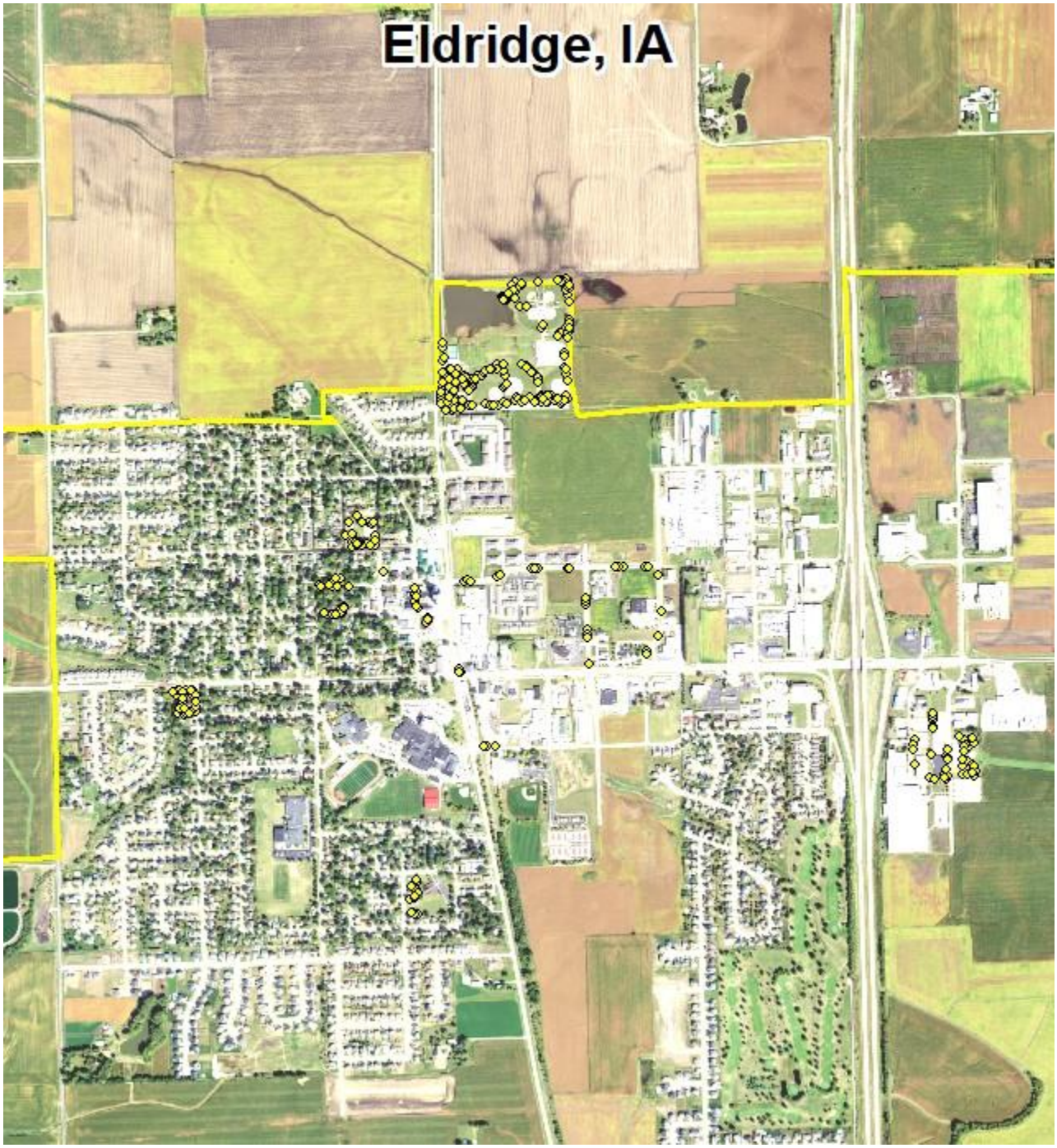
Eldridge, IA



2020 Urban Forest Management Plan

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Executive Summary

Overview

This plan was developed to assist the City of Eldridge 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 serious threats posed by forest pests such as the emerald ash borer (EAB). EAB is an invasive insect imported from Eastern Asia on wood shipping crates that kills all species of ash trees (this does not include mountain ash). There is a strong possibility that 10% of Eldridge's city owned trees (ash) will die once EAB becomes established in the community, unless preventative treatment is used. With proper planning and management, the costs of removing dead and dying trees can be extended over years, mitigating public safety issues.

Inventory and Results

In 2019, 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 343 trees inventoried.

- Eldridge's trees provide $ 36,682of benefits annually, an average of $104 a tree
- There are over 36 species of trees
- The top three genera are: Maple 21%, Oak 19%, and Ash 12%
- 20 trees are recommended for removal

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 20 trees needing removal, 10 trees must be addressed immediately *City ownership of the trees recommended for removal should be verified prior to any removal*
- 42 of the trees are ash and should be carefully examined, as most have one or more symptoms that could be related to an EAB infestation or should be put on a schedule for Emerald Ash Borer (EAB) treatment
- All trees should be visually inspected and pruned on a routine schedule- approximately one third of the city every year
- Plant a diverse mix of trees that do not include: ash, maple, cottonwood, poplar, box elder, Chinese elm, willow or black walnut
- Check ash trees with a visual survey yearly

Introduction

This plan was developed to assist Eldridge with the management, budgeting and future planning of their urban forest. Across the state, forestry budgets continue to decrease with more and more of that money spent on tree removal. With the anticipated arrival of Emerald Ash Borer (EAB), an invasive pest that kills native ash trees, it is time to prepare for the increased costs of tree removal or treatment and replacement planting. With proper planning and management of the current canopy in Eldridge, these costs can be extended over years and public safety issues from dead and dying ash trees mitigated.

Trees are an important component of Eldridge's 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 Eldridge 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 Eldridge's urban forestry goals.

Inventory

In 2019, 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. Iowa Department of Natural Resources Foresters Emma Haningan, Aron Flickinger and David Bridges as well as National Wild Turkey Federation Forester Olivia Rauen made visual inspections of the trees and entered data. 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 iTree 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 343 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. Eldridge's trees reduce energy related costs by approximately $10,267 annually (Appendix A, Table 1). These savings are both in Electricity (49.1 MWh) and in Natural Gas (6,676.6 Therms).

Annual Stormwater Benefits

Eldridge's trees intercept about 417,431 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $11,312 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 Eldridge, it is estimated that trees remove 569 lbs of air pollution (ozone (O_3), particulate matter less than 10 microns (PM10), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2)) per year with a net value of $1,565 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Eldridge, trees sequester about 174,681 lbs of carbon a year with an associated value of $1,310 (Appendix A, Table 5). In addition, the trees store 1,224,572 lbs of carbon, with a yearly benefit of $12,227 (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. Eldridge receives $33,656 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, Eldridge's trees provide $36,682 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 343 trees in Eldridge provide approximately $104 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Eldridge has over 36 different tree species along city streets and parks (Appendix A, Figure 1). The distribution of trees by genera is as follows:

Maple	71	21%
Oak	66	19%
Ash	42	12%
Apple (Crab)	36	10%
Pine	34	10%
Linden/Basswood	10	3%
Birch	12	3%
Willow	10	3%
Hackberry	10	3%
Honey Locust	8	2%
Spruce	6	2%
Japanese Tree Lilac	5	1%
Locust	8	2%
Sycamore	3	1%
Kentucky Coffeetree	3	1%
Walnut	1	1%
Redbud	1	<1%
Magnolia	1	<1%
Arborvitae	1	<1%
Other Deciduous	3	<1%
Other Evergreen	12	3%

Size Class

Most of Eldridge's trees (56%) are between 6 and 18 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. Eldridge's size curve is weighted to the middle of the diameter range, indicating an older than optimal stand.

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 Eldridge indicate that 68% of the trees are in good health, with only 5% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 59% of Eldridge's trees are in good health for wood condition (appendix A, Figure 4 & Appendix B, Figure 3). Wood condition that is in poor health, dead or dying is about 8% of the population. This 8% 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 3).

Crown Cleaning	24	7%
Tree Removal	20	6%
Crown Reduction	8	2%
Crown Raising	6	2%
Tree Staking	1	<1%

Canopy Cover

The total canopy with both private and public trees is 5%, 286 acres. The canopy cover included in the Eldridge inventory includes approximately 5 acres (Appendix A, Figure 4). If the city's canopy goal is to increase canopy by 3 %, in 30 years. To achieve that goal it is estimated that 443 trees need to be planted annually on public and private lands.

Land Use

The majority of Eldridge's 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.

Land Use	
Single family residential	5%
Park/vacant/other	85%
Industrial/Large commercial	1%
Small commercial	6%
Multifamily residential	3%

Recommendations

Risk Management

Hazardous 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.

Hazardous trees

Eldridge has 0 critical concern trees identified at the time of data collection that need removal. There are 17 trees identified as immediate (within 2 years) removals. Of these 5 are ash and 4 of those are mature trees. 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 most critical concern trees first.

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 20 removals, 5 are ash trees. There are a total of 42 ash trees, and nearly of those have at least one sign and symptom that have been associated with EAB, or have a low leaf or wood condition rating . *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

Most of the planting over the next 5 years will replace the trees that are removed. To maintain tree canopy, it is recommended to plant 1.2 trees for every tree removed, since survival rates will not be 100%. It is not essential that the new trees be planted in the same location of the trees being removed. However, maintaining the same number of trees helps ensure continuation of the benefits of the existing forest in Eldridge.

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 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 forest is heavily planted with maple (21%) (Appendix A, Figure 1). Maples should not be planted 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 are public nuisances include: cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut, as outlined in Appendix C. All trees planted must meet the restrictions in city ordinance.

Continual Monitoring

Due to the threat of EAB, it is important to continuously check the health of 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.

Emerald Ash Borer Plan

Ash Tree Removal

Tree removal will be prioritized with dead, dying, hazardous 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

Chemical treatment can be effective tool for communities to spread removal costs out over several years while allowing trees to continue to provide benefits. However, treatment is not recommended if EAB is more than 15 miles away from the community. For more information on the cost of treatment strategies visit http://extension.entm.purdue.edu/treecomputer/

EAB Quarantines

EAB is an extremely destructive plant pest and it is responsible for the death and decline of millions of ash trees. Ash in both forested and urban settings constitute a significant portion of the canopy cover in the United States. Current tools to detect, control, suppress and eradicate this pest are not as robust as the USDA would desire. In order to stay ahead of this hard to detect beetle, the USDA is attempting to contain the beetle before it spreads beyond its known positions by regulating articles.

A regulated article under the USDA's quarantine includes any of the following items:

- emerald ash borer
- firewood of all hardwood species (for example ash, oak, maple and hickory)
- nursery stock and green lumber of ash
- any other ash material, whether living, dead, cut or fallen, including logs, stumps, roots, branches, as well as composted and not composted chips of the genus ash (Mountain ash is not included)

In addition, any other article, product or means of conveyance not listed above may be designated as a regulated article if a USDA inspector determines that it presents a risk of spreading EAB once a quarantine is in effect for your county.

Wood Disposal

A very important aspect of planning is determining how wood infested with EAB will be handled, keeping in mind that quarantines will restrict its movement. Consider who will cut and haul the dead and dying trees? Is there an accessible, secured site big enough to store and sort the hundreds of trees and the associated brush and chips? How will wood be disposed of or utilized? Do you have equipment capable of handling the amount and size of ash trees your tree inventory has identified? Once your county is under quarantine for EAB, contact USDA-APHIS-PPQ at 515-251-4083 or visit the website http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/regulatory.shtml. Wood waste can be disposed of as you normally would if your county is not part of a quarantine.

Canopy Replacement

As budget permits, all removed trees will be replaced. All trees will meet the restrictions in city ordinance. The new plantings will be a diverse mix and will not include ash, maple, cottonwood, poplar, box elder, Chinese elm, willow or black walnut.

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 hazardous 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.

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.

Estimated Costs

FY 2020

Removal: $3,000 (3 trees, $1,000/tree)
Or apply funds for ash tree treatments
Planting: $600 (3 trees, $200/tree)
Watering & Maintenance: $500

FY 2021
Removal: $3,000
Or apply funds for ash tree treatments
Planting: $600
Routine trimming: $2,200
Watering & Maintenance: $500

FY 2022
Removal: $3,000
Or apply funds for ash tree treatments
Planting: $600
Routine trimming: $2,200
Watering & Maintenance: $500

FY 2023
Removal: $3,000
Or apply funds for ash tree treatments
Planting: $600
Routine trimming: $2,200
Watering & Maintenance: $500

FY 2024
Removal: $3,000
Or apply funds for ash tree treatments
Planting: $600
Routine trimming: $2,200
Watering & Maintenance: $500

FY 2025
Removal: $3,000
Planting: $600
Routine trimming: $2,200
Watering & Maintenance: $500

The reduction of ash by removals could be replaced with treatments to prevent EAB.

Remove the largest, most severely damaged trees first.

Routine trimming includes pruning, reducing, raising, staking, cleaning and any other cuts or partial, strategic tree removal.

Tree plantings at the recommended rate will result in a slight loss in overall canopy amount and an improvement in canopy quality. Select unique or under-represented species for future tree and shrub plantings to add diversity to the stand.

Increased Costs

EAB is well-established in Eldridge. Removal of ash trees has taken place in recent years. This has no doubt changed the budget of tree care from what it once was. The removals and plantings are a continuation of what has been occurring. The annual, routine trimming recommend is meant to reduce long-term costs of removals, reduce hazards and increase the overall health and condition of the urban forest.

Costs listed in the plan are statewide average costs, which may not represent the costs of work done in the City of Eldridge. A budget increase may be needed to address the recommendations. Utility Company grants may be available 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.

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-GTR219. 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

Eldridge

Annual Energy Benefits of Public Trees

2/6/2020

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Red maple	4.1	310	607.3	595	905	(N/A)	14.4	8.8	17.75
Apple	3.4	254	506.9	497	751	(N/A)	10.2	7.3	20.87
Eastern white pine	2.5	193	332.7	326	519	(N/A)	8.8	5.1	16.75
Ash	5.4	407	752.2	737	1,145	(N/A)	7.9	11.1	40.88
Pin oak	5.5	419	688.5	675	1,093	(N/A)	5.9	10.7	52.07
Bur oak	1.9	147	236.2	232	378	(N/A)	4.8	3.7	22.25
Northern red oak	1.4	108	194.1	190	299	(N/A)	3.7	2.9	22.97
Green ash	1.9	145	274.7	269	414	(N/A)	3.7	4.0	31.83
River birch	2.0	152	264.0	259	411	(N/A)	3.4	4.0	34.25
American elm	1.3	97	156.6	153	250	(N/A)	3.1	2.4	22.74
Willow	0.5	38	79.1	77	116	(N/A)	2.8	1.1	11.59
Swamp white oak	0.7	54	97.7	96	150	(N/A)	2.8	1.5	14.97
Silver maple	1.6	123	209.8	206	328	(N/A)	2.5	3.2	36.48
Sugar maple	2.7	207	374.0	367	574	(N/A)	2.5	5.6	63.73
Broadleaf Deciduous Small	0.5	36	72.2	71	107	(N/A)	2.3	1.0	13.35
Littleleaf linden	1.4	107	188.3	185	292	(N/A)	2.3	2.8	36.50
Honeylocust	2.7	205	346.1	339	544	(N/A)	2.3	5.3	67.96
Broadleaf Evergreen Large	1.8	134	253.9	249	383	(N/A)	1.7	3.7	63.86
White oak	1.0	75	122.2	120	195	(N/A)	1.7	1.9	32.43
Norway maple	1.3	95	176.9	173	269	(N/A)	1.7	2.6	44.78
Japanese tree lilac	0.1	7	15.8	15	22	(N/A)	1.4	0.2	4.50
Conifer Evergreen Large	0.5	41	63.6	62	103	(N/A)	1.1	1.0	25.72
Blue spruce	0.3	23	43.9	43	66	(N/A)	0.8	0.6	22.08
Kentucky coffeetree	0.3	22	41.2	40	62	(N/A)	0.8	0.6	20.64
Amur maple	0.6	43	81.0	79	122	(N/A)	0.8	1.2	40.80
American sycamore	1.4	103	181.1	177	281	(N/A)	0.8	2.7	93.56
Mulberry	0.1	7	16.6	16	24	(N/A)	0.6	0.2	11.80
American basswood	0.5	35	62.4	61	96	(N/A)	0.6	0.9	47.91
Conifer Evergreen Small	0.0	1	1.3	1	2	(N/A)	0.6	0.0	0.93
Norway spruce	0.2	14	24.1	24	38	(N/A)	0.6	0.4	18.86
Scotch pine	0.3	20	29.3	29	48	(N/A)	0.6	0.5	24.14
Broadleaf Deciduous Large	0.3	20	38.1	37	57	(N/A)	0.3	0.6	57.32
Black maple	0.3	22	39.9	39	61	(N/A)	0.3	0.6	60.68
Northern white cedar	0.1	4	9.5	9	14	(N/A)	0.3	0.1	13.58
Black walnut	0.3	20	38.1	37	57	(N/A)	0.3	0.6	57.32
White ash	0.3	20	28.4	28	48	(N/A)	0.3	0.5	48.12
Eastern redbud	0.0	0	0.6	1	1	(N/A)	0.3	0.0	0.87
Austrian pine	0.1	5	10.2	10	15	(N/A)	0.3	0.1	14.80
Black spruce	0.1	10	15.2	15	25	(N/A)	0.3	0.2	24.51
Southern magnolia	0.0	1	2.8	3	4	(N/A)	0.3	0.0	3.94
Total	49.1	3,724	6,676.6	6,543	10,267	(N/A)	100.0	100.0	29.08

Table 2: Annual Stormwater Benefits

Eldridge

Annual Stormwater Benefits of Public Trees

2/6/2020

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Red maple	21,878	593	(N/A)	14.4	5.2	11.63
Apple	13,335	361	(N/A)	10.2	3.2	10.04
Eastern white pine	30,416	824	(N/A)	8.8	7.3	26.59
Ash	38,968	1,056	(N/A)	7.9	9.3	37.72
Pin oak	46,971	1,273	(N/A)	5.9	11.3	60.62
Bur oak	12,119	328	(N/A)	4.8	2.9	19.32
Northern red oak	8,144	221	(N/A)	3.7	2.0	16.98
Green ash	16,750	454	(N/A)	3.7	4.0	34.92
River birch	11,796	320	(N/A)	3.4	2.8	26.64
American elm	6,962	189	(N/A)	3.1	1.7	17.15
Willow	3,492	95	(N/A)	2.8	0.8	9.46
Swamp white oak	3,819	103	(N/A)	2.8	0.9	10.35
Silver maple	18,113	491	(N/A)	2.5	4.3	54.54
Sugar maple	34,828	944	(N/A)	2.5	8.3	104.87
Broadleaf Deciduous Small	2,142	58	(N/A)	2.3	0.5	7.26
Littleleaf linden	10,692	290	(N/A)	2.3	2.6	36.22
Honeylocust	29,443	798	(N/A)	2.3	7.1	99.74
Broadleaf Evergreen Large	29,867	809	(N/A)	1.7	7.2	134.90
White oak	6,220	169	(N/A)	1.7	1.5	28.09
Norway maple	11,096	301	(N/A)	1.7	2.7	50.11
Japanese tree lilac	282	8	(N/A)	1.4	0.1	1.53
Conifer Evergreen Large	7,585	206	(N/A)	1.1	1.8	51.39
Blue spruce	4,881	132	(N/A)	0.8	1.2	44.09
Kentucky coffeetree	1,824	49	(N/A)	0.8	0.4	16.47
Amur maple	2,507	68	(N/A)	0.8	0.6	22.65
American sycamore	21,717	589	(N/A)	0.8	5.2	196.17
Mulberry	333	9	(N/A)	0.6	0.1	4.51
American basswood	3,321	90	(N/A)	0.6	0.8	45.01
Conifer Evergreen Small	49	1	(N/A)	0.6	0.0	0.66
Norway spruce	2,134	58	(N/A)	0.6	0.5	28.92
Scotch pine	3,077	83	(N/A)	0.6	0.7	41.70
Broadleaf Deciduous Large	2,591	70	(N/A)	0.3	0.6	70.21
Black maple	2,867	78	(N/A)	0.3	0.7	77.70
Northern white cedar	596	16	(N/A)	0.3	0.1	16.14
Black walnut	2,591	70	(N/A)	0.3	0.6	70.21
White ash	1,663	45	(N/A)	0.3	0.4	45.05
Eastern redbud	7	0	(N/A)	0.3	0.0	0.20
Austrian pine	755	20	(N/A)	0.3	0.2	20.47
Black spruce	1,544	42	(N/A)	0.3	0.4	41.85
Southern magnolia	56	2	(N/A)	0.3	0.0	1.53
Citywide total	417,431	11,312	(N/A)	100.0	100.0	32.05

Table 3: Annual Air Quality Benefits

Eldridge

Annual Air Quality Benefits of Public Trees

2/6/2020

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							
Red maple	2.6	0.4	1.6	0.1	15	19.9	2.9	2.7	18.5	123	-1.1	-4	47.5	133 (N/A)	14.4	2.61
Apple	3.8	0.6	1.8	0.2	20	16.4	2.4	2.2	15.2	101	0.0	0	42.6	121 (N/A)	10.2	3.37
Eastern white pine	3.1	0.6	2.8	0.4	21	12.0	1.8	1.7	11.5	75	-10.5	-39	23.3	57 (N/A)	8.8	1.83
Ash	6.7	1.1	3.5	0.3	37	25.8	3.7	3.6	24.4	161	-1.7	-6	67.4	191 (N/A)	7.9	6.81
Pin oak	7.4	1.3	4.0	0.3	41	25.7	3.8	3.6	25.0	162	-14.3	-54	56.8	149 (N/A)	5.9	7.10
Bur oak	0.8	0.1	0.5	0.0	4	9.0	1.3	1.3	8.8	57	0.0	0	21.8	61 (N/A)	4.8	3.59
Northern red oak	1.2	0.2	0.7	0.1	7	6.8	1.0	0.9	6.5	42	-1.7	-6	15.6	43 (N/A)	3.7	3.29
Green ash	1.5	0.2	0.8	0.1	8	9.2	1.3	1.3	8.6	57	0.0	0	23.1	65 (N/A)	3.7	5.02
River birch	1.7	0.3	0.9	0.1	9	9.5	1.4	1.3	9.1	59	-0.5	-2	23.9	67 (N/A)	3.4	5.60
American elm	0.3	0.1	0.3	0.0	2	5.9	0.9	0.8	5.8	37	0.0	0	14.1	39 (N/A)	3.1	3.58
Willow	0.5	0.1	0.3	0.0	3	2.5	0.4	0.3	2.3	15	-0.1	-1	6.3	18 (N/A)	2.8	1.78
Swamp white oak	0.5	0.1	0.3	0.0	3	3.4	0.5	0.5	3.2	21	-0.1	-1	8.3	23 (N/A)	2.8	2.34
Silver maple	2.7	0.5	1.4	0.1	15	7.6	1.1	1.1	7.3	48	-1.7	-6	20.1	56 (N/A)	2.5	6.24
Sugar maple	4.9	0.8	2.4	0.2	26	13.0	1.9	1.8	12.4	81	-3.8	-14	33.6	93 (N/A)	2.5	10.34
Broadleaf Deciduous Small	0.7	0.1	0.3	0.0	4	2.3	0.3	0.3	2.1	14	0.0	0	6.3	18 (N/A)	2.3	2.25
Littleleaf linden	1.5	0.3	0.8	0.1	8	6.7	1.0	0.9	6.4	42	-0.8	-3	16.9	47 (N/A)	2.3	5.91
Honeylocust	5.8	0.9	2.6	0.3	30	12.6	1.9	1.8	12.2	79	-4.5	-17	33.6	93 (N/A)	2.3	11.60
Broadleaf Evergreen Large	3.8	0.8	3.2	0.5	25	8.5	1.2	1.2	7.9	53	-13.5	-51	13.6	27 (N/A)	1.7	4.58
White oak	0.4	0.1	0.3	0.0	2	4.6	0.7	0.6	4.5	29	0.0	0	11.1	31 (N/A)	1.7	5.21
Norway maple	2.2	0.4	1.1	0.1	12	6.1	0.9	0.8	5.7	38	-0.5	-2	16.8	48 (N/A)	1.7	7.95
Japanese tree lilac	0.0	0.0	0.0	0.0	0	0.5	0.1	0.1	0.4	3	0.0	0	1.0	3 (N/A)	1.4	0.59
Conifer Evergreen Large	0.9	0.2	0.7	0.1	6	2.5	0.4	0.3	2.4	16	-3.0	-11	4.4	10 (N/A)	1.1	2.48
Blue spruce	0.7	0.1	0.6	0.1	5	1.5	0.2	0.2	1.4	9	-1.8	-7	3.0	7 (N/A)	0.8	2.32
Kentucky coffeetree	0.1	0.0	0.1	0.0	0	1.4	0.2	0.2	1.3	9	0.0	0	3.2	9 (N/A)	0.8	2.99
Amur maple	0.8	0.1	0.4	0.0	4	2.7	0.4	0.4	2.6	17	0.0	0	7.5	21 (N/A)	0.8	7.15
American sycamore	3.9	0.6	1.7	0.2	20	6.5	0.9	0.9	6.2	40	0.0	0	20.9	61 (N/A)	0.8	20.21
Mulberry	0.0	0.0	0.0	0.0	0	0.5	0.1	0.1	0.4	3	0.0	0	1.1	3 (N/A)	0.6	1.63
American basswood	0.3	0.1	0.2	0.0	2	2.2	0.3	0.3	2.1	14	-0.3	-1	5.1	14 (N/A)	0.6	7.12
Conifer Evergreen Small	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)	0.6	0.09
Norway spruce	0.2	0.0	0.2	0.0	2	0.9	0.1	0.1	0.8	5	-0.7	-3	1.7	4 (N/A)	0.6	2.15
Scotch pine	0.3	0.1	0.3	0.0	2	1.2	0.2	0.2	1.2	7	-1.1	-4	2.3	6 (N/A)	0.6	2.82
Broadleaf Deciduous Large	0.3	0.0	0.1	0.0	1	1.3	0.2	0.2	1.2	8	0.0	0	3.3	9 (N/A)	0.3	9.34
Black maple	0.7	0.1	0.3	0.0	4	1.4	0.2	0.2	1.3	8	-0.2	-1	4.0	12 (N/A)	0.3	11.54
Northern white cedar	0.1	0.0	0.1	0.0	0	0.3	0.0	0.0	0.3	2	-0.2	-1	0.6	1 (N/A)	0.3	1.48
Black walnut	0.3	0.0	0.1	0.0	1	1.3	0.2	0.2	1.2	8	0.0	0	3.3	9 (N/A)	0.3	9.34
White ash	0.1	0.0	0.1	0.0	1	1.2	0.2	0.2	1.2	8	0.0	0	3.0	8 (N/A)	0.3	8.32
Eastern redbud	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0 (N/A)	0.3	0.11
Austrian pine	0.1	0.0	0.1	0.0	0	0.3	0.0	0.0	0.3	2	-0.2	-1	0.6	2 (N/A)	0.3	1.53
Black spruce	0.2	0.0	0.2	0.0	1	0.6	0.1	0.1	0.6	4	-0.6	-2	1.2	3 (N/A)	0.3	2.89
Southern magnolia	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	0	0.0	0	0.2	0 (N/A)	0.3	0.47
Citywide total	61.0	10.6	34.7	3.5	345	233.7	34.1	32.5	222.3	1,457	-63.1	-237	569.2	1,565 (N/A)	100.0	4.43

Table 4: Annual Carbon Stored

Eldridge

Stored CO2 Benefits of Public Trees

2/6/2020

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Red maple	38,087	286	(N/A)	14.4	3.1	5.60
Apple	60,099	451	(N/A)	10.2	4.9	12.52
Eastern white pine	21,390	160	(N/A)	8.8	1.7	5.17
Ash	111,432	836	(N/A)	7.9	9.1	29.85
Pin oak	194,806	1,461	(N/A)	5.9	15.9	69.57
Bur oak	27,121	203	(N/A)	4.8	2.2	11.97
Northern red oak	19,355	145	(N/A)	3.7	1.6	11.17
Green ash	49,607	372	(N/A)	3.7	4.1	28.62
River birch	28,906	217	(N/A)	3.4	2.4	18.07
American elm	14,914	112	(N/A)	3.1	1.2	10.17
Willow	9,307	70	(N/A)	2.8	0.8	6.98
Swamp white oak	8,593	64	(N/A)	2.8	0.7	6.44
Silver maple	71,033	533	(N/A)	2.5	5.8	59.19
Sugar maple	141,460	1,061	(N/A)	2.5	11.6	117.88
Broadleaf Deciduous	10,757	81	(N/A)	2.3	0.9	10.08
Littleleaf linden	32,865	246	(N/A)	2.3	2.7	30.81
Honeylocust	74,041	555	(N/A)	2.3	6.0	69.41
Broadleaf Evergreen I	49,308	370	(N/A)	1.7	4.0	61.63
White oak	14,119	106	(N/A)	1.7	1.2	17.65
Norway maple	37,128	278	(N/A)	1.7	3.0	46.41
Japanese tree lilac	725	5	(N/A)	1.4	0.1	1.09
Conifer Evergreen La	6,853	51	(N/A)	1.1	0.6	12.85
Blue spruce	5,365	40	(N/A)	0.8	0.4	13.41
Kentucky coffeetree	3,104	23	(N/A)	0.8	0.3	7.76
Amur maple	12,817	96	(N/A)	0.8	1.0	32.04
American sycamore	134,499	1,009	(N/A)	0.8	11.0	336.25
Mulberry	1,086	8	(N/A)	0.6	0.1	4.07
American basswood	11,813	89	(N/A)	0.6	1.0	44.30
Conifer Evergreen Sn	5	0	(N/A)	0.6	0.0	0.02
Norway spruce	1,427	11	(N/A)	0.6	0.1	5.35
Scotch pine	2,340	18	(N/A)	0.6	0.2	8.78
Broadleaf Deciduous	8,458	63	(N/A)	0.3	0.7	63.43
Black maple	7,945	60	(N/A)	0.3	0.6	59.59
Northern white cedar	257	2	(N/A)	0.3	0.0	1.93
Black walnut	8,458	63	(N/A)	0.3	0.7	63.43
White ash	3,672	28	(N/A)	0.3	0.3	27.54
Eastern redbud	14	0	(N/A)	0.3	0.0	0.10
Austrian pine	284	2	(N/A)	0.3	0.0	2.13
Black spruce	1,118	8	(N/A)	0.3	0.1	8.39
Southern magnolia	3	0	(N/A)	0.3	0.0	0.02
Citywide total	1,224,572	9,184	(N/A)	100.0	100.0	26.02

Table 5: Annual Carbon Sequestered

Eldridge

Annual CO Benefits of Public Trees

2/6/2020

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
Red maple	5,826	44	-183	-47	-2	6,853	51	12,449	93 (N/A)	14.4	7.1	1.83
Apple	5,578	42	-289	-46	-3	5,622	42	10,866	81 (N/A)	10.2	6.2	2.26
Eastern white pine	2,342	18	-103	-44	-1	4,270	32	6,465	48 (N/A)	8.8	3.7	1.56
Ash	8,830	66	-536	-52	-4	9,005	68	17,248	129 (N/A)	7.9	9.9	4.62
Pin oak	15,841	119	-935	-52	-7	9,252	69	24,106	181 (N/A)	5.9	13.8	8.61
Bur oak	3,883	29	-130	-20	-1	3,244	24	6,978	52 (N/A)	4.8	4.0	3.08
Northern red oak	2,133	16	-93	-16	-1	2,393	18	4,417	33 (N/A)	3.7	2.5	2.55
Green ash	4,580	34	-238	-22	-2	3,195	24	7,516	56 (N/A)	3.7	4.3	4.34
River birch	3,475	26	-140	-18	-1	3,364	25	6,681	50 (N/A)	3.4	3.8	4.18
American elm	1,419	11	-73	-14	-1	2,138	16	3,470	26 (N/A)	3.1	2.0	2.37
Willow	1,060	8	-49	-7	0	849	6	1,853	14 (N/A)	2.8	1.1	1.39
Swamp white oak	1,356	10	-46	-8	0	1,192	9	2,495	19 (N/A)	2.8	1.4	1.87
Silver maple	5,840	44	-344	-18	-3	2,712	20	8,190	61 (N/A)	2.5	4.7	6.83
Sugar maple	6,792	51	-679	-31	-5	4,576	34	10,658	80 (N/A)	2.5	6.1	8.88
Broadleaf Deciduous Smal	903	7	-52	-7	0	795	6	1,640	12 (N/A)	2.3	0.9	1.54
Littleleaf linden	4,082	31	-158	-16	-1	2,375	18	6,283	47 (N/A)	2.3	3.6	5.89
Honeylocust	7,828	59	-355	-20	-3	4,521	34	11,973	90 (N/A)	2.3	6.9	11.22
Broadleaf Evergreen Large	3,923	29	-237	-16	-2	2,970	22	6,639	50 (N/A)	1.7	3.8	8.30
White oak	1,962	15	-68	-9	-1	1,655	12	3,540	27 (N/A)	1.7	2.0	4.43
Norway maple	1,832	14	-179	-13	-1	2,108	16	3,748	28 (N/A)	1.7	2.1	4.68
Japanese tree lilac	160	1	-4	-3	0	154	1	309	2 (N/A)	1.4	0.2	0.46
Conifer Evergreen Large	534	4	-33	-9	0	896	7	1,388	10 (N/A)	1.1	0.8	2.60
Blue spruce	306	2	-26	-6	0	514	4	788	6 (N/A)	0.8	0.5	1.97
Kentucky coffeetree	626	5	-15	-4	0	476	4	1,084	8 (N/A)	0.8	0.6	2.71
Amur maple	1,014	8	-62	-7	-1	952	7	1,897	14 (N/A)	0.8	1.1	4.74
American sycamore	2,303	17	-646	-16	-5	2,282	17	3,923	29 (N/A)	0.8	2.2	9.81
Mulberry	152	1	-5	-2	0	161	1	306	2 (N/A)	0.6	0.2	1.15
American basswood	913	7	-57	-5	0	765	6	1,617	12 (N/A)	0.6	0.9	6.06
Conifer Evergreen Small	1	0	0	0	0	12	0	13	0 (N/A)	0.6	0.0	0.05
Norway spruce	168	1	-7	-3	0	311	2	469	4 (N/A)	0.6	0.3	1.76
Scotch pine	231	2	-11	-4	0	433	3	649	5 (N/A)	0.6	0.4	2.43
Broadleaf Deciduous Larg	660	5	-41	-3	0	441	3	1,058	8 (N/A)	0.3	0.6	7.93
Black maple	923	7	-38	-3	0	477	4	1,359	10 (N/A)	0.3	0.8	10.20
Northern white cedar	53	0	-1	-1	0	94	1	145	1 (N/A)	0.3	0.1	1.08
Black walnut	660	5	-41	-3	0	441	3	1,058	8 (N/A)	0.3	0.6	7.93
White ash	494	4	-18	-2	0	449	3	923	7 (N/A)	0.3	0.5	6.92
Eastern redbud	9	0	0	0	0	6	0	14	0 (N/A)	0.3	0.0	0.10
Austrian pine	39	0	-1	-1	0	106	1	142	1 (N/A)	0.3	0.1	1.07
Black spruce	91	1	-5	-2	0	213	2	296	2 (N/A)	0.3	0.2	2.22
Southern magnolia	1	0	0	0	0	26	0	27	0 (N/A)	0.3	0.0	0.20
Citywide total	98,824	741	-5,893	-547	-48	82,297	617	174,681	1,310 (N/A)	100.0	100.0	3.71

Table 6: Annual Social and Aesthetic Benefits

Eldridge

Annual Aesthetic/Other Benefits of Public Trees

2/6/2020

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Red maple	1,056	(N/A)	14.4	8.6	20.71
Apple	321	(N/A)	10.2	2.6	8.92
Eastern white pine	669	(N/A)	8.8	5.5	21.59
Ash	910	(N/A)	7.9	7.4	32.48
Pin oak	1,359	(N/A)	5.9	11.1	64.73
Bur oak	474	(N/A)	4.8	3.9	27.86
Northern red oak	217	(N/A)	3.7	1.8	16.66
Green ash	482	(N/A)	3.7	3.9	37.06
River birch	368	(N/A)	3.4	3.0	30.70
American elm	240	(N/A)	3.1	2.0	21.86
Willow	129	(N/A)	2.8	1.1	12.86
Swamp white oak	161	(N/A)	2.8	1.3	16.11
Silver maple	535	(N/A)	2.5	4.4	59.48
Sugar maple	677	(N/A)	2.5	5.5	75.20
Broadleaf Deciduous Small	51	(N/A)	2.3	0.4	6.36
Littleleaf linden	446	(N/A)	2.3	3.6	55.72
Honeylocust	1,956	(N/A)	2.3	16.0	244.45
Broadleaf Evergreen Large	723	(N/A)	1.7	5.9	120.47
White oak	223	(N/A)	1.7	1.8	37.21
Norway maple	180	(N/A)	1.7	1.5	30.06
Japanese tree lilac	8	(N/A)	1.4	0.1	1.65
Conifer Evergreen Large	144	(N/A)	1.1	1.2	36.01
Blue spruce	52	(N/A)	0.8	0.4	17.42
Kentucky coffeetree	86	(N/A)	0.8	0.7	28.56
Amur maple	60	(N/A)	0.8	0.5	19.92
American sycamore	145	(N/A)	0.8	1.2	48.42
Mulberry	8	(N/A)	0.6	0.1	4.23
American basswood	76	(N/A)	0.6	0.6	38.12
Conifer Evergreen Small	9	(N/A)	0.6	0.1	4.27
Norway spruce	48	(N/A)	0.6	0.4	23.87
Scotch pine	65	(N/A)	0.6	0.5	32.32
Broadleaf Deciduous Large	58	(N/A)	0.3	0.5	57.69
Black maple	109	(N/A)	0.3	0.9	109.08
Northern white cedar	15	(N/A)	0.3	0.1	15.42
Black walnut	58	(N/A)	0.3	0.5	57.69
White ash	64	(N/A)	0.3	0.5	63.74
Eastern redbud	0	(N/A)	0.3	0.0	0.03
Austrian pine	21	(N/A)	0.3	0.2	21.08
Black spruce	25	(N/A)	0.3	0.2	25.23
Southern magnolia	0	(N/A)	0.3	0.0	0.01
Citywide total	12,227	(N/A)	100.0	100.0	34.64

Table 7: Summary of Benefits in Dollars

Eldridge

Total Annual Benefits of Public Trees by Species ($)

2/6/2020

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Red maple	905	93	133	593	1,056	2,781	(N/A)	7.6
Apple	751	81	121	361	321	1,637	(N/A)	4.5
Eastern white pine	519	48	57	824	669	2,118	(N/A)	5.8
Ash	1,145	129	191	1,056	910	3,430	(N/A)	9.4
Pin oak	1,093	181	149	1,273	1,359	4,055	(N/A)	11.1
Bur oak	378	52	61	328	474	1,294	(N/A)	3.5
Northern red oak	299	33	43	221	217	812	(N/A)	2.2
Green ash	414	56	65	454	482	1,471	(N/A)	4.0
River birch	411	50	67	320	368	1,216	(N/A)	3.3
American elm	250	26	39	189	240	745	(N/A)	2.0
Willow	116	14	18	95	129	371	(N/A)	1.0
Swamp white oak	150	19	23	103	161	456	(N/A)	1.2
Silver maple	328	61	56	491	535	1,472	(N/A)	4.0
Sugar maple	574	80	93	944	677	2,367	(N/A)	6.5
Broadleaf Deciduous Sn	107	12	18	58	51	246	(N/A)	0.7
Littleleaf linden	292	47	47	290	446	1,122	(N/A)	3.1
Honeylocust	544	90	93	798	1,956	3,480	(N/A)	9.5
Broadleaf Evergreen La	383	50	27	809	723	1,993	(N/A)	5.4
White oak	195	27	31	169	223	644	(N/A)	1.8
Norway maple	269	28	48	301	180	826	(N/A)	2.3
Japanese tree lilac	22	2	3	8	8	44	(N/A)	0.1
Conifer Evergreen Large	103	10	10	206	144	473	(N/A)	1.3
Blue spruce	66	6	7	132	52	264	(N/A)	0.7
Kentucky coffeetree	62	8	9	49	86	214	(N/A)	0.6
Amur maple	122	14	21	68	60	286	(N/A)	0.8
American sycamore	281	29	61	589	145	1,104	(N/A)	3.0
Mulberry	24	2	3	9	8	47	(N/A)	0.1
American basswood	96	12	14	90	76	288	(N/A)	0.8
Conifer Evergreen Smal	2	0	0	1	9	12	(N/A)	0.0
Norway spruce	38	4	4	58	48	151	(N/A)	0.4
Scotch pine	48	5	6	83	65	207	(N/A)	0.6
Broadleaf Deciduous La	57	8	9	70	58	202	(N/A)	0.6
Black maple	61	10	12	78	109	269	(N/A)	0.7
Northern white cedar	14	1	1	16	15	48	(N/A)	0.1
Black walnut	57	8	9	70	58	202	(N/A)	0.6
White ash	48	7	8	45	64	172	(N/A)	0.5
Eastern redbud	1	0	0	0	0	1	(N/A)	0.0
Austrian pine	15	1	2	20	21	59	(N/A)	0.2
Black spruce	25	2	3	42	25	97	(N/A)	0.3
Southern magnolia	4	0	0	2	0	6	(N/A)	0.0
Citywide Total	10,267	1,310	1,565	11,312	12,227	36,682	(N/A)	100.0

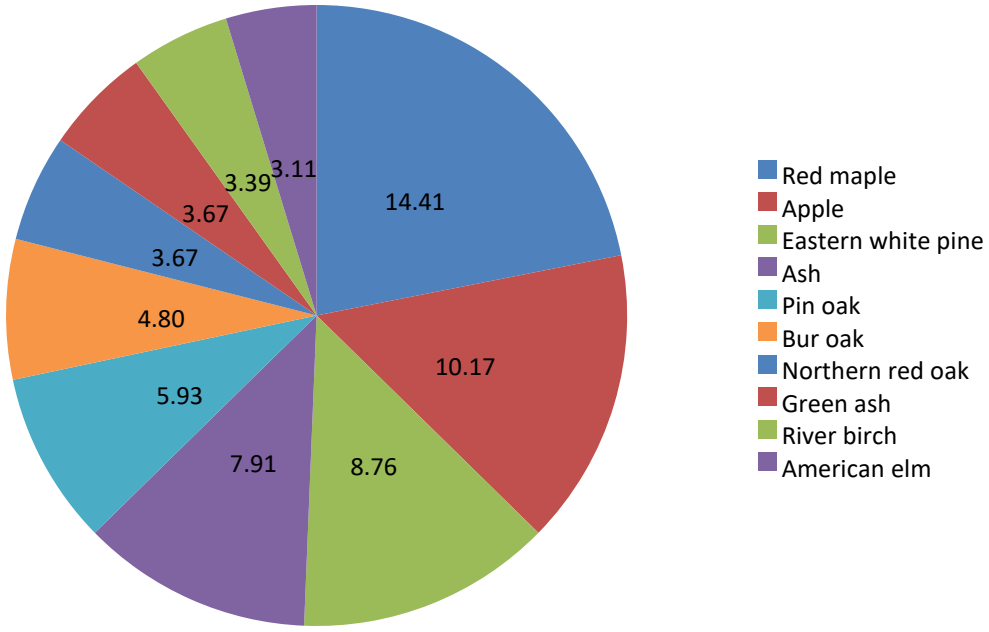

Figure 1: Species Distribution

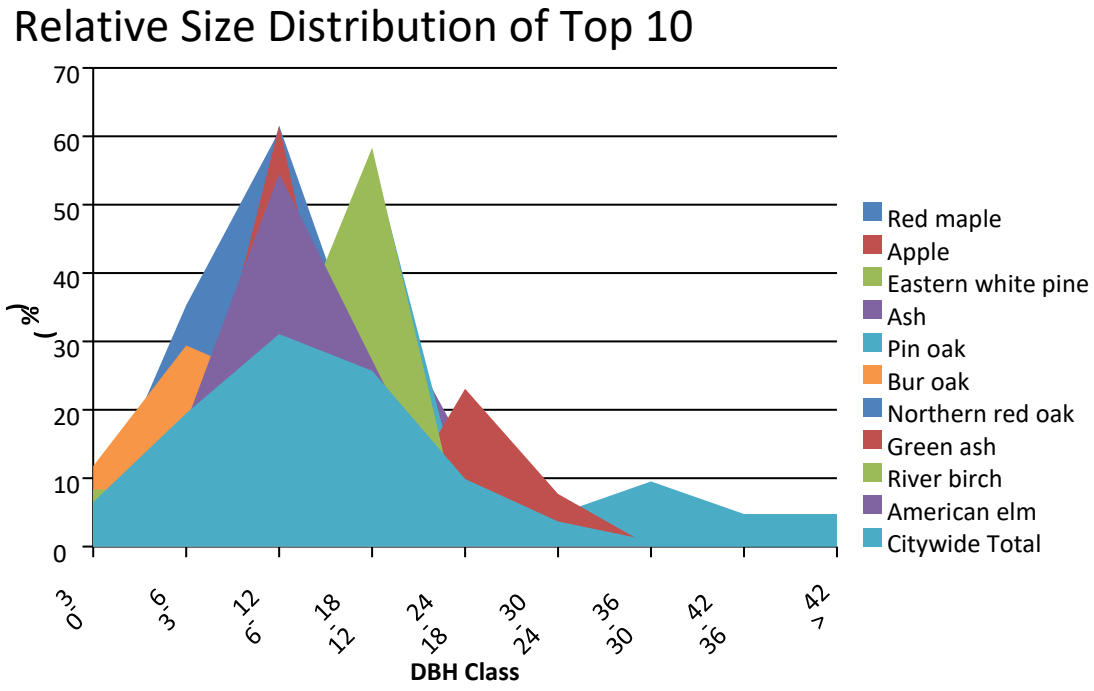

Figure 2: Relative Size Class

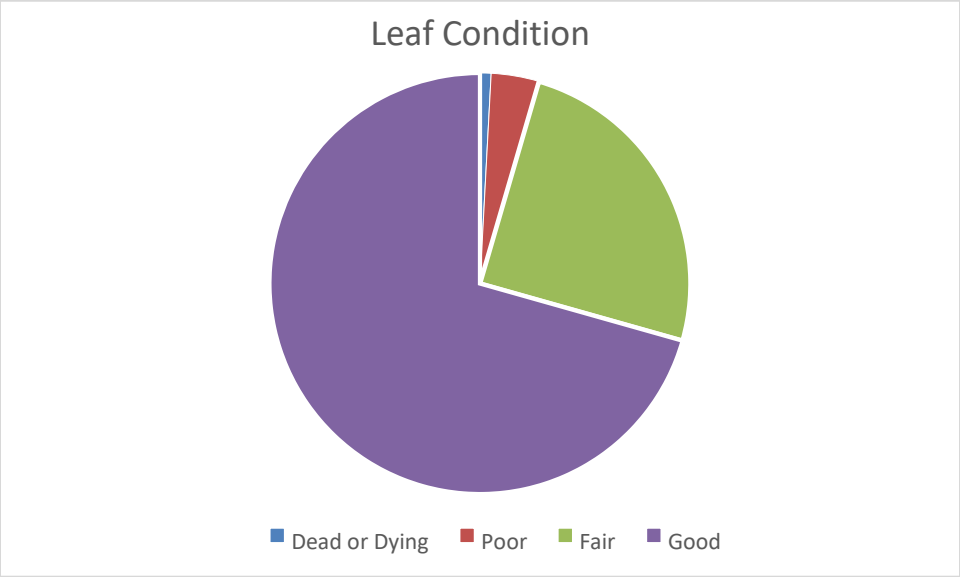

Figure 3: Foliage Condition

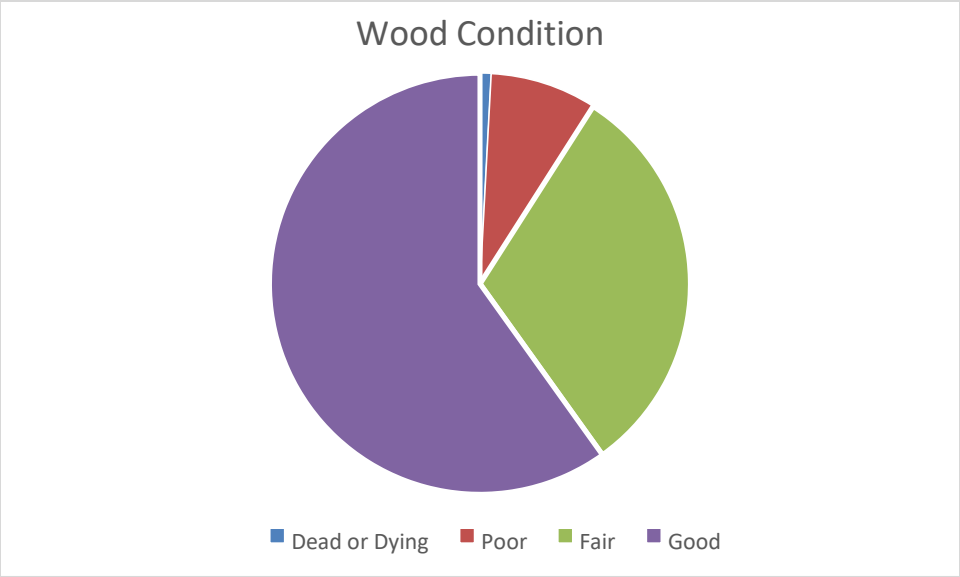

Figure 4: Wood Condition

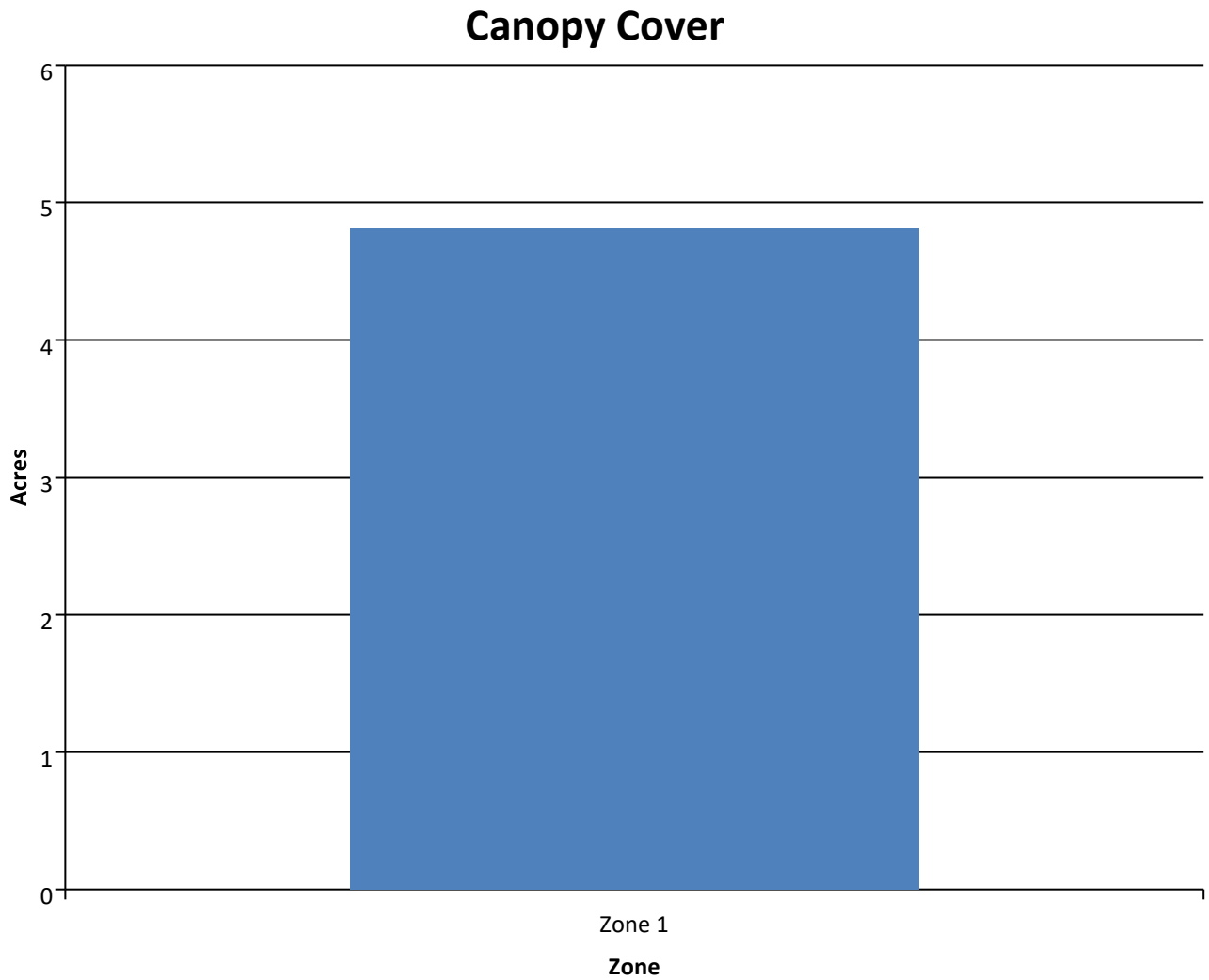

Figure 5: Canopy Cover in Acres

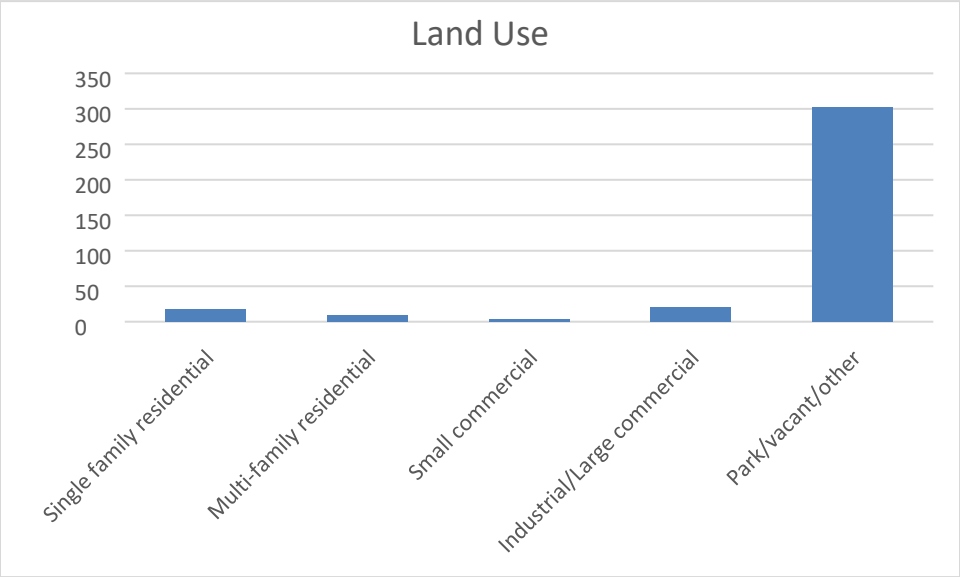

Figure 6: Land Use of city/park trees

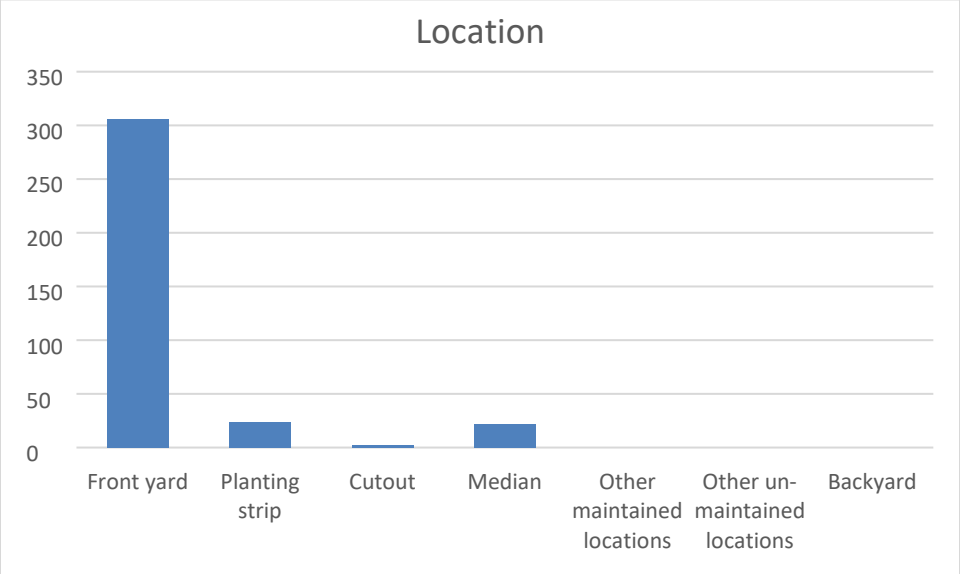

Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

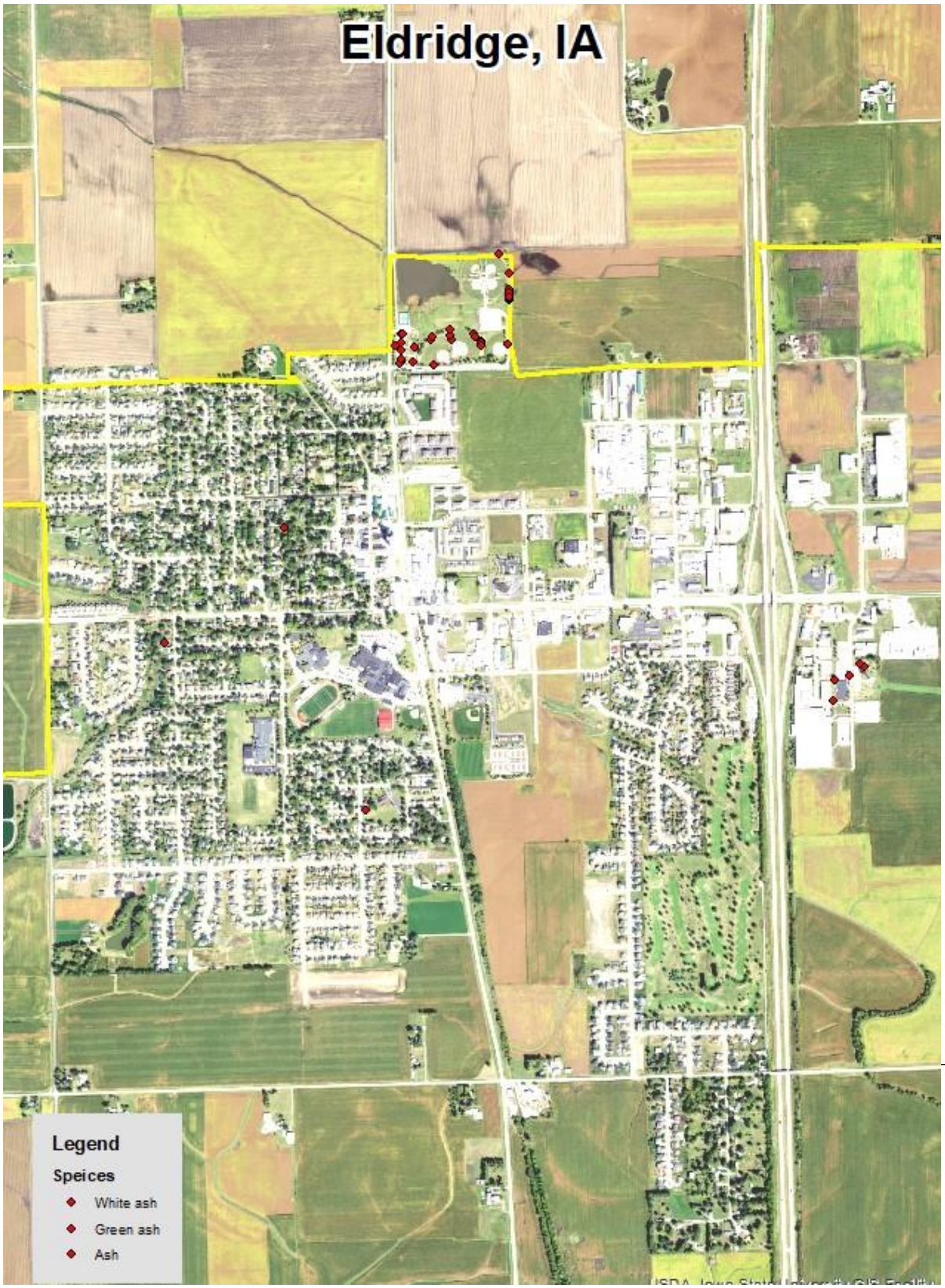

Figure 1: Location of Ash Trees

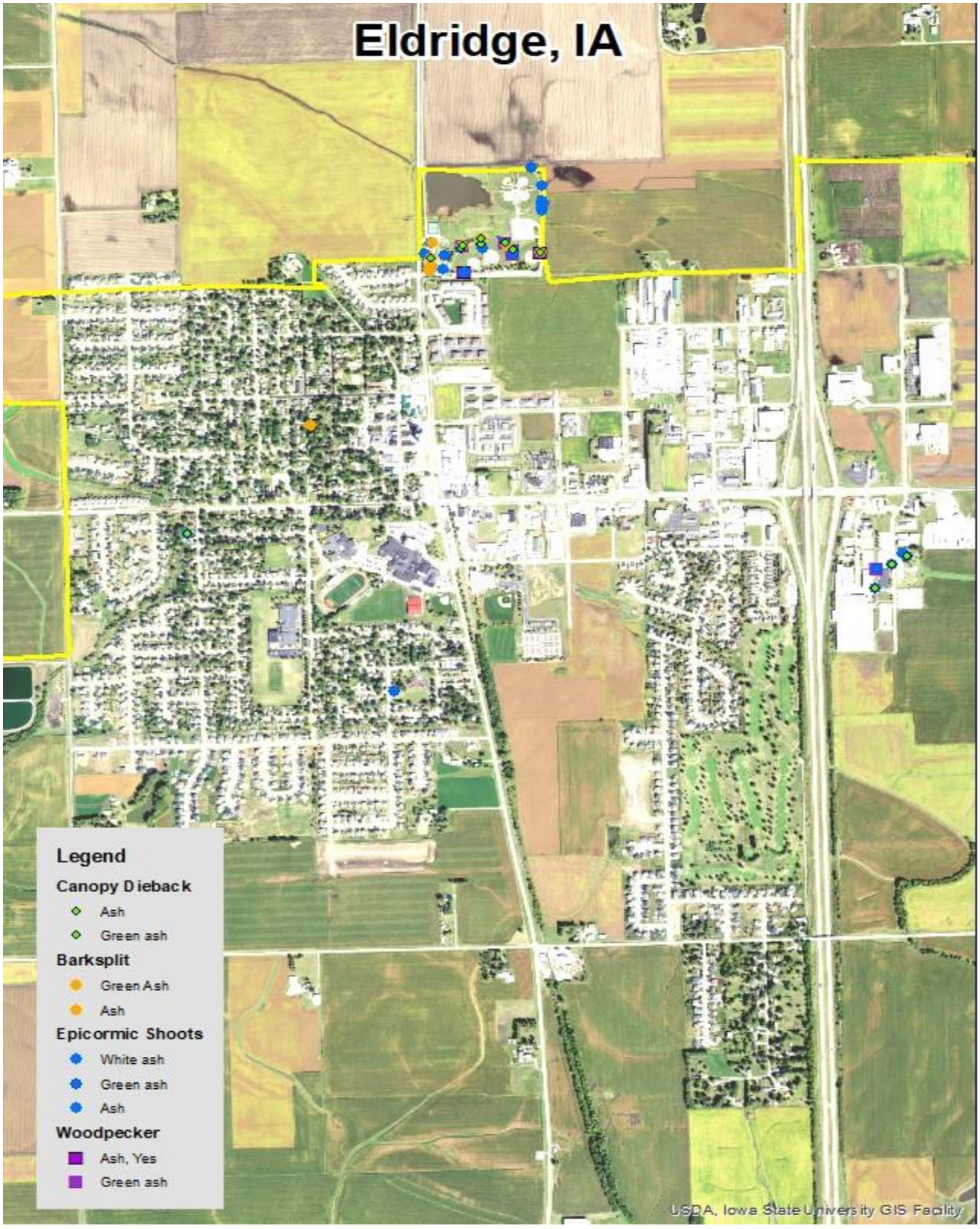

Figure 2: Location of EAB symptoms

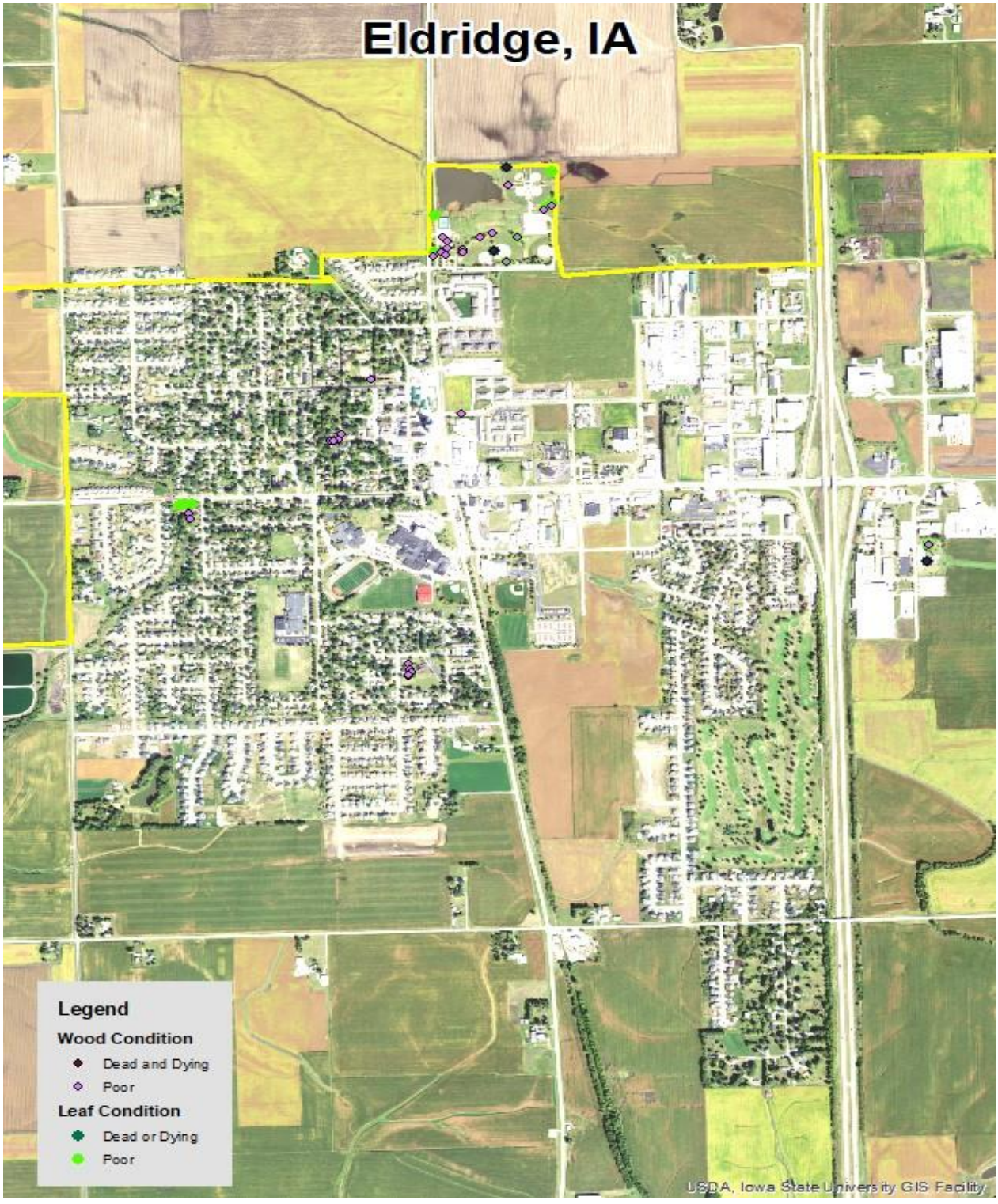

Figure 3: Location of Poor Condition Trees

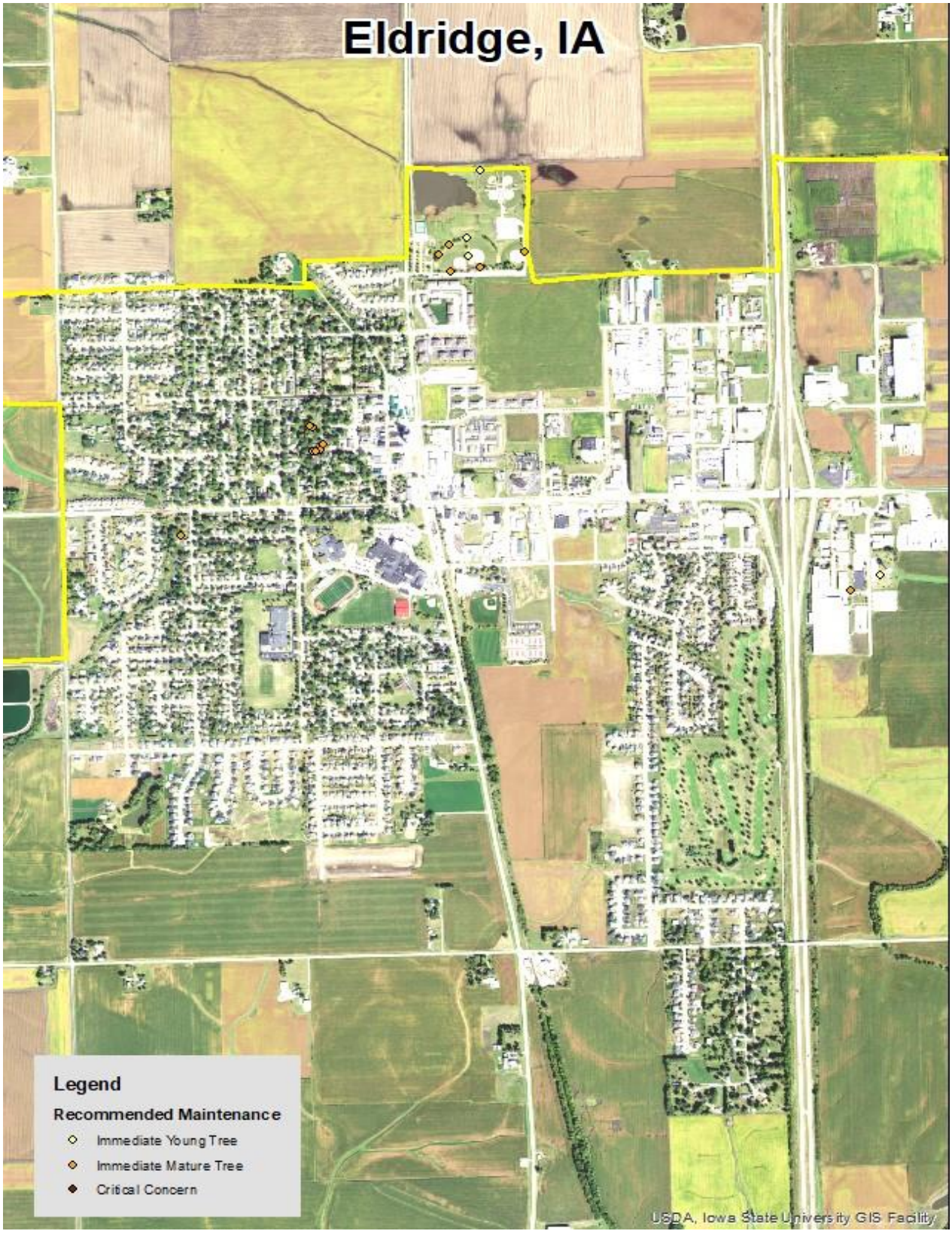

Figure 4: Location of Trees with Recommended Maintenance

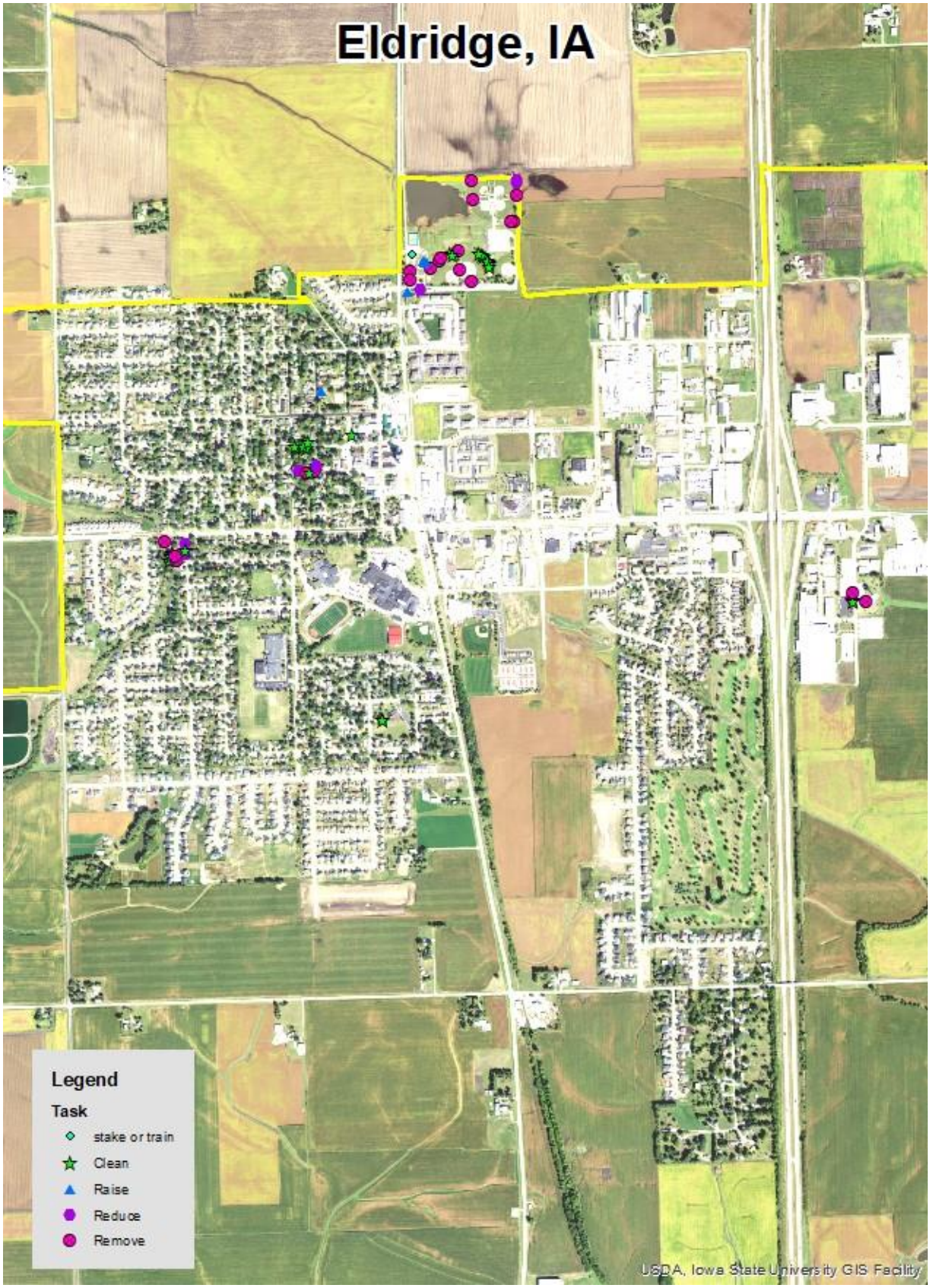

Figure 5: Maintenance Tasks ***City ownership of the trees recommended for removal should be verified prior to any removal***

Appendix C: Eldridge Tree Ordinances

2.03 PLACEMENT. Trees shall not be planted on the parking if it is less than nine feet in width, or contains less than eighty-one square feet of exposed soil surface. Trees shall not be planted closer than twenty feet to street intersections (property lines extended) and ten feet to driveways. If it is at all possible, trees should be planted inside the property lines and not between the side walk and the curb.

2.04 METHOD OF SUPPORT. Trees may be guyed or supported in an upright position according to accepted arboricultural practices. The guys or supports shall be fastened in such a way that they will not girdle or cause serious injury to the trees or endanger public safety.

2.05 SPACING. All trees hereafter planted in any street shall be planted midway between the outer line of the sidewalk and curb. In the event a curb line is not established, trees shall be planted not less than four (4) feet inside the private property line side of the sidewalk.

2.06 TRIMMING AND PRUNING. All cuts are to be make sufficiently close to the parent stem so that healing can readily start under normal conditions. All dead and diseased wood shall be removed. All limbs one inch in diameter or more must be precut to prevent splitting. All branches in danger of injuring the tree in falling shall be lowered by ropes. A crossed or rubbing branch shall be removed where practicable, but removal shall not leave large holes in the general outline of the tree. Crossed or rubbing branches may be cabled apart. All cuts, old or new, one inch in diameter or more, shall be painted

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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.