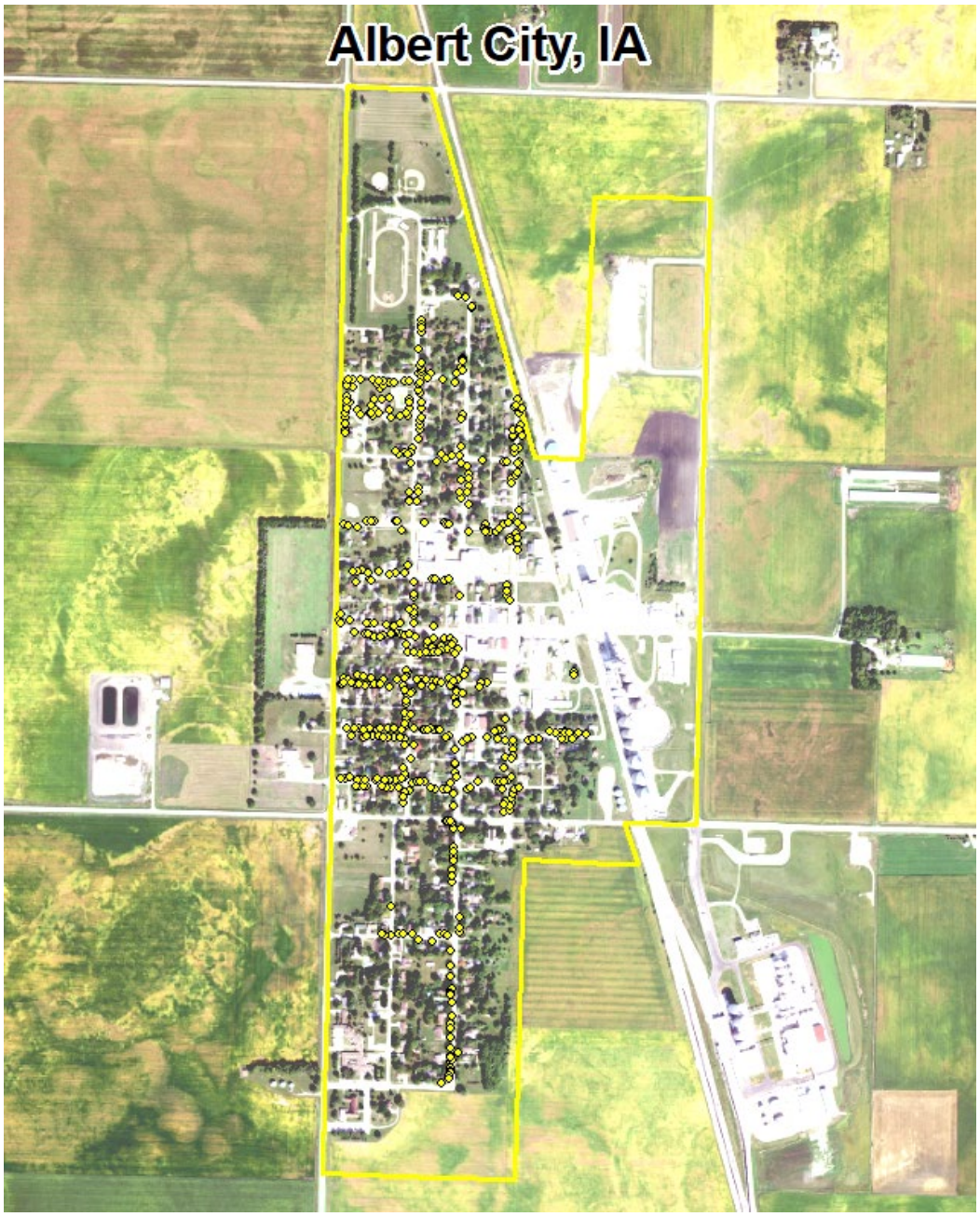
Albert City, IA



2021 Urban Forest Management Plan
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Executive Summary

Overview

This plan was developed to assist the City of Albert City 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 20% of Albert City's city owned trees (ash) will die once EAB becomes established in the community, unless preventative treatment is used. With proper planning and management, the costs of removing dead and dying trees can be extended over years, mitigating public safety issues.

Inventory and Results

In 2020, a tree inventory was conducted using Global Positioning System (GPS) data collectors. The inventory was a complete inventory of street and park trees. Below are some key findings of the 509 trees inventoried.

- Albert City's trees provide $93,341 of benefits annually, an average of $183 a tree
- There are over 36 species of trees
- The top three genera are: Maple 49%, Ash 20%, and honey locust 5.5%
- 24% of trees are in need of some type of management
- 23 trees are recommended for removal

Recommendations

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

- Of the 23 trees needing removal, 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*
- 93 of the 104 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 current budget it could take 21 years to remove ash – Suggestion: request a budget increase to $10,000 annually and apply for grants to plant replacement trees

Introduction

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

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

Inventory

In 2020, a tree inventory was conducted that included 100% of the city owned trees on both streets and parks. The tree data was collected using a handheld Global Positioning System (GPS) receiver. The data collector gives Geographic Information Systems (GIS) coordinates with an accuracy of 3 meters, which can be used in Arc GIS as an active GIS data layer. Because the inventory is a digital document the data can be updated with new information and become a working document.

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

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

Inventory Results

The data collected for the 509 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. Fin

Annual Benefits

Annual Energy Benefits

Trees conserve energy by shading buildings and blocking winds. Albert City's trees reduce energy related costs by approximately $24,695 annually (Appendix A, Table 1). These savings are both in Electricity (119.5 MWh) and in Natural Gas (15,944.2 Therms).

Annual Stormwater Benefits

Albert City's trees intercept about 1,182,591 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $32,048 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 Albert City, it is estimated that trees remove 1,480.1 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 $4,147 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Albert City, trees sequester about 200,444 lbs of carbon a year with an associated value of $3,373 (Appendix A, Table 5). In addition, the trees store 3,962,318 lbs of carbon, with a yearly benefit of $29,717 (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. Albert City receives $29,077 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, Albert City's trees provide $93,341 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 509 trees in Albert City provide approximately $183 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

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

Maple(silver, norway, sugar, red, box elder)	252	49.5%
Ash	104	20%
Spruce	32	6%
Honey Locust	282	5.5%
Linden/Basswood	18	3.5%
Apple (Crab)	11	2%
Black Walnut	11	2%
Mountain Ash	11	1%
Birch	10	1%
Dogwood	10	1%
Hackberry	10	1%
Walnut	10	1%

Age Class

Most of Albert City's trees (57%) are between 12 and 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. Albert City's size curve is on the medium side, indicating a "middle aged" 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 Albert City indicate that 96% of the trees are in good health, with only .5% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 82% of Albert City'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 5% of the population. This 5% 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	54	11%
Tree Removal	23	4.5%
Crown Reduction	15	3%

Canopy Cover

The total canopy with both private and public trees is 19%, and 65.5 acres. The canopy cover on city own properties included in the Albert City inventory includes approximately 12.7 acres (Appendix A, Figure 4). The City's Canopy goal is to increase canopy by 3%, in 30 years on all lands. To achieve this goal it is estimated that 17 trees need to be planted annually on public and/or private lands.

Land Use and Location

The majority of Albert City'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	82%
Park/Vacant/Other	18%

Location	
Planting strip	60%
Front yard	40%

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

Albert City has 3 trees that are of immediate and critical concern 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 2 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 an additional 89 trees with these needs including 20 trees recommended for removal though not currently critical.

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 3 critical and immediate removals, 1 is an ash tree. There are 7 additional ash trees recommended for removal. There are a total of 104 ash trees, and 93 of those have signs and symptoms that have been associated with EAB. In addition, there are 27 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 Albert City.

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 (49.5%) (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: ash, cottonwood, poplar, box elder, Chinese elm, or evergreen as outlined in section 3.02 of the city ordinance (Appendix C). All trees planted must meet the restrictions in city ordinance chapter 3 (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 woodpecker damage.

Budget and Emerald Ash Borer Plan

Six Year Maintenance Plan with <u>No Additional Funding</u>
Current Budget $8,000/year, Total $48,000 over 6 years

FY 2021
Removal: 3 largest critical concern trees plus 5 additional needing removed, $6,400
Planting and Replacement: 11 trees to be planted in open locations, $1,100
Young Tree Pruning & Maintenance: $500
Visual Survey for signs and symptoms of EAB

FY 2022
Removal: 3 additional trees needing removed
*Or saving for ash tree treatment and/or future ash removal, $2,400
Planting and Replacement: 5 trees in open locations from year one removals, $500
Young Tree Pruning & Maintenance: $500
Routine trimming: Contract to trim 1/3 of the city trees, $4,600
Visual Survey for signs and symptoms of EAB

FY 2023
Removal: 8 trees planned to be removed or any new critical concern trees and ash in poor health
*Or saving for ash tree treatment and/or future ash removal, $6,400
Planting and Replacement: 11 trees to be planted in open locations and locations from previous removals, $1,100
Young Tree Pruning & Maintenance: $500
Visual Survey for signs and symptoms of EAB

FY 2024
Removal: 3 trees planned to be removed or any new critical concern trees and ash in poor health
*Or saving for ash tree treatment and/or future ash removal, $2,400
Planting and Replacement: 5 trees in open locations from previous removals, $500
Routine trimming: Contract to trim 1/3 of the city trees, $4,600
Young Tree Pruning & Maintenance: $500
Visual Survey for signs and symptoms of EAB

FY 2025
Removal: 8 trees planned to be removed or any new critical concern trees and ash in poor health
*Or saving for ash tree treatment and/or future ash removal, $6,400
Planting and Replacement: 11 trees to be planted in open locations and locations from previous removals, $1,100
Young Tree Pruning & Maintenance: $500
Visual Survey for signs and symptoms of EAB

FY 2026
Removal: 3 trees planned to be removed or any new critical concern trees and ash in poor health
*Or saving for ash tree treatment and/or future ash removal, $2,400
Planting and Replacement: 5 trees in open locations from previous removals, $500
Routine trimming: Contract to trim 1/3 of the city trees, $4,600

Young Tree Pruning & Maintenance: $500
Visual Survey for signs and symptoms of EAB

*Reduction of ash over 6 years: As much as approximately 30 ash trees could be removed depending on infestation status (approximately 29% of ash). It will take approximately 21 years to remove all ash with the current budget if this plan is followed. 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 $19,500 a year. If the budget were increased to $10,000 a year all ash could be removed in 14 years.

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 an 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 3.02 (Appendix C). The new plantings will be a diverse mix and will not include ash, maple, cottonwood, poplar, box elder, Chinese elm, or evergreen.

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 woodpecker 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 Code 3.07 states " The city shall notify the owner of any tree, shrub, bush or other woody vegetation located on private property to remove the tree, bush, shrub or other woody vegetation when such plant constitutes a public nuisance or is a hazard to person or property, or harbors insects, other pests, or disease. The city shall notify in writing the property owner of the property on which such tree, shrub, bush or other woody vegetation is located of the necessity to remove same. Upon such notice, the owner shall remove the planting at the owner's expense within thirty (30) days. Notice shall either be given by personal service or by certified mail with return receipt barring the signature of the property owner. In the event the property owner fails to comply with the notice, the city may force compliance by legal process and if granted authority to perform the required action, may there after assess the costs against the property for collection in the same manner as a property tax. Code of Iowa, Chapter 364.12(3)(h) allows the City in an emergency to perform any action which may be required to abate the emergency without prior notice, and assess the costs as provided in Chapter 364.12, after notice to the property owner and hearing."

<u>Proposed Budget Increase</u>

EAB could potentially kill all ash trees in Albert City within 4 years of its arrival. To remove all ash trees within 6 years the budget would need to be increased to $19,500 (total ash + all other removals *removal cost + (planting and maintenance *1.2 of removals) /6) a year. Additionally, it is recommended that Albert City 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 to be 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 20 inches and at $15 per inch, about 4 trees could be treated per year (every other year treatment) would be $1,200. 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 Albert City. 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

Albert City

Annual Energy Benefits of Public Trees

3/4/2021

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	28.3	2,151	3,730.3	3,656	5,806	(N/A)	20.0	23.5	56.93
Norway maple	22.0	1,668	3,026.8	2,966	4,635	(N/A)	19.3	18.8	47.29
Silver maple	22.7	1,722	2,939.9	2,881	4,603	(N/A)	15.9	18.6	56.83
Sugar maple	14.0	1,062	1,831.7	1,795	2,857	(N/A)	10.4	11.6	53.90
Honeylocust	9.3	705	1,211.4	1,187	1,892	(N/A)	5.5	7.7	67.57
Blue spruce	2.4	185	307.6	301	486	(N/A)	4.1	2.0	23.15
American basswood	3.1	232	418.5	410	642	(N/A)	2.6	2.6	49.37
Red maple	1.2	92	173.3	170	262	(N/A)	2.4	1.1	21.86
Black walnut	2.9	223	401.4	393	616	(N/A)	2.2	2.5	56.00
Apple	0.9	72	153.7	151	222	(N/A)	2.2	0.9	20.22
Broadleaf Deciduous Mediu	0.9	72	151.7	149	220	(N/A)	1.8	0.9	24.47
Northern hackberry	2.7	206	389.0	381	587	(N/A)	1.6	2.4	73.35
Conifer Evergreen Medium	0.4	28	60.7	59	88	(N/A)	1.4	0.4	12.55
Norway spruce	0.9	67	118.3	116	183	(N/A)	1.2	0.7	30.47
Northern red oak	0.9	68	124.5	122	190	(N/A)	1.0	0.8	38.08
Littleleaf linden	0.5	39	73.8	72	112	(N/A)	1.0	0.5	22.34
Spruce	0.4	32	57.8	57	89	(N/A)	1.0	0.4	17.80
Conifer Evergreen Large	0.6	49	73.2	72	121	(N/A)	1.0	0.5	24.14
Boxelder	0.9	65	116.3	114	179	(N/A)	0.8	0.7	44.72
Eastern red cedar	0.3	25	49.3	48	74	(N/A)	0.6	0.3	24.57
Bur oak	0.7	50	87.6	86	136	(N/A)	0.6	0.5	45.26
Lilac	0.1	7	16.6	16	24	(N/A)	0.4	0.1	11.80
Willow	0.5	36	59.0	58	94	(N/A)	0.4	0.4	46.78
Dogwood	0.0	2	4.4	4	6	(N/A)	0.4	0.0	3.13
White ash	0.1	10	17.6	17	27	(N/A)	0.4	0.1	13.38
Quaking aspen	0.2	18	27.0	26	44	(N/A)	0.2	0.2	44.23
American elm	0.6	45	71.2	70	114	(N/A)	0.2	0.5	114.45
Cottonwood	0.3	25	46.9	46	71	(N/A)	0.2	0.3	70.91
Ginkgo	0.2	13	18.9	19	31	(N/A)	0.2	0.1	31.46
Northern white cedar	0.1	4	9.5	9	14	(N/A)	0.2	0.1	13.58
American sycamore	0.0	0	0.5	0	1	(N/A)	0.2	0.0	0.66
Black maple	0.3	22	39.9	39	61	(N/A)	0.2	0.2	60.68
Broadleaf Deciduous Small	0.0	2	3.8	4	5	(N/A)	0.2	0.0	5.40
Callery pear	0.2	18	29.5	29	47	(N/A)	0.2	0.2	46.78
Northern catalpa	0.5	37	63.1	62	99	(N/A)	0.2	0.4	98.63
Ohio buckeye	0.3	20	39.6	39	59	(N/A)	0.2	0.2	58.69
Total	119.5	9,070	15,944.2	15,625	24,695	(N/A)	100.0	100.0	48.52

Table 2: Annual Stormwater Benefits

Albert City

Annual Stormwater Benefits of Public Trees

3/4/2021

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	286,162	7,755	(N/A)	20.0	24.2	76.03
Norway maple	168,304	4,561	(N/A)	19.3	14.2	46.54
Silver maple	276,629	7,497	(N/A)	15.9	23.4	92.55
Sugar maple	132,544	3,592	(N/A)	10.4	11.2	67.77
Honeylocust	99,518	2,697	(N/A)	5.5	8.4	96.32
Blue spruce	30,811	835	(N/A)	4.1	2.6	39.76
American basswood	25,354	687	(N/A)	2.6	2.1	52.85
Red maple	6,892	187	(N/A)	2.4	0.6	15.57
Black walnut	28,022	759	(N/A)	2.2	2.4	69.04
Apple	3,829	104	(N/A)	2.2	0.3	9.43
Broadleaf Deciduous Medium	5,274	143	(N/A)	1.8	0.4	15.88
Northern hackberry	24,741	670	(N/A)	1.6	2.1	83.81
Conifer Evergreen Medium	4,290	116	(N/A)	1.4	0.4	16.61
Norway spruce	17,815	483	(N/A)	1.2	1.5	80.46
Northern red oak	8,311	225	(N/A)	1.0	0.7	45.05
Littleleaf linden	3,102	84	(N/A)	1.0	0.3	16.81
Spruce	4,864	132	(N/A)	1.0	0.4	26.36
Conifer Evergreen Large	7,693	208	(N/A)	1.0	0.7	41.70
Boxelder	8,156	221	(N/A)	0.8	0.7	55.25
Eastern red cedar	4,904	133	(N/A)	0.6	0.4	44.30
Bur oak	6,016	163	(N/A)	0.6	0.5	54.35
Lilac	333	9	(N/A)	0.4	0.0	4.51
Willow	2,818	76	(N/A)	0.4	0.2	38.19
Dogwood	76	2	(N/A)	0.4	0.0	1.03
White ash	777	21	(N/A)	0.4	0.1	10.53
Quaking aspen	1,466	40	(N/A)	0.2	0.1	39.72
American elm	4,551	123	(N/A)	0.2	0.4	123.33
Cottonwood	3,943	107	(N/A)	0.2	0.3	106.85
Ginkgo	718	19	(N/A)	0.2	0.1	19.45
Northern white cedar	596	16	(N/A)	0.2	0.1	16.14
American sycamore	18	0	(N/A)	0.2	0.0	0.48
Black maple	2,867	78	(N/A)	0.2	0.2	77.70
Broadleaf Deciduous Small	69	2	(N/A)	0.2	0.0	1.86
Callery pear	1,409	38	(N/A)	0.2	0.1	38.19
Northern catalpa	7,239	196	(N/A)	0.2	0.6	196.17
Ohio buckeye	2,479	67	(N/A)	0.2	0.2	67.19
Citywide total	1,182,591	32,048	(N/A)	100.0	100.0	62.96

Table 3: Annual Air Quality Benefits

Albert City

Annual Air Quality Benefits of Public Trees

3/4/2021

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							
Green ash	35.5	5.7	17.2	1.6	189	134.0	19.6	18.7	128.4	838	0.0	0	360.6	1,027 (N/A)	20.0	10.07
Norway maple	30.6	5.3	15.5	1.4	167	105.3	15.3	14.6	99.7	655	-7.5	-28	280.2	794 (N/A)	19.3	8.10
Silver maple	42.8	7.3	21.7	1.9	233	106.6	15.6	14.9	102.7	668	-23.8	-89	289.8	812 (N/A)	15.9	10.02
Sugar maple	16.7	2.8	8.6	0.7	91	66.0	9.7	9.2	63.4	413	-13.3	-50	163.8	454 (N/A)	10.4	8.57
Honeylocust	19.4	3.2	8.8	0.9	102	43.7	6.4	6.1	42.0	274	-14.8	-56	115.7	320 (N/A)	5.5	11.44
Blue spruce	3.9	0.8	3.3	0.5	26	11.4	1.7	1.6	11.0	71	-11.0	-41	23.0	56 (N/A)	4.1	2.65
American basswood	2.9	0.5	1.5	0.1	16	14.6	2.1	2.0	13.9	91	-2.7	-10	35.0	97 (N/A)	2.6	7.46
Red maple	1.0	0.2	0.5	0.0	5	5.9	0.8	0.8	5.5	36	-0.4	-2	14.3	40 (N/A)	2.4	3.35
Black walnut	3.0	0.5	1.5	0.1	16	14.0	2.0	1.9	13.3	87	0.0	0	36.4	103 (N/A)	2.2	9.40
Apple	1.0	0.2	0.5	0.0	5	4.7	0.7	0.6	4.3	29	0.0	0	12.0	34 (N/A)	2.2	3.10
Broadleaf Deciduous Medium	0.5	0.1	0.3	0.0	3	4.7	0.7	0.6	4.3	29	-0.2	-1	11.1	31 (N/A)	1.8	3.47
Northern hackberry	3.7	0.6	1.9	0.2	20	13.1	1.9	1.8	12.3	81	0.0	0	35.5	101 (N/A)	1.6	12.67
Conifer Evergreen Medium	0.4	0.1	0.4	0.0	3	1.9	0.3	0.3	1.7	11	-1.3	-5	3.6	9 (N/A)	1.4	1.31
Norway spruce	2.1	0.4	1.7	0.3	14	4.2	0.6	0.6	4.0	26	-8.3	-31	5.5	9 (N/A)	1.2	1.45
Northern red oak	1.7	0.3	0.8	0.1	9	4.3	0.6	0.6	4.1	27	-2.4	-9	10.1	27 (N/A)	1.0	5.37
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)	1.0	3.32
Spruce	0.5	0.1	0.5	0.1	3	2.0	0.3	0.3	1.9	13	-1.6	-6	4.1	10 (N/A)	1.0	2.01
Conifer Evergreen Large	0.8	0.2	0.7	0.1	6	2.9	0.4	0.4	2.9	19	-2.7	-10	5.8	14 (N/A)	1.0	2.82
Boxelder	1.0	0.2	0.5	0.0	5	4.1	0.6	0.6	3.9	25	-0.4	-2	10.3	29 (N/A)	0.8	7.25
Eastern red cedar	1.0	0.2	0.8	0.1	7	1.6	0.2	0.2	1.5	10	-2.7	-10	3.1	7 (N/A)	0.6	2.19
Bur oak	0.6	0.1	0.3	0.0	3	3.1	0.5	0.4	3.0	19	0.0	0	8.1	23 (N/A)	0.6	7.63
Lilac	0.0	0.0	0.0	0.0	0	0.5	0.1	0.1	0.4	3	0.0	0	1.1	3 (N/A)	0.4	1.63
Willow	0.4	0.1	0.2	0.0	2	2.2	0.3	0.3	2.1	14	-0.1	0	5.6	16 (N/A)	0.4	7.92
Dogwood	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	1	0.0	0	0.3	1 (N/A)	0.4	0.41
White ash	0.0	0.0	0.0	0.0	0	0.6	0.1	0.1	0.6	4	0.0	0	1.4	4 (N/A)	0.4	1.95
Quaking aspen	0.1	0.0	0.1	0.0	1	1.1	0.2	0.2	1.1	7	0.0	0	2.6	7 (N/A)	0.2	7.42
American elm	2.2	0.4	1.0	0.1	12	2.7	0.4	0.4	2.7	17	0.0	0	9.9	29 (N/A)	0.2	28.89
Cottonwood	0.5	0.1	0.2	0.0	3	1.6	0.2	0.2	1.5	10	0.0	0	4.4	12 (N/A)	0.2	12.48
Ginkgo	0.1	0.0	0.1	0.0	1	0.8	0.1	0.1	0.8	5	0.0	0	1.9	5 (N/A)	0.2	5.44
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)	0.2	1.48
American sycamore	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)	0.2	0.08
Black maple	0.7	0.1	0.3	0.0	4	1.4	0.2	0.2	1.3	8	-0.2	-1	4.0	12 (N/A)	0.2	11.54
Broadleaf Deciduous Small	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	1	0.0	0	0.3	1 (N/A)	0.2	0.71
Callery pear	0.2	0.0	0.1	0.0	1	1.1	0.2	0.2	1.1	7	-0.1	0	2.8	8 (N/A)	0.2	7.92
Northern catalpa	1.6	0.3	0.7	0.1	8	2.3	0.3	0.3	2.2	14	0.0	0	7.7	23 (N/A)	0.2	22.55
Ohio buckeye	0.5	0.1	0.2	0.0	3	1.3	0.2	0.2	1.2	8	-0.1	0	3.6	10 (N/A)	0.2	10.16
Citywide total	175.6	29.7	90.4	8.5	960	566.7	82.8	79.0	541.5	3,539	-94.1	-353	1,480.1	4,147 (N/A)	100.0	8.15

Table 4: Annual Carbon Stored

Albert City

Stored CO2 Benefits of Public Trees

3/4/2021

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	1,172,183	8,791	(N/A)	20.0	29.6	86.19
Norway maple	505,082	3,788	(N/A)	19.3	12.7	38.65
Silver maple	968,429	7,263	(N/A)	15.9	24.4	89.67
Sugar maple	478,200	3,587	(N/A)	10.4	12.1	67.67
Honeylocust	247,298	1,855	(N/A)	5.5	6.2	66.24
Blue spruce	23,233	174	(N/A)	4.1	0.6	8.30
American basswood	105,370	790	(N/A)	2.6	2.7	60.79
Red maple	12,883	97	(N/A)	2.4	0.3	8.05
Black walnut	96,162	721	(N/A)	2.2	2.4	65.57
Apple	16,491	124	(N/A)	2.2	0.4	11.24
Broadleaf Deciduous	9,906	74	(N/A)	1.8	0.3	8.26
Northern hackberry	53,310	400	(N/A)	1.6	1.3	49.98
Conifer Evergreen M	1,507	11	(N/A)	1.4	0.0	1.61
Norway spruce	20,056	150	(N/A)	1.2	0.5	25.07
Northern red oak	36,122	271	(N/A)	1.0	0.9	54.18
Littleleaf linden	7,694	58	(N/A)	1.0	0.2	11.54
Spruce	3,111	23	(N/A)	1.0	0.1	4.67
Conifer Evergreen La	5,851	44	(N/A)	1.0	0.1	8.78
Boxelder	27,460	206	(N/A)	0.8	0.7	51.49
Eastern red cedar	3,306	25	(N/A)	0.6	0.1	8.27
Bur oak	20,479	154	(N/A)	0.6	0.5	51.20
Lilac	1,086	8	(N/A)	0.4	0.0	4.07
Willow	7,248	54	(N/A)	0.4	0.2	27.18
Dogwood	192	1	(N/A)	0.4	0.0	0.72
White ash	1,220	9	(N/A)	0.4	0.0	4.57
Quaking aspen	3,672	28	(N/A)	0.2	0.1	27.54
American elm	41,265	309	(N/A)	0.2	1.0	309.48
Cottonwood	15,773	118	(N/A)	0.2	0.4	118.30
Ginkgo	1,787	13	(N/A)	0.2	0.0	13.40
Northern white cedar	257	2	(N/A)	0.2	0.0	1.93
American sycamore	12	0	(N/A)	0.2	0.0	0.09
Black maple	7,945	60	(N/A)	0.2	0.2	59.59
Broadleaf Deciduous	178	1	(N/A)	0.2	0.0	1.33
Callery pear	3,624	27	(N/A)	0.2	0.1	27.18
Northern catalpa	55,982	420	(N/A)	0.2	1.4	419.86
Ohio buckeye	7,945	60	(N/A)	0.2	0.2	59.59
Citywide total	3,962,318	29,717	(N/A)	100.0	100.0	58.38

Table 5: Annual Carbon Sequestered

Albert City

Annual CO Benefits of Public Trees

3/4/2021

Species	Sequestered (lb)	Sequestered ($)	Decomposition Release (lb)	Maintenance Release (lb)	Total Released ($)	Avoided (lb)	Avoided ($)	Net Total (lb)	Total Standard ($) Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	62,082	466	-5,626	-283	-44	47,531	356	103,703	778 (N/A)	20.0	23.1	7.63
Norway maple	35,424	266	-2,425	-209	-20	36,867	277	69,657	522 (N/A)	19.3	15.5	5.33
Silver maple	81,411	611	-4,650	-234	-37	38,062	285	114,589	859 (N/A)	15.9	25.5	10.61
Sugar maple	27,784	208	-2,295	-142	-18	23,466	176	48,813	366 (N/A)	10.4	10.9	6.91
Honeylocust	24,171	181	-1,187	-73	-9	15,573	117	38,484	289 (N/A)	5.5	8.6	10.31
Blue spruce	1,809	14	-112	-39	-1	4,083	31	5,741	43 (N/A)	4.1	1.3	2.05
American basswood	7,134	54	-506	-32	-4	5,119	38	11,715	88 (N/A)	2.6	2.6	6.76
Red maple	1,886	14	-62	-13	-1	2,043	15	3,854	29 (N/A)	2.4	0.9	2.41
Black walnut	6,913	52	-462	-29	-4	4,918	37	11,341	85 (N/A)	2.2	2.5	7.73
Apple	1,619	12	-79	-14	-1	1,587	12	3,113	23 (N/A)	2.2	0.7	2.12
Broadleaf Deciduous Medi	2,016	15	-48	-11	0	1,583	12	3,540	27 (N/A)	1.8	0.8	2.95
Northern hackberry	3,348	25	-256	-25	-2	4,544	34	7,611	57 (N/A)	1.6	1.7	7.14
Conifer Evergreen Mediun	217	2	-7	-7	0	628	5	831	6 (N/A)	1.4	0.2	0.89
Norway spruce	1,124	8	-96	-16	-1	1,478	11	2,490	19 (N/A)	1.2	0.6	3.11
Northern red oak	1,316	10	-173	-11	-1	1,512	11	2,643	20 (N/A)	1.0	0.6	3.97
Littleleaf linden	1,407	11	-37	-7	0	871	7	2,235	17 (N/A)	1.0	0.5	3.35
Spruce	389	3	-15	-7	0	716	5	1,083	8 (N/A)	1.0	0.2	1.62
Conifer Evergreen Large	578	4	-28	-10	0	1,082	8	1,622	12 (N/A)	1.0	0.4	2.43
Boxelder	2,502	19	-132	-10	-1	1,434	11	3,794	28 (N/A)	0.8	0.8	7.11
Eastern red cedar	129	1	-16	-6	0	561	4	667	5 (N/A)	0.6	0.1	1.67
Bur oak	1,511	11	-98	-7	-1	1,104	8	2,510	19 (N/A)	0.6	0.6	6.27
Lilac	152	1	-5	-2	0	161	1	306	2 (N/A)	0.4	0.1	1.15
Willow	772	6	-35	-4	0	790	6	1,523	11 (N/A)	0.4	0.3	5.71
Dogwood	47	0	-1	-1	0	43	0	88	1 (N/A)	0.4	0.0	0.33
White ash	247	2	-6	-2	0	211	2	450	3 (N/A)	0.4	0.1	1.69
Quaking aspen	445	3	-18	-2	0	393	3	819	6 (N/A)	0.2	0.2	6.14
American elm	724	5	-198	-6	-2	987	7	1,507	11 (N/A)	0.2	0.3	11.31
Cottonwood	857	6	-76	-4	-1	552	4	1,330	10 (N/A)	0.2	0.3	9.97
Ginkgo	134	1	-9	-2	0	285	2	409	3 (N/A)	0.2	0.1	3.07
Northern white cedar	53	0	-1	-1	0	94	1	145	1 (N/A)	0.2	0.0	1.08
American sycamore	3	0	0	0	0	4	0	7	0 (N/A)	0.2	0.0	0.05
Black maple	0	0	-38	-3	0	477	4	436	3 (N/A)	0.2	0.1	3.27
Broadleaf Deciduous Smal	38	0	-1	-1	0	37	0	74	1 (N/A)	0.2	0.0	0.55
Callery pear	386	3	-17	-2	0	395	3	762	6 (N/A)	0.2	0.2	5.71
Northern catalpa	479	4	-269	-6	-2	813	6	1,017	8 (N/A)	0.2	0.2	7.63
Ohio buckeye	470	4	-38	-3	0	440	3	869	7 (N/A)	0.2	0.2	6.52
Citywide total	269,577	2,022	-19,022	-1,221	-152	200,444	1,503	449,778	3,373 (N/A)	100.0	100.0	6.63

Table 6: Annual Social and Aesthetic Benefits

Albert City

Annual Aesthetic/Other Benefits of Public Trees

3/4/2021

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	5,338	(N/A)	20.0	18.4	52.34
Norway maple	3,510	(N/A)	19.3	12.1	35.81
Silver maple	6,836	(N/A)	15.9	23.5	84.39
Sugar maple	3,025	(N/A)	10.4	10.4	57.08
Honeylocust	5,765	(N/A)	5.5	19.8	205.89
Blue spruce	503	(N/A)	4.1	1.7	23.94
American basswood	564	(N/A)	2.6	1.9	43.36
Red maple	319	(N/A)	2.4	1.1	26.60
Black walnut	608	(N/A)	2.2	2.1	55.27
Apple	93	(N/A)	2.2	0.3	8.47
Broadleaf Deciduous Medium	236	(N/A)	1.8	0.8	26.22
Northern hackberry	457	(N/A)	1.6	1.6	57.19
Conifer Evergreen Medium	130	(N/A)	1.4	0.4	18.58
Norway spruce	282	(N/A)	1.2	1.0	47.08
Northern red oak	104	(N/A)	1.0	0.4	20.85
Littleleaf linden	180	(N/A)	1.0	0.6	35.98
Spruce	111	(N/A)	1.0	0.4	22.18
Conifer Evergreen Large	162	(N/A)	1.0	0.6	32.32
Boxelder	194	(N/A)	0.8	0.7	48.56
Eastern red cedar	41	(N/A)	0.6	0.1	13.68
Bur oak	140	(N/A)	0.6	0.5	46.67
Lilac	8	(N/A)	0.4	0.0	4.23
Willow	78	(N/A)	0.4	0.3	39.16
Dogwood	2	(N/A)	0.4	0.0	1.05
White ash	46	(N/A)	0.4	0.2	23.09
Quaking aspen	46	(N/A)	0.2	0.2	45.86
American elm	87	(N/A)	0.2	0.3	86.69
Cottonwood	66	(N/A)	0.2	0.2	65.59
Ginkgo	12	(N/A)	0.2	0.0	12.07
Northern white cedar	15	(N/A)	0.2	0.1	15.42
American sycamore	5	(N/A)	0.2	0.0	5.26
Black maple	0	(N/A)	0.2	0.0	0.00
Broadleaf Deciduous Small	2	(N/A)	0.2	0.0	2.06
Callery pear	39	(N/A)	0.2	0.1	39.16
Northern catalpa	29	(N/A)	0.2	0.1	28.57
Ohio buckeye	43	(N/A)	0.2	0.1	43.05
Citywide total	29,077	(N/A)	100.0	100.0	57.13

Table 7: Summary of Benefits in Dollars

Albert City

Total Annual Benefits of Public Trees by Species ($)

3/4/2021

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Green ash	5,806	778	1,027	7,755	5,338	20,705	(N/A)	22.2
Norway maple	4,635	522	794	4,561	3,510	14,022	(N/A)	15.0
Silver maple	4,603	859	812	7,497	6,836	20,607	(N/A)	22.1
Sugar maple	2,857	366	454	3,592	3,025	10,294	(N/A)	11.0
Honeylocust	1,892	289	320	2,697	5,765	10,963	(N/A)	11.7
Blue spruce	486	43	56	835	503	1,923	(N/A)	2.1
American basswood	642	88	97	687	564	2,077	(N/A)	2.2
Red maple	262	29	40	187	319	837	(N/A)	0.9
Black walnut	616	85	103	759	608	2,172	(N/A)	2.3
Apple	222	23	34	104	93	477	(N/A)	0.5
Broadleaf Deciduous M	220	27	31	143	236	657	(N/A)	0.7
Northern hackberry	587	57	101	670	457	1,873	(N/A)	2.0
Conifer Evergreen Medi	88	6	9	116	130	350	(N/A)	0.4
Norway spruce	183	19	9	483	282	975	(N/A)	1.0
Northern red oak	190	20	27	225	104	567	(N/A)	0.6
Littleleaf linden	112	17	17	84	180	409	(N/A)	0.4
Spruce	89	8	10	132	111	350	(N/A)	0.4
Conifer Evergreen Large	121	12	14	208	162	517	(N/A)	0.6
Boxelder	179	28	29	221	194	652	(N/A)	0.7
Eastern red cedar	74	5	7	133	41	259	(N/A)	0.3
Bur oak	136	19	23	163	140	481	(N/A)	0.5
Lilac	24	2	3	9	8	47	(N/A)	0.0
Willow	94	11	16	76	78	276	(N/A)	0.3
Dogwood	6	1	1	2	2	12	(N/A)	0.0
White ash	27	3	4	21	46	101	(N/A)	0.1
Quaking aspen	44	6	7	40	46	143	(N/A)	0.2
American elm	114	11	29	123	87	365	(N/A)	0.4
Cottonwood	71	10	12	107	66	266	(N/A)	0.3
Ginkgo	31	3	5	19	12	71	(N/A)	0.1
Northern white cedar	14	1	1	16	15	48	(N/A)	0.1
American sycamore	1	0	0	0	5	7	(N/A)	0.0
Black maple	61	3	12	78	0	153	(N/A)	0.2
Broadleaf Deciduous Sn	5	1	1	2	2	11	(N/A)	0.0
Callery pear	47	6	8	38	39	138	(N/A)	0.1
Northern catalpa	99	8	23	196	29	354	(N/A)	0.4
Ohio buckeye	59	7	10	67	43	186	(N/A)	0.2
Citywide Total	24,695	3,373	4,147	32,048	29,077	93,341	(N/A)	100.0

Figure 1: Species Distribution

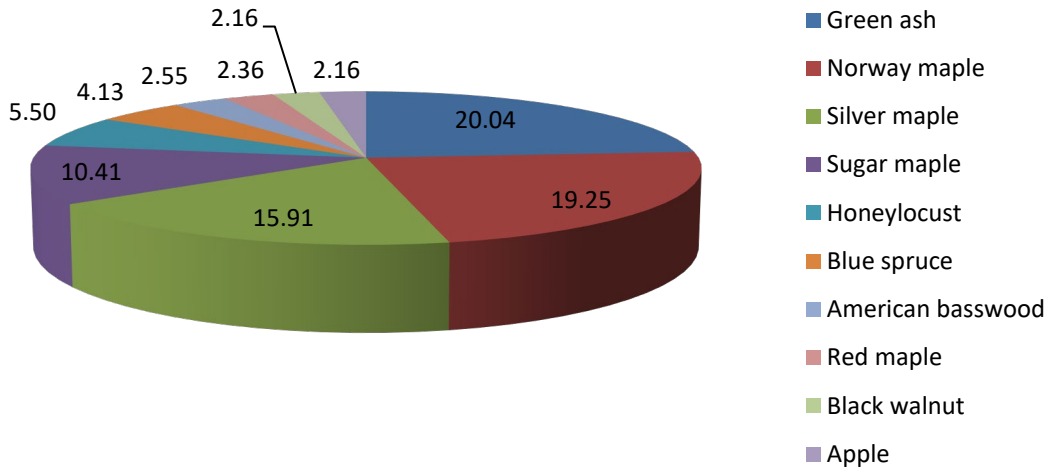


Figure 2: Relative Age Class

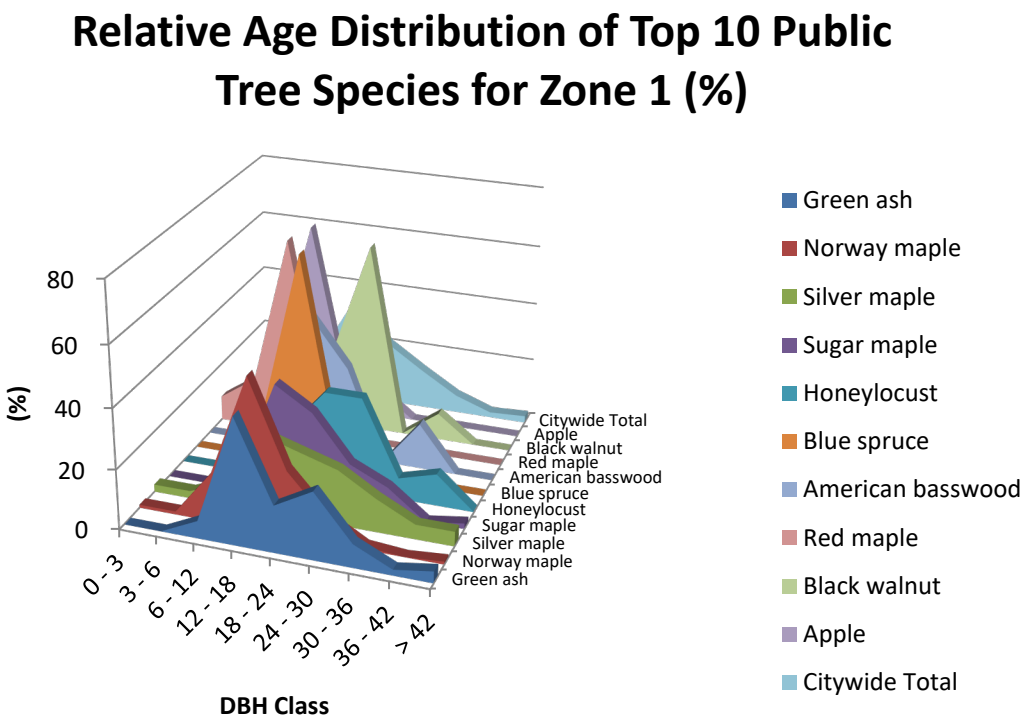


Figure 3: Foliage Condition

Figure 4: Wood Condition

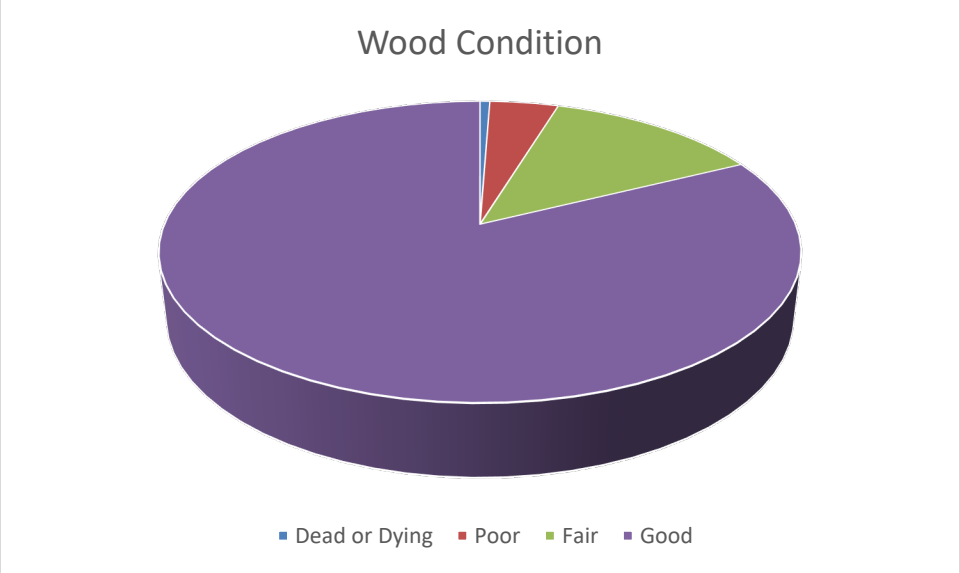
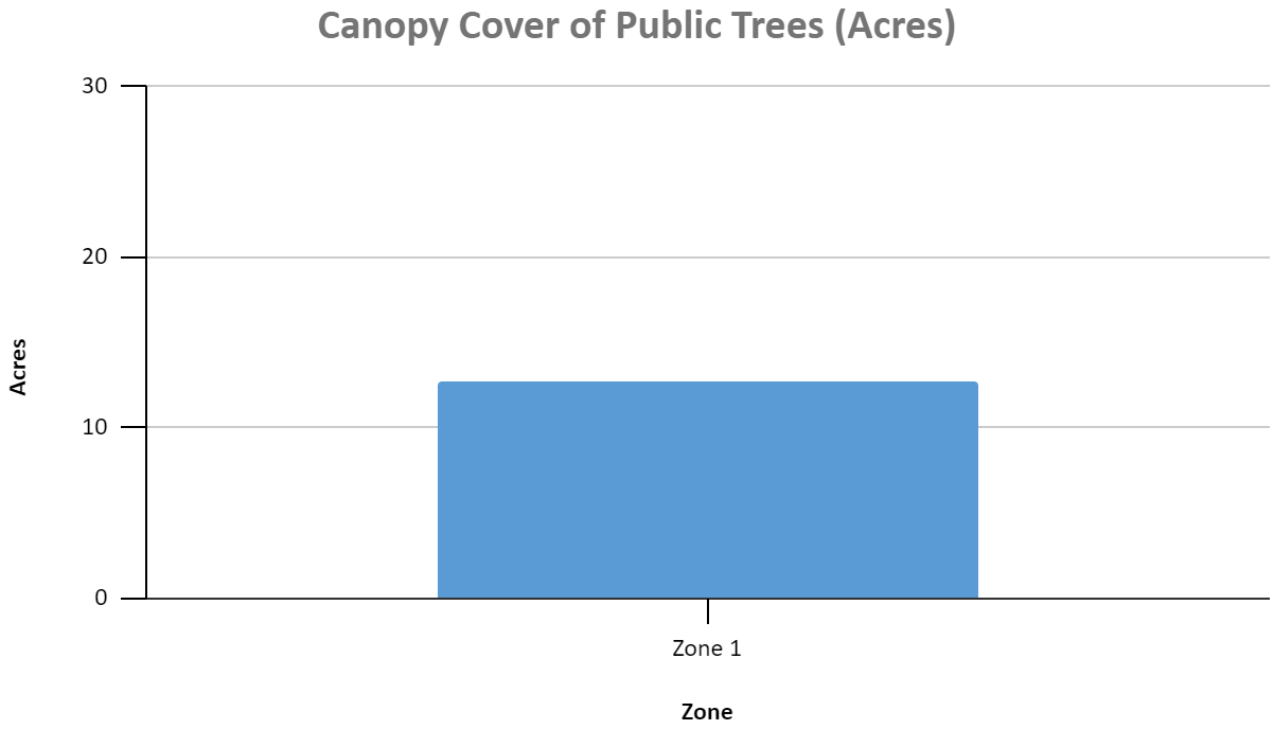


Figure 5: Canopy Cover in Acres



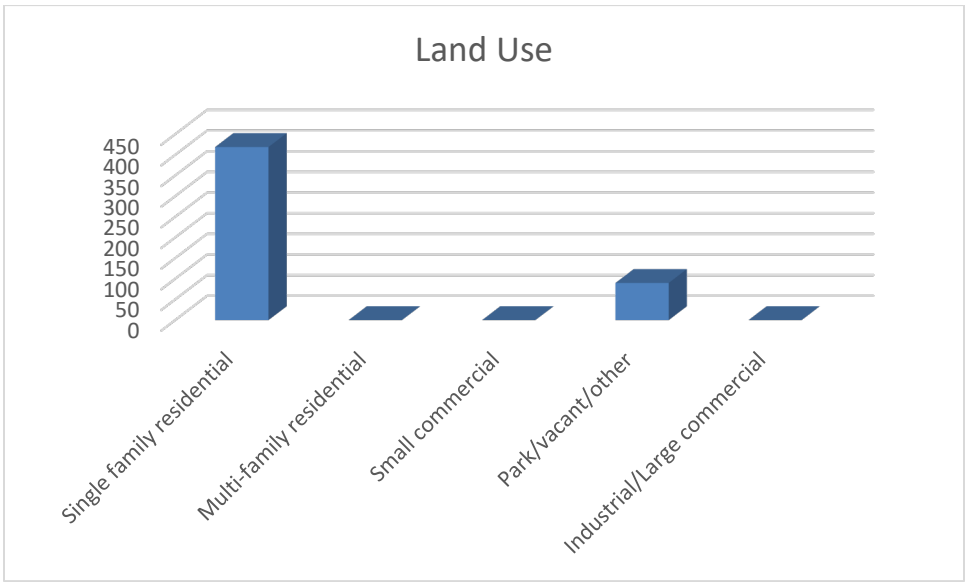


Figure 6: Land Use of city/park trees

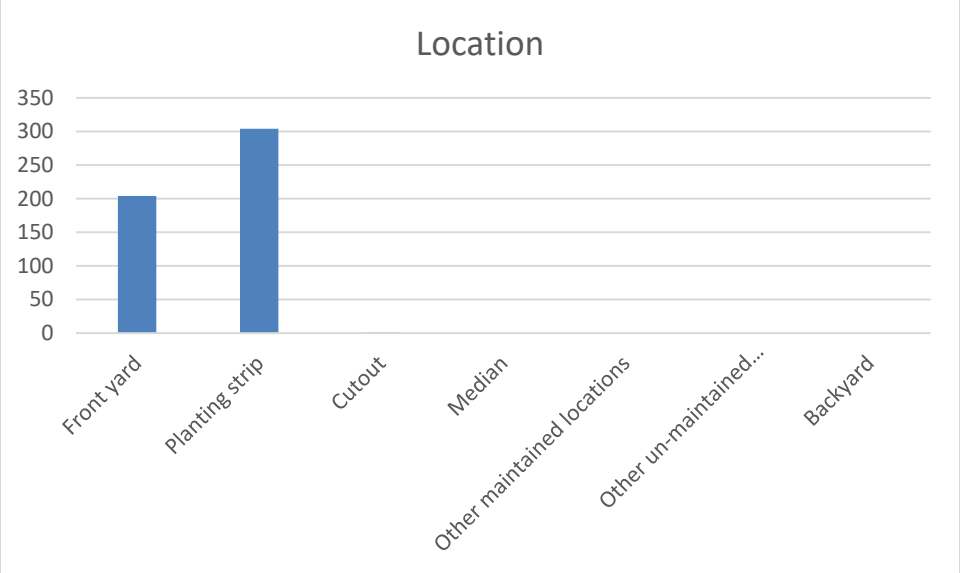


Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

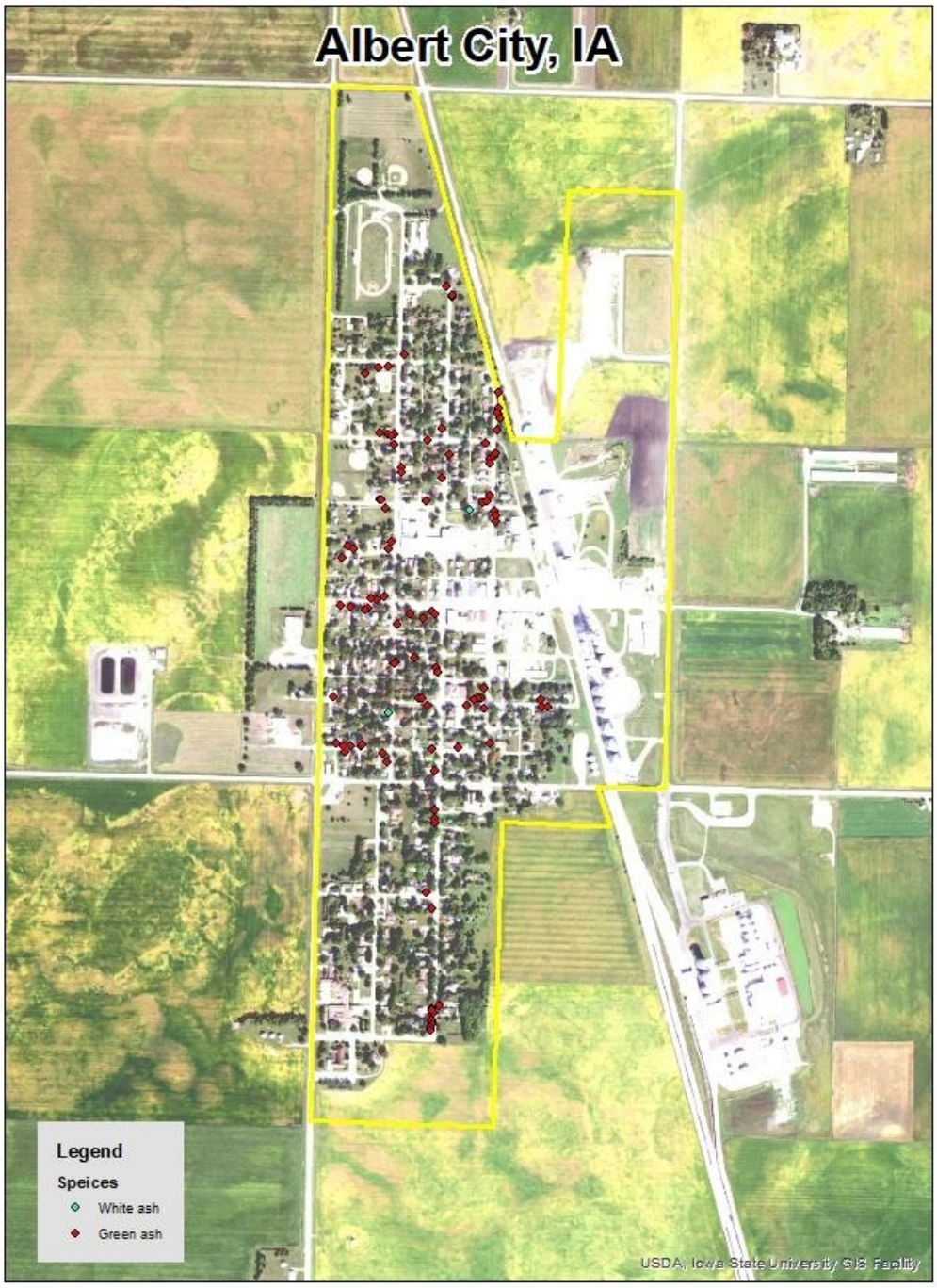


Figure 1: Location of Ash Trees

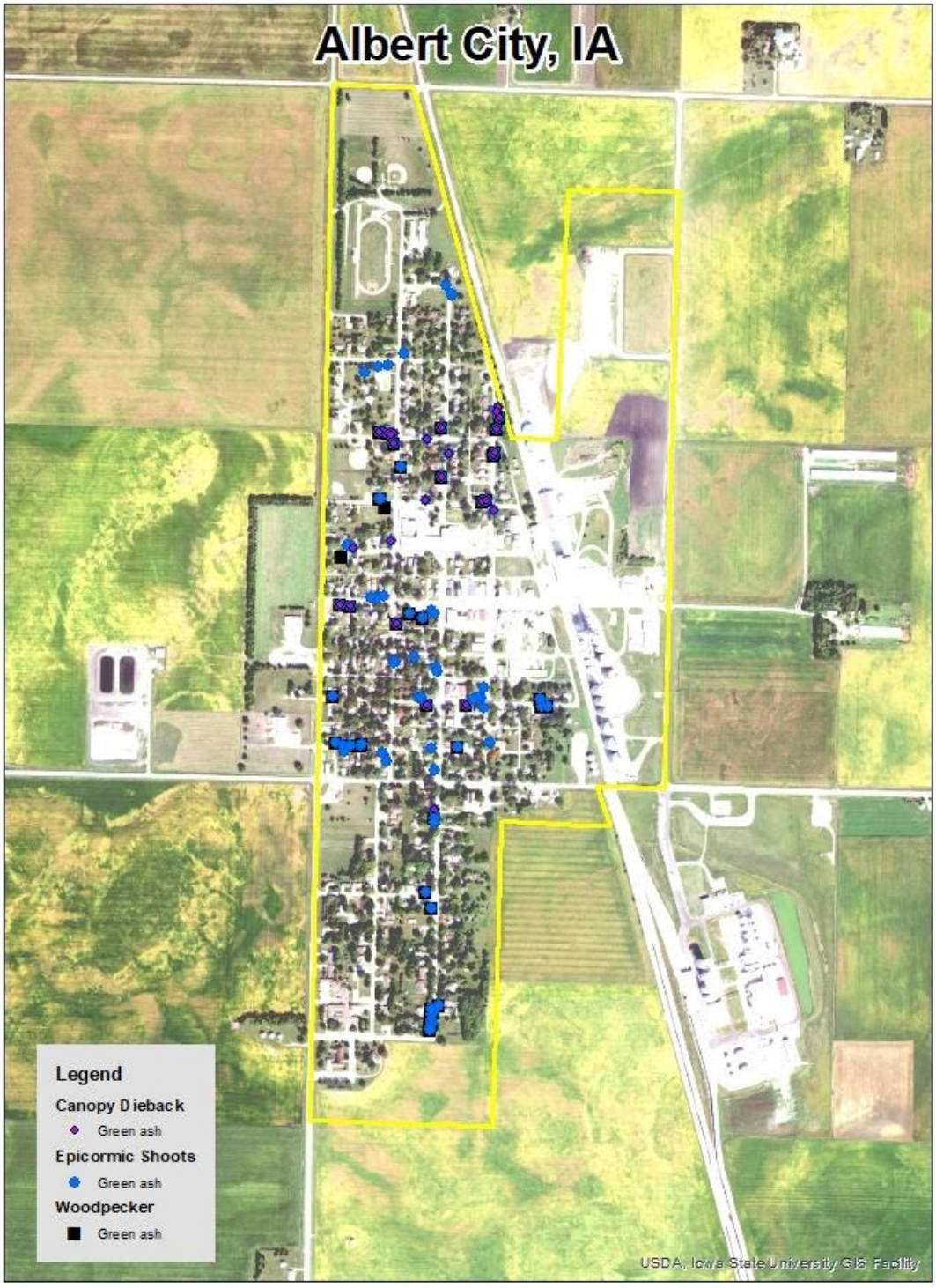


Figure 2: Location of EAB symptoms

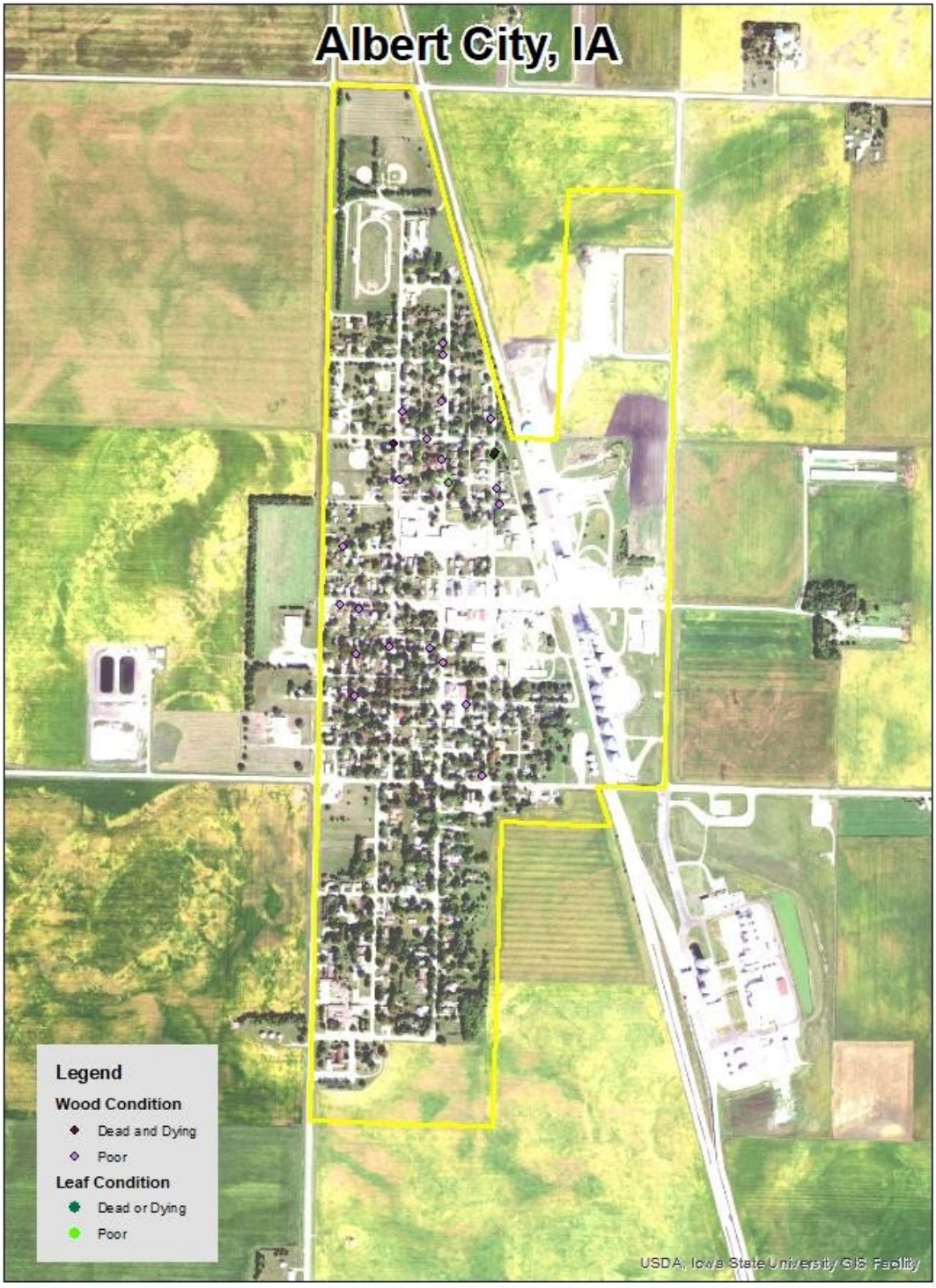


Figure 3: Location of Poor Condition Trees

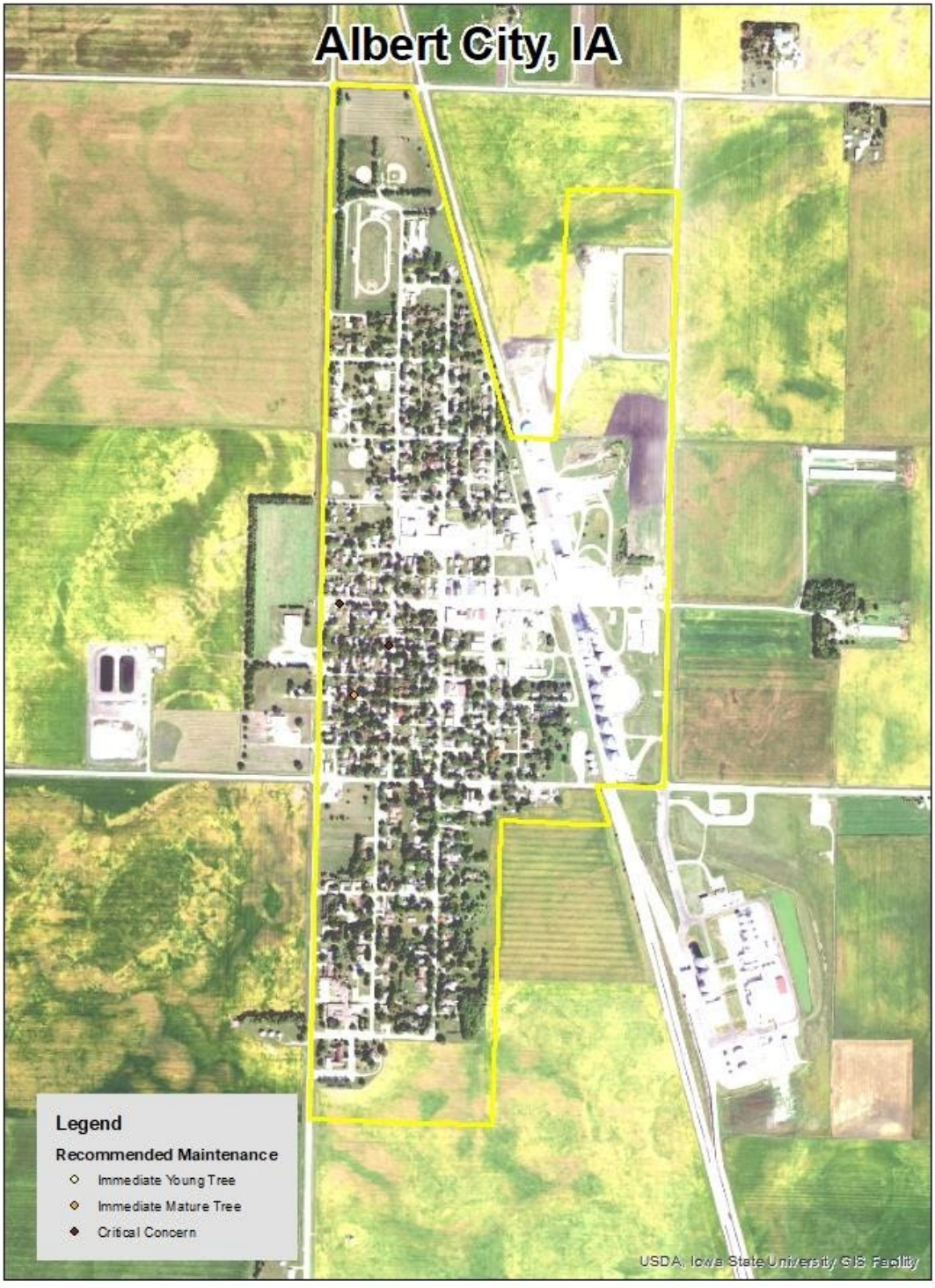


Figure 4: Location of Trees with Recommended Maintenance

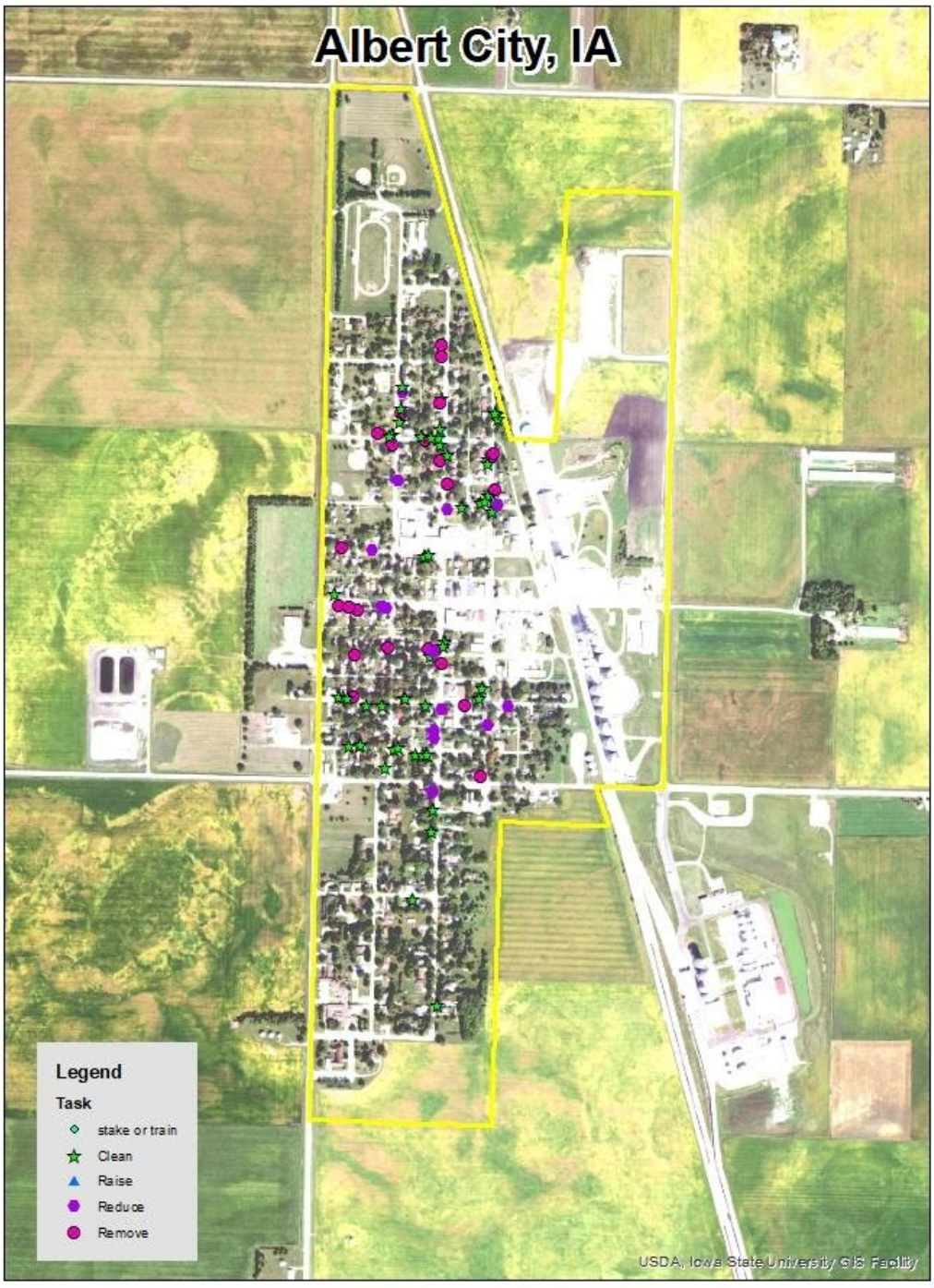


Figure 5: Maintenance Tasks ***City ownership of the trees recommended for removal should be verified prior to any removal***

Appendix C: Albert City Tree Ordinances

TITLE VI
CHAPTER 3: TREES
ARTICLE 3 - GENERAL PROVISIONS

3.01 DEFINITIONS. For use in this chapter, the following term is 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.

3.02 ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE.

1. PLANTING. The following regulations shall be followed in the planting of trees within the city.

   a. Size. All trees planted on the parking shall be of sufficient size to warrant satisfactory results and stand the abuse common to street trees.

   b. Grade. Unless otherwise allowed for substantial reasons, all standard sized trees shall have comparatively straight trunks, well-developed leaders, and tip and root characteristics of the species or variety showing evidence of proper nursery pruning. All trees must be free of insect, disease, mechanical injuries and other objectionable features at the time of planting. To compensate for any serious loss of roots, the top of the tree should be reduced by thinning or cutting back as determined by the growth characteristics of the tree species. The leader shall not be cut off in such trimming.

   c. Planting. 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. Trees shall not be planted closer than twenty (20) 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.

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

2. TRIMMING OR PRUNING. Trees shall be trimmed or pruned according to the following:

a. All cuts are to be made sufficiently close to the parent stem so that healing can readily start under normal conditions.

b. All dead and diseased wood shall be removed.
c. All limbs one inch in diameter or more must be precut to prevent splitting. All branches in danger of injuring the tree in falling shall be lowered by ropes.

d. A crossed or rubbing branch shall be removed where practicable, but removal shall not leave large holes in the general outline of the tree. Crossed or rubbing branches may be cabled apart.

e. All cuts, old or new, one inch in diameter or more, shall be painted with an approved tree wound dressing. On old wounds, care shall be taken to paint exposed wood only.

f. Where there is a known danger of transmitting disease by tools, said tools shall be disinfected with alcohol before use on another tree.

g. Improperly healed scars, where callous growth is not established, are to be traced and painted, unless the city designates other treatment.

h. No topping or dehorning of trees shall be permitted except by special written permission of the city. Trees becoming stag-headed may have the dead portions removed back to sound green wood, with a proper forty-five (45) degree cut only.

i. Elm wood trimmed, pruned or removed shall not be used for any purpose, but shall be disposed of immediately by burning or burying.

3. PROHIBITED TREES. No person shall hereafter plant in any street, any fruit bearing tree or trees of any tree of the kinds commonly known as ash, cottonwood, popular, boxelder, chinese elm or evergreens.

3.03 REMOVAL OF TREES. The city shall have removed, on the order of the council, any tree on the parking of the city which interferes with the making of improvements or with travel thereon. It shall additionally remove any trees on the parking, not on private 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(2c))

3.04 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 lowa, Sec. 364.12(2c))

3.05 TRIMMING TREES TO BE SUPERVISED. It shall be unlawful for any person to trim or cut any tree in a parking or public place unless the work is done under the supervision of the city.

3.06 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 him to do so within five (5)

days. If he fails to trim the trees 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 Iowa, Sec. 364.12(2d&e))

3.07 DEAD OR DISEASED TREE REMOVAL ON PRIVATE PROPERTY. The city shall notify the owner of any tree, shrub, bush or other woody vegetation located on private property to remove the tree, bush, shrub or other woody vegetation when such plant constitutes a public nuisance or is a hazard to person or property, or harbors insects, other pests, or disease. The city shall notify in writing the property owner of the property on which such tree, shrub, bush or other woody vegetation is located of the necessity to remove same. Upon such notice, the owner shall remove the planting at the owner's expense within thirty (30) days. Notice shall either be given by personal service or by certified mail with return receipt barring the signature of the property owner. In the event the property owner fails to comply with the notice, the city may force compliance by legal process and if granted authority to perform the required action, may there after assess the costs against the property for collection in the same manner as a property tax. Code of Iowa, Chapter 364.12(3)(h) allows the City in an emergency to perform any action which may be required to abate the emergency without prior notice, and assess the costs as provided in Chapter 364.12, after notice to the property owner and hearing.

3.08 DUTY TO REMOVE. No person, fırın or corporation shall permit any diseased tree, dead wood to remain on the premises owned, controlled or occupied by the person within the City
(Code of Iowa, Sec, 364.12(3b))

3.09 INSPECTION. The City shall inspect or cause to be inspected all premises and places within the City to determine whether any condition as defined in Section 3.07 of this Article exists thereon, and shall also inspect or cause to be inspected any trees reported or suspected to constitute a public nuisance, a hazard to person or property, or harbors insects, other pests, or disease.

3.10 REMOVAL FROM CITY PROPERTY. If the City, upon inspection or examination, in person or by some qualified person acting for the City, 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 trees, shrubs, bushes, or woody vegetation within the City is imminent, the City shall immediately cause the tree, shrub, bush or woody vegetation 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 disease, or insect pests, or vectors known to carry such disease, insects, and/or fungus.

3.11 REMOVAL FROM PRIVATE PROPERTY. If the City upon inspection or examination, in person or by some qualified person acting for the City, shall determine with reasonable certainty that any condition as herein defined exists in or upon private premises, and that he danger to other trees within the City is imminent, he/she shall immediately notify by certified mail or personal delivery to the occupant or person in charge of such property, to correct such condition within

thirty (30) days of said notification. If such owner, occupant or person in charge of said property fails to comply within thirty (30) days of receipt thereof, the Council may cause the nuisance to be removed and the cost assessed against the property for collection in the same manner as a property tax,
(Code of Iowa, Sec. 364.12(3b&h))

3.12 REASONABLE CERTAINTY. If the City is unable to determine with reasonable certainty whether or not a tree in or upon private premises is infected, diseased, or harboring insects or pests, a City representative is authorized to remo
from said tree, and obtain a diagnosis of such specimens.

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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.