Eldon, IA
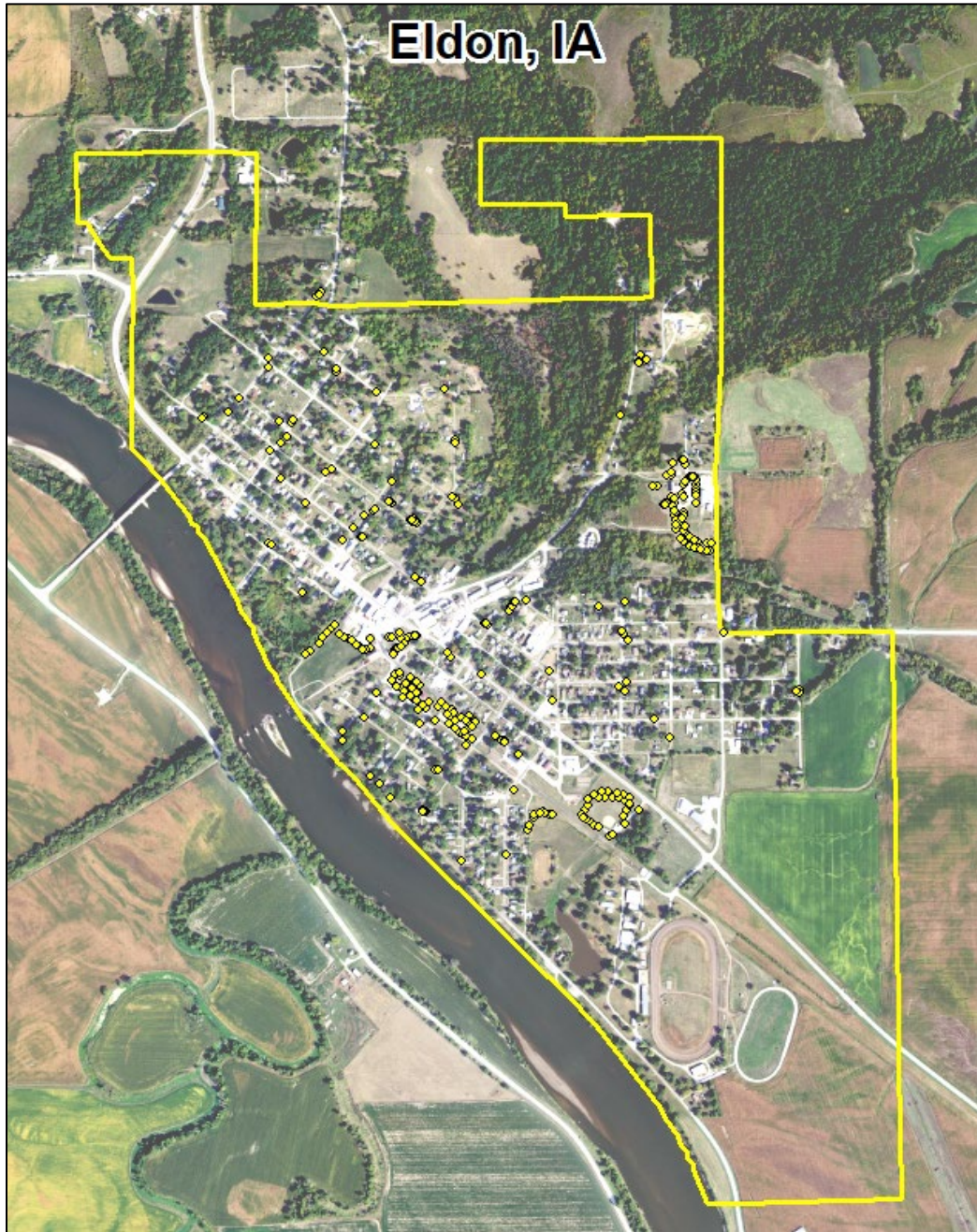

Eldon, IA

2021 Urban Forest Management Plan
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Executive Summary

Overview

This plan was developed to assist the City of Eldon 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 17% of Eldon'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 2020, 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 299 trees inventoried.

- Eldon's trees provide $28,623 of benefits annually, an average of $95 a tree
- There are over 43 species of trees
- The top three genera are: Maple 33.4%, Oak 12%, and Linden 9.3%
- 22% of trees are in need of some type of management
- 23 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 23 trees needing removal, 6 trees are over 12 inches in diameter at 4.5 ft and must be addressed immediately *City ownership of the trees recommended for removal should be verified prior to any removal*
- All of the 11 ash trees should be carefully examined, as they have one or more symptoms that could be related to an EAB infestation. It is likely that they are already infested with EAB.
- All trees should be pruned on a routine schedule- one third of the city every other year
- Plant a diverse mix of trees that do not include: ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut
- Check ash trees with a visual survey yearly
- With the proposed budget it could take 6-7 years to remove ash.

Introduction

This plan was developed to assist Eldon 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 or recovery from 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 Eldon, these costs can be extended over years and public safety issues from dead and dying ash trees mitigated.

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

Inventory

In 2020, 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 299 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. Eldon's trees reduce energy related costs by approximately $7,800 annually (Appendix A, Table 1). These savings are both in Electricity (36.6 MWh) and in Natural Gas (5,124.9 Therms).

Annual Stormwater Benefits

Eldon's trees intercept about 363,616 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $9,854 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 Eldon, it is estimated that trees remove 465.8 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 $1,313 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Eldon, trees sequester about 84,896 lbs of carbon a year with an associated value of $637 (Appendix A, Table 5). In addition, the trees store 1,357,291 lbs of carbon, with a yearly benefit of $10,180 (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. Eldon receives $8,611 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, Eldon's trees provide $28,623 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 299 trees in Eldon provide approximately $95 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Eldon has over 43 different tree species along city streets and parks (Appendix A, Figure 1).
The distribution of trees by genera is as follows:

Maple	100	33.4%
Oak	36	12%
Linden/Basswood	28	9.3%
Elm	25	8.3%
Walnut	14	4.6%
Ash	11	3.6%
Sycamore	8	2.6%
Willow	8	2.6%
Cedar	8	2.6%
Locust	7	2.3%
Tulip tree	6	2%
Apple	6	2%
Catalpa	6	2%
Mulberry	6	2%
Spruce	5	1.6%
Hackberry	4	1.3%
Coffeetree	3	1%
Pine	3	1%
Hickory	2	<1%
Lilac	1	<1%
Chokecherry	1	<1%
Redbud	1	<1%
Sumac	1	<1%
Ohio Buckeye	1	<1%
Broadleaf Deciduous Large	3	1%
Unknown	3	1%
Broadleaf Deciduous Medium	1	<1%
Broadleaf Evergreen Large	1	<1%

Age Class

Most of Eldon's trees (51%) are between 6 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. Eldon's size curve is on the smaller side, indicating a younger than average 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 Eldon indicate that 78% of the trees are in good health, with only 4.6% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 67% of Eldon'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 9% of the population. This 9% 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	25	8%
Tree Removal	23	7%
Crown Reduction	13	4%
Crown Raising	6	2%
Treat pest/disease	1	<1%
None	231	77%

Canopy Cover

The total canopy with both private and public trees is 35%, 248.28 acres. The canopy cover on city own properties included in the Eldon inventory includes approximately 4.13 acres (Appendix A, Figure 4). The City's Canopy goal is to increase canopy by 3%, in 30 years on all lands. To achieve this goal it is estimated that 52 trees need to be planted annually on public and/or private lands.

Land Use and Location

The majority of Eldon's city and park trees are in planting strips, parks, vacant lots, or other (Appendix A, Figure 6 & Appendix A, Figure7). The following describes the land use and locations for the street and park trees.

Land Use	
Park/vacant/other	62%
Single family residential	35%
Multifamily residential	1%

Location	
Planting strip	86%
Front yard	13%

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

Eldon has 2 critical concern trees that need immediate 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 is 1 tree over 36 inches in diameter at 4.5 ft that should be addressed immediately. 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 maintenance. There are a total of 68 trees with these needs.

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 23 removals, 9 are ash trees. There are 11 ash trees, and all of those have signs and symptoms that have been associated with EAB. In addition, there are two ash trees with poor health. *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. It is recommended to plant 1.2 trees for every tree removed, since survival rates will not be 100%. Please refer to the six year maintenance plan at the end of this section. 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 Eldon.

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 (33%) (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.

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.

Budget and Emerald Ash Borer Plan

Six Year Maintenance Plan: Average $5,046 annually
FY 2021: $3,550

Removal: 2 critical concern trees and 2 other recommended removal trees	$2,800
Planting and Replacement: 5 trees to be planted in open locations	$500
Young Tree Pruning & Maintenance:	$250
Visual Survey for signs and symptoms of EAB	

FY 2022: $6,310

Removal: 2 recommended removal trees due to poor health, 2 ash due to EAB	$2,800
Planting and Replacement: 5 trees in open locations from year one removals plus one	$500
Young Tree Pruning & Maintenance:	$250
Routine trimming: Contract to trim 1/3 of the city trees,	$2,760
Visual Survey for signs and symptoms of EAB	

FY 2023: $4,250

Removal: 5 trees - removal of 3 recommended trees and 2 ash in poor health	$3,500
Planting and Replacement: 5 trees to be planted in open locations	$500
Young Tree Pruning & Maintenance:	$250
Visual Survey for signs and symptoms of EAB	

FY 2024: $6,310

Removal: 4 trees - removal of 2 recommended trees and 2 ash in poor health	$2,800
Planting and Replacement: 5 trees in open locations from previous removals	$500
Routine trimming: Contract to trim 1/3 of the city trees	$2,760
Young Tree Pruning & Maintenance:	$250
Visual Survey for signs and symptoms of EAB	

FY 2025: $3,550

Removal: 4 trees - removal of 3 recommended trees and 1 ash in poor health	$2,800
Planting and Replacement: 5 trees to be planted in open locations	$500
Young Tree Pruning & Maintenance:	$250
Visual Survey for signs and symptoms of EAB	

FY 2026: $6,310

Removal: 4 trees - removal of recommended trees or ash in poor health	$2,800
Planting and Replacement: 5 trees in open locations from previous removals,	$500
Routine trimming: Contract to trim 1/3 of the city trees	$2,760
Young Tree Pruning & Maintenance:	$250
Visual Survey for signs and symptoms of EAB	

*Reduction of ash over 6-7 years: The budget above removes 9 of the 11 ash trees in Eldon. The estimated removal costs of these two trees would be $1,400 and could be added to any of the six years listed above or they could be removed in year 7. The two remaining ash trees are already in poor health and would not be candidates for treatment. EAB could potentially kill all ash within 4 to 15 years of its arrival.

Estimates based on the following costs: tree removal $700/tree, planting and replacement $100/tree, young tree pruning and maintenance $50/tree, routine trimming $30/tree. Actual costs could be different.

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. The new plantings will be a diverse mix and will not include ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, 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.

Proposed Budget Increase

EAB could potentially kill all ash trees in Eldon within 4 years of its arrival. The proposed budget removes all but 2 of the ash trees within 6 years. The two additional trees could be removed any of the six years or removed in year 7. Additionally, it is recommended that Eldon 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.

Another option being considered by many communities is treating a number of selected trees, either to maintain those trees in the landscape or to delay their removal – to spread out the costs and number of trees needing removed all at once. Trunk injection is administered every two years for the life of the tree. If treatment is discontinued, the tree dies. Unfortunately, none of the ash trees in Eldon would be candidates for treatment since 9 of the 11 are already dying and the remaining 2 have poor canopy condition.

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Eldon

Annual Energy Benefits of Public Trees

3/4/2021

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Maple	2.0	152	278.9	273	425	(N/A)	16.4	5.5	8.68
Littleleaf linden	0.8	63	119.0	117	179	(N/A)	9.0	2.3	6.64
Siberian elm	4.0	304	540.8	530	834	(N/A)	7.4	10.7	37.92
Silver maple	6.4	487	861.9	845	1,332	(N/A)	7.0	17.1	63.41
Northern pin oak	2.1	158	319.0	313	470	(N/A)	7.0	6.0	22.40
Sugar maple	4.3	327	584.8	573	900	(N/A)	7.0	11.5	42.87
Black walnut	2.6	197	352.4	345	543	(N/A)	4.7	7.0	38.75
Northern red oak	0.8	64	117.2	115	179	(N/A)	4.0	2.3	14.92
American sycamore	0.7	52	97.4	95	148	(N/A)	2.7	1.9	18.46
Ash	1.0	74	147.5	145	218	(N/A)	2.7	2.8	27.26
Willow	0.3	22	45.1	44	66	(N/A)	2.7	0.9	8.30
Honeylocust	1.0	76	140.3	137	214	(N/A)	2.3	2.7	30.52
Eastern red cedar	0.5	37	73.8	72	109	(N/A)	2.3	1.4	15.58
Red maple	0.6	45	87.8	86	131	(N/A)	2.0	1.7	21.79
Tulip tree	0.0	1	2.8	3	4	(N/A)	2.0	0.1	0.66
Apple	0.4	34	77.0	75	109	(N/A)	2.0	1.4	18.19
Catalpa	2.2	165	300.8	295	460	(N/A)	2.0	5.9	76.62
Broadleaf Deciduous Mediu	0.4	32	67.4	66	98	(N/A)	1.3	1.3	24.47
Northern hackberry	1.0	75	142.5	140	215	(N/A)	1.3	2.8	53.71
Kentucky coffeetree	0.3	25	47.8	47	72	(N/A)	1.0	0.9	24.07
Blue spruce	0.2	14	30.6	30	44	(N/A)	1.0	0.6	14.80
White mulberry	0.1	6	14.1	14	20	(N/A)	1.0	0.3	6.64
Mulberry	0.3	25	50.3	49	75	(N/A)	1.0	1.0	24.84
Green ash	0.8	58	99.7	98	156	(N/A)	1.0	2.0	51.96
Broadleaf Deciduous Large	0.0	1	1.4	1	2	(N/A)	1.0	0.0	0.66
Swamp white oak	0.1	6	12.4	12	18	(N/A)	0.7	0.2	8.99
Scotch pine	0.1	9	19.0	19	27	(N/A)	0.7	0.3	13.58
Hickory	0.6	45	85.0	83	128	(N/A)	0.7	1.6	64.12
Chinese elm	0.4	33	59.4	58	92	(N/A)	0.7	1.2	45.84
Norway maple	0.5	40	79.1	78	117	(N/A)	0.7	1.5	58.69
Norway spruce	0.2	14	24.1	24	38	(N/A)	0.7	0.5	18.86
Lilac	0.0	0	0.6	1	1	(N/A)	0.3	0.0	0.87
Scarlet oak	0.0	0	0.5	0	1	(N/A)	0.3	0.0	0.66
Common chokecherry	0.2	15	31.6	31	46	(N/A)	0.3	0.6	46.14
Eastern redbud	0.2	14	24.7	24	38	(N/A)	0.3	0.5	38.13
Northern white cedar	0.0	2	4.0	4	6	(N/A)	0.3	0.1	5.61
Red pine	0.1	10	14.6	14	24	(N/A)	0.3	0.3	24.14
Broadleaf Evergreen Large	0.0	1	1.6	2	2	(N/A)	0.3	0.0	2.26
Black maple	0.3	22	39.9	39	61	(N/A)	0.3	0.8	60.68
American elm	0.6	45	71.2	70	114	(N/A)	0.3	1.5	114.45
Sumac	0.0	2	3.8	4	5	(N/A)	0.3	0.1	5.40
American basswood	0.2	18	36.4	36	54	(N/A)	0.3	0.7	53.99
Ohio buckeye	0.1	8	16.9	17	24	(N/A)	0.3	0.3	24.47
Total	36.6	2,778	5,124.9	5,022	7,800	(N/A)	100.0	100.0	26.09

Table 2: Annual Stormwater Benefits

Eldon

Annual Stormwater Benefits of Public Trees

3/4/2021

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Maple	9,254	251	(N/A)	16.4	2.5	5.12
Littleleaf linden	3,521	95	(N/A)	9.0	1.0	3.53
Siberian elm	41,554	1,126	(N/A)	7.4	11.4	51.19
Silver maple	97,202	2,634	(N/A)	7.0	26.7	125.44
Northern pin oak	17,808	483	(N/A)	7.0	4.9	22.98
Sugar maple	37,560	1,018	(N/A)	7.0	10.3	48.47
Black walnut	23,786	645	(N/A)	4.7	6.5	46.04
Northern red oak	5,333	145	(N/A)	4.0	1.5	12.04
American sycamore	7,102	192	(N/A)	2.7	2.0	24.06
Ash	5,511	149	(N/A)	2.7	1.5	18.67
Willow	2,565	70	(N/A)	2.7	0.7	8.69
Honeylocust	9,064	246	(N/A)	2.3	2.5	35.09
Eastern red cedar	6,906	187	(N/A)	2.3	1.9	26.74
Red maple	3,264	88	(N/A)	2.0	0.9	14.74
Tulip tree	107	3	(N/A)	2.0	0.0	0.48
Apple	1,587	43	(N/A)	2.0	0.4	7.17
Catalpa	28,897	783	(N/A)	2.0	7.9	130.52
Broadleaf Deciduous Medium	2,344	64	(N/A)	1.3	0.6	15.88
Northern hackberry	6,907	187	(N/A)	1.3	1.9	46.79
Kentucky coffeetree	3,979	108	(N/A)	1.0	1.1	35.94
Blue spruce	2,266	61	(N/A)	1.0	0.6	20.47
White mulberry	279	8	(N/A)	1.0	0.1	2.52
Mulberry	1,196	32	(N/A)	1.0	0.3	10.80
Green ash	9,312	252	(N/A)	1.0	2.6	84.12
Broadleaf Deciduous Large	54	1	(N/A)	1.0	0.0	0.48
Swamp white oak	325	9	(N/A)	0.7	0.1	4.41
Scotch pine	1,191	32	(N/A)	0.7	0.3	16.14
Hickory	6,534	177	(N/A)	0.7	1.8	88.53
Chinese elm	7,257	197	(N/A)	0.7	2.0	98.33
Norway maple	4,959	134	(N/A)	0.7	1.4	67.19
Norway spruce	2,134	58	(N/A)	0.7	0.6	28.92
Lilac	7	0	(N/A)	0.3	0.0	0.20
Scarlet oak	18	0	(N/A)	0.3	0.0	0.48
Common chokecherry	1,174	32	(N/A)	0.3	0.3	31.82
Eastern redbud	667	18	(N/A)	0.3	0.2	18.06
Northern white cedar	213	6	(N/A)	0.3	0.1	5.77
Red pine	1,539	42	(N/A)	0.3	0.4	41.70
Broadleaf Evergreen Large	38	1	(N/A)	0.3	0.0	1.02
Black maple	2,867	78	(N/A)	0.3	0.8	77.70
American elm	4,551	123	(N/A)	0.3	1.3	123.33
Sumac	69	2	(N/A)	0.3	0.0	1.86
American basswood	2,133	58	(N/A)	0.3	0.6	57.80
Ohio buckeye	586	16	(N/A)	0.3	0.2	15.88
Citywide total	363,616	9,854	(N/A)	100.0	100.0	32.96

Table 3: Annual Air Quality Benefits

Eldon

Annual Air Quality Benefits of Public Trees

3/4/2021

Species	Deposition (lb) O₃	NO₂	PM₁₀	SO₂	Total Depos. ($)	Avoided (lb) NO₂	PM₁₀	VOC	SO₂	Total Avoided ($)	BVOC Emissions (lb)	BVOC Emissions ($)	Total (lb)	Total ($) Standard Error	% of Total Trees	Avg. $/tree
Maple	1.1	0.2	0.7	0.0	6	9.6	1.4	1.3	9.1	60	-0.4	-2	22.9	64 (N/A)	16.4	1.31
Littleleaf linden	0.2	0.0	0.2	0.0	2	4.0	0.6	0.6	3.8	25	-0.1	-1	9.2	26 (N/A)	9.0	0.96
Siberian elm	6.7	1.1	3.3	0.3	36	19.0	2.8	2.7	18.2	119	0.0	0	54.2	155 (N/A)	7.4	7.06
Silver maple	17.7	3.0	8.6	0.8	95	30.4	4.4	4.2	29.0	190	-9.4	-35	88.7	250 (N/A)	7.0	11.89
Northern pin oak	3.3	0.6	1.7	0.1	18	10.3	1.5	1.4	9.4	63	-0.8	-3	27.5	78 (N/A)	7.0	3.73
Sugar maple	4.3	0.7	2.3	0.2	24	20.5	3.0	2.9	19.5	128	-3.5	-13	49.9	138 (N/A)	7.0	6.59
Black walnut	2.4	0.4	1.2	0.1	13	12.4	1.8	1.7	11.8	77	0.0	0	31.8	90 (N/A)	4.7	6.45
Northern red oak	0.8	0.1	0.5	0.0	5	4.0	0.6	0.6	3.8	25	-1.2	-4	9.3	25 (N/A)	4.0	2.11
American sycamore	0.8	0.1	0.4	0.0	4	3.3	0.5	0.5	3.1	21	0.0	0	8.7	25 (N/A)	2.7	3.08
Ash	0.6	0.1	0.4	0.0	4	4.8	0.7	0.7	4.4	29	-0.2	-1	11.4	32 (N/A)	2.7	4.02
Willow	0.5	0.1	0.2	0.0	3	1.4	0.2	0.2	1.3	9	-0.1	0	3.9	11 (N/A)	2.7	1.39
Honeylocust	1.6	0.3	0.8	0.1	9	4.8	0.7	0.7	4.5	30	-1.2	-5	12.2	34 (N/A)	2.3	4.86
Eastern red cedar	1.2	0.2	1.0	0.2	8	2.4	0.3	0.3	2.2	15	-3.8	-14	4.1	8 (N/A)	2.3	1.21
Red maple	0.4	0.1	0.2	0.0	2	2.9	0.4	0.4	2.7	18	-0.2	-1	6.9	19 (N/A)	2.0	3.22
Tulip tree	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)	2.0	0.08
Apple	0.3	0.0	0.2	0.0	2	2.3	0.3	0.3	2.0	14	0.0	0	5.4	15 (N/A)	2.0	2.55
Catalpa	4.5	0.7	2.0	0.2	24	10.4	1.5	1.4	9.8	65	0.0	0	30.7	88 (N/A)	2.0	14.73
Broadleaf Deciduous Medium	0.2	0.0	0.2	0.0	1	2.1	0.3	0.3	1.9	13	-0.1	0	4.9	14 (N/A)	1.3	3.47
Northern hackberry	0.8	0.1	0.5	0.0	4	4.8	0.7	0.7	4.5	30	0.0	0	12.1	34 (N/A)	1.3	8.55
Kentucky coffeetree	0.5	0.1	0.2	0.0	3	1.6	0.2	0.2	1.5	10	0.0	0	4.4	13 (N/A)	1.0	4.21
Blue spruce	0.2	0.0	0.2	0.0	1	0.9	0.1	0.1	0.9	6	-0.7	-3	1.8	5 (N/A)	1.0	1.53
White mulberry	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.4	3	0.0	0	1.0	3 (N/A)	1.0	0.92
Mulberry	0.3	0.0	0.2	0.0	2	1.6	0.2	0.2	1.5	10	0.0	0	4.1	12 (N/A)	1.0	3.88
Green ash	1.3	0.2	0.6	0.1	7	3.6	0.5	0.5	3.5	23	0.0	0	10.3	29 (N/A)	1.0	9.82
Broadleaf Deciduous Large	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)	1.0	0.08
Swamp white oak	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.3	2	0.0	0	0.9	2 (N/A)	0.7	1.21
Scotch pine	0.1	0.0	0.1	0.0	1	0.6	0.1	0.1	0.5	3	-0.3	-1	1.1	3 (N/A)	0.7	1.48
Hickory	0.8	0.1	0.4	0.0	4	2.9	0.4	0.4	2.7	18	0.0	0	7.6	22 (N/A)	0.7	10.91
Chinese elm	1.2	0.2	0.5	0.1	6	2.1	0.3	0.3	2.0	13	0.0	0	6.6	19 (N/A)	0.7	9.56
Norway maple	1.0	0.2	0.5	0.0	5	2.6	0.4	0.4	2.4	16	-0.2	-1	7.1	20 (N/A)	0.7	10.16
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)	0.7	2.15
Lilac	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
Scarlet oak	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	0.08
Common chokecherry	0.4	0.1	0.2	0.0	2	1.0	0.1	0.1	0.9	6	0.0	0	2.9	8 (N/A)	0.3	8.35
Eastern redbud	0.2	0.0	0.1	0.0	1	0.9	0.1	0.1	0.8	5	0.0	0	2.3	7 (N/A)	0.3	6.56
Northern white cedar	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	1	-0.1	0	0.2	1 (N/A)	0.3	0.56
Red pine	0.2	0.0	0.1	0.0	1	0.6	0.1	0.1	0.6	4	-0.5	-2	1.2	3 (N/A)	0.3	2.82
Broadleaf Evergreen Large	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)	0.3	0.26
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
American elm	2.2	0.4	1.0	0.1	12	2.7	0.4	0.4	2.7	17	0.0	0	9.9	29 (N/A)	0.3	28.89
Sumac	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	1	0.0	0	0.3	1 (N/A)	0.3	0.71
American basswood	0.2	0.0	0.1	0.0	1	1.2	0.2	0.2	1.1	7	-0.2	-1	2.8	8 (N/A)	0.3	7.78
Ohio buckeye	0.1	0.0	0.0	0.0	0	0.5	0.1	0.1	0.5	3	0.0	0	1.2	3 (N/A)	0.3	3.47
Citywide total	57.1	9.7	29.2	2.7	312	175.6	25.5	24.3	165.8	1,092	-24.1	-90	465.8	1,313 (N/A)	100.0	4.39

Table 4: Annual Carbon Stored

Eldon

Stored CO2 Benefits of Public Trees

3/4/2021

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Maple	17,063	128	(N/A)	16.4	1.3	2.61
Littleleaf linden	8,098	61	(N/A)	9.0	0.6	2.25
Siberian elm	167,244	1,254	(N/A)	7.4	12.3	57.01
Silver maple	428,043	3,210	(N/A)	7.0	31.5	152.87
Northern pin oak	57,146	429	(N/A)	7.0	4.2	20.41
Sugar maple	122,340	918	(N/A)	7.0	9.0	43.69
Black walnut	77,995	585	(N/A)	4.7	5.7	41.78
Northern red oak	15,007	113	(N/A)	4.0	1.1	9.38
American sycamore	24,823	186	(N/A)	2.7	1.8	23.27
Ash	11,329	85	(N/A)	2.7	0.8	10.62
Willow	8,063	60	(N/A)	2.7	0.6	7.56
Honeylocust	21,009	158	(N/A)	2.3	1.5	22.51
Eastern red cedar	4,140	31	(N/A)	2.3	0.3	4.44
Red maple	5,722	43	(N/A)	2.0	0.4	7.15
Tulip tree	73	1	(N/A)	2.0	0.0	0.09
Apple	5,447	41	(N/A)	2.0	0.4	6.81
Catalpa	151,016	1,133	(N/A)	2.0	11.1	188.77
Broadleaf Deciduous	4,403	33	(N/A)	1.3	0.3	8.26
Northern hackberry	10,389	78	(N/A)	1.3	0.8	19.48
Kentucky coffeetree	15,797	118	(N/A)	1.0	1.2	39.49
Blue spruce	853	6	(N/A)	1.0	0.1	2.13
White mulberry	935	7	(N/A)	1.0	0.1	2.34
Mulberry	4,853	36	(N/A)	1.0	0.4	12.13
Green ash	43,965	330	(N/A)	1.0	3.2	109.91
Broadleaf Deciduous	36	0	(N/A)	1.0	0.0	0.09
Swamp white oak	437	3	(N/A)	0.7	0.0	1.64
Scotch pine	513	4	(N/A)	0.7	0.0	1.93
Hickory	24,230	182	(N/A)	0.7	1.8	90.86
Chinese elm	39,271	295	(N/A)	0.7	2.9	147.27
Norway maple	15,891	119	(N/A)	0.7	1.2	59.59
Norway spruce	1,427	11	(N/A)	0.7	0.1	5.35
Lilac	14	0	(N/A)	0.3	0.0	0.10
Scarlet oak	12	0	(N/A)	0.3	0.0	0.09
Common chokecherry	6,743	51	(N/A)	0.3	0.5	50.57
Eastern redbud	3,037	23	(N/A)	0.3	0.2	22.78
Northern white cedar	38	0	(N/A)	0.3	0.0	0.29
Red pine	1,170	9	(N/A)	0.3	0.1	8.78
Broadleaf Evergreen	13	0	(N/A)	0.3	0.0	0.09
Black maple	7,945	60	(N/A)	0.3	0.6	59.59
American elm	41,265	309	(N/A)	0.3	3.0	309.48
Sumac	178	1	(N/A)	0.3	0.0	1.33
American basswood	8,218	62	(N/A)	0.3	0.6	61.63
Ohio buckeye	1,101	8	(N/A)	0.3	0.1	8.26
Citywide total	1,357,291	10,180	(N/A)	100.0	100.0	34.05

Table 5: Annual Carbon Sequestered

Eldon

| Annual CO₂ Benefits of Public Trees |

3/4/2021

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	2,645	20	-82	-28	-1	3,360	25	5,895	44 (N/A)	16.4	4.2	0.90
Littleleaf linden	1,981	15	-53	-16	-1	1,387	10	3,299	25 (N/A)	9.0	2.4	0.92
Siberian elm	7,576	57	-805	-45	-6	6,725	50	13,450	101 (N/A)	7.4	9.7	4.59
Silver maple	29,541	222	-2,055	-75	-16	10,762	81	38,174	286 (N/A)	7.0	27.4	13.63
Northern pin oak	3,220	24	-284	-26	-2	3,487	26	6,397	48 (N/A)	7.0	4.6	2.28
Sugar maple	8,116	61	-587	-45	-5	7,233	54	14,717	110 (N/A)	7.0	10.6	5.26
Black walnut	6,122	46	-374	-27	-3	4,358	33	10,079	76 (N/A)	4.7	7.2	5.40
Northern red oak	1,299	10	-72	-11	-1	1,419	11	2,635	20 (N/A)	4.0	1.9	1.65
American sycamore	1,747	13	-119	-9	-1	1,153	9	2,772	21 (N/A)	2.7	2.0	2.60
Ash	1,954	15	-54	-10	0	1,626	12	3,515	26 (N/A)	2.7	2.5	3.30
Willow	508	4	-39	-4	0	490	4	955	7 (N/A)	2.7	0.7	0.90
Honeylocust	2,891	22	-101	-9	-1	1,683	13	4,464	33 (N/A)	2.3	3.2	4.78
Eastern red cedar	206	2	-20	-10	0	812	6	989	7 (N/A)	2.3	0.7	1.06
Red maple	865	6	-27	-6	0	988	7	1,819	14 (N/A)	2.0	1.3	2.27
Tulip tree	16	0	-1	-1	0	26	0	40	0 (N/A)	2.0	0.0	0.05
Apple	683	5	-26	-7	0	745	6	1,395	10 (N/A)	2.0	1.0	1.74
Catalpa	4,621	35	-725	-24	-6	3,645	27	7,518	56 (N/A)	2.0	5.4	9.40
Broadleaf Deciduous Medi	896	7	-21	-5	0	703	5	1,573	12 (N/A)	1.3	1.1	2.95
Northern hackberry	987	7	-50	-9	0	1,663	12	2,591	19 (N/A)	1.3	1.9	4.86
Kentucky coffeetree	862	6	-76	-4	-1	561	4	1,343	10 (N/A)	1.0	1.0	3.36
Blue spruce	116	1	-4	-4	0	319	2	427	3 (N/A)	1.0	0.3	1.07
White mulberry	131	1	-5	-2	0	135	1	260	2 (N/A)	1.0	0.2	0.65
Mulberry	495	4	-23	-4	0	557	4	1,025	8 (N/A)	1.0	0.7	2.56
Green ash	1,566	12	-211	-8	-2	1,286	10	2,633	20 (N/A)	1.0	1.9	6.58
Broadleaf Deciduous Large	8	0	0	-1	0	13	0	20	0 (N/A)	1.0	0.0	0.05
Swamp white oak	191	1	-3	-1	0	129	1	316	2 (N/A)	0.7	0.2	1.18
Scotch pine	105	1	-2	-2	0	189	1	289	2 (N/A)	0.7	0.2	1.08
Hickory	1,517	11	-116	-6	-1	994	7	2,388	18 (N/A)	0.7	1.7	8.95
Chinese elm	915	7	-189	-5	-1	739	6	1,460	11 (N/A)	0.7	1.0	5.47
Norway maple	940	7	-76	-5	-1	880	7	1,738	13 (N/A)	0.7	1.2	6.52
Norway spruce	168	1	-7	-3	0	311	2	469	4 (N/A)	0.7	0.3	1.76
Lilac	9	0	0	0	0	6	0	14	0 (N/A)	0.3	0.0	0.10
Scarlet oak	3	0	0	0	0	4	0	7	0 (N/A)	0.3	0.0	0.05
Common chokecherry	0	0	-32	-4	0	335	3	299	2 (N/A)	0.3	0.2	2.24
Eastern redbud	268	2	-15	-2	0	308	2	560	4 (N/A)	0.3	0.4	4.20
Northern white cedar	18	0	0	-1	0	38	0	55	0 (N/A)	0.3	0.0	0.41
Red pine	116	1	-6	-2	0	216	2	324	2 (N/A)	0.3	0.2	2.43
Broadleaf Evergreen Large	12	0	0	0	0	15	0	27	0 (N/A)	0.3	0.0	0.20
Black maple	0	0	-38	-3	0	477	4	436	3 (N/A)	0.3	0.3	3.27
American elm	724	5	-198	-6	-2	987	7	1,507	11 (N/A)	0.3	1.1	11.31
Sumac	38	0	-1	-1	0	37	0	74	1 (N/A)	0.3	0.1	0.55
American basswood	597	4	-39	-3	0	405	3	960	7 (N/A)	0.3	0.7	7.20
Ohio buckeye	224	2	-5	-1	0	176	1	393	3 (N/A)	0.3	0.3	2.95
Citywide total	84,896	637	-6,546	-434	-52	61,383	460	139,300	1,045 (N/A)	100.0	100.0	3.49

Table 6: Annual Social and Aesthetic Benefits

Eldon

Annual Aesthetic/Other Benefits of Public Trees

3/4/2021

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Maple	439	(N/A)	16.4	5.1	8.97
Littleleaf linden	313	(N/A)	9.0	3.6	11.60
Siberian elm	651	(N/A)	7.4	7.6	29.59
Silver maple	2,214	(N/A)	7.0	25.7	105.43
Northern pin oak	365	(N/A)	7.0	4.2	17.38
Sugar maple	930	(N/A)	7.0	10.8	44.29
Black walnut	578	(N/A)	4.7	6.7	41.25
Northern red oak	130	(N/A)	4.0	1.5	10.86
American sycamore	183	(N/A)	2.7	2.1	22.91
Ash	223	(N/A)	2.7	2.6	27.84
Willow	62	(N/A)	2.7	0.7	7.78
Honeylocust	655	(N/A)	2.3	7.6	93.55
Eastern red cedar	96	(N/A)	2.3	1.1	13.67
Red maple	156	(N/A)	2.0	1.8	26.08
Tulip tree	32	(N/A)	2.0	0.4	5.26
Apple	38	(N/A)	2.0	0.4	6.40
Catalpa	341	(N/A)	2.0	4.0	56.90
Broadleaf Deciduous Medium	105	(N/A)	1.3	1.2	26.22
Northern hackberry	168	(N/A)	1.3	2.0	42.09
Kentucky coffeetree	76	(N/A)	1.0	0.9	25.37
Blue spruce	63	(N/A)	1.0	0.7	21.08
White mulberry	6	(N/A)	1.0	0.1	2.16
Mulberry	28	(N/A)	1.0	0.3	9.43
Green ash	133	(N/A)	1.0	1.5	44.25
Broadleaf Deciduous Large	16	(N/A)	1.0	0.2	5.26
Swamp white oak	26	(N/A)	0.7	0.3	12.89
Scotch pine	31	(N/A)	0.7	0.4	15.42
Hickory	123	(N/A)	0.7	1.4	61.64
Chinese elm	64	(N/A)	0.7	0.7	31.80
Norway maple	86	(N/A)	0.7	1.0	43.05
Norway spruce	48	(N/A)	0.7	0.6	23.87
Lilac	0	(N/A)	0.3	0.0	0.03
Scarlet oak	5	(N/A)	0.3	0.1	5.26
Common chokecherry	0	(N/A)	0.3	0.0	0.00
Eastern redbud	15	(N/A)	0.3	0.2	15.48
Northern white cedar	7	(N/A)	0.3	0.1	6.83
Red pine	32	(N/A)	0.3	0.4	32.32
Broadleaf Evergreen Large	8	(N/A)	0.3	0.1	8.32
Black maple	0	(N/A)	0.3	0.0	0.00
American elm	87	(N/A)	0.3	1.0	86.69
Sumac	2	(N/A)	0.3	0.0	2.06
American basswood	48	(N/A)	0.3	0.6	47.53
Ohio buckeye	26	(N/A)	0.3	0.3	26.22
Citywide total	8,611	(N/A)	100.0	100.0	28.80

Table 7: Summary of Benefits in Dollars

Eldon

Total Annual Benefits of Public Trees by Species ($)

3/4/2021

| Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Maple	425	44	64	251	439	1,224	(N/A)	4.3
Littleleaf linden	179	25	26	95	313	639	(N/A)	2.2
Siberian elm	834	101	155	1,126	651	2,868	(N/A)	10.0
Silver maple	1,332	286	250	2,634	2,214	6,716	(N/A)	23.5
Northern pin oak	470	48	78	483	365	1,444	(N/A)	5.0
Sugar maple	900	110	138	1,018	930	3,097	(N/A)	10.8
Black walnut	543	76	90	645	578	1,931	(N/A)	6.7
Northern red oak	179	20	25	145	130	499	(N/A)	1.7
American sycamore	148	21	25	192	183	569	(N/A)	2.0
Ash	218	26	32	149	223	649	(N/A)	2.3
Willow	66	7	11	70	62	216	(N/A)	0.8
Honeylocust	214	33	34	246	655	1,182	(N/A)	4.1
Eastern red cedar	109	7	8	187	96	408	(N/A)	1.4
Red maple	131	14	19	88	156	409	(N/A)	1.4
Tulip tree	4	0	0	3	32	39	(N/A)	0.1
Apple	109	10	15	43	38	216	(N/A)	0.8
Catalpa	460	56	88	783	341	1,729	(N/A)	6.0
Broadleaf Deciduous M	98	12	14	64	105	292	(N/A)	1.0
Northern hackberry	215	19	34	187	168	624	(N/A)	2.2
Kentucky coffeetree	72	10	13	108	76	279	(N/A)	1.0
Blue spruce	44	3	5	61	63	177	(N/A)	0.6
White mulberry	20	2	3	8	6	39	(N/A)	0.1
Mulberry	75	8	12	32	28	155	(N/A)	0.5
Green ash	156	20	29	252	133	590	(N/A)	2.1
Broadleaf Deciduous La	2	0	0	1	16	20	(N/A)	0.1
Swamp white oak	18	2	2	9	26	57	(N/A)	0.2
Scotch pine	27	2	3	32	31	95	(N/A)	0.3
Hickory	128	18	22	177	123	468	(N/A)	1.6
Chinese elm	92	11	19	197	64	382	(N/A)	1.3
Norway maple	117	13	20	134	86	371	(N/A)	1.3
Norway spruce	38	4	4	58	48	151	(N/A)	0.5
Lilac	1	0	0	0	0	1	(N/A)	0.0
Scarlet oak	1	0	0	0	5	7	(N/A)	0.0
Common chokecherry	46	2	8	32	0	89	(N/A)	0.3
Eastern redbud	38	4	7	18	15	82	(N/A)	0.3
Northern white cedar	6	0	1	6	7	19	(N/A)	0.1
Red pine	24	2	3	42	32	103	(N/A)	0.4
Broadleaf Evergreen La	2	0	0	1	8	12	(N/A)	0.0
Black maple	61	3	12	78	0	153	(N/A)	0.5
American elm	114	11	29	123	87	365	(N/A)	1.3
Sumac	5	1	1	2	2	11	(N/A)	0.0
American basswood	54	7	8	58	48	174	(N/A)	0.6
Ohio buckeye	24	3	3	16	26	73	(N/A)	0.3
Citywide Total	7,800	1,045	1,313	9,854	8,611	28,623	(N/A)	100.0
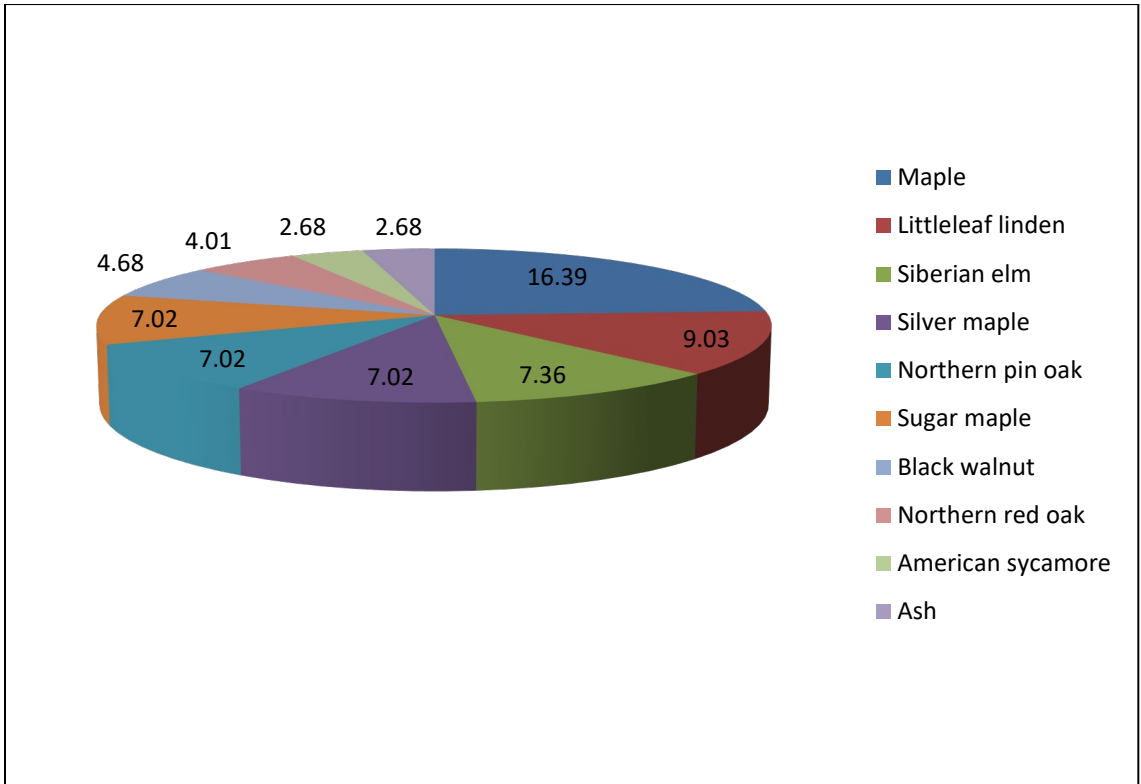
Figure 1: Species Distribution
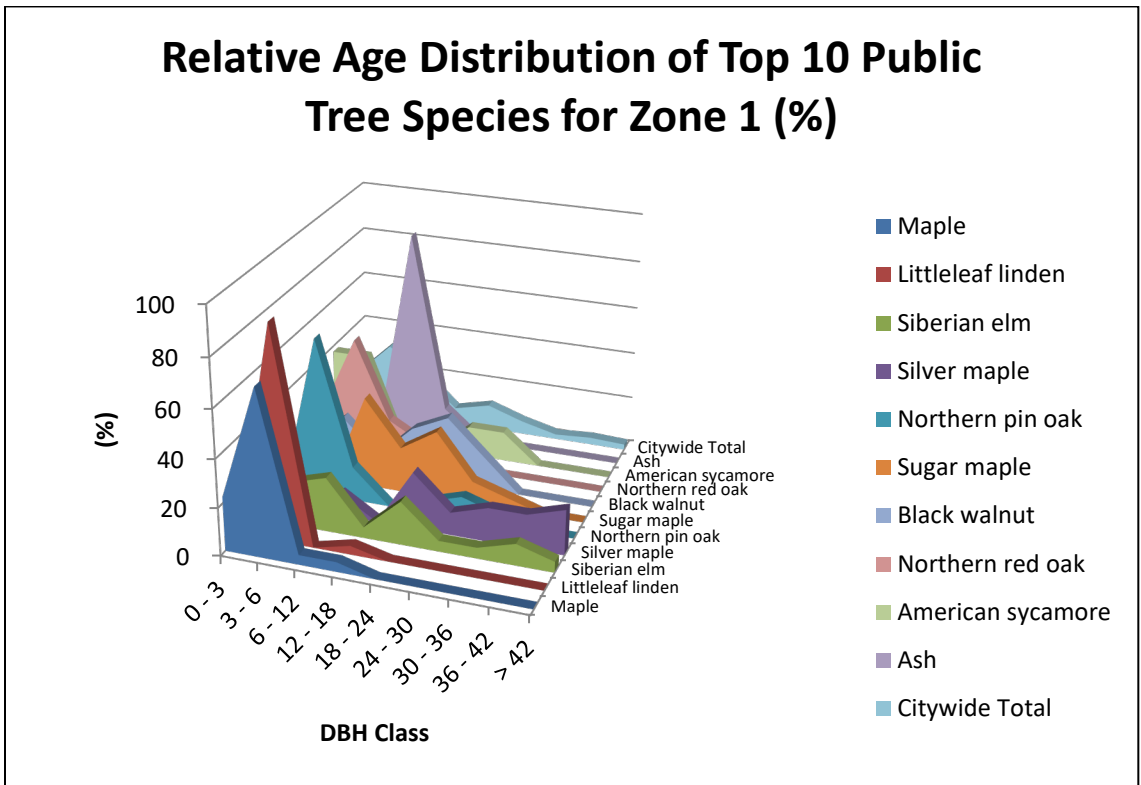
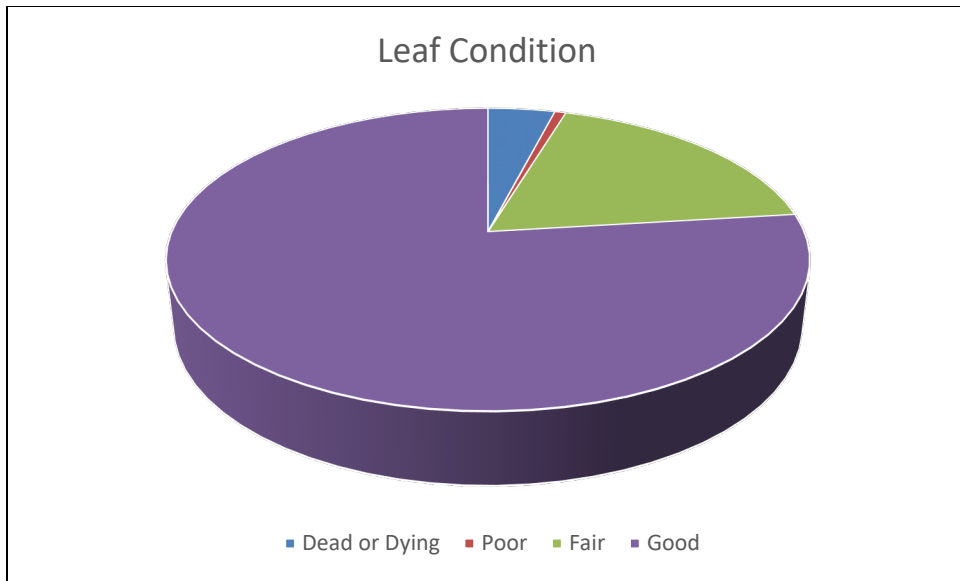**Figure 2: Relative Age Class**

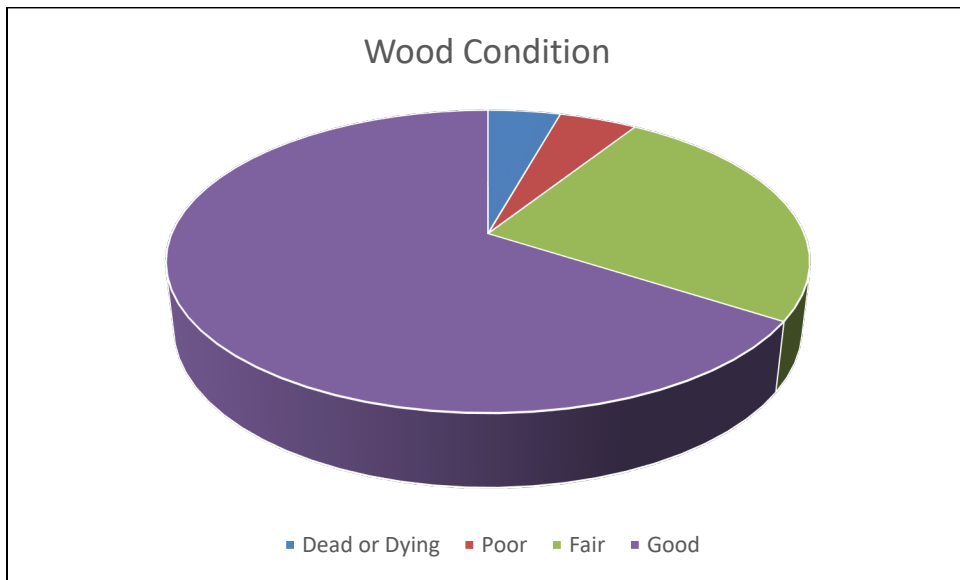**Figure 3: Foliage Condition**

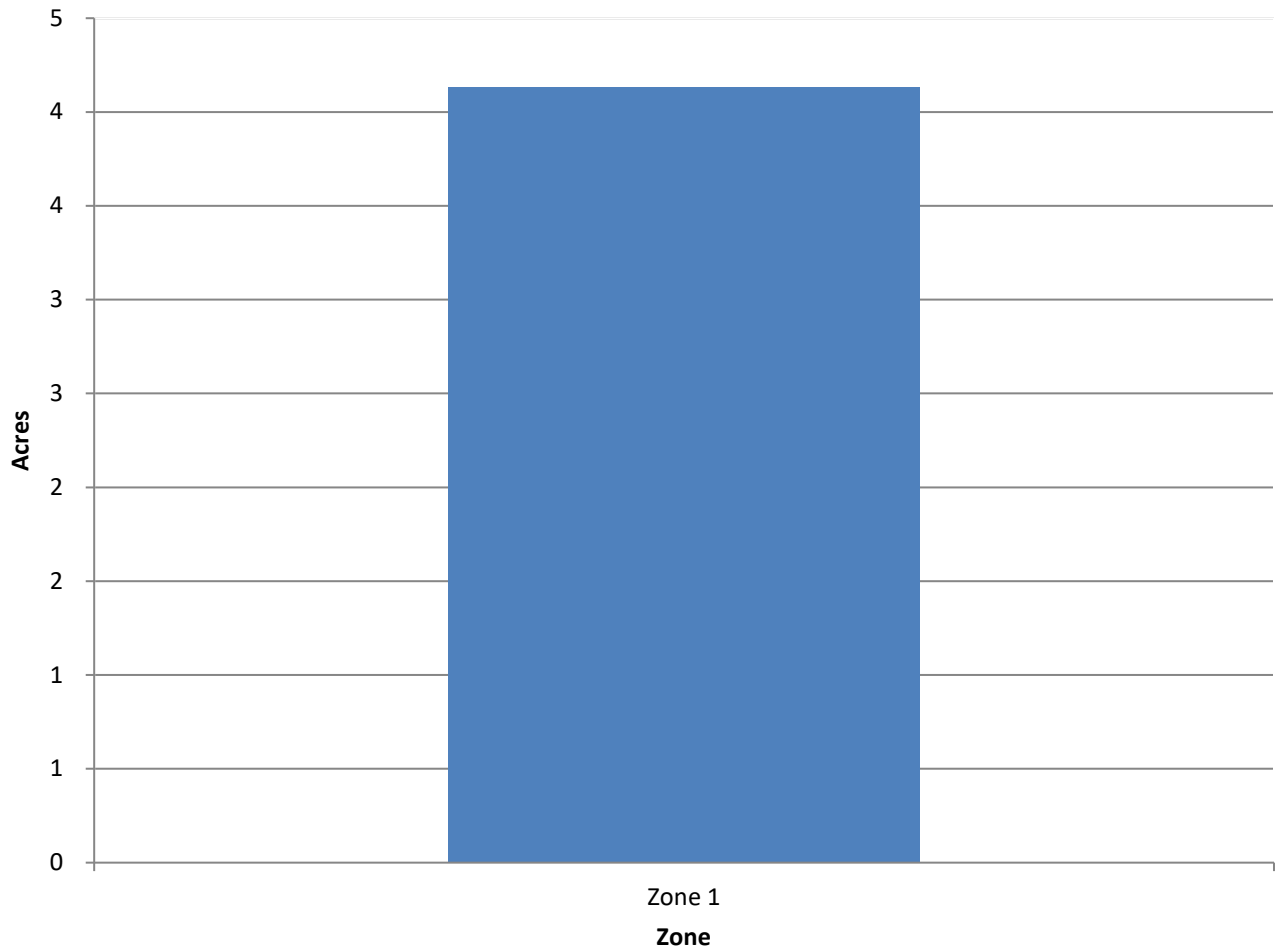**Figure 4: Wood Condition**

Canopy Cover of Public Trees (Acres)

Figure 5: Canopy Cover in Acres

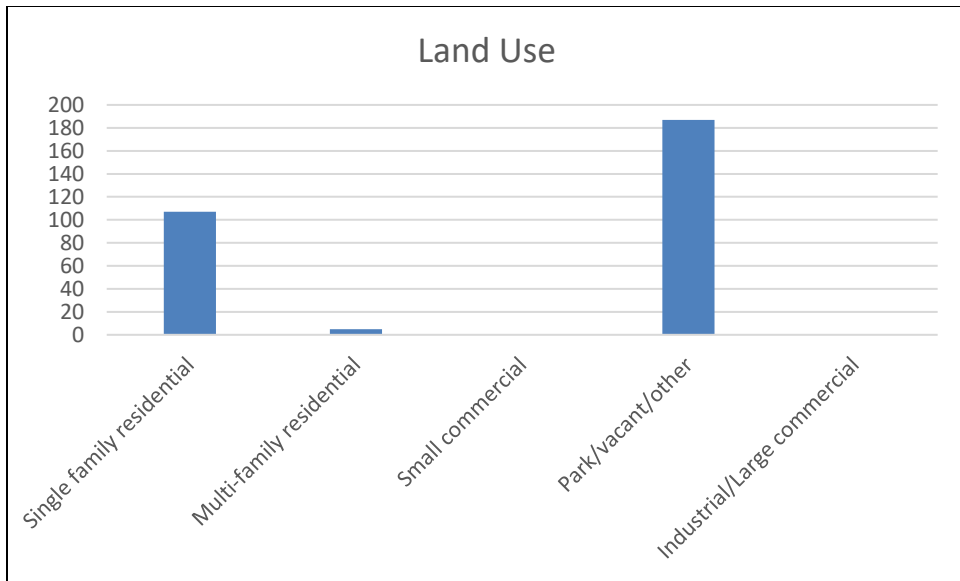**Figure 6: Land Use of city/park trees**

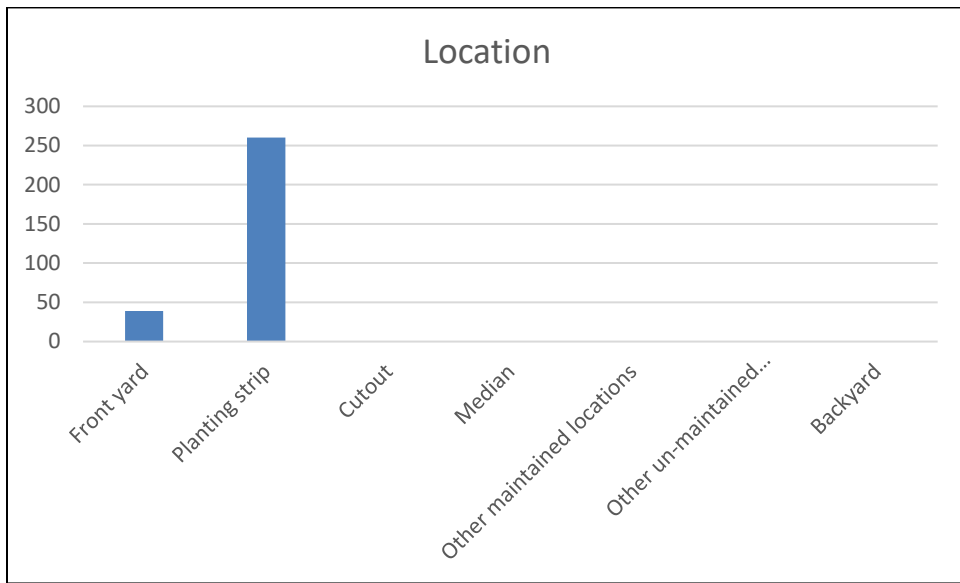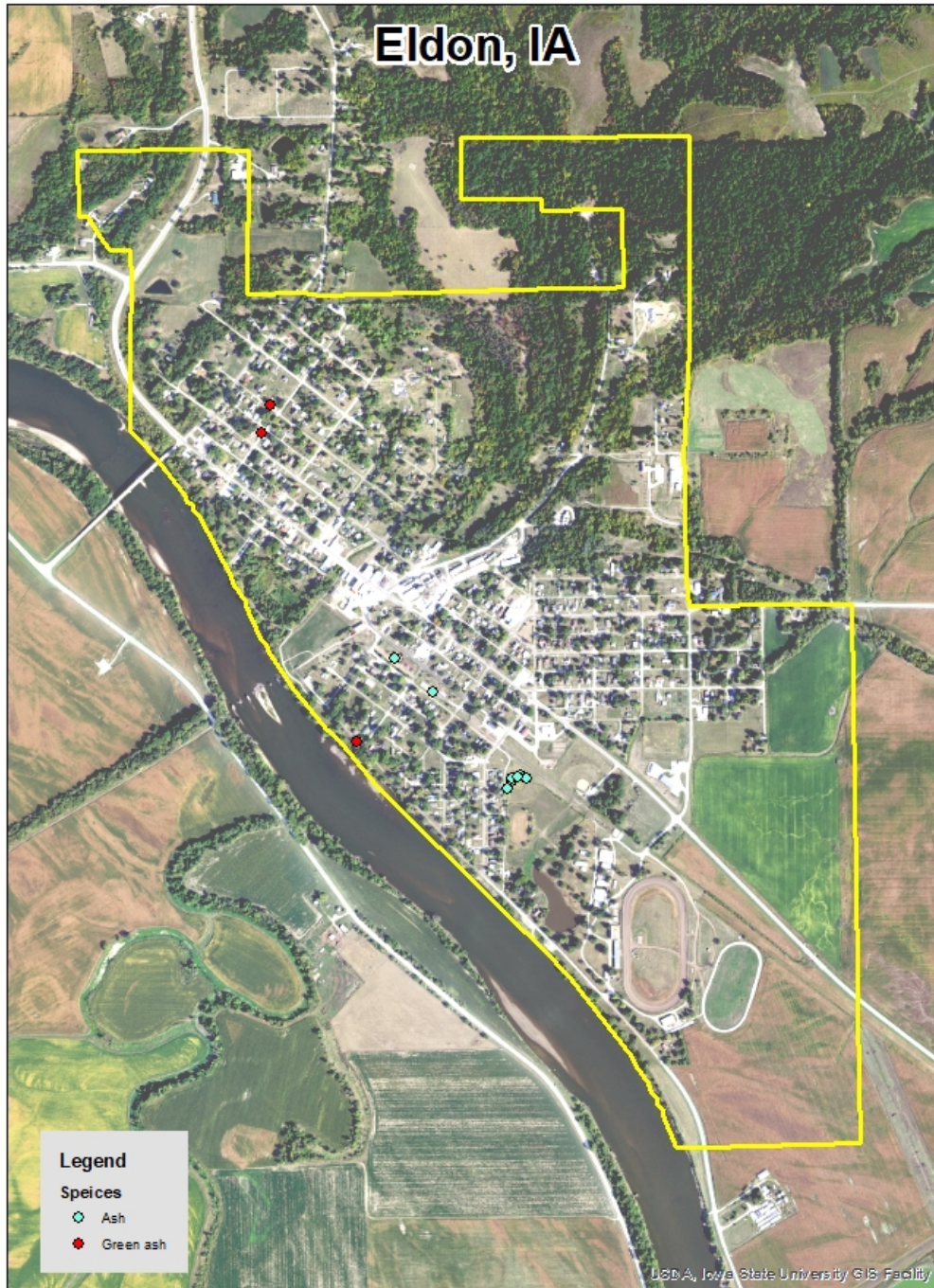
Figure 7: Location of city/park trees
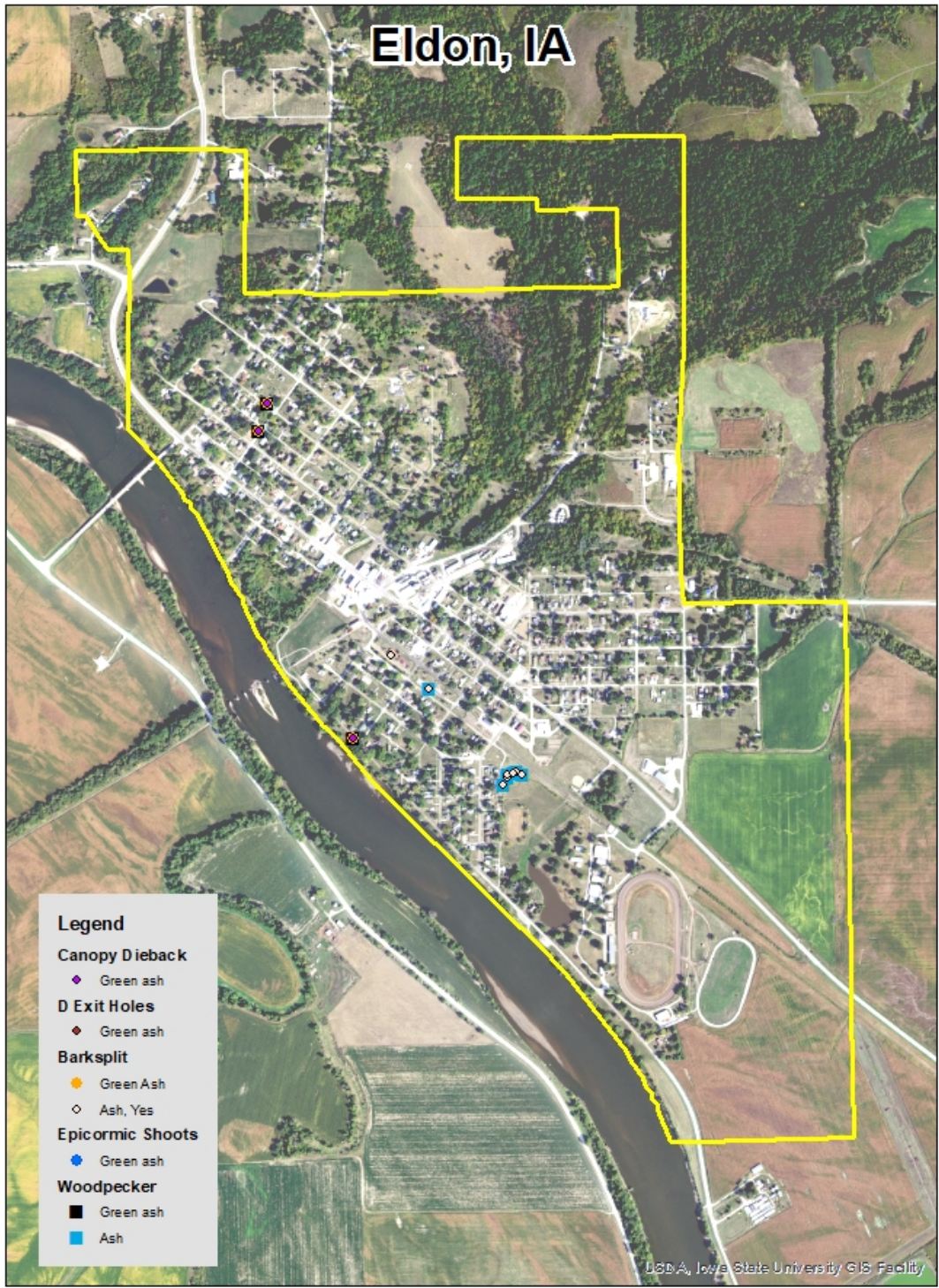
Figure 1: Location of Ash Trees

Figure 2: Location of EAB symptoms
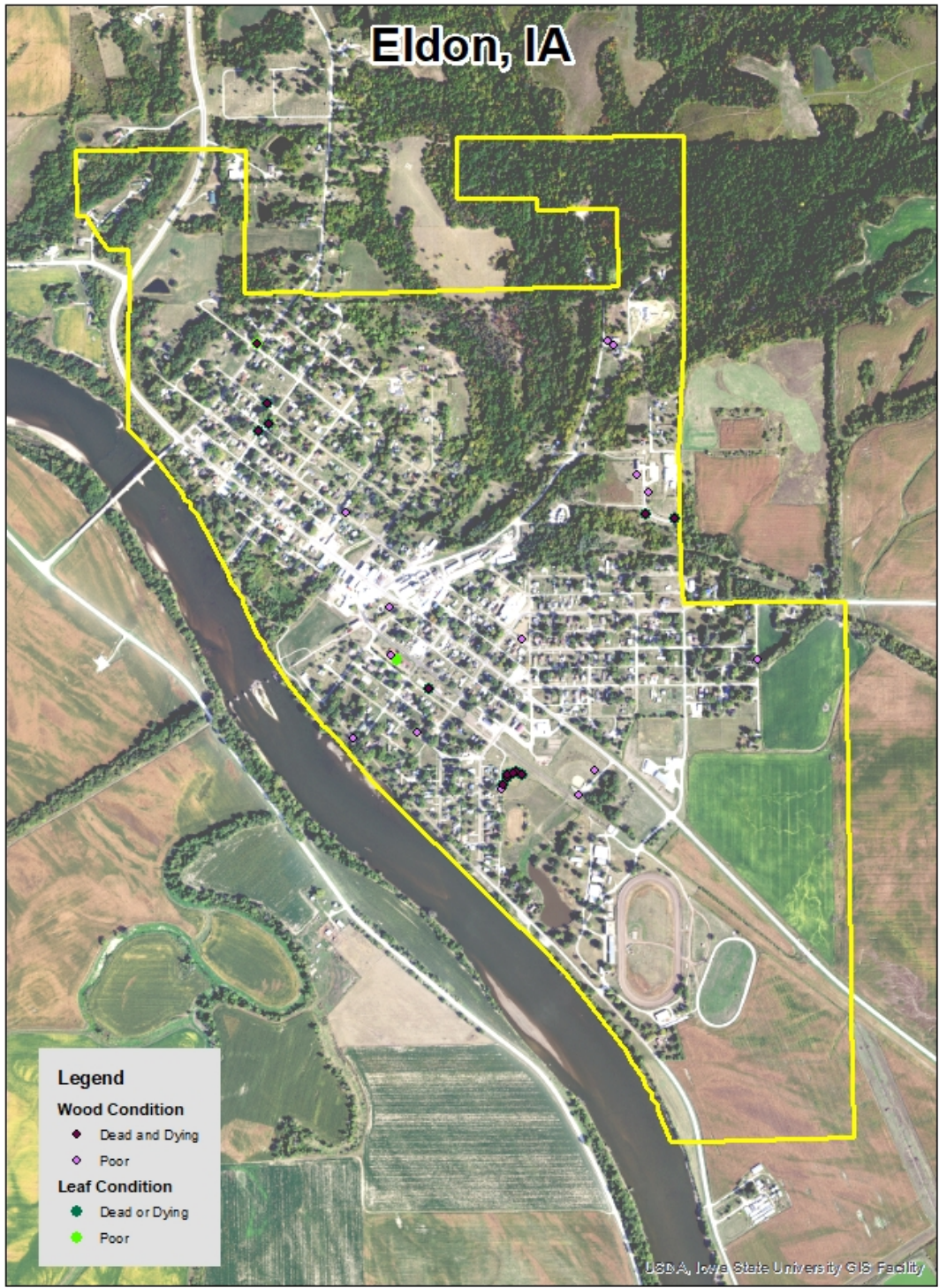
Figure 3: Location of Poor Condition Trees
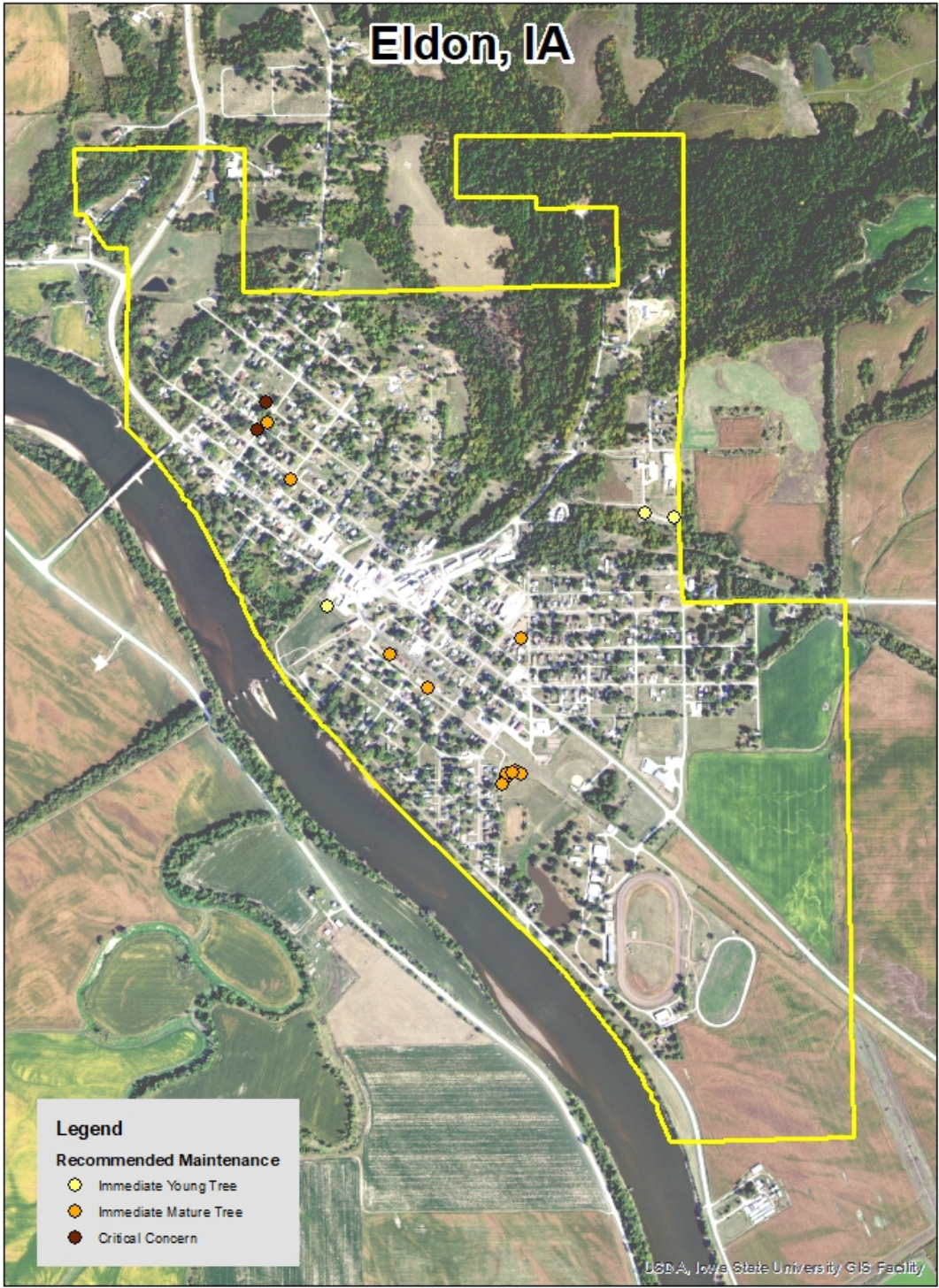
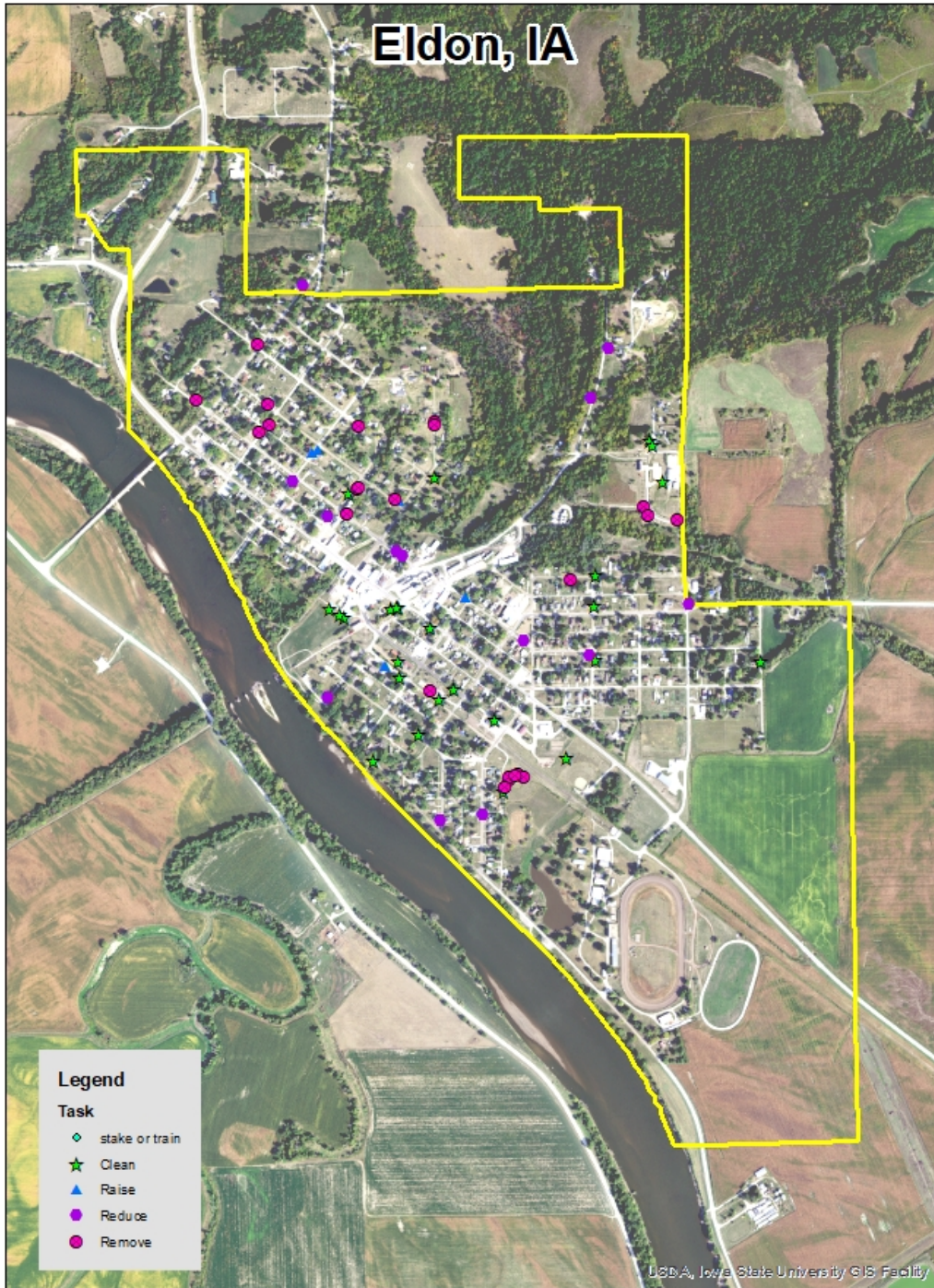**Figure 4: Location of Trees with Recommended Maintenance**

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

Appendix C: Eldon Tree Ordinances

None

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.