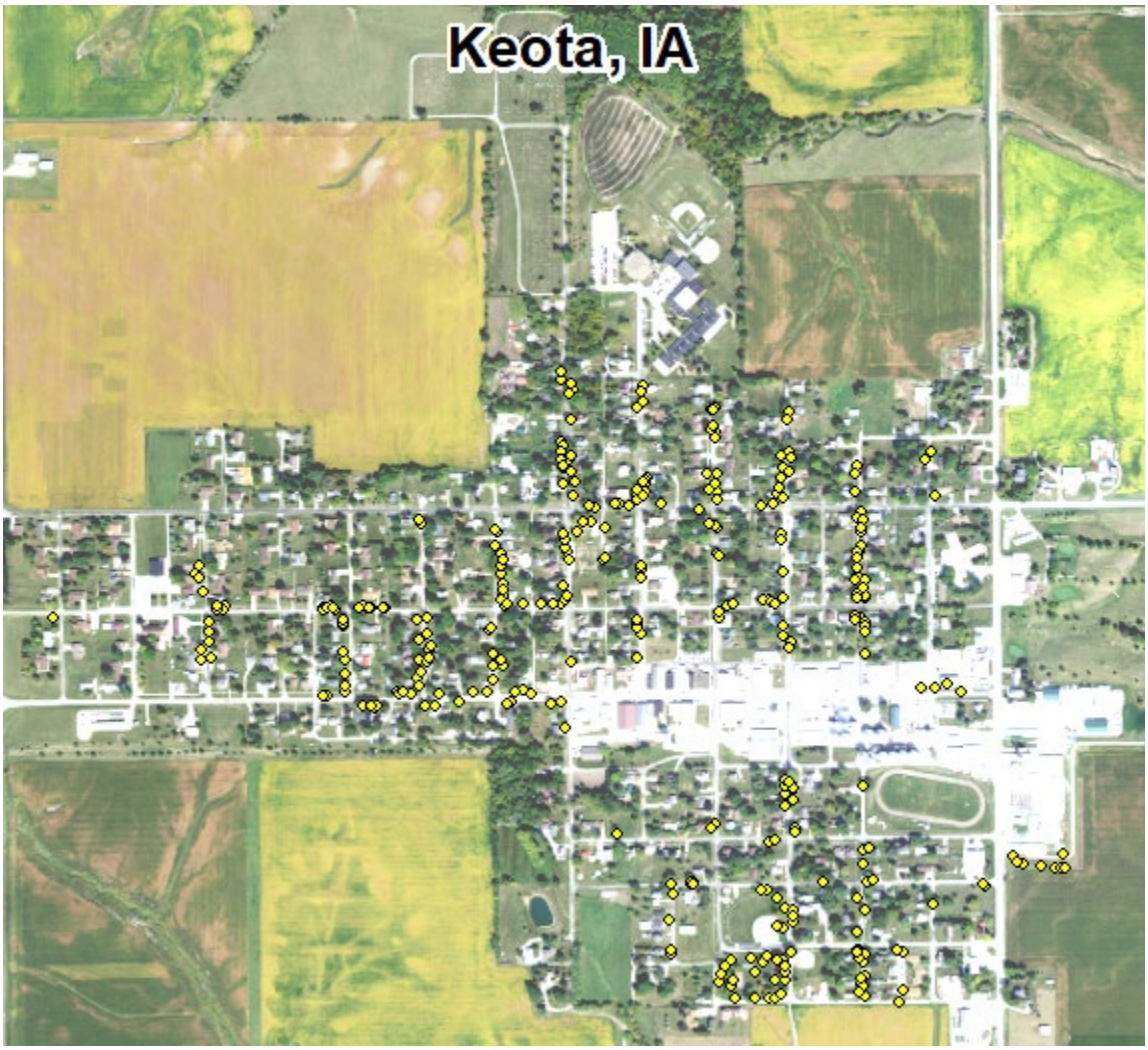
Keota, IA



2020 Urban Forest Management Plan
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Executive Summary

Overview

This plan was developed to assist the City of Keota 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 7% of Keota's city owned trees (ash) will die once EAB becomes established in the community, unless preventative treatment is used. With proper planning and management, the costs of removing dead and dying trees can be extended over years, mitigating public safety issues.

Inventory and Results

In 2019, a tree inventory was conducted using Global Positioning System (GPS) data collectors. The inventory was a complete inventory of street and park trees. Below are some key findings of the 342 trees inventoried.

- Keota's trees provide $64,712 of benefits annually, an average of $189 a tree
- There are over 37 species of trees
- The top three genera are: Maple 56%, Oak 8.8%, and Ash 6.7%
- 20% of trees are in need of some type of management
- 31 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 31 trees needing removal, 11 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*
- 20 of the 23 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 6 years to remove ash – Suggestion: apply for grants to plant replacement trees

Introduction

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

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

Inventory

In 2019, a tree inventory was conducted that included 100% of the city owned trees on both streets and parks. The tree data was collected using a handheld Global Positioning System (GPS) receiver. 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 342 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. Keota's trees reduce energy related costs by approximately $16,878 annually (Appendix A, Table 1). These savings are both in Electricity (80.4 MWh) and in Natural Gas (10,992 Therms).

Annual Stormwater Benefits

Keota's trees intercept about 923,842 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $25,036 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 Keota, it is estimated that trees remove 1,068 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 $3,018 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Keota, trees sequester about 201,657 lbs of carbon a year with an associated value of $2,379 (Appendix A, Table 5). In addition, the trees store 3,840,393 lbs of carbon, with a yearly benefit of $28,803 (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. Keota receives $17,400 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, Keota's trees provide $64,712 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 342 trees in Keota provide approximately $189 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Keota has over 37 different tree species along city streets and parks (Appendix A, Figure 1).
The distribution of trees by genera is as follows:

Maple	191	56%
Oak	30	8.8%

Ash	23	6.7%
Apple	15	4.4%
Sycamore	12	3.5%
Hackberry	10	2.9%
Redbud	10	2.9%
Siberian Elm	7	2.0%
All other genera		<2%

Age Class

Most of Keota's trees (51%) are over 18 inches in diameter at 4.5 ft. (33%) are between 6 and 18 inches in diameter. (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. Keota's size curve is on the larger side, indicating an older 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 Keota indicate that 94% of the trees are in good/fair health, with only 6% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 11% of Keota'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 11% of the population. This 11% is an estimate of trees that need management follow up.

Management Needs

The following outlines the specific management needs of the street and park trees by number of trees and percent of canopy (Appendix B, Figure 3).

Crown Cleaning	24	7%
Crown Raising	2	<1%
Tree Staking	0	0%
Tree Removal	31	9%
Crown Reduction	14	4%

Canopy Cover

The total canopy with both private and public trees is 13%, 52.9 acres. The canopy cover included in the Keota inventory includes approximately 9.35 acres (Appendix A, Figure 5). If the City's Canopy goal is to increase canopy by 1%, in 30 years, it is estimated that 10 trees need to be planted annually on public and private lands.

Land Use and Location

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

Land Use

Single family residential	85%
Park/vacant/other	11%
Industrial/Large commercial	0%
Small commercial	2%
Multifamily residential	2%

Location	
Planting strip	94%
Other maintained locations	0%
Cutout (surrounded by pavement)	1%
Front yard	5%

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

Keota had no critical concern trees that were designated as needing immediate removal when the inventory was done last year, but there were 8 trees designated as needing immediate maintenance removal (not critical). 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 12 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 are a total of 71 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 31 removals, 23 are ash trees. There are a total of 23 ash trees, and 20 of those have signs and symptoms that have been associated with EAB. In addition, there are 8 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 Keota.

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 (56%) (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 the city ordinances (Appendix C). All trees planted must meet the restrictions in city ordinance (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

Year 1

Removal: 6 largest immediate concern trees
Planting and Replacement: 7 trees to be planted in open locations
Young Tree Pruning & Maintenance:
Visual Survey for signs and symptoms of EAB

Year 2

Removal: 2 immediate concern trees and 3 additional ash trees with poor health
*Or saving for ash tree treatment and/or future ash removal
Planting and Replacement: 6 trees in open locations from year one removals
Young Tree Pruning & Maintenance:
Routine trimming: Contract to trim 1/3 of the city trees needing maintenance
Visual Survey for signs and symptoms of EAB

Year 3

Removal: 6 trees - removal of any new critical concern trees and ash in poor health
*Or saving for ash tree treatment and/or future ash removal

Planting and Replacement: 7 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: 5 trees - removal of any new critical concern trees and ash in poor health
*Or saving for ash tree treatment and/or future ash removal
Planting and Replacement: 6 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: 6 trees - removal of any new critical concern trees and ash in poor health
*Or saving for ash tree treatment and/or future ash removal
Planting and Replacement: 7 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: 5 trees - removal of any new critical concern trees and ash in poor health
*Or saving for ash tree treatment and/or future ash removal
Planting and Replacement: 6 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

All ash and other trees currently designated for immediate removal will be removed in 6 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 ordinances (Appendix C). The new plantings will be a diverse mix and should 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.

For Dutch Elm Disease, City Code states "If the superintendent, upon inspection or examination, 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, the superintendent shall immediately notify by certified mail the owner, occupant or person in charge of such property to correct such condition within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within fourteen (14) days of receipt of notice, the Council may cause the nuisance to be removed and the cost assessed against the property as provided in Chapter 56.

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

You should consider modifying the Code to include EAB and other insects and diseases. An example is: "If it is determined with reasonable certainty that any such condition exists (trees or shrubs in the City reported or suspected to be infected with or damaged by any disease or insect or disease pests) on private property and that the danger to other trees or to adjoining property or passing motorists or pedestrians is imminent, the Council shall notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14 days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property."

Budget

Proposed Budget

Total $36,300 over 6 years ($6,050/year)

FY 2020 Budget

Removal: $4,800
*Or saving for ash tree treatment and/or future ash removal
Planting: $700
Watering & Maintenance: $500

FY 2021 Budget

Removal: $4,000
*Or saving for ash tree treatment and/or future ash removal
Planting: $600
Routine trimming of trees requiring maintenance: $1,000
Watering & Maintenance: $500

FY 2022 Budget

Removal: $4,800
*Or saving for ash tree treatment and/or future ash removal
Planting: $700
Watering & Maintenance: $500

FY 2023 Budget

Removal: $4,000
*Or saving for ash tree treatment and/or future ash removal
Planting: $600
Routine trimming: $1,000
Watering & Maintenance: $500

FY 2024 Budget

Removal: $4,800
*Or saving for ash tree treatment and/or future ash removal
Planting: $700
Watering & Maintenance: $500

FY 2025 Budget

Removal: $4,000
*Or saving for ash tree treatment and/or future ash removal
Planting: $600
Routine trimming: $1,000
Watering & Maintenance: $500

*Reduction of ash over 6 years: All ash could be removed within 6 years.

Purposed Budget Increase

EAB could potentially kill all ash trees in Keota within 4 years of its arrival. To remove all ash trees within 6 years the proposed budget would be adequate. Additionally, it is recommended that Keota 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, if the average ash diameter is 20 inches and at $15 per inch, the cost would be $300 every two years, or $150 per year for each tree treated. 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 Keota. It is suggested to consider this in planning the budget.

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Keota

Annual Energy Benefits of Public Trees

3/23/2020

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	24.8	1,882	3,208.5	3,144	5,026	(N/A)	24.0	29.8	61.30
Norway maple	14.5	1,099	2,082.1	2,040	3,139	(N/A)	18.4	18.6	49.83
Sugar maple	5.6	428	753.7	739	1,167	(N/A)	7.0	6.9	48.63
Ash	4.1	308	592.4	581	888	(N/A)	5.6	5.3	46.74
Red maple	2.0	154	261.9	257	411	(N/A)	5.6	2.4	21.63
Northern pin oak	4.4	331	635.0	622	954	(N/A)	4.7	5.7	59.61
Apple	1.3	97	191.5	188	284	(N/A)	4.4	1.7	18.94
American sycamore	4.5	341	622.5	610	951	(N/A)	3.5	5.6	79.26
Northern hackberry	3.1	238	426.9	418	656	(N/A)	2.9	3.9	65.60
Eastern redbud	0.0	3	6.2	6	9	(N/A)	2.9	0.1	0.87
Siberian elm	2.5	189	328.1	322	511	(N/A)	2.0	3.0	72.96
Northern red oak	1.1	81	143.2	140	221	(N/A)	2.0	1.3	31.55
Littleleaf linden	0.5	39	73.8	72	112	(N/A)	1.5	0.7	22.34
White oak	1.5	114	214.9	211	325	(N/A)	1.5	1.9	64.98
American basswood	1.3	101	190.7	187	288	(N/A)	1.2	1.7	71.89
Green ash	1.8	133	235.9	231	364	(N/A)	1.2	2.2	91.02
Broadleaf Deciduous Large	1.0	74	126.7	124	198	(N/A)	0.9	1.2	65.97
Norway spruce	0.5	38	63.8	63	100	(N/A)	0.9	0.6	33.49
Amur maple	0.2	11	26.3	26	37	(N/A)	0.9	0.2	12.42
River birch	0.5	38	69.9	68	107	(N/A)	0.9	0.6	35.52
Tulip tree	1.2	88	159.5	156	244	(N/A)	0.9	1.4	81.32
Catalpa	1.3	99	173.1	170	268	(N/A)	0.9	1.6	89.39
Broadleaf Deciduous Mediu	0.5	36	73.3	72	108	(N/A)	0.9	0.6	35.88
Honeylocust	0.7	56	94.8	93	149	(N/A)	0.6	0.9	74.28
Black cherry	0.2	16	28.5	28	44	(N/A)	0.6	0.3	21.77
Black walnut	0.5	36	54.0	53	88	(N/A)	0.6	0.5	44.23
Mulberry	0.2	17	35.4	35	52	(N/A)	0.6	0.3	25.77
Callery pear	0.2	16	33.7	33	49	(N/A)	0.6	0.3	24.47
Kentucky coffeetree	0.0	0	0.5	0	1	(N/A)	0.3	0.0	0.66
Oak	0.3	20	38.1	37	57	(N/A)	0.3	0.3	57.32
Bur oak	0.0	0	0.5	0	1	(N/A)	0.3	0.0	0.66
Southern magnolia	0.1	6	12.7	12	19	(N/A)	0.3	0.1	18.82
Eastern white pine	0.1	10	14.6	14	24	(N/A)	0.3	0.1	24.14
Broadleaf Evergreen Mediur	0.0	1	2.8	3	4	(N/A)	0.3	0.0	3.94
Eastern red cedar	0.0	1	2.5	2	4	(N/A)	0.3	0.0	3.62
Northern white cedar	0.1	4	9.5	9	14	(N/A)	0.3	0.1	13.58
Black spruce	0.0	2	4.9	5	7	(N/A)	0.3	0.0	6.94
Total	80.4	6,106	10,992.2	10,772	16,878	(N/A)	100.0	100.0	49.35

Table 2: Annual Stormwater Benefits

Keota

Annual Stormwater Benefits of Public Trees

3/23/2020

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	345,152	9,354	(N/A)	24.0	37.4	114.07
Norway maple	125,427	3,399	(N/A)	18.4	13.6	53.95
Sugar maple	64,413	1,746	(N/A)	7.0	7.0	72.73
Ash	37,814	1,025	(N/A)	5.6	4.1	53.93
Red maple	11,879	322	(N/A)	5.6	1.3	16.94
Northern pin oak	48,165	1,305	(N/A)	4.7	5.2	81.58
Apple	4,535	123	(N/A)	4.4	0.5	8.19
American sycamore	63,790	1,729	(N/A)	3.5	6.9	144.06
Northern hackberry	28,401	770	(N/A)	2.9	3.1	76.97
Eastern redbud	74	2	(N/A)	2.9	0.0	0.20
Siberian elm	28,469	772	(N/A)	2.0	3.1	110.22
Northern red oak	8,532	231	(N/A)	2.0	0.9	33.03
Littleleaf linden	3,102	84	(N/A)	1.5	0.3	16.81
White oak	17,206	466	(N/A)	1.5	1.9	93.25
American basswood	18,119	491	(N/A)	1.2	2.0	122.76
Green ash	28,956	785	(N/A)	1.2	3.1	196.17
Broadleaf Deciduous Large	14,496	393	(N/A)	0.9	1.6	130.94
Norway spruce	10,748	291	(N/A)	0.9	1.2	97.09
Amur maple	536	15	(N/A)	0.9	0.1	4.85
River birch	3,901	106	(N/A)	0.9	0.4	35.24
Tulip tree	16,672	452	(N/A)	0.9	1.8	150.61
Catalpa	18,421	499	(N/A)	0.9	2.0	166.40
Broadleaf Deciduous Medium	3,651	99	(N/A)	0.9	0.4	32.98
Honeylocust	9,370	254	(N/A)	0.6	1.0	126.96
Black cherry	735	20	(N/A)	0.6	0.1	9.96
Black walnut	2,931	79	(N/A)	0.6	0.3	39.72
Mulberry	1,243	34	(N/A)	0.6	0.1	16.84
Callery pear	1,172	32	(N/A)	0.6	0.1	15.88
Kentucky coffeetree	18	0	(N/A)	0.3	0.0	0.48
Oak	2,591	70	(N/A)	0.3	0.3	70.21
Bur oak	18	0	(N/A)	0.3	0.0	0.48
Southern magnolia	677	18	(N/A)	0.3	0.1	18.34
Eastern white pine	1,539	42	(N/A)	0.3	0.2	41.70
Broadleaf Evergreen Medium	56	2	(N/A)	0.3	0.0	1.53
Eastern red cedar	183	5	(N/A)	0.3	0.0	4.97
Northern white cedar	596	16	(N/A)	0.3	0.1	16.14
Black spruce	256	7	(N/A)	0.3	0.0	6.95
Citywide total	923,842	25,036	(N/A)	100.0	100.0	73.21

Table 3: Annual Air Quality Benefits

Keota

Annual Air Quality Benefits of Public Trees

3/23/2020

Species	Deposition (lb)				Total Depos. ($)	Avoided (lb)				Total Avoided ($)	BVOC Emissions (lb)	BVOC Emissions ($)	Total (lb)	Total ($) Standard Error	% of Total Trees	Avg. $/tree
	O_3	NO_2	PM_{10}	SO_2		NO_2	PM_{10}	VOC	SO_2							
Silver maple	61.2	10.4	30.0	2.7	330	116.5	17.1	16.3	112.2	730	-33.7	-126	332.6	933 (N/A)	24.0	11.38
Norway maple	24.3	4.2	12.1	1.1	132	70.1	10.1	9.7	65.7	435	-5.8	-22	191.5	545 (N/A)	18.4	8.64
Sugar maple	9.5	1.6	4.7	0.4	51	26.7	3.9	3.7	25.6	167	-7.4	-28	68.7	190 (N/A)	7.0	7.93
Ash	7.7	1.3	3.8	0.3	41	19.7	2.8	2.7	18.4	122	-1.8	-7	54.9	157 (N/A)	5.6	8.24
Red maple	2.0	0.3	1.0	0.1	11	9.5	1.4	1.3	9.2	60	-0.8	-3	24.2	68 (N/A)	5.6	3.58
Northern pin oak	10.8	1.9	5.2	0.5	58	21.2	3.1	2.9	19.8	131	-2.5	-9	62.9	180 (N/A)	4.7	11.26
Apple	1.1	0.2	0.6	0.1	6	6.2	0.9	0.9	5.8	38	0.0	0	15.7	44 (N/A)	4.4	2.96
American sycamore	9.3	1.5	4.2	0.4	49	21.5	3.1	3.0	20.4	134	0.0	0	63.3	183 (N/A)	3.5	15.21
Northern hackberry	4.4	0.8	2.2	0.2	24	15.0	2.2	2.1	14.2	93	0.0	0	41.0	117 (N/A)	2.9	11.71
Eastern redbud	0.0	0.0	0.0	0.0	0	0.2	0.0	0.0	0.2	1	0.0	0	0.4	1 (N/A)	2.9	0.11
Siberian elm	5.3	0.9	2.5	0.2	28	11.8	1.7	1.6	11.3	74	0.0	0	35.3	102 (N/A)	2.0	14.54
Northern red oak	1.6	0.3	0.8	0.1	9	5.0	0.7	0.7	4.8	31	-2.3	-9	11.8	32 (N/A)	2.0	4.53
Littleleaf linden	0.3	0.1	0.2	0.0	2	2.5	0.4	0.3	2.4	16	-0.2	-1	5.9	17 (N/A)	1.5	3.32
White oak	2.1	0.3	1.0	0.1	11	7.3	1.1	1.0	6.8	45	0.0	0	19.7	56 (N/A)	1.5	11.24
American basswood	2.8	0.5	1.3	0.1	15	6.4	0.9	0.9	6.0	40	-2.3	-9	16.7	46 (N/A)	1.2	11.53
Green ash	4.6	0.7	2.0	0.2	24	8.3	1.2	1.2	7.9	52	0.0	0	26.3	76 (N/A)	1.2	19.04
Broadleaf Deciduous Large	3.2	0.5	1.4	0.1	16	4.6	0.7	0.6	4.4	29	0.0	0	15.5	45 (N/A)	0.9	15.06
Norway spruce	1.3	0.3	1.0	0.2	9	2.3	0.3	0.3	2.3	15	-6.3	-24	1.8	0 (N/A)	0.9	-0.11
Amur maple	0.1	0.0	0.1	0.0	1	0.8	0.1	0.1	0.7	5	0.0	0	1.8	5 (N/A)	0.9	1.73
River birch	0.7	0.1	0.4	0.0	4	2.4	0.4	0.3	2.3	15	-0.2	-1	6.4	18 (N/A)	0.9	6.07
Tulip tree	2.4	0.4	1.1	0.1	13	5.5	0.8	0.8	5.2	34	0.0	0	16.4	47 (N/A)	0.9	15.74
Catalpa	3.7	0.6	1.6	0.2	19	6.2	0.9	0.9	5.9	38	0.0	0	19.8	58 (N/A)	0.9	19.19
Broadleaf Deciduous Medium	0.6	0.1	0.3	0.0	3	2.3	0.3	0.3	2.1	14	-0.2	-1	6.0	17 (N/A)	0.9	5.70
Honeylocust	1.9	0.3	0.8	0.1	10	3.4	0.5	0.5	3.3	22	-1.5	-6	9.3	26 (N/A)	0.6	12.87
Black cherry	0.2	0.0	0.1	0.0	1	1.0	0.1	0.1	0.9	6	0.0	0	2.6	7 (N/A)	0.6	3.63
Black walnut	0.2	0.0	0.1	0.0	1	2.1	0.3	0.3	2.1	14	0.0	0	5.3	15 (N/A)	0.6	7.42
Mulberry	0.4	0.1	0.2	0.0	2	1.1	0.2	0.1	1.0	7	0.0	0	3.1	9 (N/A)	0.6	4.53
Callery pear	0.1	0.0	0.1	0.0	1	1.0	0.1	0.1	1.0	6	0.0	0	2.5	7 (N/A)	0.6	3.47
Kentucky coffeetree	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
Oak	0.3	0.0	0.1	0.0	1	1.3	0.2	0.2	1.2	8	0.0	0	3.3	9 (N/A)	0.3	9.34
Bur 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
Southern magnolia	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.4	3	-0.2	-1	0.8	2 (N/A)	0.3	2.10
Eastern white 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 Medium	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	0	0.0	0	0.2	0 (N/A)	0.3	0.47
Eastern red cedar	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	0	-0.1	0	0.1	0 (N/A)	0.3	0.20
Northern white cedar	0.1	0.0	0.1	0.0	0	0.3	0.0	0.0	0.3	2	-0.2	-1	0.6	1 (N/A)	0.3	1.48
Black spruce	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	1	-0.1	0	0.3	1 (N/A)	0.3	0.75
Citywide total	162.2	27.4	79.3	7.3	874	383.8	55.9	53.3	364.5	2,391	-66.0	-247	1,067.9	3,018 (N/A)	100.0	8.82

Table 4: Annual Carbon Stored

Keota

Stored CO2 Benefits of Public Trees

3/23/2020

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	1,521,457	11,411	(N/A)	24.0	39.6	139.16
Norway maple	399,124	2,993	(N/A)	18.4	10.4	47.51
Sugar maple	282,538	2,119	(N/A)	7.0	7.4	88.29
Ash	126,436	948	(N/A)	5.6	3.3	49.91
Red maple	24,784	186	(N/A)	5.6	0.6	9.78
Northern pin oak	178,845	1,341	(N/A)	4.7	4.7	83.83
Apple	18,321	137	(N/A)	4.4	0.5	9.16
American sycamore	306,412	2,298	(N/A)	3.5	8.0	191.51
Northern hackberry	66,504	499	(N/A)	2.9	1.7	49.88
Eastern redbud	138	1	(N/A)	2.9	0.0	0.10
Siberian elm	128,738	966	(N/A)	2.0	3.4	137.93
Northern red oak	32,709	245	(N/A)	2.0	0.9	35.05
Littleleaf linden	7,694	58	(N/A)	1.5	0.2	11.54
White oak	67,089	503	(N/A)	1.5	1.7	100.63
American basswood	107,518	806	(N/A)	1.2	2.8	201.60
Green ash	157,034	1,178	(N/A)	1.2	4.1	294.44
Broadleaf Deciduous	111,976	840	(N/A)	0.9	2.9	279.94
Norway spruce	16,151	121	(N/A)	0.9	0.4	40.38
Amur maple	1,830	14	(N/A)	0.9	0.0	4.57
River birch	11,586	87	(N/A)	0.9	0.3	28.97
Tulip tree	80,974	607	(N/A)	0.9	2.1	202.44
Catalpa	127,737	958	(N/A)	0.9	3.3	319.34
Broadleaf Deciduous	10,147	76	(N/A)	0.9	0.3	25.37
Honeylocust	24,490	184	(N/A)	0.6	0.6	91.84
Black cherry	3,215	24	(N/A)	0.6	0.1	12.06
Black walnut	7,344	55	(N/A)	0.6	0.2	27.54
Mulberry	6,921	52	(N/A)	0.6	0.2	25.95
Callery pear	2,201	17	(N/A)	0.6	0.1	8.26
Kentucky coffeetree	12	0	(N/A)	0.3	0.0	0.09
Oak	8,458	63	(N/A)	0.3	0.2	63.43
Bur oak	12	0	(N/A)	0.3	0.0	0.09
Southern magnolia	484	4	(N/A)	0.3	0.0	3.63
Eastern white pine	1,170	9	(N/A)	0.3	0.0	8.78
Broadleaf Evergreen T	3	0	(N/A)	0.3	0.0	0.02
Eastern red cedar	43	0	(N/A)	0.3	0.0	0.32
Northern white cedar	257	2	(N/A)	0.3	0.0	1.93
Black spruce	43	0	(N/A)	0.3	0.0	0.32
Citywide total	3,840,393	28,803	(N/A)	100.0	100.0	84.22

Table 5: Annual Carbon Sequestered

Keota

Annual CO Benefits of Public Trees

3/23/2020

Species	Sequestered (lb)	Sequestered ($)	Decomposition Release (lb)	Maintenance Release (lb)	Total Released ($)	Avoided (lb)	Avoided ($)	Net Total (lb)	Total ($) Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	106,430	798	-7,305	-276	-57	41,592	312	140,441	1,053 (N/A)	24.0	44.3	12.85
Norway maple	22,371	168	-1,917	-148	-15	24,282	182	44,588	334 (N/A)	18.4	14.1	5.31
Sugar maple	13,410	101	-1,360	-63	-11	9,468	71	21,455	161 (N/A)	7.0	6.8	6.70
Ash	4,784	36	-607	-45	-5	6,796	51	10,928	82 (N/A)	5.6	3.4	4.31
Red maple	3,447	26	-119	-19	-1	3,411	26	6,720	50 (N/A)	5.6	2.1	2.65
Northern pin oak	873	7	-859	-56	-7	7,325	55	7,282	55 (N/A)	4.7	2.3	3.41
Apple	1,914	14	-88	-17	-1	2,133	16	3,942	30 (N/A)	4.4	1.2	1.97
American sycamore	10,614	80	-1,471	-50	-11	7,538	57	16,632	125 (N/A)	3.5	5.2	10.39
Northern hackberry	3,619	27	-319	-28	-3	5,252	39	8,523	64 (N/A)	2.9	2.7	6.39
Eastern redbud	87	1	-1	-2	0	56	0	140	1 (N/A)	2.9	0.0	0.10
Siberian elm	4,728	35	-618	-27	-5	4,181	31	8,265	62 (N/A)	2.0	2.6	8.86
Northern red oak	1,614	12	-157	-13	-1	1,780	13	3,224	24 (N/A)	2.0	1.0	3.45
Littleleaf linden	1,407	11	-37	-7	0	871	7	2,235	17 (N/A)	1.5	0.7	3.35
White oak	3,796	28	-322	-16	-3	2,526	19	5,984	45 (N/A)	1.5	1.9	8.98
American basswood	5,708	43	-516	-16	-4	2,225	17	7,401	56 (N/A)	1.2	2.3	13.88
Green ash	3,648	27	-754	-20	-6	2,937	22	5,812	44 (N/A)	1.2	1.8	10.90
Broadleaf Deciduous Large	960	7	-538	-12	-4	1,630	12	2,041	15 (N/A)	0.9	0.6	5.10
Norway spruce	116	1	-78	-11	-1	838	6	865	6 (N/A)	0.9	0.3	2.16
Amur maple	236	2	-9	-3	0	254	2	479	4 (N/A)	0.9	0.2	1.20
River birch	861	6	-56	-5	0	842	6	1,643	12 (N/A)	0.9	0.5	4.11
Tulip tree	2,729	20	-389	-13	-3	1,937	15	4,264	32 (N/A)	0.9	1.3	10.66
Catalpa	1,815	14	-613	-15	-5	2,178	16	3,364	25 (N/A)	0.9	1.1	8.41
Broadleaf Deciduous Medi	918	7	-49	-5	0	792	6	1,656	12 (N/A)	0.9	0.5	4.14
Honeylocust	2,972	22	-118	-5	-1	1,230	9	4,078	31 (N/A)	0.6	1.3	15.29
Black cherry	306	2	-15	-3	0	346	3	633	5 (N/A)	0.6	0.2	2.37
Black walnut	891	7	-35	-4	0	786	6	1,637	12 (N/A)	0.6	0.5	6.14
Mulberry	38	0	-33	-4	0	372	3	373	3 (N/A)	0.6	0.1	1.40
Callery pear	448	3	-11	-2	0	352	3	787	6 (N/A)	0.6	0.2	2.95
Kentucky coffeetree	3	0	0	0	0	4	0	7	0 (N/A)	0.3	0.0	0.05
Oak	660	5	-41	-3	0	441	3	1,058	8 (N/A)	0.3	0.3	7.93
Bur oak	3	0	0	0	0	4	0	7	0 (N/A)	0.3	0.0	0.05
Southern magnolia	56	0	-2	-1	0	141	1	194	1 (N/A)	0.3	0.1	1.45
Eastern white pine	116	1	-6	-2	0	216	2	324	2 (N/A)	0.3	0.1	2.43
Broadleaf Evergreen Medi	1	0	0	0	0	26	0	27	0 (N/A)	0.3	0.0	0.20
Eastern red cedar	13	0	0	-1	0	26	0	39	0 (N/A)	0.3	0.0	0.29
Northern white cedar	53	0	-1	-1	0	94	1	145	1 (N/A)	0.3	0.0	1.08
Black spruce	12	0	0	-1	0	48	0	60	0 (N/A)	0.3	0.0	0.45
Citywide total	201,657	1,512	-18,443	-895	-145	134,931	1,012	317,249	2,379 (N/A)	100.0	100.0	6.96

Table 6: Annual Social and Aesthetic Benefits

Keota

Annual Aesthetic/Other Benefits of Public Trees

3/23/2020

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	8,174	(N/A)	24.0	47.0	99.68
Norway maple	2,164	(N/A)	18.4	12.4	34.35
Sugar maple	1,363	(N/A)	7.0	7.8	56.79
Ash	475	(N/A)	5.6	2.7	24.98
Red maple	515	(N/A)	5.6	3.0	27.12
Northern pin oak	94	(N/A)	4.7	0.5	5.87
Apple	109	(N/A)	4.4	0.6	7.24
American sycamore	753	(N/A)	3.5	4.3	62.77
Northern hackberry	509	(N/A)	2.9	2.9	50.88
Eastern redbud	0	(N/A)	2.9	0.0	0.03
Siberian elm	319	(N/A)	2.0	1.8	45.56
Northern red oak	133	(N/A)	2.0	0.8	19.07
Littleleaf linden	180	(N/A)	1.5	1.0	35.98
White oak	305	(N/A)	1.5	1.8	61.05
American basswood	368	(N/A)	1.2	2.1	91.93
Green ash	233	(N/A)	1.2	1.3	58.34
Broadleaf Deciduous Large	62	(N/A)	0.9	0.4	20.80
Norway spruce	32	(N/A)	0.9	0.2	10.77
Amur maple	13	(N/A)	0.9	0.1	4.28
River birch	85	(N/A)	0.9	0.5	28.32
Tulip tree	191	(N/A)	0.9	1.1	63.51
Catalpa	123	(N/A)	0.9	0.7	40.91
Broadleaf Deciduous Medium	95	(N/A)	0.9	0.5	31.83
Honeylocust	778	(N/A)	0.6	4.5	388.90
Black cherry	18	(N/A)	0.6	0.1	8.77
Black walnut	92	(N/A)	0.6	0.5	45.86
Mulberry	2	(N/A)	0.6	0.0	1.03
Callery pear	52	(N/A)	0.6	0.3	26.22
Kentucky coffeetree	5	(N/A)	0.3	0.0	5.26
Oak	58	(N/A)	0.3	0.3	57.69
Bur oak	5	(N/A)	0.3	0.0	5.26
Southern magnolia	22	(N/A)	0.3	0.1	21.93
Eastern white pine	32	(N/A)	0.3	0.2	32.32
Broadleaf Evergreen Medium	0	(N/A)	0.3	0.0	0.01
Eastern red cedar	13	(N/A)	0.3	0.1	13.37
Northern white cedar	15	(N/A)	0.3	0.1	15.42
Black spruce	12	(N/A)	0.3	0.1	12.31
Citywide total	17,400	(N/A)	100.0	100.0	50.88

Table 7: Summary of Benefits in Dollars

Keota

Total Annual Benefits of Public Trees by Species ($)

3/23/2020

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Silver maple	5,026	1,053	933	9,354	8,174	24,540	(N/A)	37.9
Norway maple	3,139	334	545	3,399	2,164	9,581	(N/A)	14.8
Sugar maple	1,167	161	190	1,746	1,363	4,627	(N/A)	7.1
Ash	888	82	157	1,025	475	2,626	(N/A)	4.1
Red maple	411	50	68	322	515	1,367	(N/A)	2.1
Northern pin oak	954	55	180	1,305	94	2,588	(N/A)	4.0
Apple	284	30	44	123	109	590	(N/A)	0.9
American sycamore	951	125	183	1,729	753	3,740	(N/A)	5.8
Northern hackberry	656	64	117	770	509	2,115	(N/A)	3.3
Eastern redbud	9	1	1	2	0	13	(N/A)	0.0
Siberian elm	511	62	102	772	319	1,765	(N/A)	2.7
Northern red oak	221	24	32	231	133	641	(N/A)	1.0
Littleleaf linden	112	17	17	84	180	409	(N/A)	0.6
White oak	325	45	56	466	305	1,198	(N/A)	1.9
American basswood	288	56	46	491	368	1,248	(N/A)	1.9
Green ash	364	44	76	785	233	1,502	(N/A)	2.3
Broadleaf Deciduous La	198	15	45	393	62	714	(N/A)	1.1
Norway spruce	100	6	0	291	32	430	(N/A)	0.7
Amur maple	37	4	5	15	13	73	(N/A)	0.1
River birch	107	12	18	106	85	328	(N/A)	0.5
Tulip tree	244	32	47	452	191	966	(N/A)	1.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Catalpa	268	25	58	499	123	973	(N/A)	1.5
Broadleaf Deciduous M	108	12	17	99	95	332	(N/A)	0.5
Honeylocust	149	31	26	254	778	1,237	(N/A)	1.9
Black cherry	44	5	7	20	18	93	(N/A)	0.1
Black walnut	88	12	15	79	92	287	(N/A)	0.4
Mulberry	52	3	9	34	2	99	(N/A)	0.2
Callery pear	49	6	7	32	52	146	(N/A)	0.2
Kentucky coffeetree	1	0	0	0	5	7	(N/A)	0.0
Oak	57	8	9	70	58	202	(N/A)	0.3
Bur oak	1	0	0	0	5	7	(N/A)	0.0
Southern magnolia	19	1	2	18	22	63	(N/A)	0.1
Eastern white pine	24	2	3	42	32	103	(N/A)	0.2
Broadleaf Evergreen Me	4	0	0	2	0	6	(N/A)	0.0
Eastern red cedar	4	0	0	5	13	22	(N/A)	0.0
Northern white cedar	14	1	1	16	15	48	(N/A)	0.1
Black spruce	7	0	1	7	12	27	(N/A)	0.0
Citywide Total	16,878	2,379	3,018	25,036	17,400	64,712	(N/A)	100.0

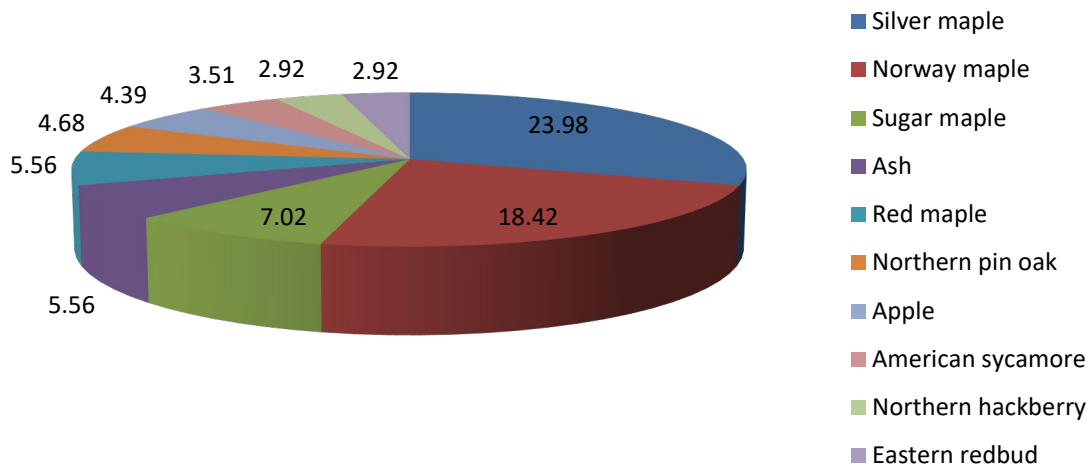

Figure 1: Species Distribution

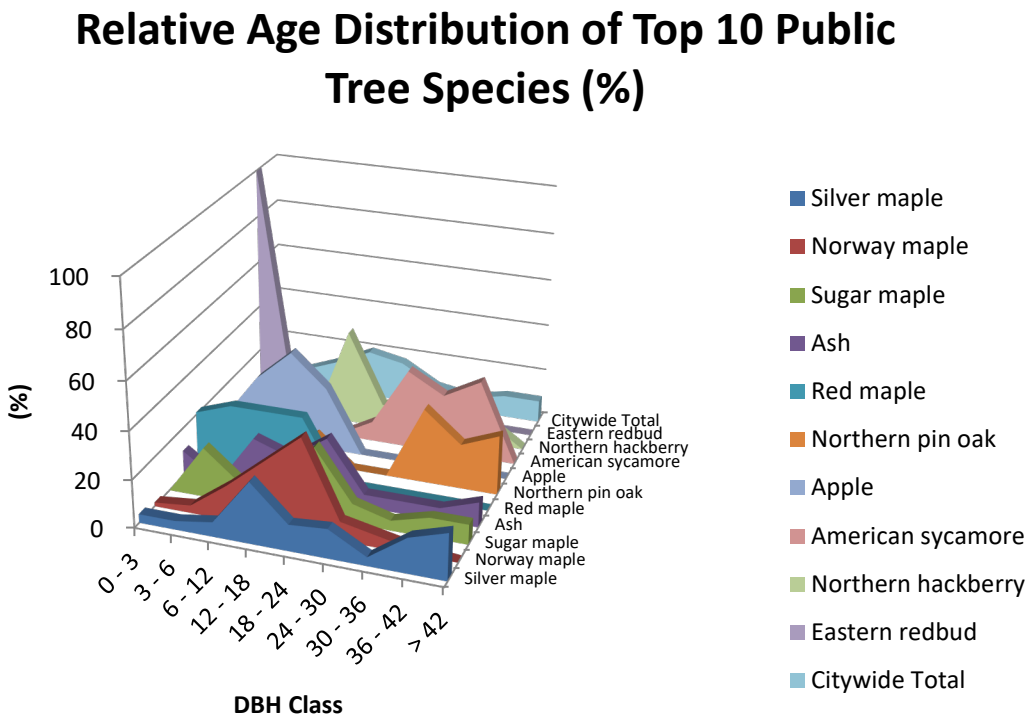

Figure 2: Relative Age Class

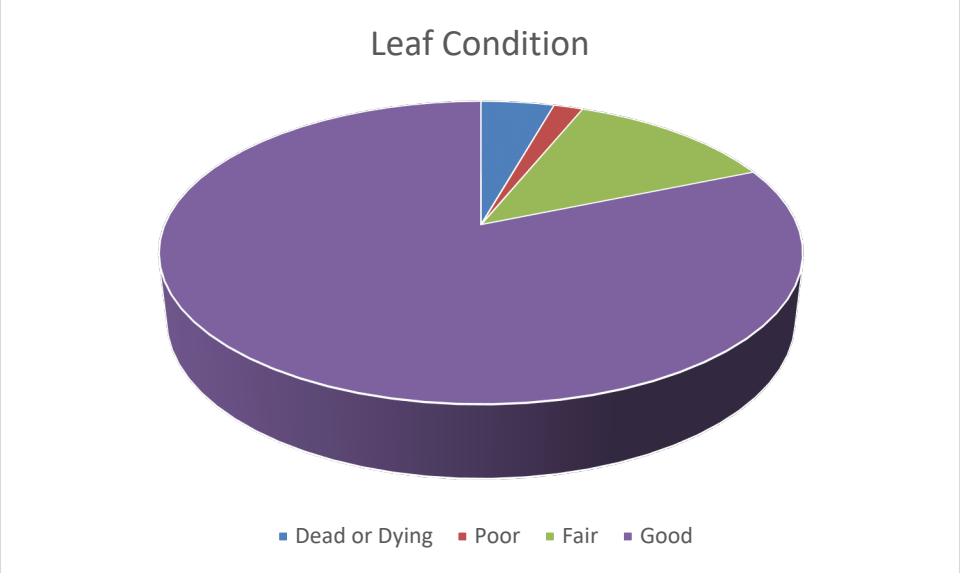

Figure 3: Foliage Condition

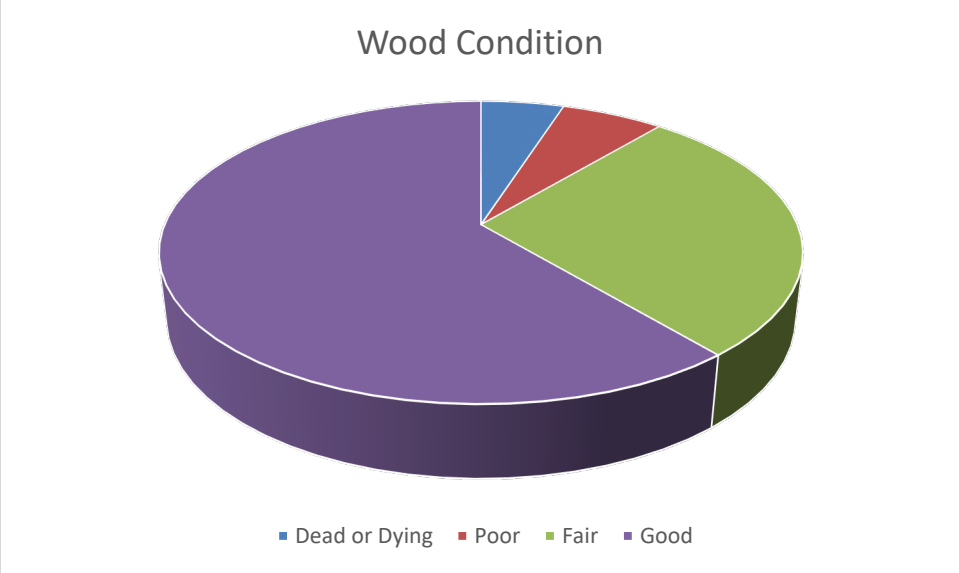

Figure 4: Wood Condition

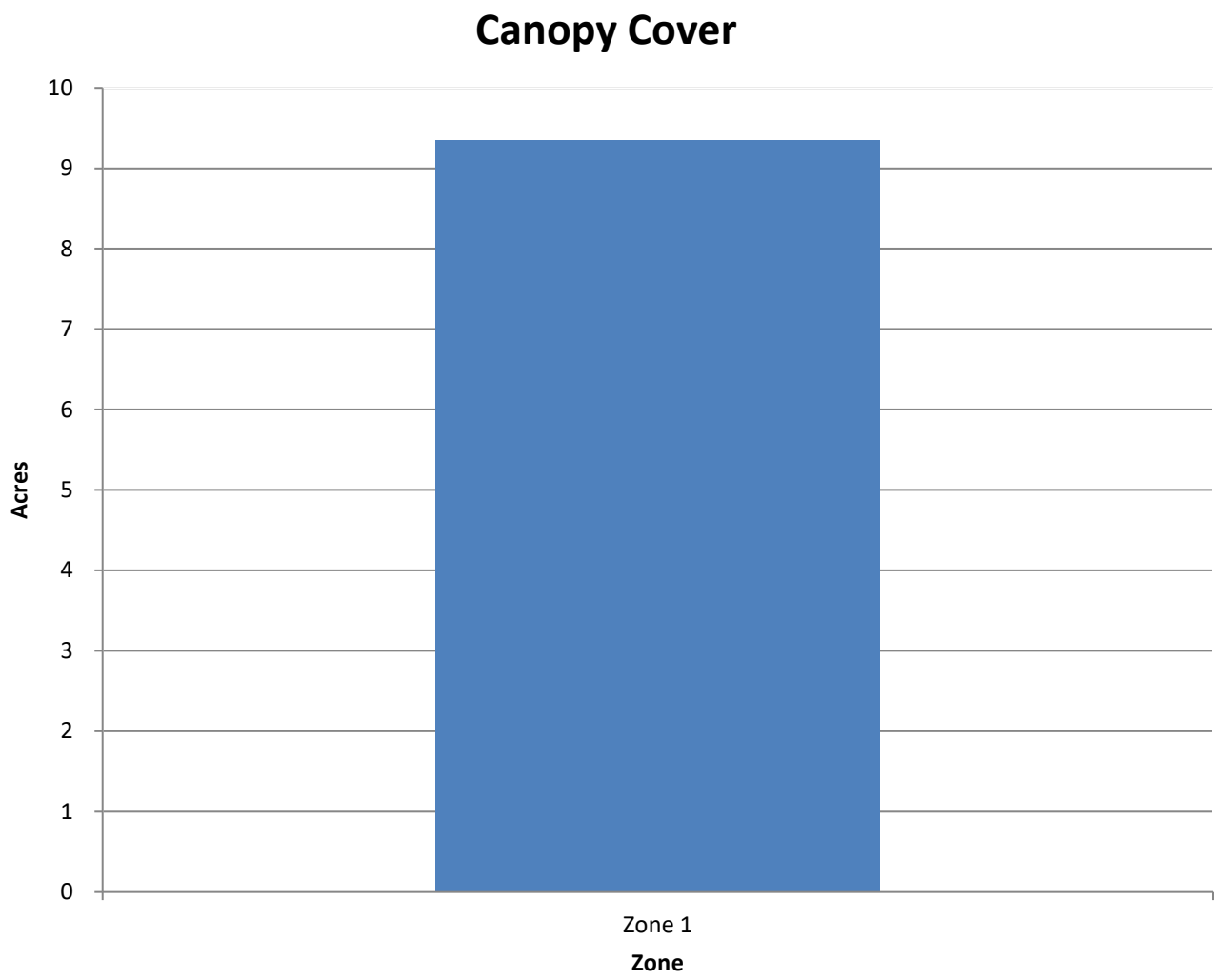

Figure 5: Canopy Cover in Acres

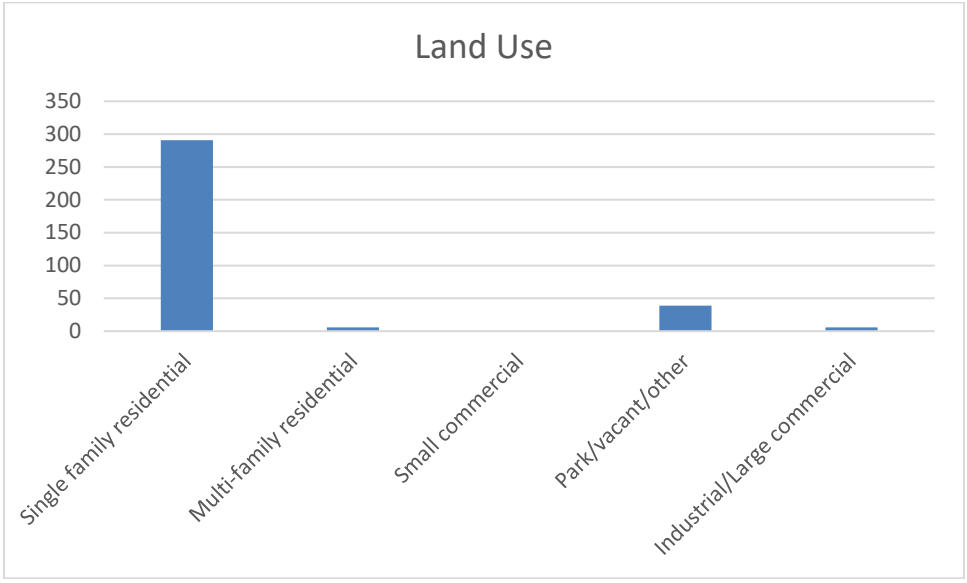

Figure 6: Land Use of city/park trees

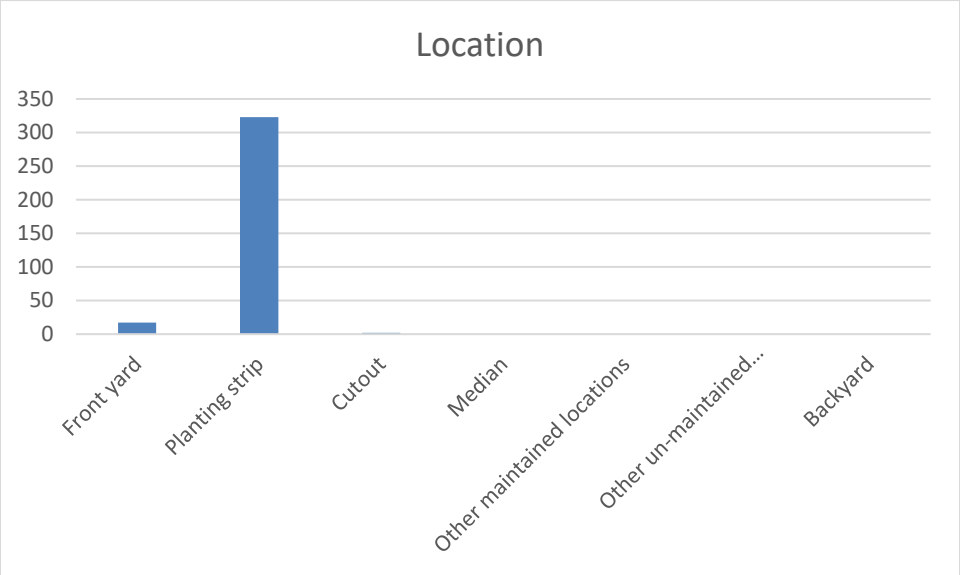

Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

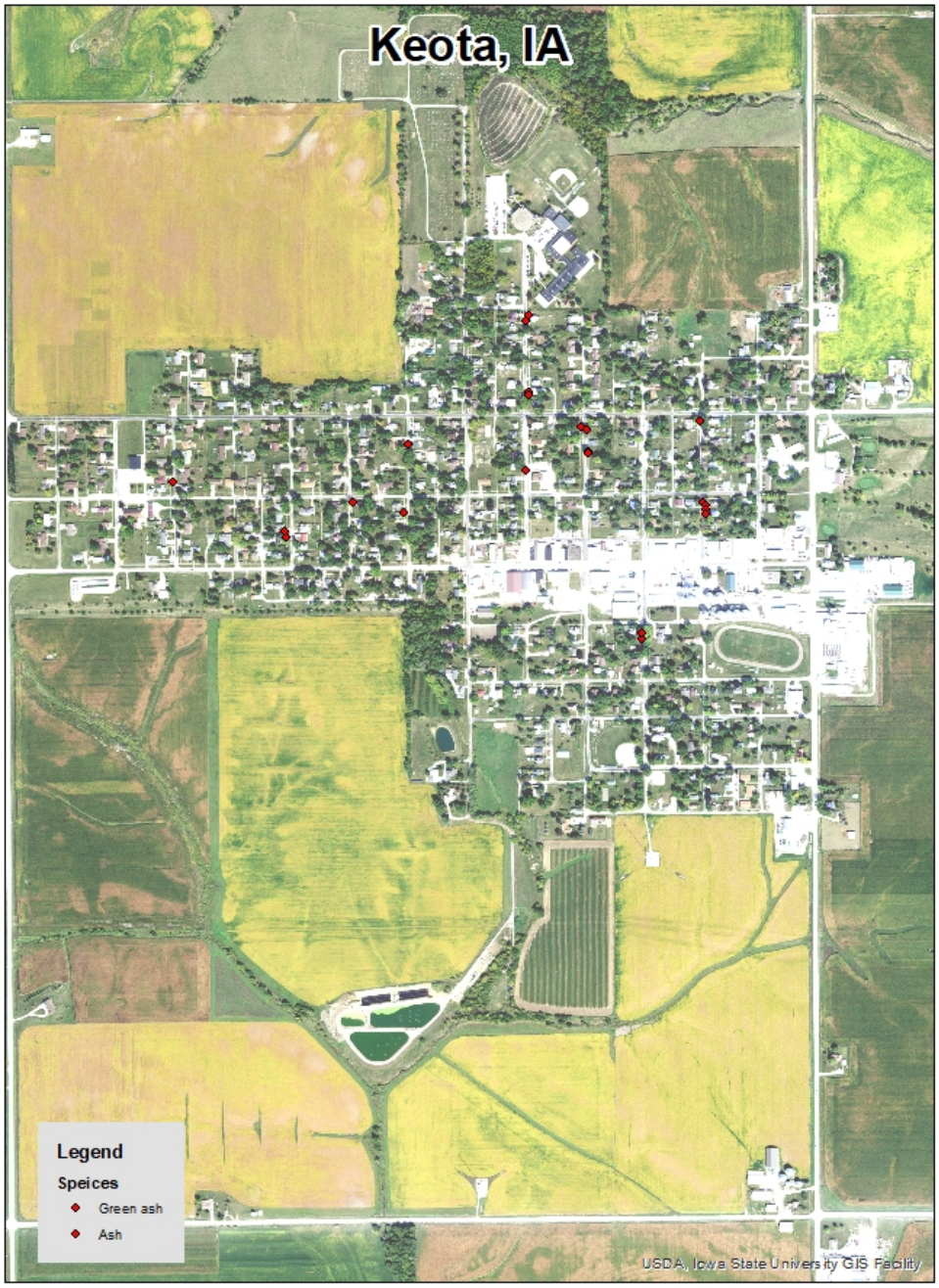

Figure 1: Location of Ash Trees

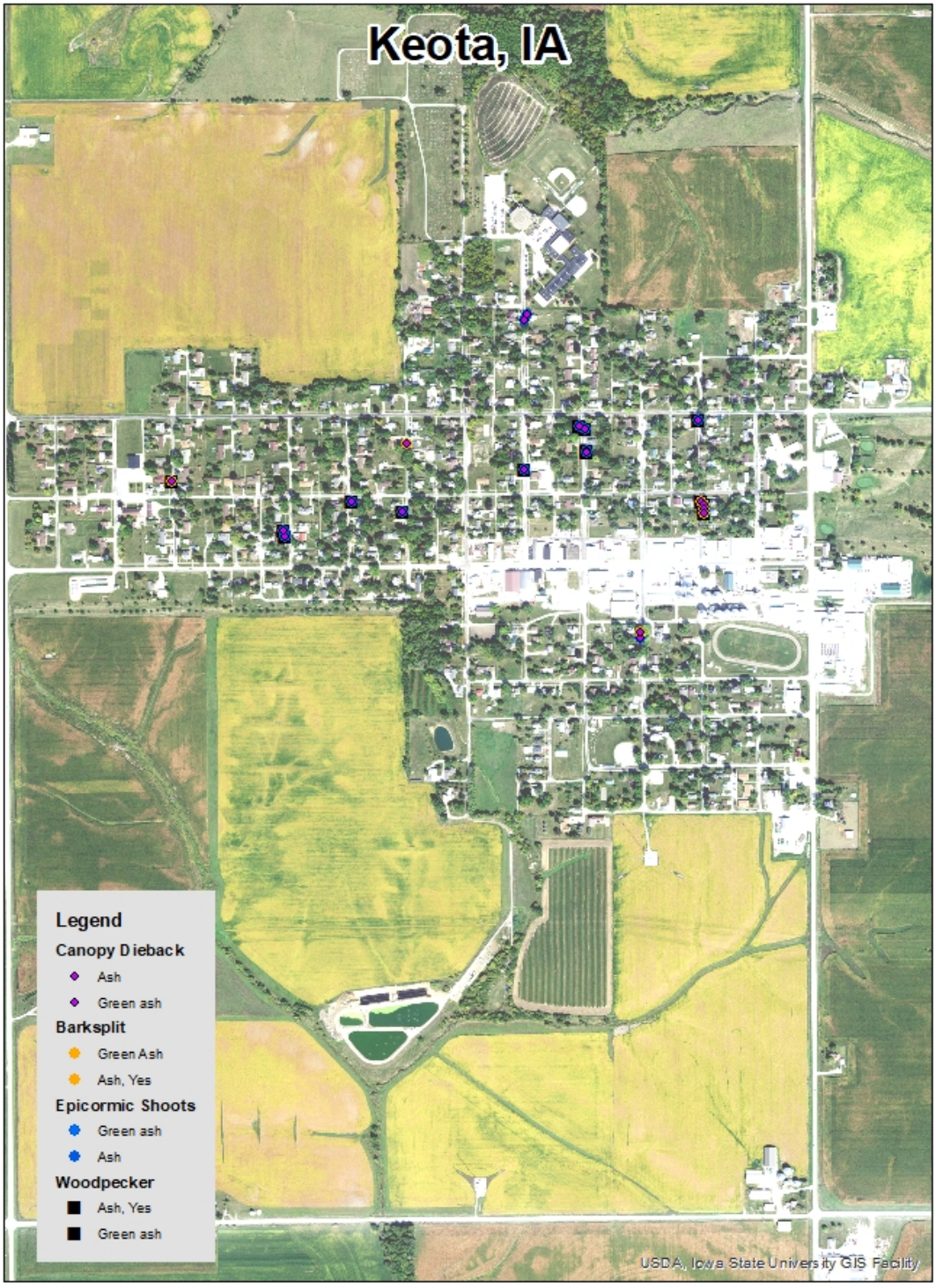

Figure 2: Location of EAB symptoms

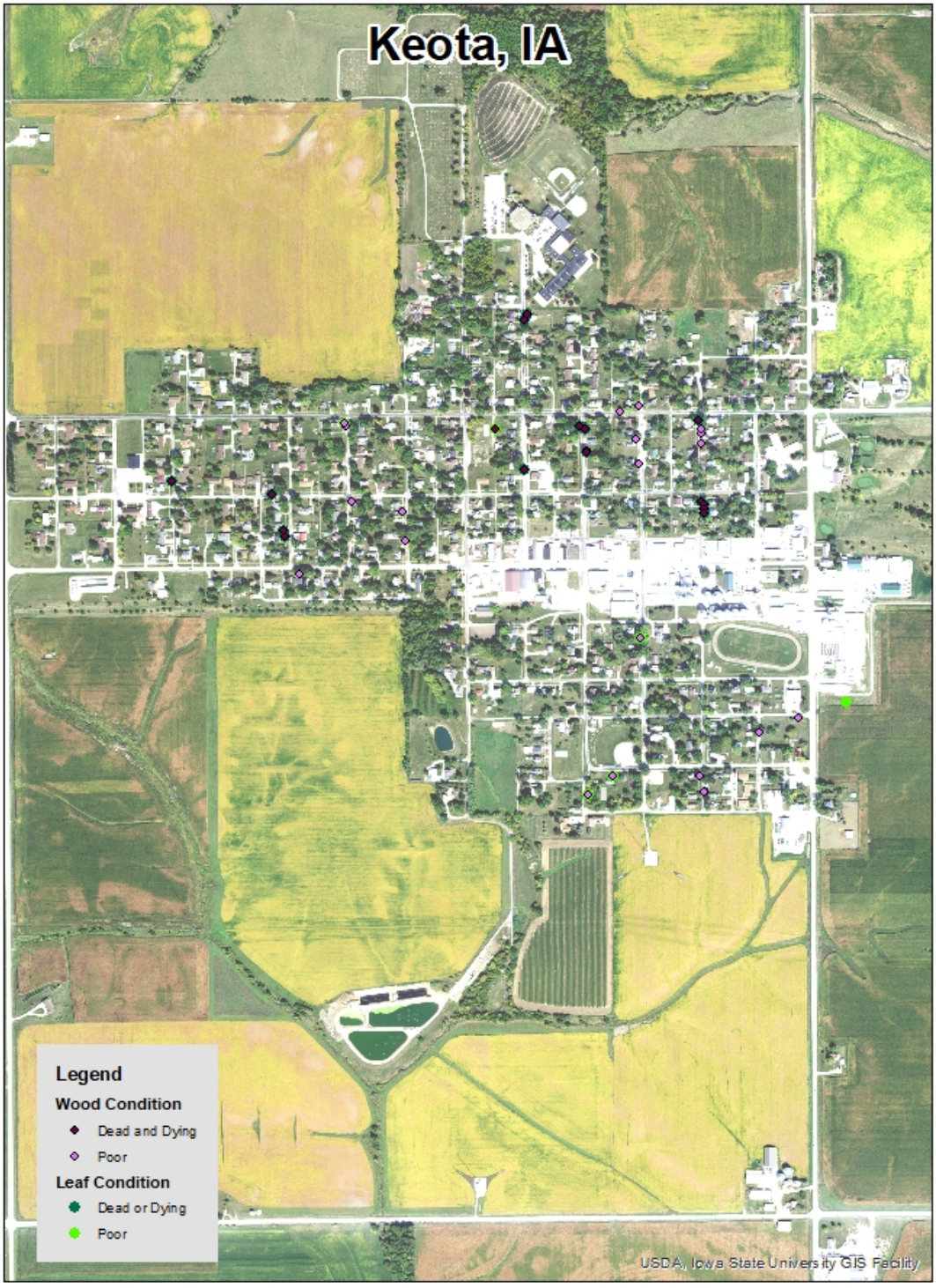

Figure 3: Location of Poor Condition Trees

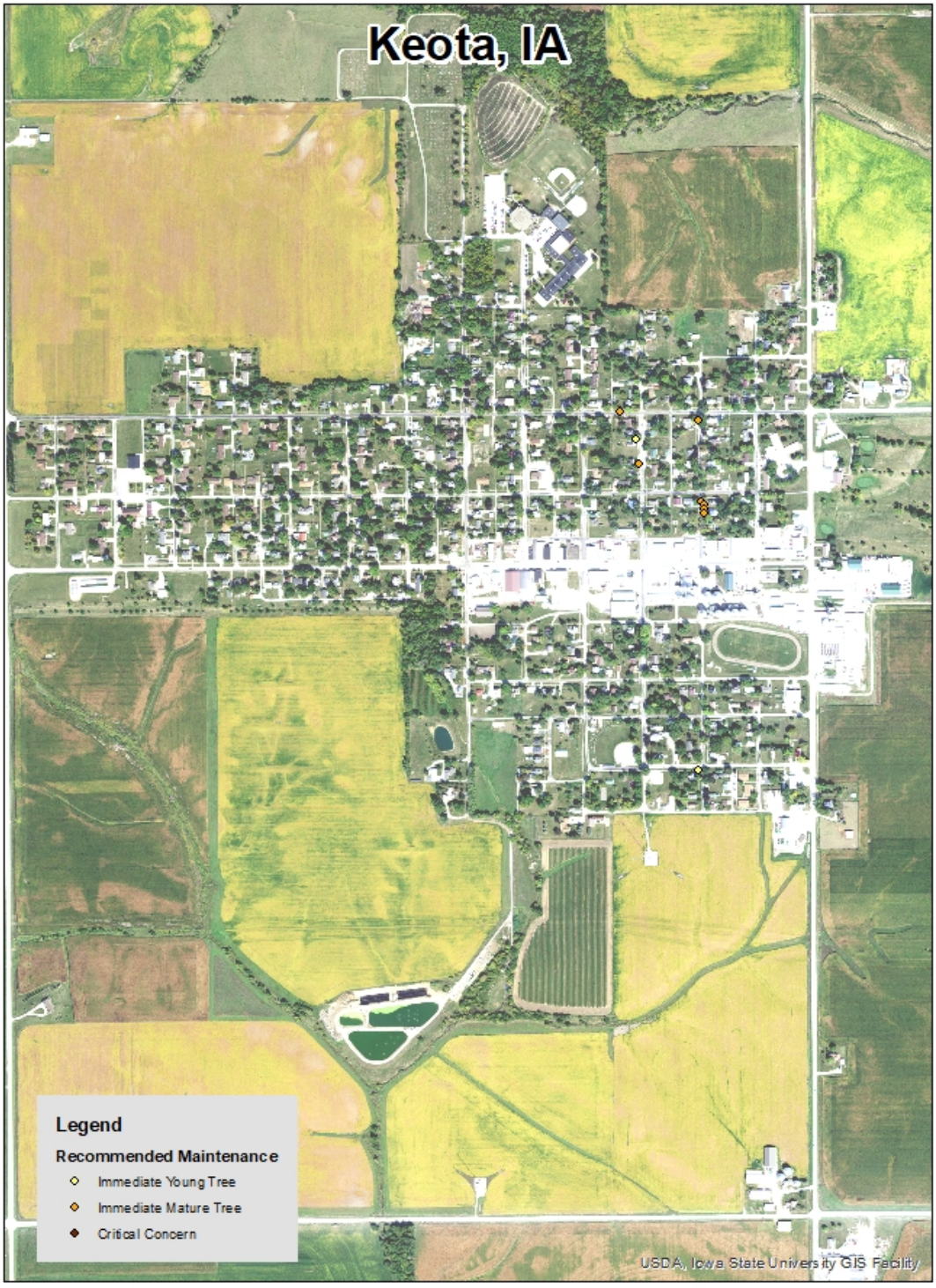

Figure 4: Location of Trees with Recommended Maintenance

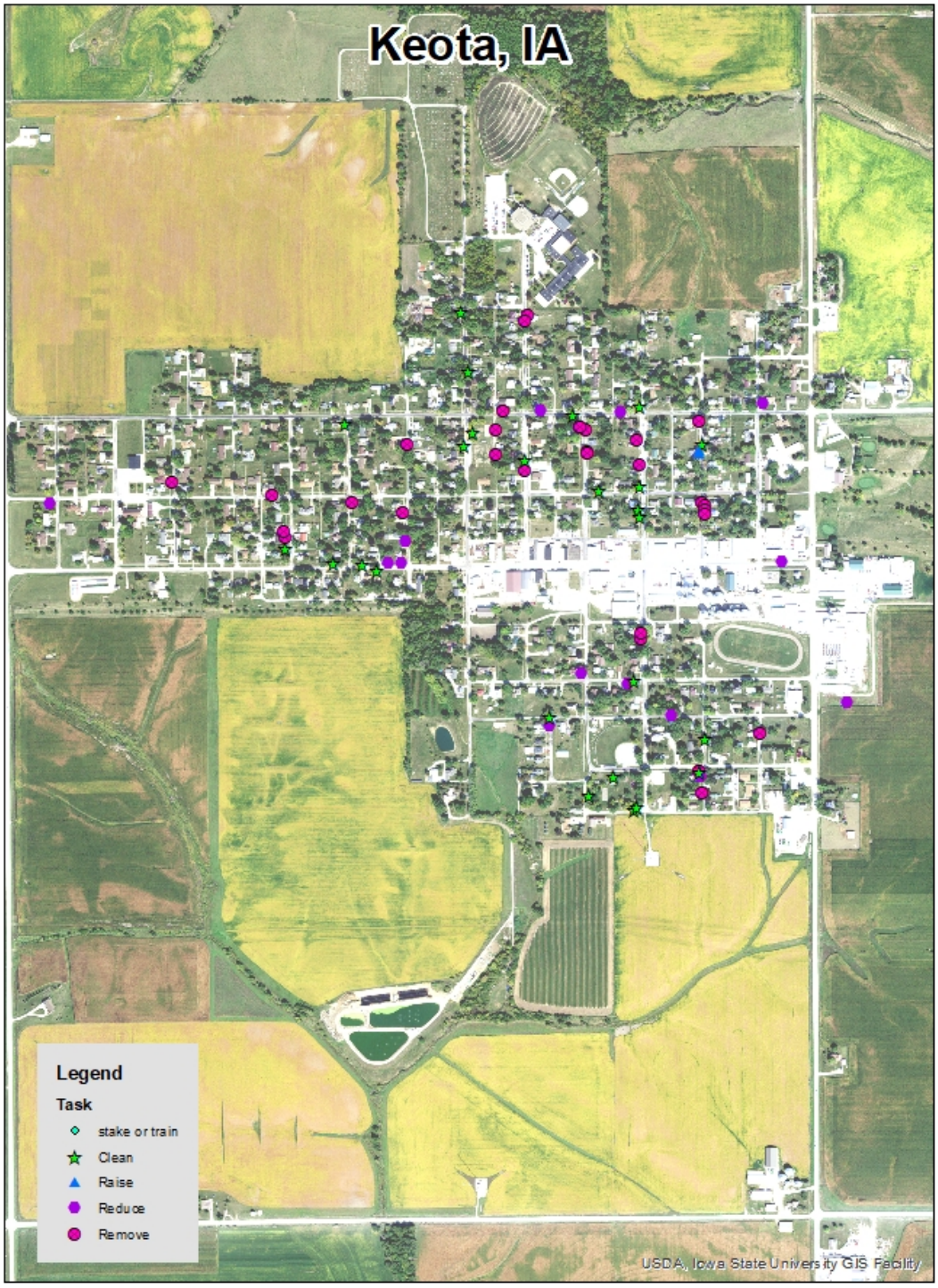

Figure 5: Maintenance Tasks ***City ownership of the trees recommended for removal should be verified prior to any removal***

Appendix C: Keota Tree Ordinances

TREES
TITLE VI PHYSICAL ENVIRONMENT
CHAPTER 15 TREES GENERAL PROVISIONS

6-15-1 PURPOSE

The purpose of the chapters in this Code of Ordinances pertaining to Trees is to beautify and preserve the appearance of the City by regulating and providing for the planting, care and removal of trees.
DEFINITIONS

For use in these chapters, the following terms are defined:

1. "Parking" means that part of the street, avenue or highway in the City not covered by sidewalk and lying between the lot line and the curb line; or, 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.
2. "Superintendent" means the superintendent of streets or such other person as may be designated by the Council.

6-15-3 PLANTING RESTRICTIONS

No tree shall be planted in any street or parking except in accordance with the following:

1. Alignment. All trees hereafter planted in any street shall be planted in the parking midway between the outer line of the sidewalk and the curb. In the event a curb line is not established, trees shall be planted on a line ten (10) feet from the property line.
2. Spacing. Trees shall not be planted on any parking which is less than nine (9) feet in width, or contains less than eighty-one (81) square feet of exposed soil surface per tree. Trees shall not be planted closer than twenty (20) feet from street intersections (property lines extended) and ten (10) feet from driveways. If it is at all possible trees should be planted inside the property lines and not between the sidewalk and the curb.
3. 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, or evergreens.

6-15-4 DUTY TO TRIM TREES

The owner or agent of the abutting property shall keep the trees on, or overhanging the street, trimmed so that all branches will be at least fifteen (15) feet above the surface of the street and eight (8) feet above the sidewalks.
(Code of Iowa, sec. 364.12[2c3)

6-15-5 ASSESSMENT

If the abutting property owner fails to trim the trees as required in this chapter, the City may serve notice on the abutting property owner requiring that such action be taken within five (5) days. If such action is not taken within that time, the City may perform the required action and assess the costs against the abutting property for collection in the same manner as a property tax.
(Code of 101A[Ï]a, Sec. 364.12[2d & e])

6-15-6 TRIMMING TREES TO BE SUPERVISED

It shall be unlawful for any person to trim or cut any tree in a street or public place unless the work is done under the supervision of the City.

6-15-7 REMOVAL OF TREES

The superintendent shall remove, on order of the Council, any tree on the streets of the City which interferes with the making of improvements or with travel thereon. The superintendent shall additionally remove any trees on the street, not on private property, which are dead or 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 [2c] & 372.13 [4])

TREES - DUTCH ELM DISEASE
TITLE VI PHYSICAL ENVIRONMENT
CHAPTER 16 TREES - DUTCH ELM DISEASE CONTROL

6-16-1 TREES SUBJECT TO REMOVAL

The 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[3b])

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 is scolytus multistriatus (eichb.) or hylurgopinus rufipes (marsh.).
2. Dead Trees. Any dead elm tree or part thereof including 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.

6-16-2 DUTY to REMOVE

No person or entity shall permit any tree or material as defined in Section 6-16-1 to remain on the premises owned, controlled or occupied by such person or entity within the City.
(Code of Iowa, Sec. 364.1213b])

6-16-3 INSPECTION

The superintendent inspects or causes to be inspected all premises and places within the City to determine whether any condition as defined in Section 6-16-1 exists thereon, and also inspects or causes 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.

6-16-4 REMOVAL FROM CITY PROPERTY

If the superintendent, upon inspection or examination, determines 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 danger to other elm trees within the City is imminent, the superintendent shall immediately cause such condition to be corrected so 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.

6-16-5 REMOVAL FROM PRIVATE PROPERTY

If the superintendent, upon inspection or examination, 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, the superintendent shall immediately notify by certified mail the owner, occupant or person in charge of such property to correct such condition within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within fourteen (14) days of receipt of notice, the Council may cause the nuisance to be removed and the cost assessed against the property as provided in Chapter 56.
(Code of Iowa, Sec. 364.12[3b & h])
1f the superintendent is unable to determine with reasonable certainty whether or not a tree in or upon private premises is infected with Dutch Elm Disease, the superintendent is authorized to remove or cut specimens from said tree, and obtain a diagnosis of such specimens.

Ordinance No. 2020-273

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF KEOTA, IOWA, 2017, BY AMENDING PROVISIONS PERTAINING TO THE TREES – GENERAL PROVISIONS.

BE IT ENACTED by the City Council of the City of Keota, Iowa:

SECTION 1. Title VI, Chapter 15, Section 3-1 and 3-3 of the Keota Municipal Code, 2017, is hereby repealed and the following adopted in lieu thereof:

Title VI, Chapter 15, Section 3-1: Alignment of planting trees is hereby repealed.

Title VI, Chapter 15, Section 3-3: Prohibited Trees. No person shall plant any tree or shrub in the city right of way effective March 25, 2020. All trees or shrubs planted before March 25, 2020 are exempt.

SECTION 2. REPEALER. That all other ordinances or parts of ordinances in conflict herewith are repealed.

SECTION 3. SEVERABILITY CLAUSE. That if any section, subsection, sentence, clause, or phrase of this ordinance is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council of the City of Keota, Iowa, hereby declares that it would have passed this ordinance, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

SECTION 4. WHEN EFFECTIVE. This Ordinance shall be in effect from and after its final passage, approval and publication as provided by law.

Passed and approved by the Keota City Council on the 16th day of March, 2020.

ANTHONY CANSLER, MAYOR

ATTEST:

TOMISHA HAMMES, CITY CLERK

I certify that the foregoing was published as Ordinance 273 on March 25, 2020

Ordinance No. 2020-272

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF KEOTA, IOWA, 2017, BY AMENDING PROVISIONS PERTAINING TO THE NUISANCES – COTTON BEARING TREES.

BE IT ENACTED by the City Council of the City of Keota, Iowa:

SECTION 1. Title III, Chapter 2, Section 1-h of the Keota Municipal Code, 2017, is hereby repealed:

Title III, Chapter 2, Section 1-h: Cotton-bearing cotton wood trees and all other cotton-bearing poplar trees in the city from the Keota Municipal Code, 2017, is hereby repealed.

SECTION 2. REPEALER. That all other ordinances or parts of ordinances in conflict herewith are repealed.

SECTION 3. SEVERABILITY CLAUSE. That if any section, subsection, sentence, clause, or phrase of this ordinance is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council of the City of Keota, Iowa, hereby declares that it would have passed this ordinance, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

SECTION 4. WHEN EFFECTIVE. This Ordinance shall be in effect from and after its final passage, approval and publication as provided by law.

Passed and approved by the Keota City Council on the 16th day of March, 2020.

ANTHONY CANSLER, MAYOR

ATTEST:

TOMISHA HAMMES, CITY CLERK

I certify that the foregoing was published as Ordinance 271 on March 25, 2020.

ROLL CALL VOTE COUNCIL MEMBER NAME	AYES	NAYS	ABSTAIN	ABSENT
MIKE BENDER	✓			
KEITH CONRAD	✓			
MATT GREINER	✓			
ROD HILL	✓			
CURT BURROUGHS	✓			

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