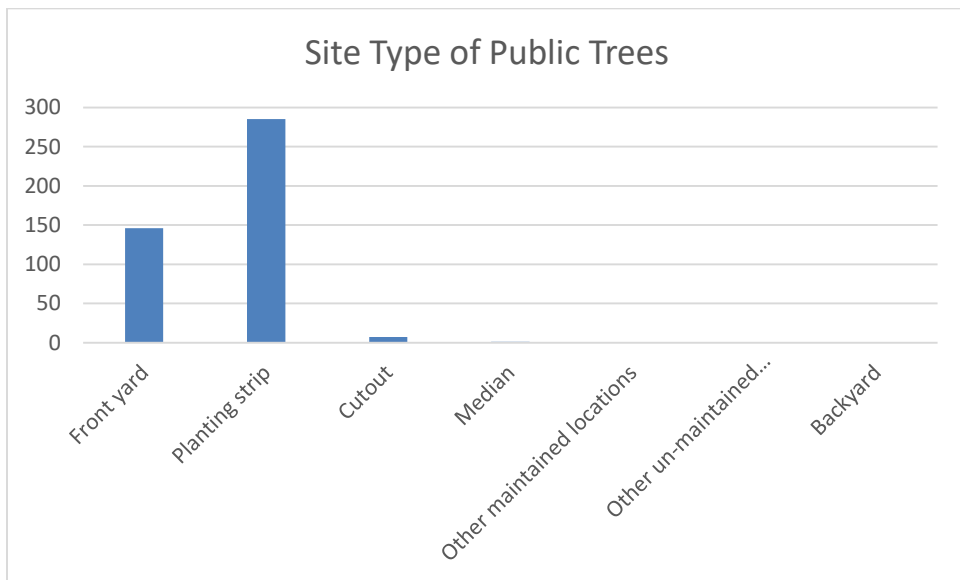


Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

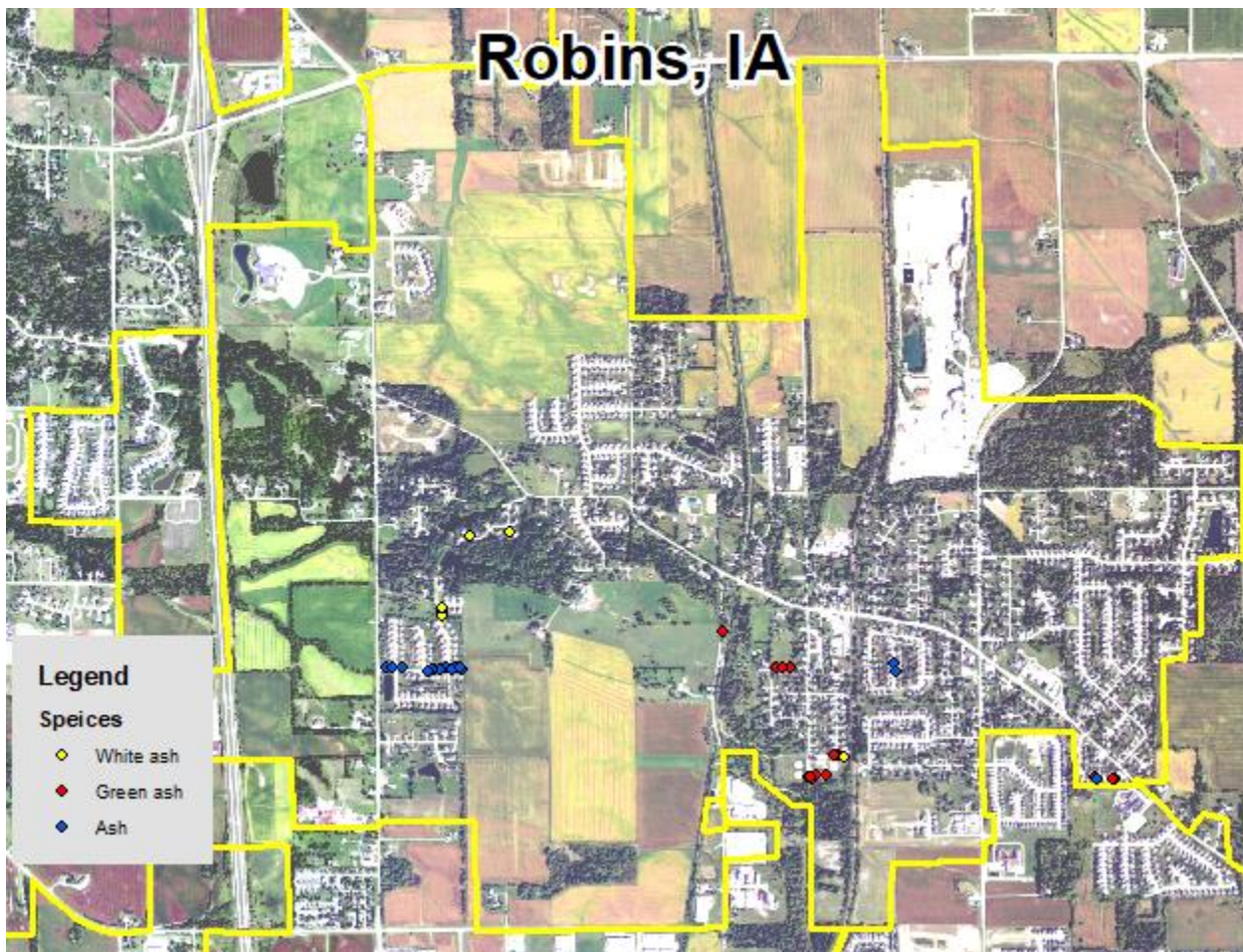


Figure 1: Location of Ash Trees

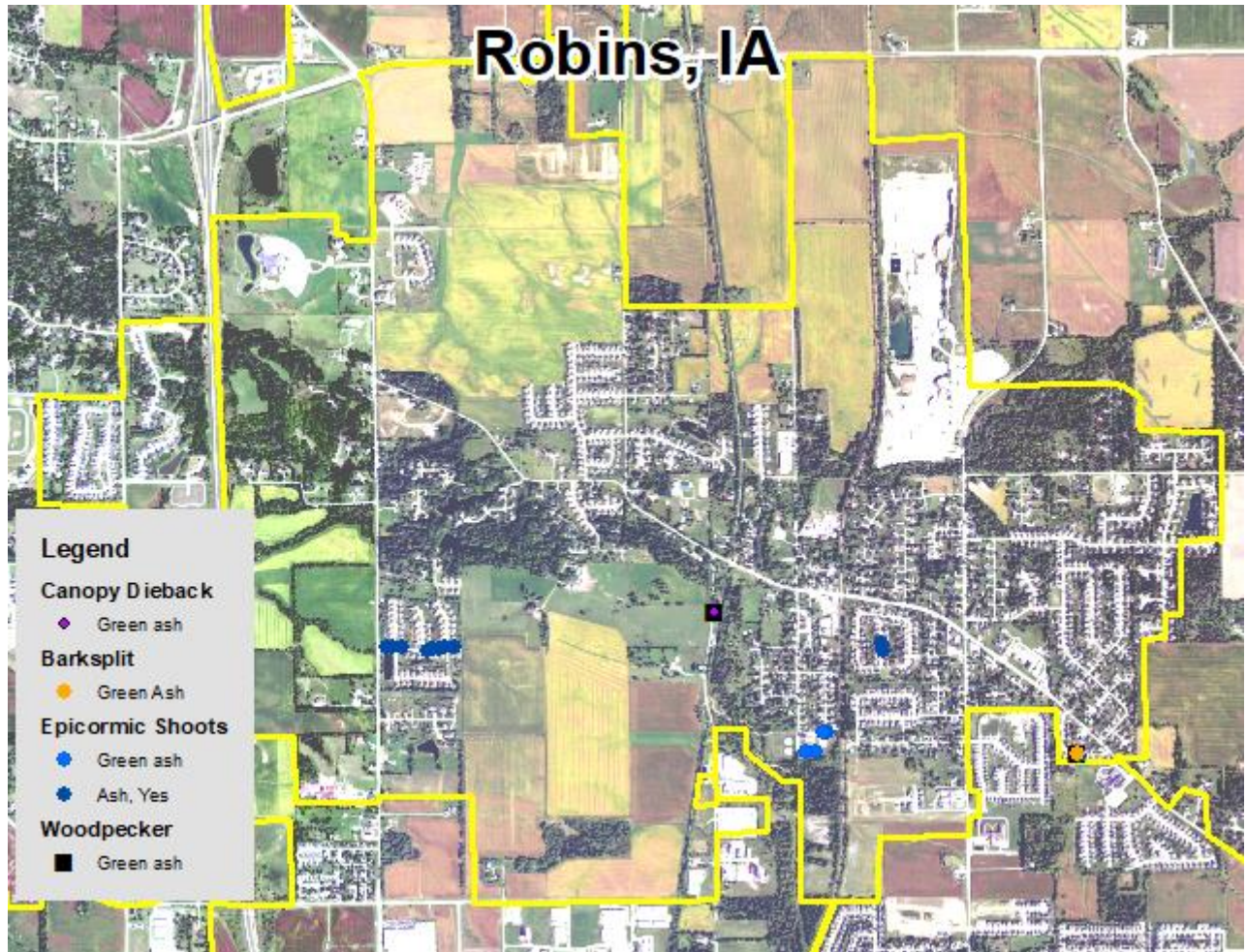


Figure 2: Location of EAB symptoms

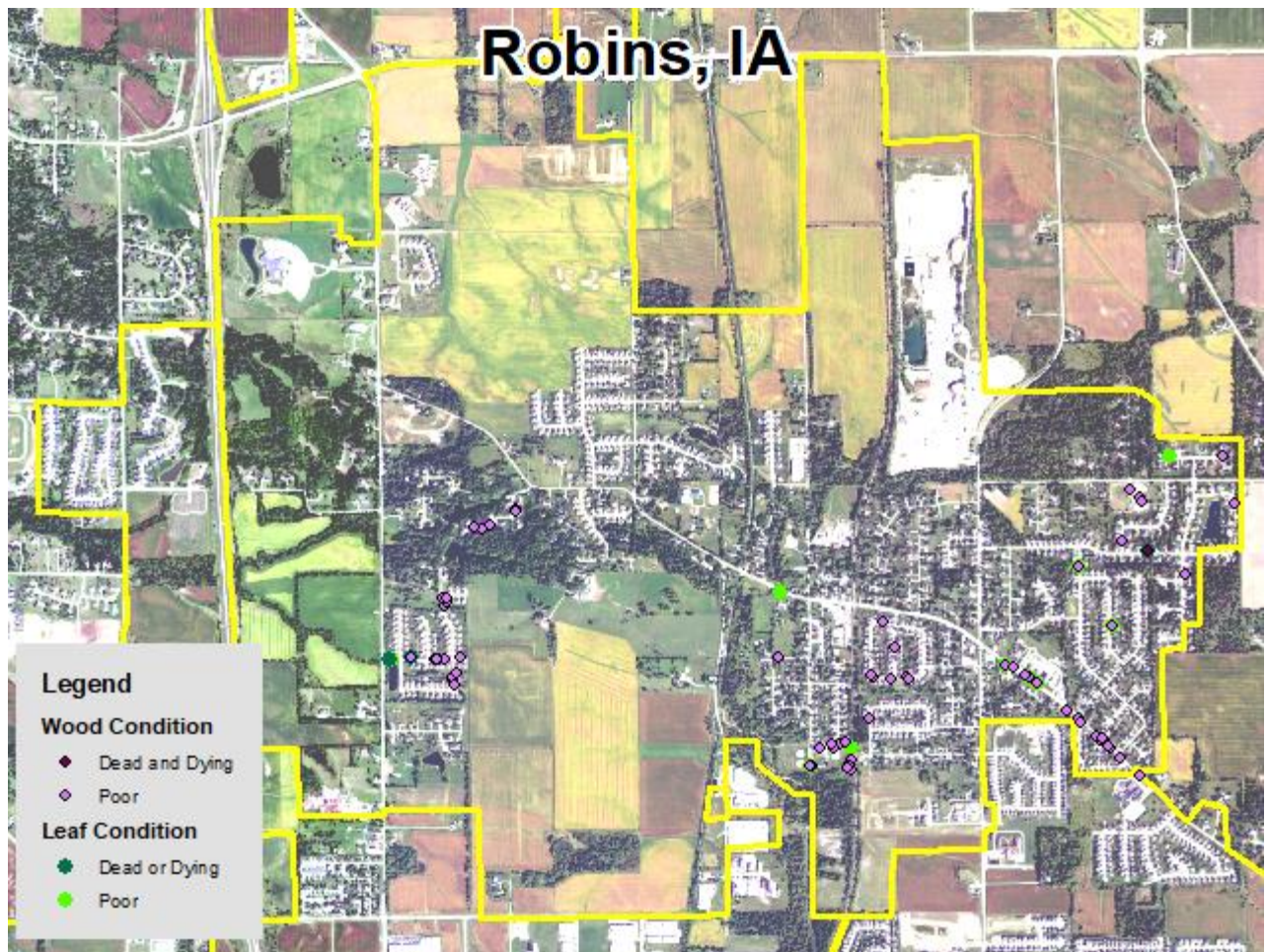


Figure 3: Location of Poor Condition Trees

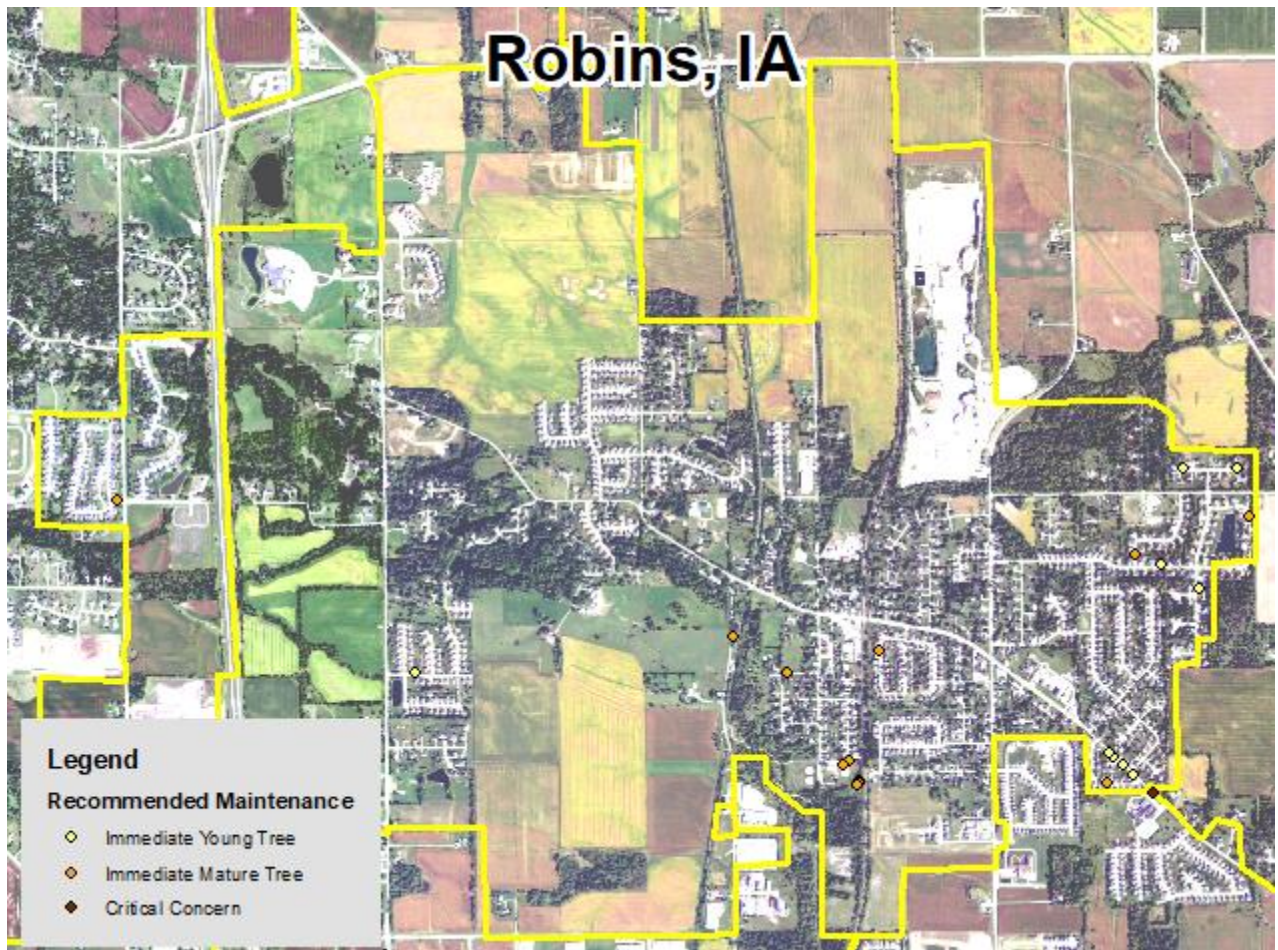


Figure 4: Location of Trees with Recommended Maintenance

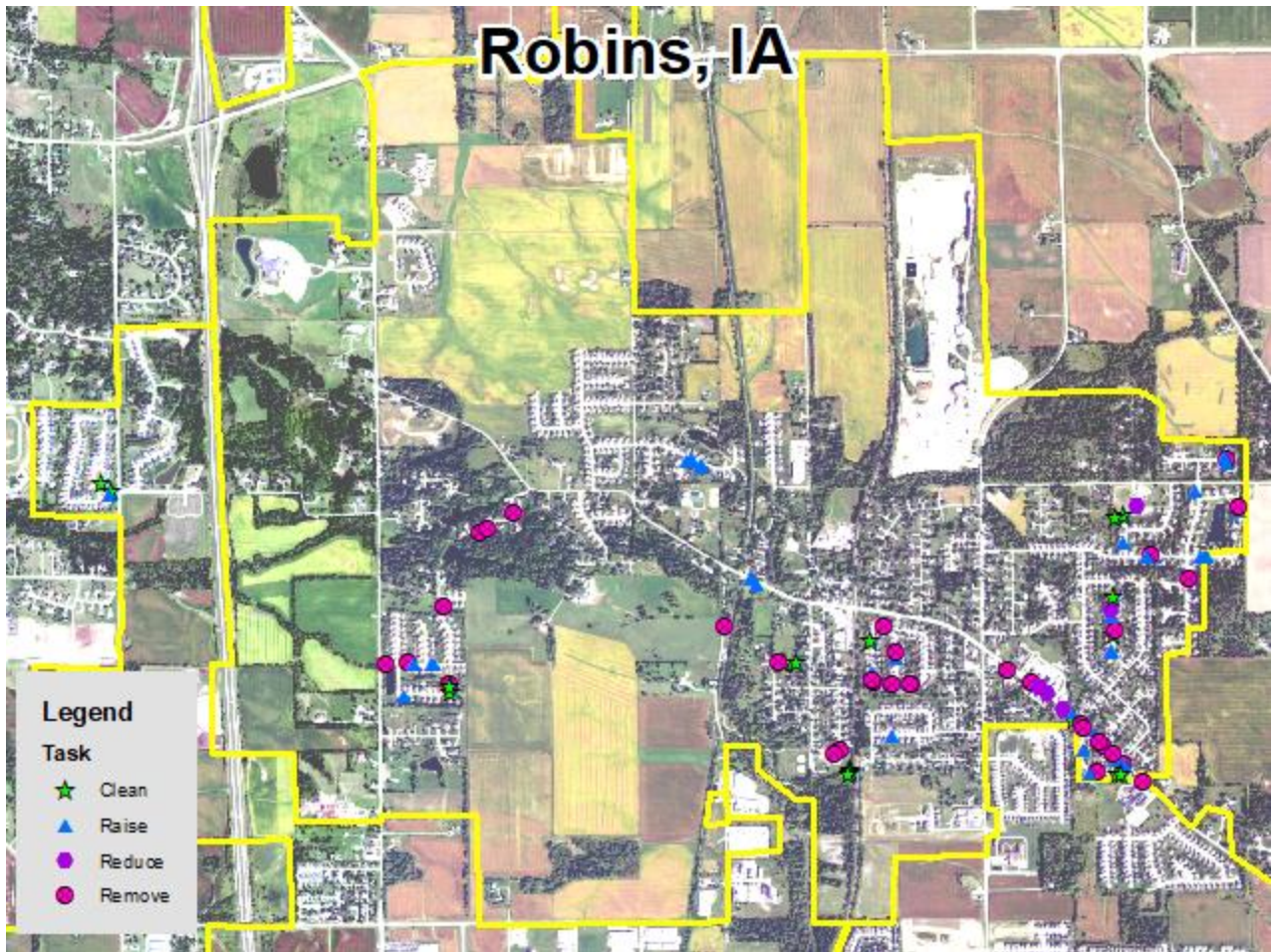


Figure 5: Maintenance Tasks *City ownership of the trees recommended for removal should be verified prior to any removal*

Appendix C: Robins Tree Ordinances

CHAPTER 151

TREES /SHRUBS

151.01 Purpose	151.07 Duty to Trim Trees/Shrubs
151.02 Definitions	151.08 Felling of Trees/Shrubs Onto Streets
151.03 Authority	151.09 Disease Control
151.04 Planting Restrictions	151.10 Inspection and Removal
151.05 Improper Planting	151.11 Interference with Commissioner
151.06 Obstruction	

151.01 PURPOSE. The purpose of this chapter is to beautify and preserve the appearance of the City by regulating and providing for the planting, care and removal of Trees/Shrubs.

151.02 DEFINITIONS. For use in this chapter, the following terms are defined:

1. "Commissioner" means the Superintendent of Public Works or such other person as may be designated by the Council.
2. "Parking/Right-of-Way" means that part of the street, avenue or highway in the City not covered by sidewalk, and lying between the lot line and the curb line; or that part of the street, avenue or highway lying between the lot line and that portion of the street usually traveled by vehicular traffic.
3. "Trees/Shrubs" means all wood vegetations except where otherwise indicated.

151.03 AUTHORITY. The Commissioner shall have the authority to perform and to regulate the planting, maintenance and removal of Trees/Shrubs on streets and other public property in order to ensure public safety and preserve the symmetry of public places. The Commissioner shall have the authority and duty to supervise or inspect all work done in accordance with the terms of this chapter.

151.04 PLANTING RESTRICTIONS. No tree/shrub shall be planted in any street right-of-way or parking. Existing trees/shrubs currently located in the public right-of-way/parking shall be grandfathered until such time the tree needs to be removed due to the health of the tree or the desires of the property owner to remove it. Under no circumstances shall it be allowed to be replaced within the public right-of-way/parking area.

151.05 IMPROPER PLANTING. Whenever any tree/shrub is planted in conflict with this chapter, it shall be lawful for the Commissioner to require its removal. The Commissioner shall cause written notice to be served on the property owner requiring the property owner to do so within thirty (30) days. The notice required herein shall be served by mailing a copy of the notice to the last known address of the property owner. If the City is unable to secure notice on the property owner, said written notice may be served on the occupant or person in charge of the property in the same manner as set herein. If the property owner fails to remove the Trees/Shrubs within the specified time, the City may perform the required action and assess the costs against the abutting property for collection in the same manner as general property tax, or proceed with a Municipal Infraction.

151.06 OBSTRUCTION. Trees/Shrubs on public or private property bordering on any street shall be trimmed to sufficient height to allow free passage of pedestrians and vehicular travel and so that they will not obstruct or shade the street lights, the vision of traffic signs, or the view of any street intersections. The minimum clearance of any overhanging portion of such Trees/Shrubs shall be nine (9) feet over sidewalks and fifteen (15) feet over all streets or alleys.

151.07 DUTY TO TRIM TREES/SHRUBS. The owner or agent of the abutting property shall keep the Trees/Shrubs on or overhanging the street trimmed so that all branches are in accordance with this chapter. When the Commissioner shall find it necessary to order obstructing Trees/Shrubs to be trimmed, the Commissioner shall cause written notice to be served on the property owner requiring the property owner to do so within thirty (30) days. The notice required herein shall be served by mailing a copy of the notice to the last known address of the property owner. If the City is unable to secure notice on the property owner, said written notice may be served on the occupant or person in charge of the property in the same manner as set herein. If the property owner fails to trim the Trees/Shrubs within the specified time, the City may perform the required action and assess the costs against the abutting property for collection in the same manner as general property tax.

151.08 FELLING OF TREES/SHRUBS ONTO STREETS. The Clerk shall be notified prior to the time any tree is to be trimmed, if said tree or any portion thereof will fall on a street or alley. No tree shall be felled onto any street without having persons stationed in the street to stop traffic from both directions at the time the tree is being dropped, unless the street has been duly barricaded. Trees/Shrubs or branches which are felled into a street, sidewalk or alley must be removed immediately. Before any tree or branch is felled onto public property, the property owner or agent of the property owner must show proof to the City of a liability insurance policy in the amount of \$1,000,000.00 per person and \$1,000,000.00 per accident for bodily injury liability, and \$1,000,000.00 per person and \$1,000,000.00 aggregate for property damage liability.

151.09 DISEASE CONTROL. Any dead, diseased or damaged tree or shrub which may harbor serious insect or disease pests or disease injurious to other Trees/Shrubs is hereby declared to be a nuisance.

151.10 INSPECTION AND REMOVAL. The Council shall inspect or cause to be inspected any Trees/Shrubs in the City reported or suspected to be dead, diseased or damaged, and such Trees/Shrubs shall be subject to the following:

1. City Property. If it is determined that any such condition exists on any public property, including the strip between the curb and the lot line of private property, the Council may cause such condition to be corrected by treatment or removal. The Council may also order the removal of any Trees/Shrubs on the streets of the City which interfere with the making of improvements or with travel thereon.
2. Private Property. If it is determined with reasonable certainty that any such condition exists on private property and that danger to other Trees/Shrubs or to adjoining property or passing motorists or pedestrians is imminent, the Council shall notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14 days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property, or a municipal infraction may be filed.

(Code of Iowa, Sec. 364.12[3b & h])

CODE OR ORDINANCES, ROBINS, IOWA

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151.11 INTERFERENCE WITH COMMISSIONER. No person shall hinder, prevent, delay or interfere with the Commissioner or any of the Commissioner's assistants, while they are engaged in carrying out the execution or enforcement of this chapter; provided, however, nothing herein shall be remedy, legal or equitable, in any court of competent jurisdiction for the protection of property rights by the owner of any property within the City.

The State of Iowa is an Equal Opportunity Employer and provider of ADA services.

Federal law prohibits employment discrimination on the basis of race, color, age, religion, national origin, sex or disability. State law prohibits employment discrimination on the basis of race, color, creed, age, sex, sexual orientation, gender identity, national origin, religion, pregnancy, or disability. State law also prohibits public accommodation (such as access to services or physical facilities) discrimination on the basis of race, color, creed, religion, sex, sexual orientation, gender identity, religion, national origin, or disability. If you believe you have been discriminated against in any program, activity or facility as described above, or if you desire further information, please contact the Iowa Civil Rights Commission, 1-800-457-4416, or write to the Iowa Department of Natural Resources, Wallace State Office Bldg., 502 E 9th St, Des Moines IA 50319.

If you need accommodations because of disability to access the services of this Agency, please contact the Director at 515-725-8200.