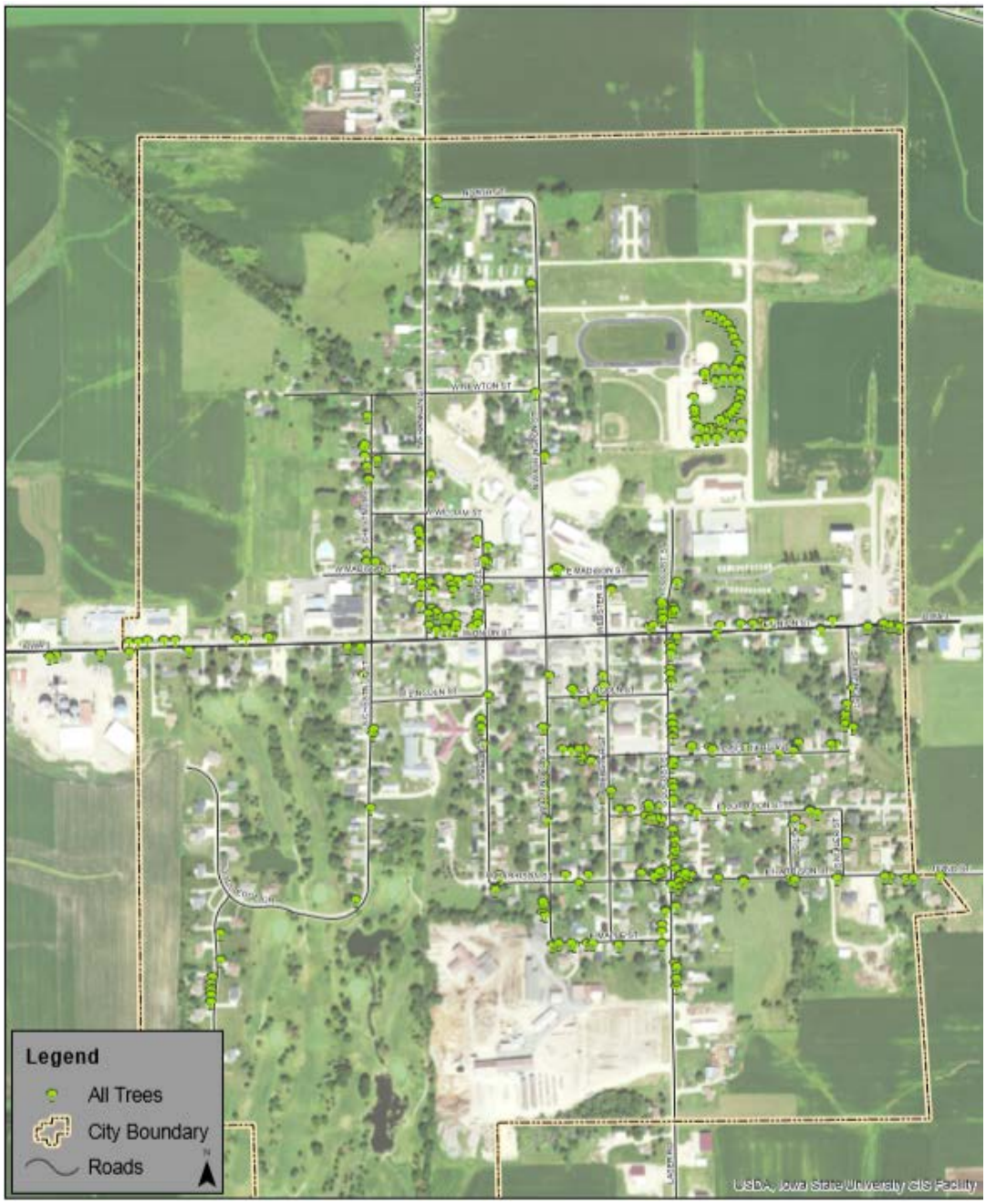
Edgewood, IA



2018 Urban Forest Management Plan
Prepared by Richard Kittelson
Iowa Department of Natural Resources

Table of Contents

Executive Summary

Overview

This plan was developed to assist the City of Edgewood 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 5.4% of Edgewood'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 2018, 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 the298 trees inventoried.

- Edgewood's trees provide $47,882 of benefits annually, an average of $159.08 a tree
- There are over 20 species of trees
- The top three genera are: Maple 55%, Apple 10%, and Spruce 7%
- 38% of trees are in need of some type of management
- 24 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 24 trees needing removal, 6 trees are over 24 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*
- 14 of the 16 ash trees should be carefully examined, as they have one or more symptoms that could be related to an EAB infestation
- 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 10 years to remove ash – Suggestion: request a budget increase to $3,000 annually and apply for grants to plant replacement trees

Introduction

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

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

Inventory

In 2018, 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 298 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. Edgewood's trees reduce energy related costs by approximately $12,085.90 annually (Appendix A, Table 1). These savings are both in Electricity (57.14 MWh) and in Natural Gas (21,089.9 Therms).

Annual Stormwater Benefits

Edgewood's trees intercept about 687,041.51 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $18,618.82 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 Edgewood it is estimated that trees remove 731.78 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 $2,042.49 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Edgewood, trees sequester about 145,805.11 lbs of carbon a year with an associated value of $1,093.54 (Appendix A, Table 5). In addition, the trees store 2,885,196.74 lbs of carbon, with a yearly benefit of $21,638.98 (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. Edgewood receives $13,431.10 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, Edgewood's trees provide $47,882 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 298 trees in Edgewood provide approximately $159.08 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Edgewood has over 20 different tree species along city streets and parks (Appendix A, Figure 1). The distribution of trees by genera is as follows:

Maple	162	54.4%
Apple	31	10.4%
Spruce	21	7%
Ash	16	5.4%
Japanese Tree Lilac	10	3.4%
Oaks	7	2.3%
Basswood/Linden	7	2.3%
Birch	5	1.7%
Honeylocust	5	1.7%
Lilac	5	1.7%
Walnut	5	1%
Lilac	5	1%
Others	19	6.4%

Age Class

Most of Edgewood's trees (54%) are less than 24 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. Edgewood'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 Edgewood indicate that 94% of the trees are in fair to good health, with only 6% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 86% of Edgewood's trees are in fair to 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 14% of the population. This 14% 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	78	26%
Crown Raising	10	3.4%
Tree Staking	4	1.3%
Tree Removal	24	8%

Crown Reduction	17	5.7%
Treat ash	4	1.3%

Canopy Cover

The total canopy with both private and public trees is 17%, 90 acres. The canopy cover included in the Edgewood inventory includes approximately 6.85 acres (Appendix A, Figure 4). The City's Canopy goal is to increase canopy by 3%, in 30 years. To achieve this goal it is estimated that 39 trees need to be planted annually.

Land Use and Location

The majority of Edgewood's city and park trees are in planting strips in single family residential neighborhoods (Appendix A, Figure 6 & Appendix A, Figure 7). The following describes the land use and locations for the street and park trees.

Land Use	
Single family residential	66.11%
Park/vacant/other	25.8%
Industrial/Large commercial	6.4%
Small commercial	.33%
Multifamily residential	1.34%

Location	
Planting strip	43.95%
Other maintained locations	23.82%
Cutout (surrounded by pavement)	.34%
Front yard	32.87%

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

Edgewood has 4 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 are 3 trees over 24 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 is a total of 113 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 24 removals, 11 are ash trees. There are a total of 16 ash trees, and 14 of those have signs and symptoms that have been associated with EAB. In addition, there are 43 trees that are in 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 Edgewood.

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 (54.4%) (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 6-11-4 of the city ordinance (Appendix C). All trees planted must meet the restrictions in city ordinance 6-11-4 (Appendix C).

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.

Six Year Maintenance Plan with <u>No Additional Funding</u>

Year 1

Removal: 2 largest critical concern trees
Planting and Replacement: 4 trees to be planted in open locations
Young Tree Pruning & Maintenance:
Visual Survey for signs and symptoms of EAB

Year 2

Removal: 2 critical concern trees *Or saving for ash tree treatment and/or future ash removal
Planting and Replacement: 2 trees in open locations from year one removals
Young Tree Pruning & Maintenance:
Routine trimming: Contract to trim 1/3 of the city trees
Visual Survey for signs and symptoms of EAB

Year 3

Removal: 2 trees - ash in poor health
*Or saving for ash tree treatment and/or future ash removal
Planting and Replacement: 4 trees to be planted in open locations and locations from previous removals
Young Tree Pruning & Maintenance:
Visual Survey for signs and symptoms of EAB

Year 4

Removal: 2 trees - ash in poor health
*Or saving for ash tree treatment and/or future ash removal
Planting and Replacement: 2 trees in open locations from previous removals
Routine trimming: Contract to trim 1/3 of the city trees
Young Tree Pruning & Maintenance:
Visual Survey for signs and symptoms of EAB

Year 5

Removal: 2 trees - ash in poor health
*Or saving for ash tree treatment and/or future ash removal
Planting and Replacement: 4 trees to be planted in open locations and locations from previous removals
Young Tree Pruning & Maintenance:
Visual Survey for signs and symptoms of EAB

Year 6

Removal: 2 trees - ash in poor health
*Or saving for ash tree treatment and/or future ash removal
Planting and Replacement: 2 trees in open locations from previous removals
Routine trimming: Contract to trim 1/3 of the city trees
Young Tree Pruning & Maintenance:
Visual Survey for signs and symptoms of EAB

*Reduction of ash over 6 years: Approximately 8 ash trees removed (approximately 50% of ash). It will take approximately 10 years to remove all ash with the current budget. EAB could potentially kill all ash within 4 to 15 years of its arrival.
**To remove all ash trees within 6 years, the budget would need to be increased to $3,000 a year. If the budget were increased to $10,000 a year all ash could be removed in 2 years.

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 6-11-4 (Appendix C). 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. City Codes 6-11-10 and 6-11-11 State:

REMOVAL FROM CITY PROPERTY. If the City Superintendent upon inspection or examination, in person or by some qualified person acting for him or her, shall determine that any condition as herein defined exists in or upon any public street, alley, park or any public place, including the strip between the curb and the lot line of private property, within the City and that the danger of other elm trees within the City is imminent, he or she shall immediately cause it to be removed and burned or otherwise correct the same in such manner as to destroy or prevent as fully as possible the spread of Dutch elm disease or the insect pests or vectors known to carry such disease fungus.

6-11-11 REMOVAL FROM PRIVATE PROPERTY. If the City Superintendent upon inspection or examination, in person or by some qualified person acting for him or her, shall determine with reasonable certainty that any condition as herein defined exists in or upon private premises and that the danger to other elm trees within the City is imminent, he or she shall immediately notify by certified mail the owner, occupant or person in charge of such property, to correct such condition within14 days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14 days of receipt thereof, the City Council may cause the nuisance to be removed and the cost assessed against the property as provided. (Code of Iowa, Sec. 364.12 (3)(b))

If the City Superintendent is unable to determine with reasonable certainty whether or not a tree in or upon private premises is infected with Dutch elm disease, he or she is authorized to remove or cut specimens from said tree, and obtain a diagnosis of such specimens.

(Ordinance 230, Passed August 11, 2003)

Budget

Current Budget

Total $12,000 over 6 years ($2,000/year)

FY 2019 Budget

Removal: $1,300
*Or saving for ash tree treatment and/or future ash removal
Planting: $400
Watering & Maintenance: $300

FY 2020 Budget

Removal: $1,300
*Or saving for ash tree treatment and/or future ash removal
Planting: $200
Routine trimming: $300
Watering & Maintenance: $200

FY 2021 Budget

Removal: $1,300
*Or saving for ash tree treatment and/or future ash removal
Planting: $400
Watering & Maintenance: $300

FY 2022 Budget

Removal: $1,300
*Or saving for ash tree treatment and/or future ash removal
Planting: $200
Routine trimming: $300
Watering & Maintenance: $200

FY 2023 Budget

Removal: $1,300
*Or saving for ash tree treatment and/or future ash removal
Planting: $400
Watering & Maintenance: $300

FY 2023 Budget

Removal: $1,300

*Or saving for ash tree treatment and/or future ash removal
Planting: $200
Routine trimming: $300
Watering & Maintenance: $200

*Reduction of ash over 6 years: approximately 8 ash trees removed (approximately 50% of ash). **It will take approximately 10 years to remove all ash with the current budget.**

<u>Purposed Budget Increase</u>

EAB could potentially kill all ash trees in Edgewood within 4 years of its arrival. To remove all ash trees within 6 years the budget would need to be increased to $3,000 a year. If the budget were increased to $10,000 a year all ash could be removed within 2 years. Additionally, it is recommended that Edgewood 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. For instance, in this treatment scenario, the average ash diameter is 12 inches and at $12 per inch, 2 trees could be treated per year for $288 (every other year treatment). Edgewood would still need to find $1,300 for removal. Alternatively, if there are 4 treatable trees, it would cost approximately $576 every other year for treatment and leave $1024 for removal and $400 for tree planting. These are alternatives to straight removal of ash trees. However, whether or not the treatment option is selected, there will be an increased cost of dealing with ash trees if EAB is found in Edgewood. It is suggested to consider increasing the budget to plan for this.

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Annual Energy Benefits of All Trees by Species					12/20/2018				
Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Stand. Error	% of Total Trees	% of Total $	Avg. $/tree
Sugar maple	24.01	1,822.23	3,241.15	3,176.32	4,998.56	(N/A)	25.25	41.36	65.77
Norway maple	7.12	540.71	1,038.15	1,017.39	1,558.10	(N/A)	13.62	12.89	38.00
Apple	1.21	91.89	209.77	205.58	297.47	(N/A)	10.30	2.46	9.60
Silver maple	7.88	598.14	1,054.50	1,033.41	1,631.55	(N/A)	6.98	13.50	77.69
Green ash	3.60	273.07	463.23	453.97	727.04	(N/A)	5.32	6.02	45.44
Spruce	0.10	7.88	18.57	18.20	26.08	(N/A)	4.32	0.22	2.01
Red maple	0.74	56.54	102.69	100.64	157.17	(N/A)	3.65	1.30	14.29
Japanese tree lilac	0.77	58.54	120.35	117.94	176.48	(N/A)	3.32	1.46	17.65
Maple	0.81	61.25	117.86	115.50	176.75	(N/A)	2.99	1.46	19.64
Norway spruce	0.76	57.99	101.89	99.85	157.84	(N/A)	1.99	1.31	26.31
Northern red oak	0.43	32.82	62.22	60.98	93.80	(N/A)	1.99	0.78	15.63
Honeylocust	1.02	77.59	142.24	139.39	216.98	(N/A)	1.66	1.80	43.40
Lilac	0.98	74.55	151.16	148.14	222.69	(N/A)	1.66	1.84	44.54
Paper birch	0.12	9.00	15.23	14.92	23.93	(N/A)	1.66	0.20	4.79
Littleleaf linden	0.31	23.42	40.74	39.92	63.34	(N/A)	1.33	0.52	15.84
Eastern red cedar	0.45	33.82	65.77	64.46	98.28	(N/A)	1.33	0.81	24.57
Black walnut	1.05	79.39	147.40	144.45	223.84	(N/A)	1.00	1.85	74.61
Willow	0.58	43.71	75.84	74.32	118.03	(N/A)	1.00	0.98	39.34
Northern hackberry	1.10	83.81	159.77	156.58	240.38	(N/A)	1.00	1.99	80.13
Basswood	1.08	81.75	148.08	145.12	226.86	(N/A)	1.00	1.88	75.62
Others	3.02	228.92	430.42	421.81	650.73		7.64	5.38	29.99
Total	57.14	4,337.03	7,907.02	7,748.87	12,085.90	(N/A)	100.00	100.00	40.15

Table 2: Annual Stormwater Benefits

Annual Stormwater Benefits of All Trees by Species				12/20/2018		
Species	Total Rainfall Interception (Gal)	Total ($)	Stand. Error	% of Total Trees	% of Total $	Avg. $/tree
Sugar maple	320,470.78	8,684.76	(N/A)	25.25	46.65	114.27
Norway maple	69,391.74	1,880.52	(N/A)	13.62	10.10	45.87
Apple	4,184.54	113.40	(N/A)	10.30	0.61	3.66
Silver maple	131,865.20	3,573.55	(N/A)	6.98	19.19	170.17
Green ash	29,401.21	796.77	(N/A)	5.32	4.28	49.80
Spruce	1,125.69	30.51	(N/A)	4.32	0.16	2.35
Red maple	4,063.84	110.13	(N/A)	3.65	0.59	10.01
Japanese tree lilac	3,629.83	98.37	(N/A)	3.32	0.53	9.84
Maple	5,666.04	153.55	(N/A)	2.99	0.82	17.06
Norway spruce	16,160.86	437.96	(N/A)	1.99	2.35	72.99
Northern red oak	3,089.10	83.71	(N/A)	1.99	0.45	13.95
Honeylocust	9,077.11	245.99	(N/A)	1.66	1.32	49.20
Lilac	5,362.67	145.33	(N/A)	1.66	0.78	29.07
Paper birch	704.41	19.09	(N/A)	1.66	0.10	3.82
Littleleaf linden	1,820.70	49.34	(N/A)	1.33	0.27	12.34
Eastern red cedar	6,538.15	177.18	(N/A)	1.33	0.95	44.30
Black walnut	13,376.43	362.50	(N/A)	1.00	1.95	120.83
Willow	3,404.15	92.25	(N/A)	1.00	0.50	30.75
Northern hackberry	11,035.55	299.06	(N/A)	1.00	1.61	99.69
Basswood	13,772.56	373.24	(N/A)	1.00	2.00	124.41
Others	32,900.96	891.62		7.64	4.79	40.86
Citywide total	687,041.51	18,618.82	(N/A)	100.00	100.00	61.86

Table 3: Annual Air Quality Benefits

Stored CO2 Benefits of Public Trees					12/20/2018												
Species	Deposition O3 (lb)	Deposition NO2 (lb)	Deposition PM10 (lb)	Deposition SO2 (lb)	Total Deposition ($)	Avoided NO2 (lb)	Avoided PM10 (lb)	Avoided VOC (lb)	Avoided SO2 (lb)	Total Avoided ($)	BVOC Emissions (lb)	BVOC Emissions ($)	Total (lb)	Total ($)	Stand. Error	% of Total Trees	Avg. $/tree
Sugar maple	47.53	8.10	22.79	2.10	254.85	114.08	16.64	15.88	108.72	711.80	- 36.74	- 137.76	299.10	828.88	(N/A)	25.25	10.91
Norway maple	14.53	2.51	7.10	0.64	78.39	34.64	5.00	4.76	32.32	214.31	- 3.38	- 12.66	98.12	280.05	(N/A)	13.62	6.83
Apple	0.63	0.10	0.39	0.03	3.62	6.17	0.87	0.82	5.49	37.45	0.00	- 0.02	14.49	41.05	(N/A)	10.30	1.32
Silver maple	27.10	4.59	12.92	1.20	145.00	37.32	5.45	5.20	35.64	233.05	- 14.64	- 54.90	114.78	323.16	(N/A)	6.98	15.39
Green ash	2.80	0.45	1.50	0.13	15.38	16.92	2.48	2.37	16.31	106.04	0.00	0.00	42.96	121.42	(N/A)	5.32	7.59
Spruce	0.02	0.00	0.05	0.00	0.25	0.53	0.08	0.07	0.47	3.24	- 0.35	- 1.31	0.89	2.17	(N/A)	4.32	0.17
Red maple	0.59	0.10	0.33	0.03	3.29	3.55	0.52	0.49	3.37	22.14	- 0.24	- 0.89	8.75	24.54	(N/A)	3.65	2.23
Japanese tree lilac	1.14	0.19	0.54	0.05	6.07	3.81	0.55	0.52	3.49	23.41	- 0.01	- 0.02	10.28	29.45	(N/A)	3.32	2.95
Maple	1.08	0.18	0.54	0.05	5.86	3.91	0.56	0.54	3.65	24.21	- 0.39	- 1.46	10.13	28.60	(N/A)	2.99	3.18
Norway spruce	1.93	0.38	1.56	0.24	12.64	3.62	0.53	0.50	3.46	22.60	- 9.36	- 35.11	2.86	0.13	(N/A)	1.99	0.02
Northern red oak	0.52	0.09	0.28	0.02	2.87	2.09	0.30	0.29	1.96	12.94	- 0.74	- 2.76	4.81	13.04	(N/A)	1.99	2.17
Honeylocust	1.66	0.27	0.78	0.08	8.85	4.89	0.71	0.68	4.63	30.43	- 1.15	- 4.33	12.55	34.96	(N/A)	1.66	6.99
Lilac	1.94	0.32	0.88	0.09	10.24	4.83	0.69	0.66	4.45	29.75	- 0.01	- 0.04	13.85	39.94	(N/A)	1.66	7.99
Paper birch	0.01	0.00	0.02	0.00	0.09	0.55	0.08	0.08	0.54	3.48	0.00	0.00	1.28	3.56	(N/A)	1.66	0.71
Littleleaf linden	0.20	0.03	0.12	0.01	1.13	1.46	0.21	0.20	1.40	9.15	- 0.12	- 0.43	3.53	9.84	(N/A)	1.33	2.46
Eastern red cedar	1.37	0.27	1.08	0.17	8.92	2.16	0.31	0.30	2.02	13.38	- 3.61	- 13.55	4.07	8.75	(N/A)	1.33	2.19
Black walnut	1.78	0.29	0.82	0.08	9.41	5.03	0.73	0.70	4.74	31.25	0.00	0.00	14.17	40.66	(N/A)	1.00	13.55
Willow	0.49	0.09	0.27	0.02	2.75	2.73	0.40	0.38	2.61	17.06	- 0.13	- 0.50	6.86	19.30	(N/A)	1.00	6.43
Northern hackberry	1.73	0.30	0.88	0.08	9.43	5.36	0.77	0.74	5.01	33.17	0.00	0.00	14.86	42.60	(N/A)	1.00	14.20
Basswood	2.35	0.37	1.06	0.11	12.31	5.15	0.75	0.71	4.88	32.06	0.00	0.00	15.38	44.37	(N/A)	1.00	14.79
Others	5.51	0.94	2.91	0.31	30.45	14.55	2.11	2.01	13.67	90.28	- 3.93	- 14.72	38.08	106.00		7.64	5.13
Citywide Total	114.92	19.59	56.81	5.42	621.77	273.35	39.75	37.89	258.84	1,701.18	- 74.79	- 280.46	731.78	2,042.49	(N/A)	100.00	6.79

Table 4: Annual Carbon Stored

Stored CO2 Benefits of All Trees by Species				12/20/2018		
Species	Total stored CO2 (lbs)	Total ($)	Stand. Error	% of Total Trees	% of Total $	Avg. $/tree
Sugar maple	1,399,661.60	10,497.46	(N/A)	25.25	48.51	138.12
Norway maple	240,557.48	1,804.18	(N/A)	13.62	8.34	44.00
Apple	13,690.97	102.68	(N/A)	10.30	0.47	3.31
Silver maple	713,942.41	5,354.57	(N/A)	6.98	24.75	254.98
Green ash	92,252.13	691.89	(N/A)	5.32	3.20	43.24
Spruce	139.25	1.04	(N/A)	4.32	0.00	0.08
Red maple	7,850.55	58.88	(N/A)	3.65	0.27	5.35
Japanese tree lilac	18,333.23	137.50	(N/A)	3.32	0.64	13.75
Maple	12,818.57	96.14	(N/A)	2.99	0.44	10.68
Norway spruce	23,935.99	179.52	(N/A)	1.99	0.83	29.92
Northern red oak	9,814.93	73.61	(N/A)	1.99	0.34	12.27
Honeylocust	20,583.72	154.38	(N/A)	1.66	0.71	30.88
Lilac	30,008.01	225.06	(N/A)	1.66	1.04	45.01
Paper birch	754.00	5.66	(N/A)	1.66	0.03	1.13
Littleleaf linden	4,818.78	36.14	(N/A)	1.33	0.17	9.04
Eastern red cedar	4,408.28	33.06	(N/A)	1.33	0.15	8.27
Black walnut	57,488.68	431.17	(N/A)	1.00	1.99	143.72
Willow	8,348.99	62.62	(N/A)	1.00	0.29	20.87
Northern hackberry	25,696.68	192.73	(N/A)	1.00	0.89	64.24
Basswood	80,212.43	601.59	(N/A)	1.00	2.78	200.53
Others	119,880.06	899.10		7.64	4.16	43.67
Citywide total	2,885,196.74	21,638.98	(N/A)	100.00	100.00	71.89

Table 5: Annual Carbon Sequestered

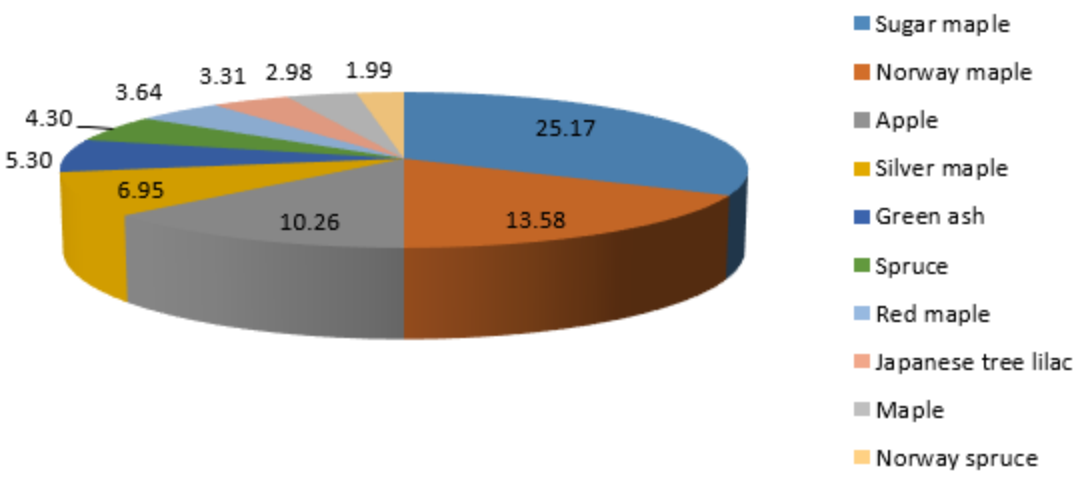
Annual CO2 Benefits of All Trees by Species					12/20/2018								
Species	Sequestered (lb)	Sequestered ($)	Decomposition Release(lb)	Maintenance Release (lb)	Total Release ($)	Avoided (lb)	Avoided ($)	Net Total (lb)	Total ($)	Stand. Error	% of Total Trees	% of Total $	Avg. $/tree
Sugar maple	62,356.88	467.68	- 6,719.07	- 275.54	- 52.46	40,270.86	302.03	95,633.13	717.25	(N/A)	25.25	42.11	9.44
Norway maple	8,927.61	66.96	- 1,162.04	- 79.76	- 9.31	11,949.63	89.62	19,635.44	147.27	(N/A)	13.62	8.65	3.59
Apple	1,929.22	14.47	- 66.07	- 22.62	- 0.67	2,030.80	15.23	3,871.33	29.04	(N/A)	10.30	1.70	0.94
Silver maple	43,359.52	325.20	- 3,427.68	- 99.45	- 26.45	13,218.82	99.14	53,051.21	397.88	(N/A)	6.98	23.36	18.95
Green ash	7,787.43	58.41	- 442.81	- 34.32	- 3.58	6,034.77	45.26	13,345.07	100.09	(N/A)	5.32	5.88	6.26
Spruce	89.34	0.67	- 0.75	- 3.71	- 0.03	174.16	1.31	259.05	1.94	(N/A)	4.32	0.11	0.15
Red maple	1,142.37	8.57	- 37.84	- 8.39	- 0.35	1,249.45	9.37	2,345.59	17.59	(N/A)	3.65	1.03	1.60
Japanese tree lilac	1,058.35	7.94	- 88.04	- 12.48	- 0.75	1,293.76	9.70	2,251.58	16.89	(N/A)	3.32	0.99	1.69
Maple	1,667.50	12.51	- 61.64	- 8.97	- 0.53	1,353.57	10.15	2,950.47	22.13	(N/A)	2.99	1.30	2.46
Norway spruce	442.22	3.32	- 114.89	- 16.58	- 0.99	1,281.58	9.61	1,592.32	11.94	(N/A)	1.99	0.70	1.99
Northern red oak	699.58	5.25	- 47.15	- 5.85	- 0.40	725.35	5.44	1,371.93	10.29	(N/A)	1.99	0.60	1.71
Honeylocust	2,898.78	21.74	- 99.94	- 9.36	- 0.82	1,714.63	12.86	4,504.12	33.78	(N/A)	1.66	1.98	6.76
Lilac	267.64	2.01	- 144.04	- 15.99	- 1.20	1,647.59	12.36	1,755.21	13.16	(N/A)	1.66	0.77	2.63
Paper birch	299.32	2.24	- 3.66	- 2.54	- 0.05	198.96	1.49	492.08	3.69	(N/A)	1.66	0.22	0.74
Littleleaf linden	815.27	6.11	- 23.77	- 3.90	- 0.21	517.59	3.88	1,305.19	9.79	(N/A)	1.33	0.57	2.45
Eastern red cedar	85.70	0.64	- 21.16	- 7.80	- 0.22	747.40	5.61	804.14	6.03	(N/A)	1.33	0.35	1.51
Black walnut	2,673.34	20.05	- 275.95	- 11.31	- 2.15	1,754.55	13.16	4,140.63	31.05	(N/A)	1.00	1.82	10.35
Willow	995.85	7.47	- 40.08	- 5.07	- 0.34	965.87	7.24	1,916.57	14.37	(N/A)	1.00	0.84	4.79
Northern hackberry	1,469.80	11.02	- 123.34	- 10.53	- 1.00	1,852.07	13.89	3,187.99	23.91	(N/A)	1.00	1.40	7.97
Basswood	1,995.43	14.97	- 385.02	- 12.09	- 2.98	1,806.58	13.55	3,404.90	25.54	(N/A)	1.00	1.50	8.51
Others	4,843.97	36.33	- 575.42	- 40.17	- 4.62	5,059.17	37.94	9,287.55	69.66		7.64	4.09	3.26
Citywide Total	145,805.11	1,093.54	- 13,860.36	- 686.41	- 109.10	95,847.18	718.85	227,105.52	1,703.29	(N/A)	100.00	100.00	5.66

Table 6: Annual Social and Aesthetic Benefits

Average Annual Benefits of All Tree by Species ($/tree)						12/20/2018	
Species	Energy	CO2	Air Quality	Stormwater	Aesthetic/Other	Total	Stand.
Sugar maple	65.77	9.44	10.91	114.27	80.62	281.00	(N/A)
Norway maple	38.00	3.59	6.83	45.87	21.46	115.76	(N/A)
Apple	9.60	0.94	1.32	3.66	3.36	18.87	(N/A)
Silver maple	77.69	18.95	15.39	170.17	141.15	423.34	(N/A)
Green ash	45.44	6.26	7.59	49.80	46.87	155.95	(N/A)
Spruce	2.01	0.15	0.17	2.35	6.01	10.68	(N/A)
Red maple	14.29	1.60	2.23	10.01	16.79	44.92	(N/A)
Japanese tree lilac	17.65	1.69	2.95	9.84	6.10	38.22	(N/A)
Maple	19.64	2.46	3.18	17.06	27.01	69.34	(N/A)
Norway spruce	26.31	1.99	0.02	72.99	13.47	114.78	(N/A)
Northern red oak	15.63	1.71	2.17	13.95	11.15	44.62	(N/A)
Honeylocust	43.40	6.76	6.99	49.20	119.81	226.15	(N/A)
Lilac	44.54	2.63	7.99	29.07	3.10	87.32	(N/A)
Paper birch	4.79	0.74	0.71	3.82	12.84	22.89	(N/A)
Littleleaf linden	15.84	2.45	2.46	12.34	24.89	57.97	(N/A)
Eastern red cedar	24.57	1.51	2.19	44.30	6.84	79.40	(N/A)
Black walnut	74.61	10.35	13.55	120.83	65.93	285.28	(N/A)
Willow	39.34	4.79	6.43	30.75	34.85	116.17	(N/A)
Northern hackberry	80.13	7.97	14.20	99.69	62.83	264.81	(N/A)
Basswood	75.62	8.51	14.79	124.41	50.62	273.95	(N/A)
Others	29.99	3.26	5.13	40.86	20.91	100.15	
Citywide Total	40.15	5.66	6.79	61.86	44.62	159.08	(N/A)

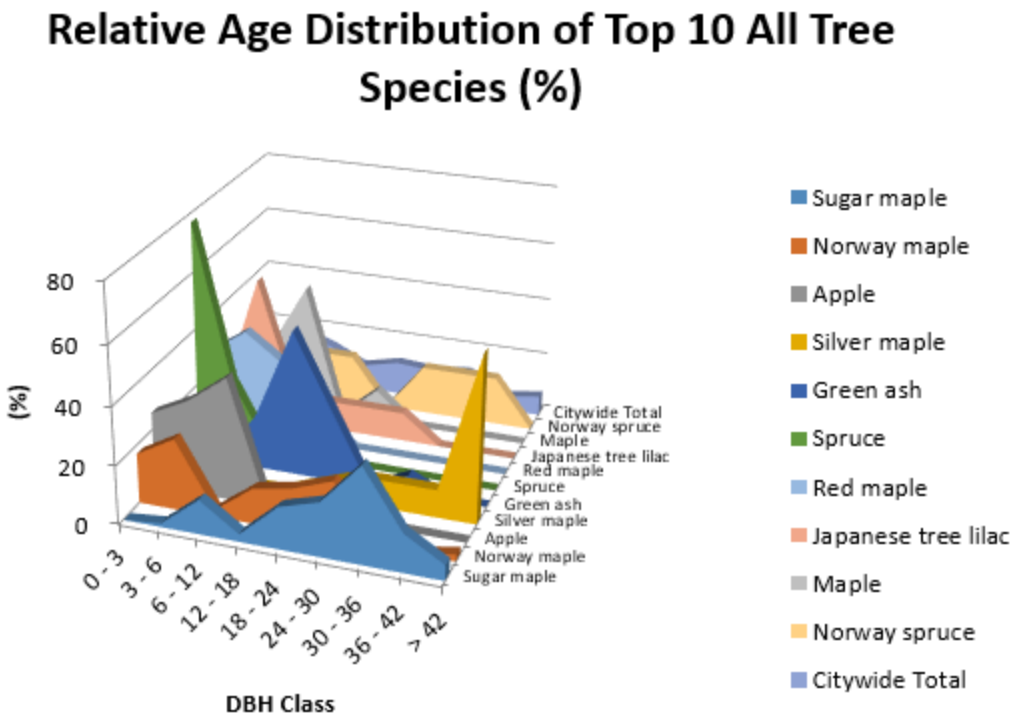
Table 7: Summary of Benefits in Dollars

Average Annual Benefits of All Tree by Species ($/tree)						12/20/2018	
Species	Energy	CO2	Air Quality	Stormwater	Aesthetic/Other	Total	Stand.
Sugar maple	65.77	9.44	10.91	114.27	80.62	281.00	(N/A)
Norway maple	38.00	3.59	6.83	45.87	21.46	115.76	(N/A)
Apple	9.60	0.94	1.32	3.66	3.36	18.87	(N/A)
Silver maple	77.69	18.95	15.39	170.17	141.15	423.34	(N/A)
Green ash	45.44	6.26	7.59	49.80	46.87	155.95	(N/A)
Spruce	2.01	0.15	0.17	2.35	6.01	10.68	(N/A)
Red maple	14.29	1.60	2.23	10.01	16.79	44.92	(N/A)
Japanese tree lilac	17.65	1.69	2.95	9.84	6.10	38.22	(N/A)
Maple	19.64	2.46	3.18	17.06	27.01	69.34	(N/A)
Norway spruce	26.31	1.99	0.02	72.99	13.47	114.78	(N/A)
Northern red oak	15.63	1.71	2.17	13.95	11.15	44.62	(N/A)
Honeylocust	43.40	6.76	6.99	49.20	119.81	226.15	(N/A)
Lilac	44.54	2.63	7.99	29.07	3.10	87.32	(N/A)
Paper birch	4.79	0.74	0.71	3.82	12.84	22.89	(N/A)
Littleleaf linden	15.84	2.45	2.46	12.34	24.89	57.97	(N/A)
Eastern red cedar	24.57	1.51	2.19	44.30	6.84	79.40	(N/A)
Black walnut	74.61	10.35	13.55	120.83	65.93	285.28	(N/A)
Willow	39.34	4.79	6.43	30.75	34.85	116.17	(N/A)
Northern hackberry	80.13	7.97	14.20	99.69	62.83	264.81	(N/A)
Basswood	75.62	8.51	14.79	124.41	50.62	273.95	(N/A)
Others	29.99	3.26	5.13	40.86	20.91	100.15	
Citywide Total	40.15	5.66	6.79	61.86	44.62	159.08	(N/A)



Species Distribution of All Trees	
12/20/2018	
Species	Percent
Sugar maple	25.17
Norway maple	13.58
Apple	10.26
Silver maple	6.95
Green ash	5.30
Spruce	4.30
Red maple	3.64
Japanese tree lilac	3.31
Maple	2.98
Norway spruce	1.99
Other Species	22.52

Figure 1: Species Distribution



Relative Age Distribution of Top 10 All Tree Species for 1 (%)							DBH class (in)		
Species	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	>42
Sugar maple	0.00	1.32	11.84	2.63	14.47	18.42	32.89	13.16	5.26
Norway maple	17.07	24.39	2.44	12.20	14.63	19.51	7.32	0.00	2.44
Apple	25.81	32.26	41.94	0.00	0.00	0.00	0.00	0.00	0.00
Silver maple	4.76	4.76	0.00	0.00	4.76	9.52	9.52	9.52	####
Green ash	0.00	0.00	18.75	50.00	25.00	0.00	6.25	0.00	0.00
Spruce	76.92	23.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Red maple	27.27	36.36	27.27	9.09	0.00	0.00	0.00	0.00	0.00
Japanese tree lilac	10.00	50.00	10.00	10.00	10.00	10.00	0.00	0.00	0.00
Maple	22.22	22.22	44.44	0.00	11.11	0.00	0.00	0.00	0.00
Norway spruce	0.00	16.67	16.67	16.67	0.00	16.67	16.67	16.67	0.00
Citywide Total	11.59	18.87	14.57	8.61	11.59	10.60	11.92	4.97	6.95

Figure 2: Relative Age Class

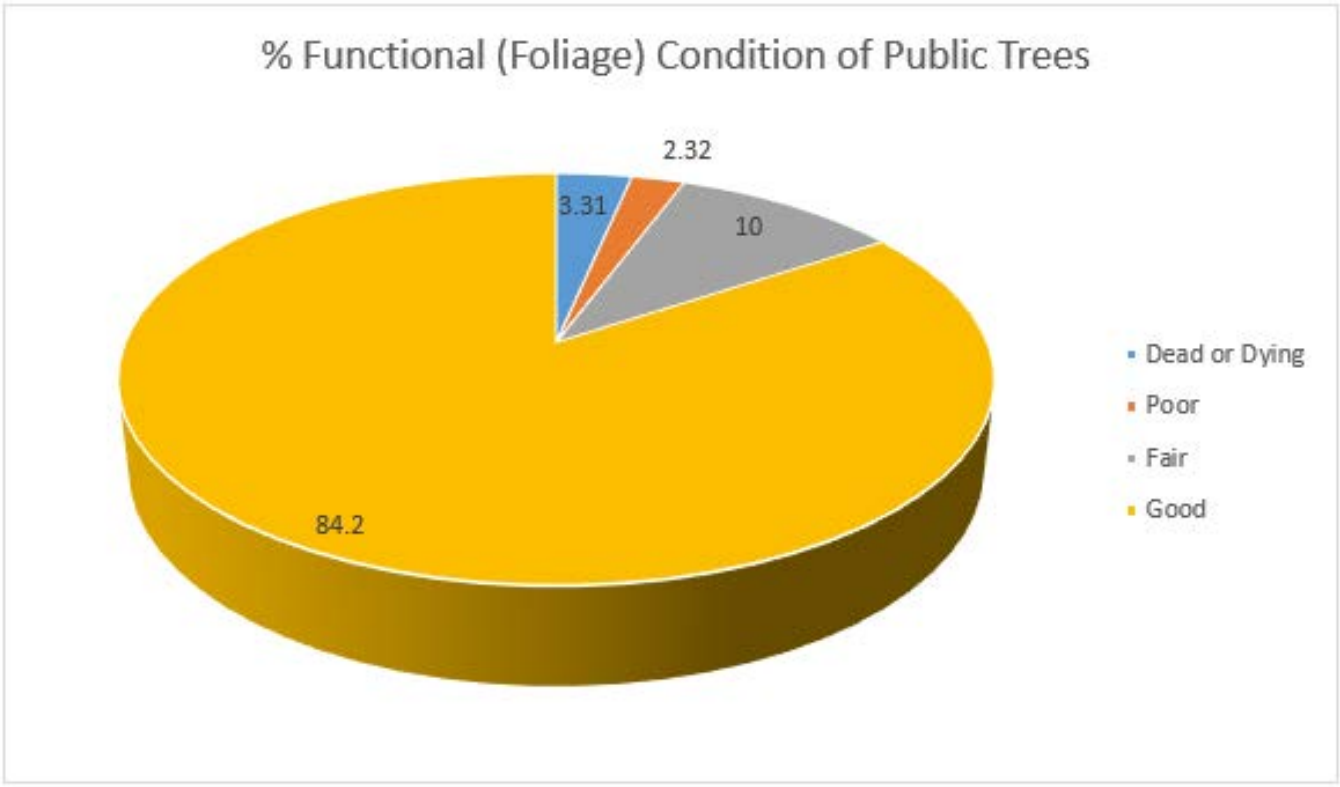


Figure 3: Foliage Condition

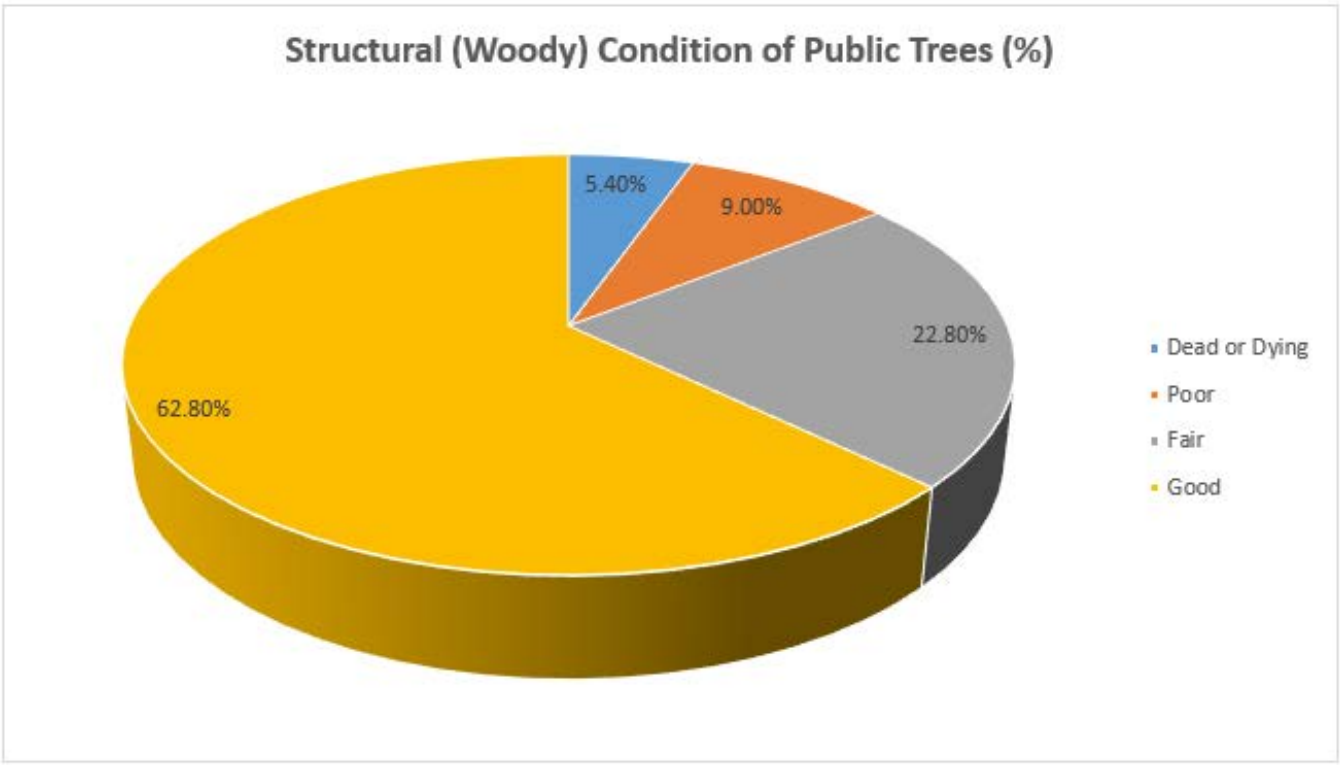
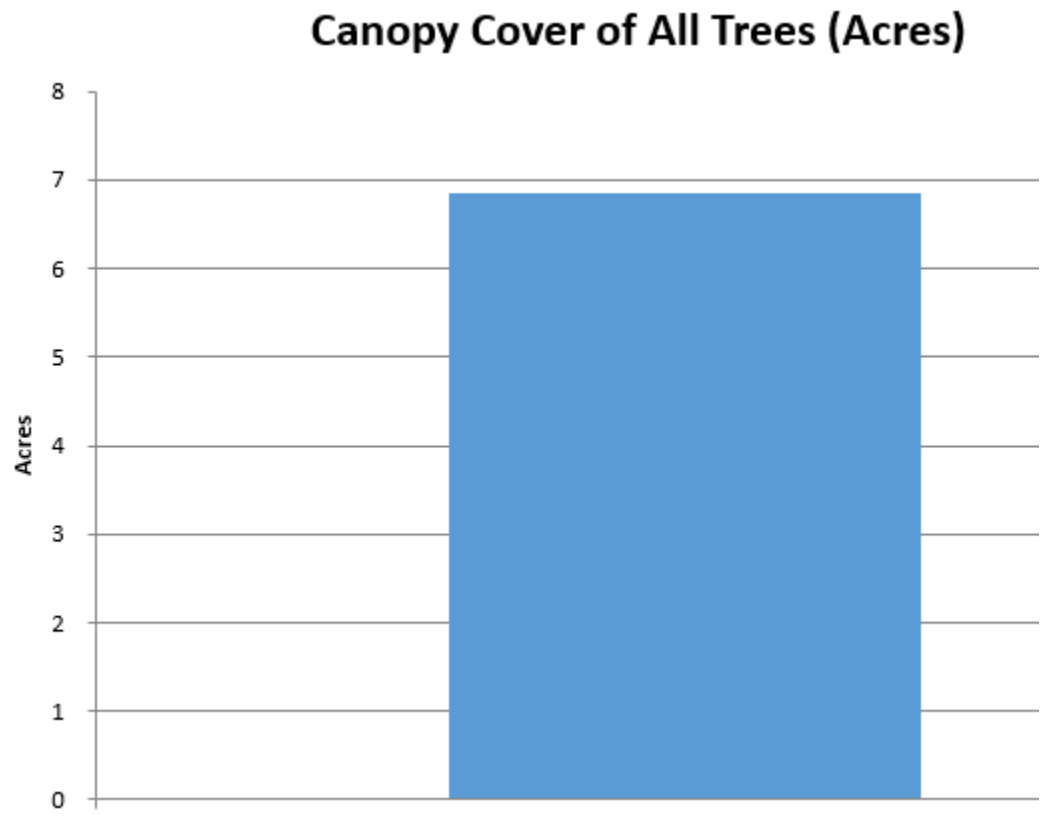
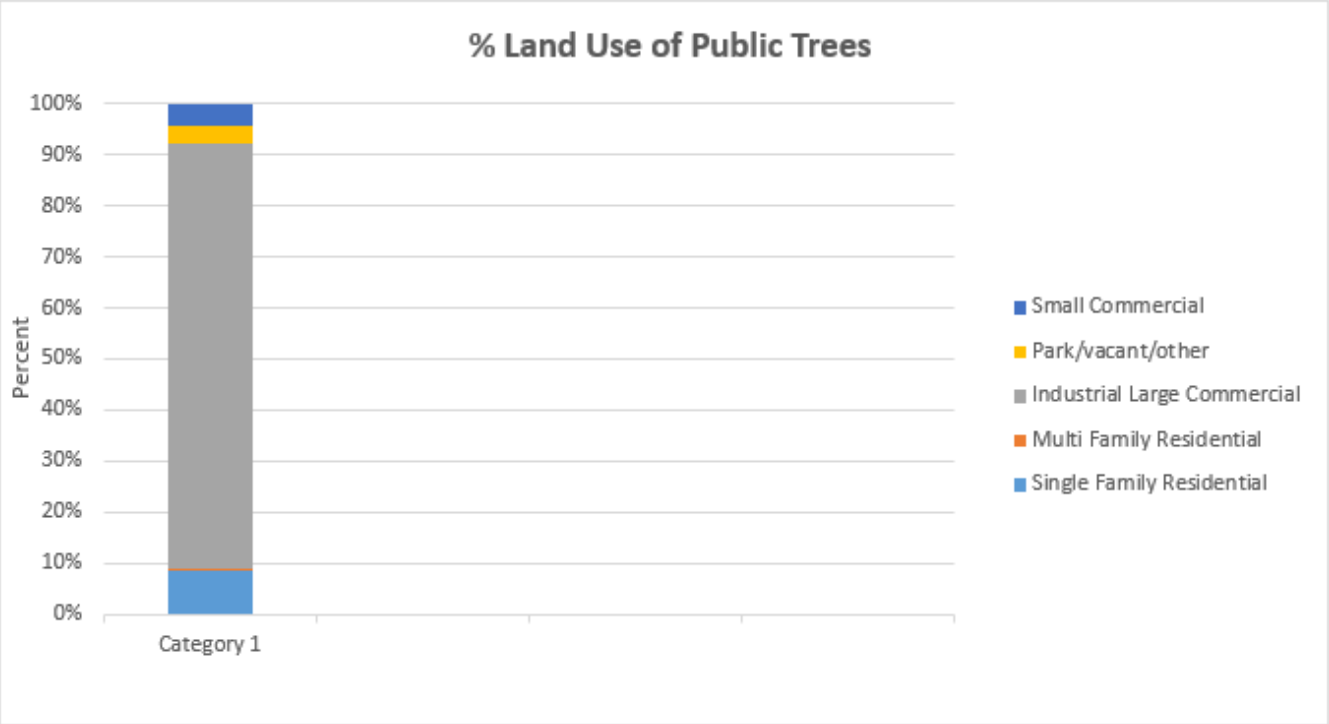


Figure 4: Wood Condition



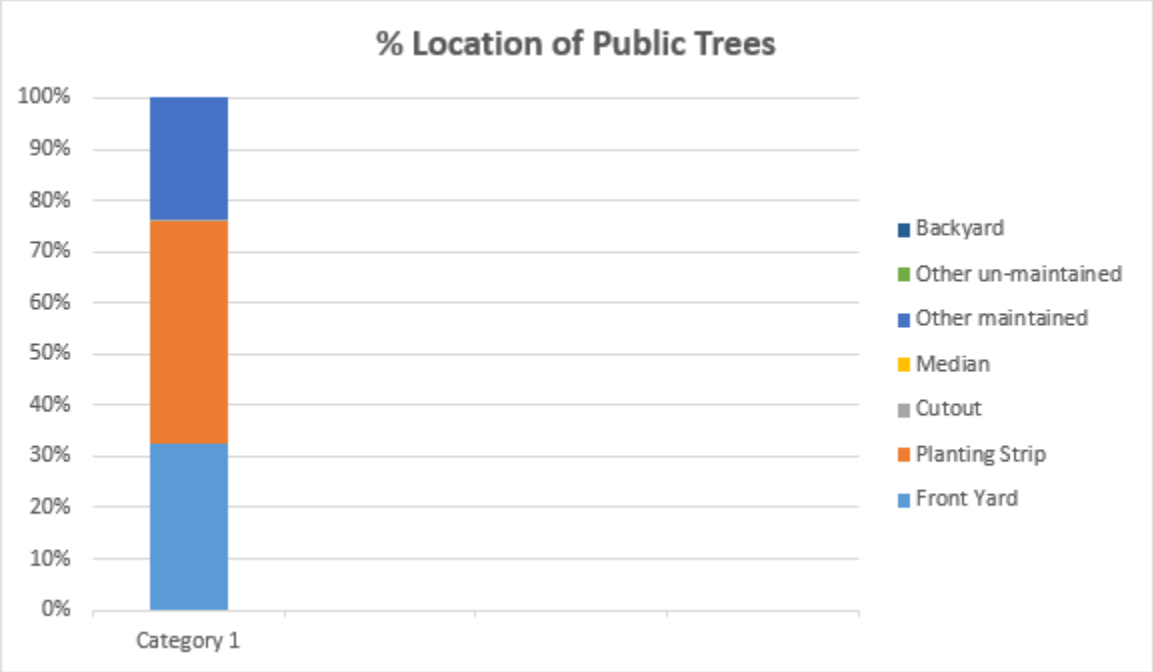
Canopy Cover of All Trees (Acres)		12/20/2018
Zone	Acres	% of Total Canopy
1	6.85	7.60
Citywide Total	90.00	100.00

Figure 5: Canopy Cover in Acres



12/20/2018	Land Use	Tree Count	Standard Error	% of Zone	% of All Trees
Citywide	Single family residential	197	(N/A)	66.11	66.11
	Multi-family residential	4	(N/A)	1.34	1.34
	Industrial/Large commercial	19	(N/A)	6.40	6.40
	Park/vacant/other	77	(N/A)	25.80	25.80
	Small commercial	1	(N/A)	0.33	0.33
	Total	298	(N/A)	100.00	100.00

Figure 6: Land Use of city/park trees



Site Type of All Trees by Zone			12/20/2018		
	Site Type	Tree Count	Standard Error	% of Zone	% of All Trees
Citywide	Front yard	95	(N/A)	32.87	32.87
	Planting strip	131	(N/A)	43.95	43.95
	Cutout	1	(N/A)	0.34	0.34
	Median	0	(N/A)	0.00	0.00
	Other maintained locations	71	(N/A)	23.82	23.82
	Other un-maintained locations	0	(N/A)	0.00	0.00
	Backyard	0	(N/A)	0.00	0.00
	Total	298	(N/A)	100.00	100.00

Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

Figure 1:

Location of Ash Trees
2018 Community Tree Inventory
Edgewood, IA

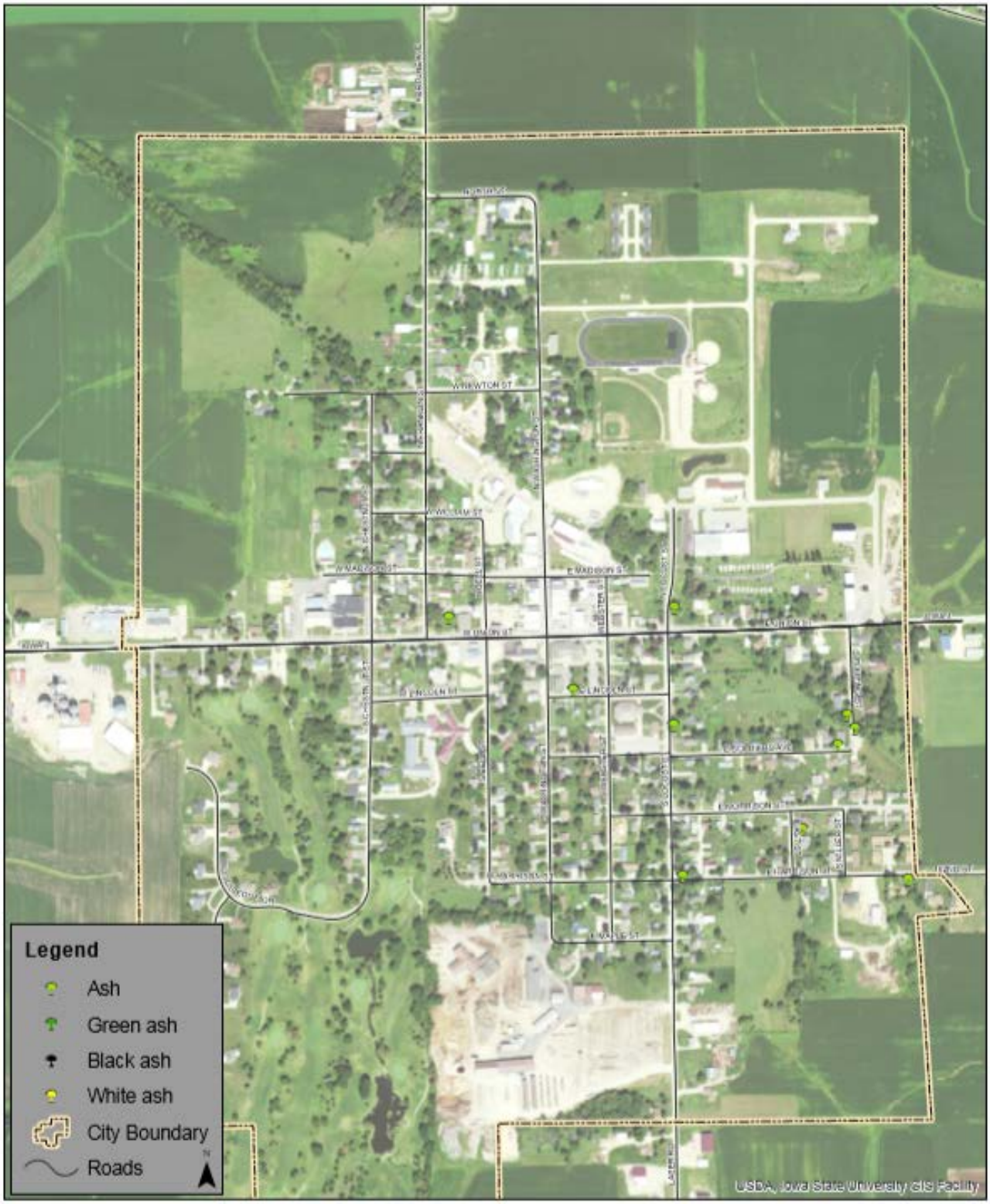


Figure 2:

Location of EAB Symptoms
2018 Community Tree Inventory
Edgewood, IA

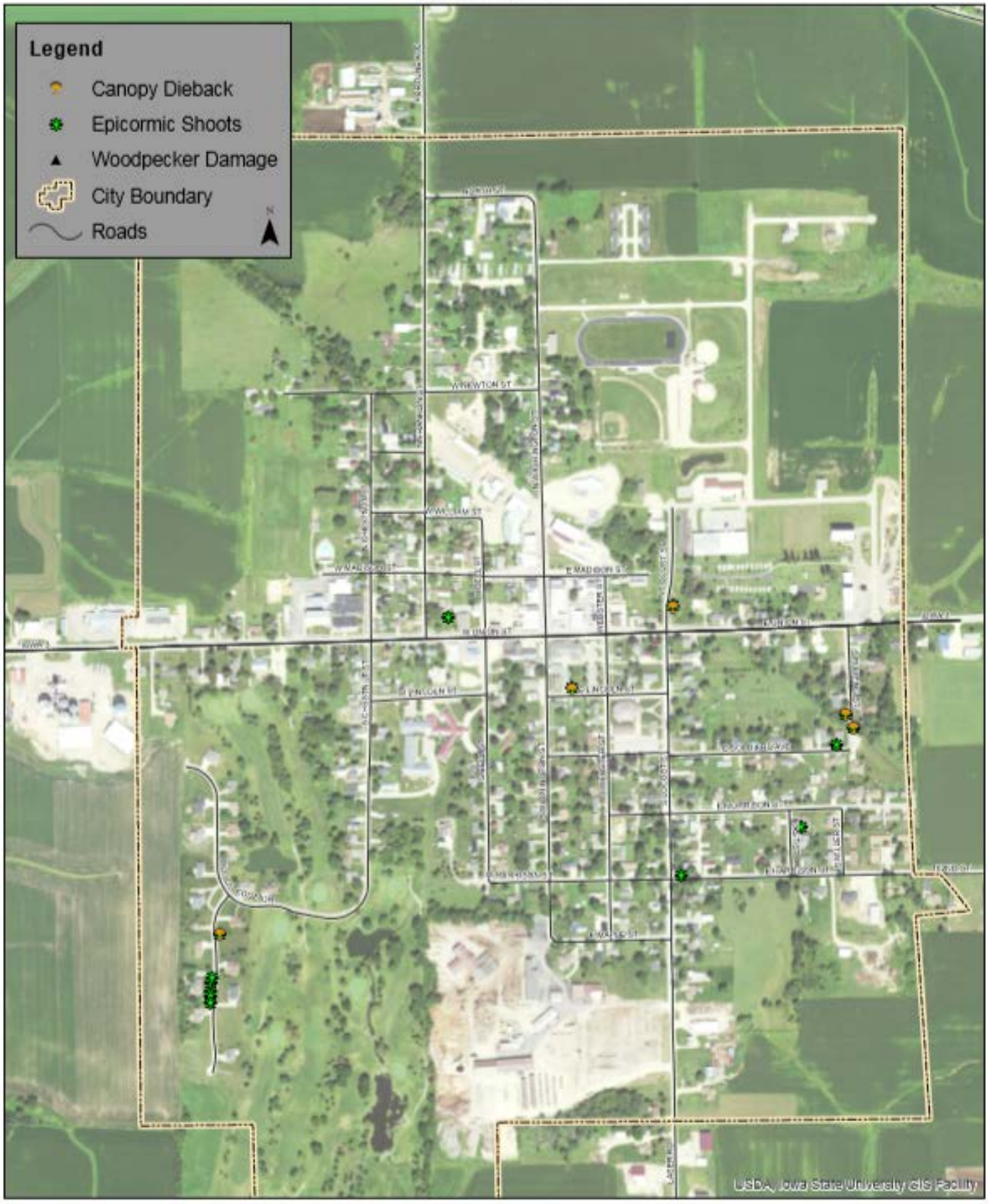


Figure 3:

Location of Poor Condition Trees
2018 Community Tree Inventory
Edgewood, IA

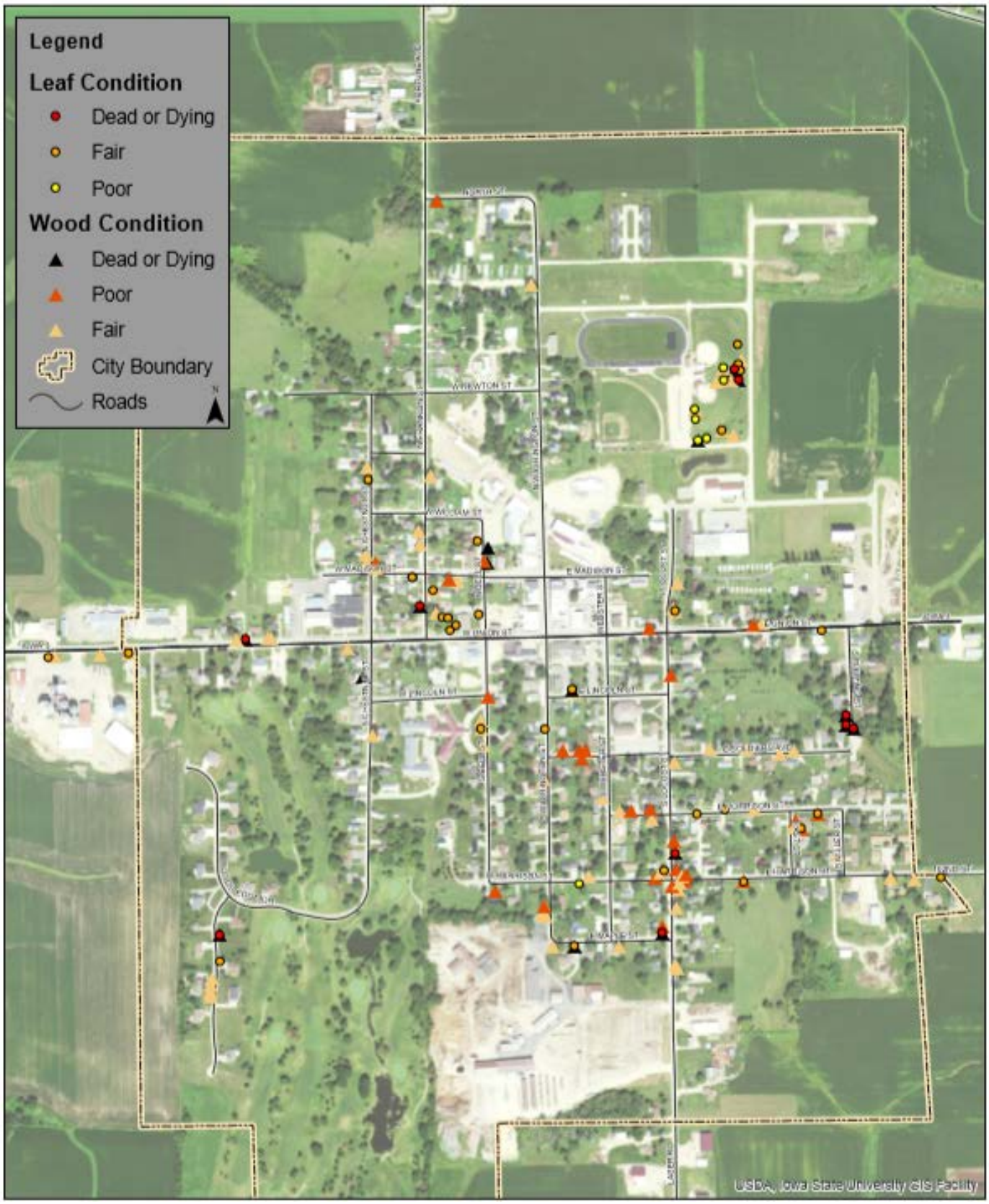


Figure 4:

Location of Trees with Recommended Maintenance
2018 Community Tree Inventory
Edgewood, IA

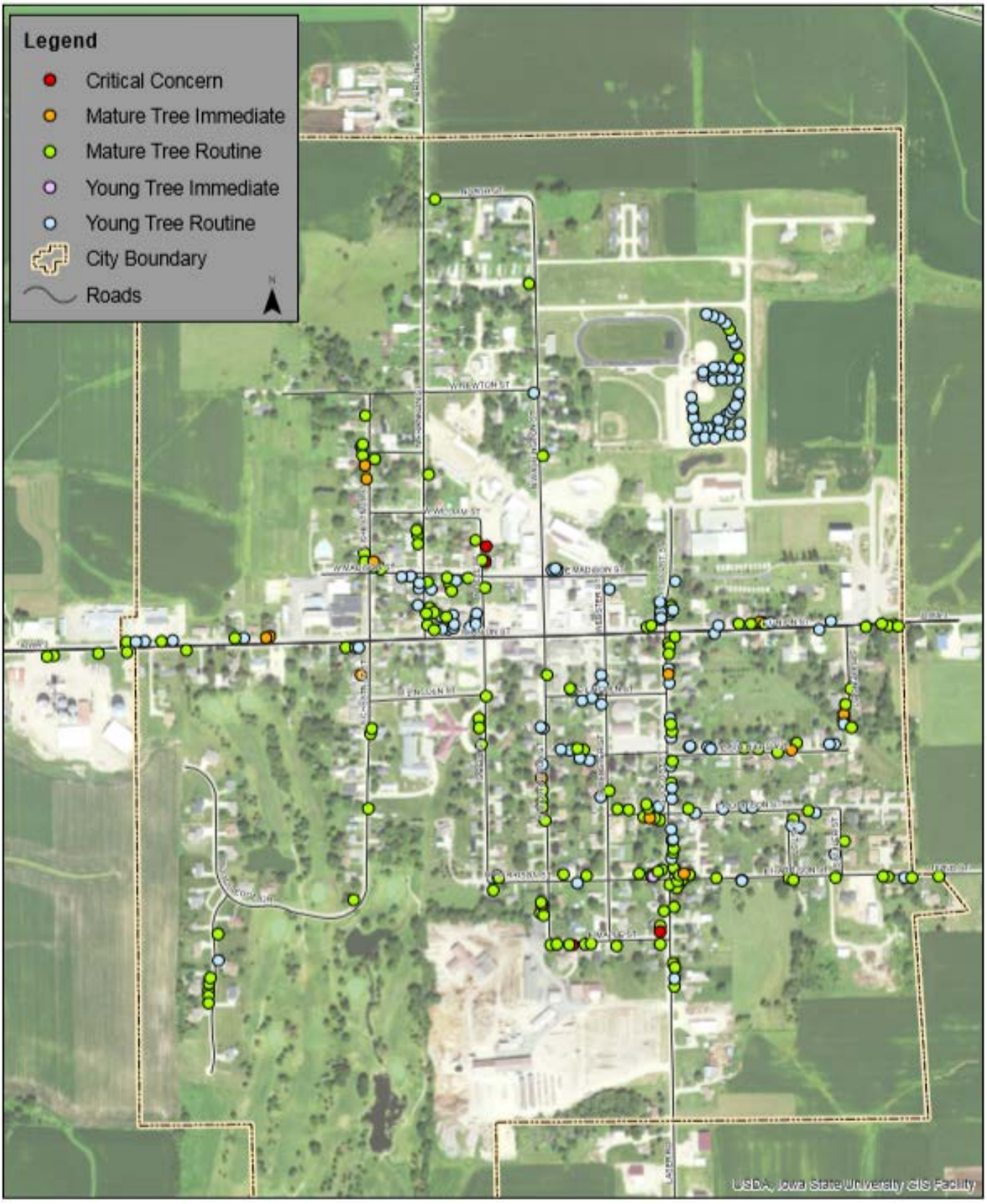


Figure 5:

Maintenance Tasks
2018 Community Tree Inventory
Edgewood, IA

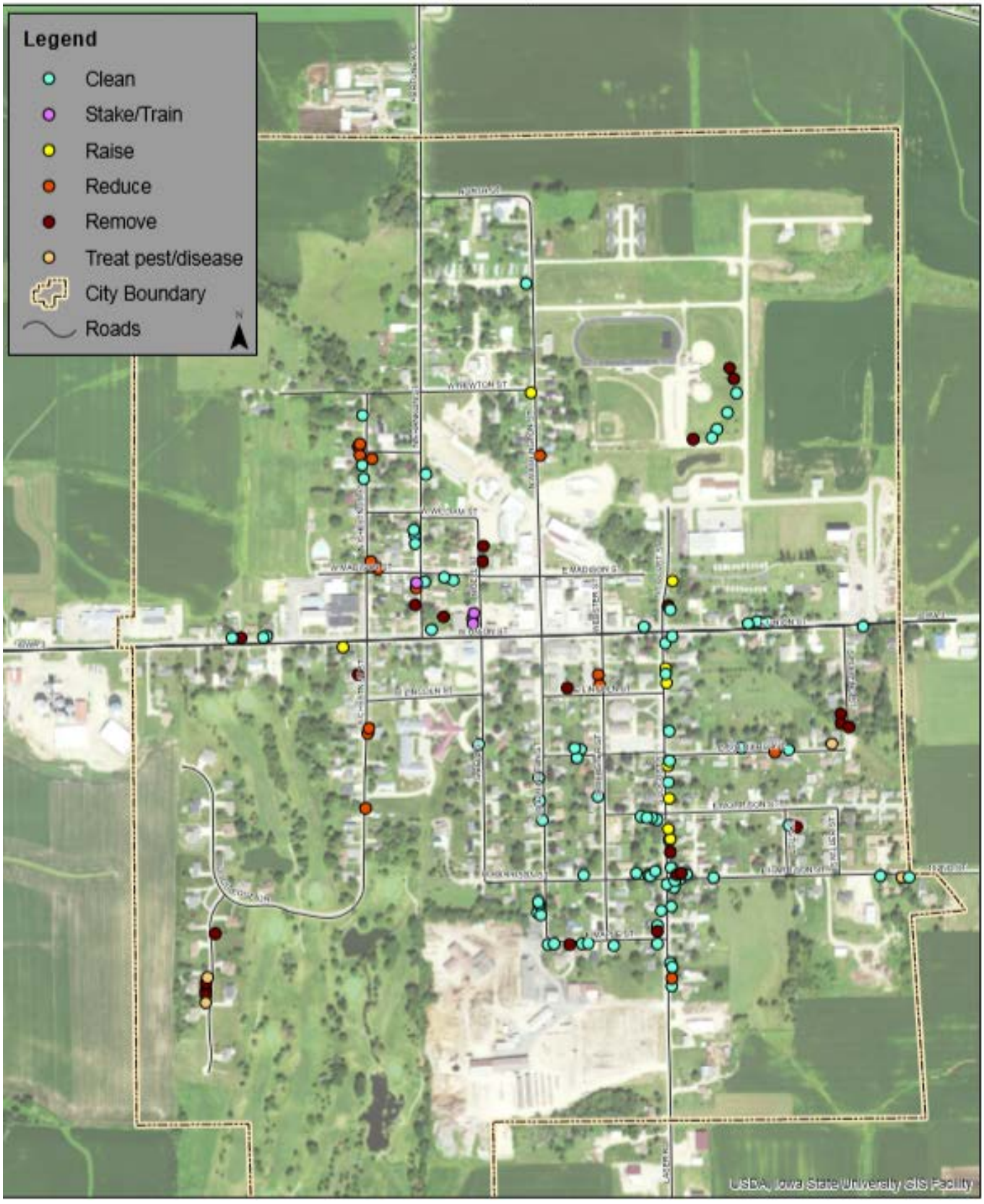
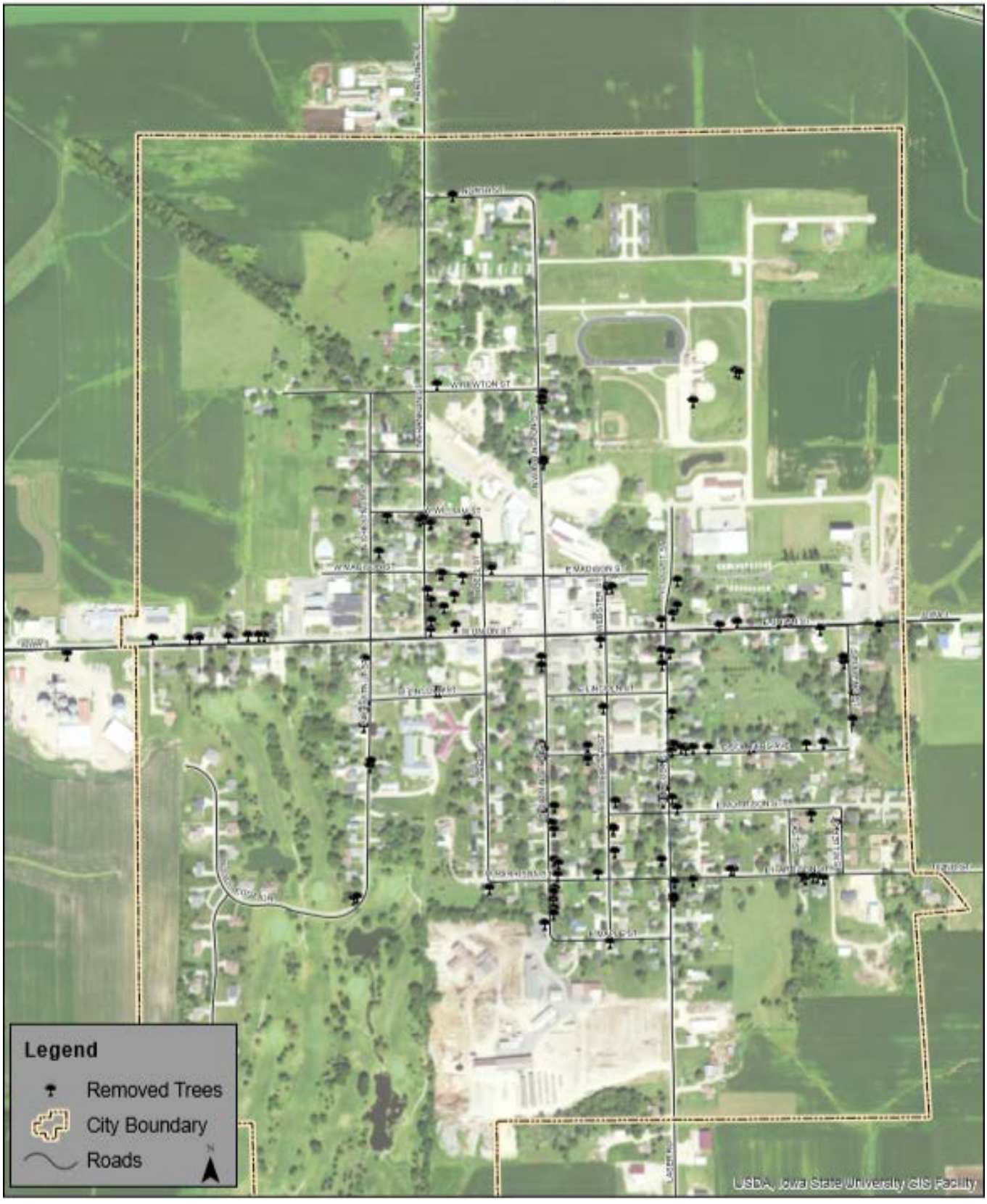


Figure 6:

Removed Trees
2018 Community Tree Inventory
Edgewood, IA



Appendix C: Edgewood Tree Ordinances

TITLE VI PHYSICAL ENVIRONMENT
CHAPTER 11 - TREES

6-11-1 PURPOSE. The purpose of this ordinance is to encourage tree planting and care, for beautification, air cooling and purification, noise abatement, property value enhancement and wildlife habitat in the town of Edgewood. This ordinance will also promote and protect the public health and safety by providing for the regulation of planting, and removal of trees.

6-11-2 DEFINITIONS. For use in this Chapter, the following terms are defined:

1. Shade trees. Those obtaining a height of 35 feet or more.
2. Tree Board. Made up of the City Superintendent, one citizen of Edgewood and one City Council member.
3. Parking. 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, on unpaved streets, that part of the street, avenue, or highway lying between the lot line and that portion of the street usually traveled by vehicular traffic.
4. Shrub. A wood plant with several stems and usually with a low mature height of eight feet or less.
5. Tree. Any woody perennial plant with a main trunk and many branches, and includes living or dead trees and standing or fallen trees.

6-11-3 TREE BOARD. A Tree Board of at least three members shall be appointed by the Mayor and approved by the City Council. The Board shall be made up of at least one City Council member, the City Superintendent, and a citizen who is a resident of the City. The term of the Board shall be three years; except that the term of the first member appointed shall be two years.

193

1. The Board will assist the City Council in developing policies regarding trees, interpreting this ordinance to citizens, and will make individual decisions regarding planting, maintenance and removal of trees.
2. Compensation. Board members shall receive no compensation.
3. Any person aggrieved by a decision or interpretation by the Tree Board may appeal the decision to the City Council by filing written notice with the City Administrator/Clerk within 15 days after the decision of the Tree Board.

6-11-4 PLANTING RESTRICTIONS. No tree shall be planted in any street or parking except

in accordance with the following:

1. Trees permitted. Plantings are limited to the following varieties: SMALL: Flowering Crab, Pear (fruitless), Amur Maple, Tulip Tree, Lilac Tree, Thornless Hawthorn; MEDIUM: Ash, Hackberry, Littleleaf Linden, American Linden, Ginko, European River Birch, Norwegian Sunset Maple; LARGE: Sugar and Black Maple, Rabrum Maple, Swamp and White Oak.

2. Prohibited Trees . No person shall plant in any street, any fruit bearing tree or any tree of the kinds commonly known as cottonwood, poplar, boxelder, Chinese elm, evergreens, soft maple, willow, walnut, catalpa or horsechestnut.

3. Alignment. All trees planted in the parking must be planted midway between the outer line of the sidewalk and the curb. In the event a curb line is not established, trees shall be planted in a line 10 feet from the property line.

4. Spacing. Trees shall not be planted on the parking if it is less than nine (9) feet in width, or contains less than eighty-one (81) square feet of exposed soil surface per tree, except with the written consent of the Tree Board. Trees shall not be planted closer than thirty-five (35) feet to street intersections (property lines extended)and ten (10) feet to driveways. If it is at all possible, trees should be planted inside the property lines and not between the sidewalk and the curb.

5. Trees, other than small trees or trees approved by the Tree Board, shall not be planted under or within ten (10') lateral feet of any overhead power line or overhead utility wire, and no tree shall be planted within five (5') lateral feet of any underground water, sewer, transmission or other utility line.

6-11-5 DUTY TO TRIM TREES. The owner or agent of the abutting property shall keep trees that overhang the street trimmed so that branches will be at least fifteen (15) feet above the surface of the street and eight (8) feet above the sidewalks.

It shall be unlawful for any person to trim or cut any tree in the street or parking without permission and supervision of the city.

194

If the abutting property owner fails to trim as required in this Chapter, the City may serve notice on the property owner requiring him or her to do so within five (5) days. If he or she fails to trim trees within that time, the City may perform the required action and assess the costs against the property for collection in same manner as a property tax.

(Code of Iowa, Sec. 364.12(2)(c))

6-11-6 REMOVAL OF TREES. The City of Edgewood, at the request of the Tree Board, shall remove trees on public property which have become diseased, or which constitute a danger to the public, or which may otherwise be declared a nuisance.

(Code of Iowa, Sec. 364.12(2)(c) and 372.13(4))

DUTCH ELM DISEASE CONTROL.

6-11-7 TREES SUBJECT TO REMOVAL. The City Council, having determined that the health of the elm trees within the City is threatened by a fatal disease known as the Dutch elm disease, hereby declares the following shall be removed:

(Code of Iowa, Sec. 364.12 (3)(b))

1. Living or standing trees. Any living or standing elm tree or part thereof infected with the Dutch elm disease fungus or which harbors any of the elm bark beetles, that scolytus multistriatus (eichb) or hylurgopinus rufipes (marsh.)

2. Dead trees. Any dead elm tree or part hereof including logs, branches, stumps, firewood or other elm material from which the bark has not been removed and burned or sprayed

with an effective elm bark beetle destroying insecticide.

6-11-8 DUTY TO REMOVE. No person, firm or corporation shall permit any tree or material as defined in Section 6-11-7 to remain on the premises owned, controlled or occupied by him or her within the City.

(Code of Iowa, Sec. 364.12 (3)(b))

6-11-9 INSPECTIONS. The City Superintendent shall inspect or cause to be inspected all premises and places within the City to determine whether any condition as defined in Section 6-11-7 exists thereon, and shall also inspect or cause to be inspected any elm trees reported or suspected to be infected with the Dutch elm disease or any elm bark bearing material reported or suspected to be infected with the elm bark beetles.

6-11-10 REMOVAL FROM CITY PROPERTY. If the City Superintendent upon inspection or examination, in person or by some qualified person acting for him or her, shall determine that any condition as herein defined exists in or upon any public street, alley, park or any public place, including the strip between the curb and the lot line of private property, within the City and that the danger of other elm trees within the City is imminent, he orshe shall immediately cause it to be removed and burned or otherwise correct the same in such manner as to destroy or prevent as fully as possible the spread of Dutch elm disease or the insect pests or vectors known to carry such disease fungus.

6-11-11 REMOVAL FROM PRIVATE PROPERTY. If the City Superintendent upon inspection or examination, in person or by some qualified person acting for him or her, shall determine with reasonable certainty that any condition as herein defined exists in or upon private premises and that the danger to other elm trees within the City is imminent, he or she shall immediately notify by certified mail the owner, occupant or person in charge of such property, to correct such condition within14 days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14 days of receipt thereof, the City Council may cause the nuisance to be removed and the cost assessed against the property as provided.

(Code of Iowa, Sec. 364.12 (3)(b))

If the City Superintendent is unable to determine with reasonable certainty whether or not a tree in or upon private premises is infected with Dutch elm disease, he or she is authorized to remove or cut specimens from said tree, and obtain a diagnosis of such specimens.

(Ordinance 230, Passed August 11, 2003)

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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.