Kalona, IA

2023 Urban Forest Management Plan
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Executive Summary

Overview

This plan was developed to assist the City of Kalona 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 100% of Kalona'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 2022, 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 431 trees inventoried.

- Kalona's trees provide $62,550 of benefits annually, an average of $145 a tree
- There are over 40 species of trees
- The top three genera are: Maple 26%, Ash 16%, and Oak 15%
- 48% of trees are in need of some type of management
- 66 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 66 trees needing removal, 4 trees are 24 or more 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*
- 47 of the 67 ash trees should be carefully examined, as they have one or more symptoms that could be related to an EAB infestation, and 27 of which were listed as dead or dying.
- 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: cottonwood, poplar, box elder, Chinese elm, evergreen, willow, white mulberry, Bradford/Callery pear, black locust, Ailanthus (tree of heaven), and catalpa.
- Check ash trees with a visual survey yearly
- With the current budget it could take 13 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 Kalona 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 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 Kalona, these costs can be extended over years and public safety issues from dead and dying ash trees mitigated.

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

Inventory

In 2022, 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 431 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. Kalona's trees reduce energy related costs by approximately $16,596 annually (Appendix A, Table 1). These savings are both in Electricity (79.3 MWh) and in Natural Gas (10,791.3 Therms).

Annual Stormwater Benefits

Kalona's trees intercept about 800,243 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $21,687 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 Kalona, it is estimated that trees remove 986.3 of air pollution (ozone (O_3), particulate matter less than 10 microns (PM10), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2)) per year with a net value of $2,752 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Kalona, trees sequester about 297,965 lbs of carbon a year with an associated value of $2,235 (Appendix A, Table 5). In addition, the trees store 2,611,113 lbs of carbon, with a yearly benefit of $19,583 (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. Kalona receives $19,281 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, Kalona's trees provide $62,550 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 431 trees in Kalona provide approximately $145 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Kalona has over 40 different tree species along city streets and parks (Appendix A, Figure 1). The distribution of trees by genera is as follows:

Maple	110	26%
Ash	67	16%
Oak	66	15%
Locust	40	9%
Elm	31	7%
Cedar	26	6%
Apple (Crab)	18	4%
Spruce	17	4%
Coffeetree	10	2%
Hackberry	9	2%
Linden/Basswood	7	2%
Mulberry	6	1%
Juniper (Eastern Red Cedar)	5	1%
Pear	5	1%
Pine	5	1%
Cottonwood	2	<1%
Walnut	2	<1%
Birch	1	<1%
Ginkgo	1	<1%
Lilac	1	<1%
Sycamore	1	<1%
Willow	1	<1%

Age Class

Most of Kalona's trees (~40%) are between 6 and 18 inches in diameter at 4.5 ft (Appendix A, Figure 2). For age, it is preferred that the highest amounts of trees are in the smallest size category (a downward slope) to prepare for natural mortality and to maintain canopy cover. Kalona's size curve is on the smaller side, indicating a younger than average stand.

Condition: Wood and Foliage

Both wood condition and leaf condition are good indicators of the overall health of the urban forest. The foliage condition results for Kalona indicate that 47% of the trees are in good health, with 13% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Only 13% of Kalona'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 23% of the population. This 23% 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	98	23%
Tree Removal	66	15%
Treat Pest/Disease	41	10%
Crown Raising	1	<1%%

Canopy Cover

The total canopy with both private and public trees is 11%, 142 acres. The canopy cover on city owned properties included in the Kalona inventory includes approximately 8.59 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 95 trees need to be planted annually on public and/or private lands.

Land Use and Location

The majority of Kalona'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	
Park/vacant/other	50%
Single family residential	44%
Industrial/Large commercial	4%
Small commercial	2%
Multifamily residential	<1%

Location	
Planting strip	24%
Front Yard	74%
Cutout (surrounded by pavement)	2%

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

Kalona has 1 critical concern tree that needs immediate removal. This tree can be seen on the Location of Trees with Recommended Maintenance map (Appendix B, Figure 4). Please refer to the six year maintenance plan at the end of this section. After this tree has been addressed, there should be follow up on the trees marked as needing maintenance. There are a total of 169 trees with these needs.

Poor tree species

After the removal of the critical concern tree, ash trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, Figure 4). Of the 66 removals, 37 are ash trees. There are a total of 67 ash trees, and 47 of those have signs and symptoms that have been associated with EAB, 27 of which are dead/dying. *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 10 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 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 (or more) helps ensure continuation of the benefits of the existing forest in Kalona.

I noticed numerous areas that provide great tree planting opportunities, see the photo example below:


Many cul de sac streets in need of some trees!



Imagine sugar maples lining the Kalona sale barn fence, and one right on the corner of the parking lot, and in front of the Kalona community center… bring on the fall colors!

Enhance the parks of Kalona with more trees!


No power lines above and some bare green…. trees anyone?


A couple beautiful examples of Kalona streets lined with trees on both sides. What does the future of Kalona look like with the current ordinance preventing new trees from being planted in these areas?

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 (26%) (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 or an invasive species include: cottonwood, poplar, box elder, Chinese elm, evergreen, willow, white mulberry, Bradford/Callery pear, black locust, Ailanthus (tree of heaven), and catalpa. All trees planted must meet the restrictions in city ordinance 151.02 (Appendix C).

Planting Care

I noticed a majority of the younger trees that were planted in the Kalona City Park are damaged from lawn mowers. See three examples below:



This damage increases the trees susceptibility to disease & other stress and may eventually cause the tree to die. The first photo shows an oak that is stressed enough to start sprouting from the base. To help prevent this issues moving forward:

- Follow the instructions in this short video on how to properly plant a containerized tree. How to Plant a Tree from a Container, Iowa DNR
- Consider planting young bare root seedlings to save on costs. A tree shelter such as a tree tube or cage is highly recommended, and mulch is still essential.
- Mulch the area surrounding the tree with 3 inches of mulch to reduce tight mowing and need
- for string trimming.

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

Current Budget $5,300/year (~$2 per capita)

Task	Average Cost per unit	Unit	Total Cost
Removal for Health & Safety	$1,000/ tree	41 Trees	$41,000
Removal for Invasive Species Replacement	$700/ tree	25 Trees	$17,500
Tree Planting	$125	≥84 Trees	$10,500
Pruning & Maintenance	~ $300/yr	-	-
			TOTAL: $69,000

- With the $5,300 per year budget (~ $2 per capita) it would take 13 years to complete all of the work included in the table.
- A good goal would be to remove 4 trees a year ($4,000), plant 9 trees per year ($1,125) and use the leftover ($175) to get as much pruning and maintenance done as possible.

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 151.02 (Appendix C). The new plantings will be a diverse mix and will not include cottonwood, poplar, box elder, Chinese elm, evergreen, willow, white mulberry, Bradford/Callery pear, black locust, Ailanthus (tree of heaven), or catalpa.

Postponed Work

While finances, staffing and equipment are focused on the management of ash, usual services may be delayed. Tree removal requests on genera other than ash will be prioritized by hazardous or emergency situations only.

Monitoring

It is recommended that ash trees be checked with a visual survey every year for tree death and for the following signs and symptoms: canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage.

Private Ash Trees

It is strongly recommended that private property owners start removing ash trees on their property upon arrival of EAB if preventative treatments are not being used. City Code 151.06 states *"If it is determined with reasonable certainty that any such condition exists on private property and that 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 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."*

Proposed Budget Increase

EAB has the potential to kill all ash trees in a city within 4 years of its arrival. To remove all ash trees within 10 years, the budget would need to be increased to $9,900 a year. Additionally, it is recommended that Kalona 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. There are 30 treatable trees, which would cost approximately $4,500 a year for treatment. These are alternatives to straight removal of ash trees. However, whether or not the treatment option is selected, there is/will be an increased cost of dealing with ash trees since EAB is in Kalona. 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

Kalona

Annual Energy Benefits of Public Trees

5/30/2022

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	10.3	782	1,341.0	1,314	2,096	(N/A)	11.4	12.6	42.77
Norway maple	9.9	752	1,420.7	1,392	2,144	(N/A)	8.6	12.9	57.95
Silver maple	9.4	717	1,245.7	1,221	1,938	(N/A)	6.3	11.7	71.77
Pin oak	3.1	233	400.3	392	625	(N/A)	6.3	3.8	23.15
Northern white cedar	2.2	169	297.9	292	461	(N/A)	6.0	2.8	17.74
Siberian elm	3.9	294	526.5	516	810	(N/A)	5.1	4.9	36.83
Sugar maple	6.4	487	864.6	847	1,335	(N/A)	5.1	8.0	60.66
Honeylocust	5.3	402	706.8	693	1,095	(N/A)	4.9	6.6	52.13
Red maple	3.6	271	473.5	464	735	(N/A)	4.6	4.4	36.75
Black locust	2.8	212	392.6	385	596	(N/A)	4.2	3.6	33.13
Apple	2.3	177	345.8	339	516	(N/A)	4.2	3.1	28.68
White ash	3.5	266	436.2	427	694	(N/A)	2.8	4.2	57.80
Northern red oak	1.8	139	258.6	253	393	(N/A)	2.8	2.4	32.72
White oak	0.0	2	4.7	5	7	(N/A)	2.3	0.0	0.66
Kentucky coffeetree	0.0	2	4.7	5	7	(N/A)	2.3	0.0	0.66
Elm	0.2	18	30.5	30	48	(N/A)	2.3	0.3	4.79
Northern hackberry	3.3	254	476.7	467	721	(N/A)	2.1	4.3	80.14
Blue spruce	0.8	64	115.2	113	177	(N/A)	1.9	1.1	22.15
Swamp white oak	0.3	20	43.3	42	63	(N/A)	1.6	0.4	8.99
Ash	0.9	72	146.5	144	215	(N/A)	1.4	1.3	35.88
Littleleaf linden	1.2	90	171.7	168	258	(N/A)	1.4	1.6	43.05
Bur oak	1.3	98	159.8	157	255	(N/A)	1.4	1.5	42.48
Mulberry	0.1	10	22.8	22	32	(N/A)	1.4	0.2	5.40
Callery pear	0.3	24	43.5	43	67	(N/A)	1.2	0.4	13.39
Eastern red cedar	0.6	42	82.2	81	123	(N/A)	1.2	0.7	24.57
Black spruce	0.4	32	64.1	63	95	(N/A)	1.2	0.6	18.93
Northern pin oak	1.2	93	181.8	178	271	(N/A)	0.9	1.6	67.80
Eastern white pine	0.5	39	58.5	57	97	(N/A)	0.9	0.6	24.14
Norway spruce	0.6	48	83.7	82	130	(N/A)	0.9	0.8	32.40
Amur maple	0.4	34	62.2	61	94	(N/A)	0.7	0.6	31.49
Cottonwood	0.0	0	0.9	1	1	(N/A)	0.5	0.0	0.66
Black walnut	0.7	54	100.5	99	153	(N/A)	0.5	0.9	76.46
Ginkgo	0.2	14	26.5	26	40	(N/A)	0.2	0.2	40.40
Scotch pine	0.1	10	14.6	14	24	(N/A)	0.2	0.1	24.14
Willow	0.3	24	47.4	46	71	(N/A)	0.2	0.4	70.84
River birch	0.3	20	39.6	39	59	(N/A)	0.2	0.4	58.69
American sycamore	0.4	29	53.7	53	82	(N/A)	0.2	0.5	82.02
American basswood	0.3	23	44.7	44	67	(N/A)	0.2	0.4	66.72
Maple	0.0	0	0.7	1	1	(N/A)	0.2	0.0	1.03
Japanese tree lilac	0.0	0	0.6	1	1	(N/A)	0.2	0.0	0.87
Total	79.3	6,020	10,791.3	10,575	16,596	(N/A)	100.0	100.0	38.51

Table 2: Annual Stormwater Benefits

Kalona

Annual Stormwater Benefits of Public Trees

5/30/2022

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	83,664	2,267	(N/A)	11.4	10.5	46.27
Norway maple	95,913	2,599	(N/A)	8.6	12.0	70.25
Silver maple	142,040	3,849	(N/A)	6.3	17.7	142.57
Pin oak	33,055	896	(N/A)	6.3	4.1	33.18
Northern white cedar	25,475	690	(N/A)	6.0	3.2	26.55
Siberian elm	38,112	1,033	(N/A)	5.1	4.8	46.95
Sugar maple	76,196	2,065	(N/A)	5.1	9.5	93.86
Honeylocust	48,069	1,303	(N/A)	4.9	6.0	62.03
Red maple	26,117	708	(N/A)	4.6	3.3	35.39
Black locust	18,003	488	(N/A)	4.2	2.2	27.10
Apple	9,790	265	(N/A)	4.2	1.2	14.74
White ash	32,426	879	(N/A)	2.8	4.1	73.23
Northern red oak	17,506	474	(N/A)	2.8	2.2	39.53
White oak	179	5	(N/A)	2.3	0.0	0.48
Kentucky coffeetree	179	5	(N/A)	2.3	0.0	0.48
Elm	1,409	38	(N/A)	2.3	0.2	3.82
Northern hackberry	33,290	902	(N/A)	2.1	4.2	100.24
Blue spruce	11,524	312	(N/A)	1.9	1.4	39.04
Swamp white oak	1,139	31	(N/A)	1.6	0.1	4.41
Ash	7,302	198	(N/A)	1.4	0.9	32.98
Littleleaf linden	11,186	303	(N/A)	1.4	1.4	50.52
Bur oak	9,061	246	(N/A)	1.4	1.1	40.92
Mulberry	412	11	(N/A)	1.4	0.1	1.86
Callery pear	1,759	48	(N/A)	1.2	0.2	9.53
Eastern red cedar	8,173	221	(N/A)	1.2	1.0	44.30
Black spruce	5,946	161	(N/A)	1.2	0.7	32.23
Northern pin oak	13,772	373	(N/A)	0.9	1.7	93.31
Eastern white pine	6,154	167	(N/A)	0.9	0.8	41.70
Norway spruce	13,512	366	(N/A)	0.9	1.7	91.55
Amur maple	1,598	43	(N/A)	0.7	0.2	14.43
Cottonwood	36	1	(N/A)	0.5	0.0	0.48
Black walnut	9,433	256	(N/A)	0.5	1.2	127.82
Ginkgo	1,240	34	(N/A)	0.2	0.2	33.60
Scotch pine	1,539	42	(N/A)	0.2	0.2	41.70
Willow	3,764	102	(N/A)	0.2	0.5	102.01
River birch	2,479	67	(N/A)	0.2	0.3	67.19
American sycamore	5,491	149	(N/A)	0.2	0.7	148.79
American basswood	3,285	89	(N/A)	0.2	0.4	89.02
Maple	12	0	(N/A)	0.2	0.0	0.32
Japanese tree lilac	7	0	(N/A)	0.2	0.0	0.20
Citywide total	800,243	21,687	(N/A)	100.0	100.0	50.32

Table 3: Annual Air Quality Benefits

Kalona

Annual Air Quality Benefits of Public Trees

5/30/2022

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	7.8	1.2	4.2	0.3	43	48.6	7.1	6.8	46.7	304	0.0	0	122.7	347 (N/A)	11.4	7.08
Norway maple	20.1	3.5	9.8	0.9	108	48.0	6.9	6.6	44.9	297	-4.7	-18	136.0	388 (N/A)	8.6	10.49
Silver maple	25.5	4.3	12.4	1.1	137	44.5	6.5	6.2	42.7	279	-13.3	-50	130.1	366 (N/A)	6.3	13.55
Pin oak	5.9	1.0	3.0	0.3	32	14.5	2.1	2.0	13.9	91	-11.0	-41	31.7	82 (N/A)	6.3	3.02
Northern white cedar	2.6	0.5	2.4	0.3	18	10.6	1.5	1.5	10.1	66	-8.4	-31	21.1	52 (N/A)	6.0	2.01
Siberian elm	5.6	1.0	2.8	0.2	31	18.4	2.7	2.6	17.6	115	0.0	0	50.9	146 (N/A)	5.1	6.62
Sugar maple	10.4	1.8	5.1	0.5	56	30.5	4.4	4.2	29.1	190	-8.1	-30	77.9	216 (N/A)	5.1	9.82
Honeylocust	8.9	1.5	4.1	0.4	47	25.1	3.7	3.5	24.0	157	-6.6	-25	64.5	179 (N/A)	4.9	8.52
Red maple	5.6	0.9	2.7	0.2	30	16.9	2.5	2.4	16.2	106	-2.0	-7	45.4	128 (N/A)	4.6	6.40
Black locust	2.7	0.5	1.5	0.1	15	13.4	1.9	1.9	12.6	83	-0.7	-3	33.9	96 (N/A)	4.2	5.32
Apple	3.0	0.5	1.4	0.1	16	11.4	1.6	1.6	10.6	70	0.0	0	30.3	86 (N/A)	4.2	4.80
White ash	3.9	0.6	1.9	0.2	21	16.3	2.4	2.3	15.9	103	0.0	0	43.5	124 (N/A)	2.8	10.30
Northern red oak	3.6	0.6	1.8	0.2	19	8.8	1.3	1.2	8.3	55	-5.1	-19	20.6	55 (N/A)	2.8	4.57
White oak	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)	2.3	0.08
Kentucky coffeetree	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)	2.3	0.08
Elm	0.0	0.0	0.0	0.0	0	1.1	0.2	0.2	1.1	7	0.0	0	2.6	7 (N/A)	2.3	0.71
Northern hackberry	5.3	0.9	2.7	0.2	29	16.2	2.3	2.2	15.2	100	0.0	0	45.0	129 (N/A)	2.1	14.33
Blue spruce	1.5	0.3	1.3	0.2	10	4.0	0.6	0.6	3.8	25	-4.1	-16	8.1	19 (N/A)	1.9	2.43
Swamp white oak	0.0	0.0	0.1	0.0	0	1.3	0.2	0.2	1.2	8	0.0	0	3.0	8 (N/A)	1.6	1.21
Ash	1.2	0.2	0.6	0.1	7	4.7	0.7	0.6	4.3	29	-0.3	-1	12.1	34 (N/A)	1.4	5.70
Littleleaf linden	1.7	0.3	0.9	0.1	10	5.8	0.8	0.8	5.4	36	-0.9	-3	14.9	42 (N/A)	1.4	6.98
Bur oak	0.7	0.1	0.4	0.0	4	6.0	0.9	0.9	5.9	38	0.0	0	14.9	42 (N/A)	1.4	7.00
Mulberry	0.0	0.0	0.0	0.0	0	0.7	0.1	0.1	0.6	4	0.0	0	1.5	4 (N/A)	1.4	0.71
Callery pear	0.2	0.0	0.1	0.0	1	1.5	0.2	0.2	1.5	10	-0.1	0	3.8	11 (N/A)	1.2	2.12
Eastern red cedar	1.7	0.3	1.4	0.2	11	2.7	0.4	0.4	2.5	17	-4.5	-17	5.1	11 (N/A)	1.2	2.19
Black spruce	0.8	0.2	0.7	0.1	5	2.1	0.3	0.3	1.9	13	-2.1	-8	4.2	10 (N/A)	1.2	2.06
Northern pin oak	3.1	0.5	1.5	0.1	17	6.0	0.9	0.8	5.6	37	-0.7	-3	17.8	51 (N/A)	0.9	12.73
Eastern white pine	0.7	0.1	0.6	0.1	5	2.4	0.4	0.3	2.3	15	-2.2	-8	4.7	11 (N/A)	0.9	2.82
Norway spruce	1.6	0.3	1.3	0.2	10	3.0	0.4	0.4	2.8	19	-7.0	-26	3.1	3 (N/A)	0.9	0.69
Amur maple	0.5	0.1	0.2	0.0	2	2.1	0.3	0.3	2.0	13	0.0	0	5.5	16 (N/A)	0.7	5.22
Cottonwood	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.1	0 (N/A)	0.5	0.08
Black walnut	1.3	0.2	0.6	0.1	7	3.4	0.5	0.5	3.2	21	0.0	0	9.8	28 (N/A)	0.5	14.09
Ginkgo	0.3	0.1	0.1	0.0	2	0.9	0.1	0.1	0.9	6	-0.1	0	2.4	7 (N/A)	0.2	6.92
Scotch 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)	0.2	2.82
Willow	0.9	0.1	0.4	0.0	5	1.6	0.2	0.2	1.5	10	-0.2	-1	4.7	14 (N/A)	0.2	13.58
River birch	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
American sycamore	0.8	0.1	0.4	0.0	4	1.9	0.3	0.3	1.8	12	0.0	0	5.5	16 (N/A)	0.2	15.71
American basswood	0.4	0.1	0.2	0.0	2	1.5	0.2	0.2	1.4	9	-0.4	-1	3.6	10 (N/A)	0.2	10.02
Maple	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	0.13
Japanese tree lilac	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0 (N/A)	0.2	0.11
Citywide total	128.9	22.1	67.1	6.5	708	377.9	55.1	52.5	359.4	2,356	-83.2	-312	986.3	2,752 (N/A)	100.0	6.39

Table 4: Annual Carbon Stored

Kalona

Stored CO2 Benefits of Public Trees

5/30/2022

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	254,241	1,907	(N/A)	11.4	9.7	38.91
Norway maple	331,588	2,487	(N/A)	8.6	12.7	67.21
Silver maple	598,483	4,489	(N/A)	6.3	22.9	166.25
Pin oak	159,603	1,197	(N/A)	6.3	6.1	44.33
Northern white cedar	16,504	124	(N/A)	6.0	0.6	4.76
Siberian elm	138,635	1,040	(N/A)	5.1	5.3	47.26
Sugar maple	301,435	2,261	(N/A)	5.1	11.5	102.76
Honeylocust	113,109	848	(N/A)	4.9	4.3	40.40
Red maple	62,365	468	(N/A)	4.6	2.4	23.39
Black locust	45,996	345	(N/A)	4.2	1.8	19.16
Apple	46,963	352	(N/A)	4.2	1.8	19.57
White ash	84,770	636	(N/A)	2.8	3.2	52.98
Northern red oak	76,892	577	(N/A)	2.8	2.9	48.06
White oak	122	1	(N/A)	2.3	0.0	0.09
Kentucky coffeetree	122	1	(N/A)	2.3	0.0	0.09
Elm	1,508	11	(N/A)	2.3	0.1	1.13
Northern hackberry	78,533	589	(N/A)	2.1	3.0	65.44
Blue spruce	9,530	71	(N/A)	1.9	0.4	8.93
Swamp white oak	1,529	11	(N/A)	1.6	0.1	1.64
Ash	20,293	152	(N/A)	1.4	0.8	25.37
Littleleaf linden	37,492	281	(N/A)	1.4	1.4	46.86
Bur oak	24,180	181	(N/A)	1.4	0.9	30.22
Mulberry	1,067	8	(N/A)	1.4	0.0	1.33
Callery pear	4,095	31	(N/A)	1.2	0.2	6.14
Eastern red cedar	5,510	41	(N/A)	1.2	0.2	8.27
Black spruce	6,030	45	(N/A)	1.2	0.2	9.05
Northern pin oak	50,786	381	(N/A)	0.9	1.9	95.22
Eastern white pine	4,681	35	(N/A)	0.9	0.2	8.78
Norway spruce	17,519	131	(N/A)	0.9	0.7	32.85
Amur maple	6,982	52	(N/A)	0.7	0.3	17.46
Cottonwood	24	0	(N/A)	0.5	0.0	0.09
Black walnut	41,716	313	(N/A)	0.5	1.6	156.43
Ginkgo	4,203	32	(N/A)	0.2	0.2	31.52
Scotch pine	1,170	9	(N/A)	0.2	0.0	8.78
Willow	14,280	107	(N/A)	0.2	0.5	107.10
River birch	7,945	60	(N/A)	0.2	0.3	59.59
American sycamore	25,943	195	(N/A)	0.2	1.0	194.57
American basswood	15,239	114	(N/A)	0.2	0.6	114.29
Maple	17	0	(N/A)	0.2	0.0	0.13
Japanese tree lilac	14	0	(N/A)	0.2	0.0	0.10
Citywide total	2,611,113	19,583	(N/A)	100.0	100.0	45.44

Table 5: Annual Carbon Sequestered

Kalona

Annual CO Benefits of Public Trees

5/30/2022

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	22,631	170	-1,220	-100	-10	17,273	130	38,585	289 (N/A)	11.4	12.9	5.91
Norway maple	11,621	87	-1,592	-106	-13	16,615	125	26,538	199 (N/A)	8.6	8.9	5.38
Silver maple	42,048	315	-2,873	-107	-22	15,843	119	54,911	412 (N/A)	6.3	18.4	15.25
Pin oak	14,197	106	-767	-34	-6	5,145	39	18,541	139 (N/A)	6.3	6.2	5.15
Northern white cedar	2,026	15	-79	-38	-1	3,741	28	5,649	42 (N/A)	6.0	1.9	1.63
Siberian elm	7,349	55	-671	-44	-5	6,503	49	13,137	99 (N/A)	5.1	4.4	4.48
Sugar maple	14,960	112	-1,447	-70	-11	10,768	81	24,211	182 (N/A)	5.1	8.1	8.25
Honeylocust	13,746	103	-543	-42	-4	8,885	67	22,046	165 (N/A)	4.9	7.4	7.87
Red maple	6,997	52	-299	-32	-2	5,991	45	12,656	95 (N/A)	4.6	4.2	4.75
Black locust	5,110	38	-223	-27	-2	4,675	35	9,535	72 (N/A)	4.2	3.2	3.97
Apple	4,009	30	-226	-29	-2	3,920	29	7,675	58 (N/A)	4.2	2.6	3.20
White ash	8,660	65	-407	-29	-3	5,882	44	14,106	106 (N/A)	2.8	4.7	8.82
Northern red oak	1,632	12	-369	-24	-3	3,078	23	4,317	32 (N/A)	2.8	1.4	2.70
White oak	26	0	-1	-2	0	44	0	67	1 (N/A)	2.3	0.0	0.05
Kentucky coffeetree	26	0	-1	-2	0	44	0	67	1 (N/A)	2.3	0.0	0.05
Elm	599	4	-7	-5	0	398	3	984	7 (N/A)	2.3	0.3	0.74
Northern hackberry	4,400	33	-377	-32	-3	5,617	42	9,608	72 (N/A)	2.1	3.2	8.01
Blue spruce	682	5	-46	-15	0	1,422	11	2,044	15 (N/A)	1.9	0.7	1.92
Swamp white oak	669	5	-12	-4	0	452	3	1,105	8 (N/A)	1.6	0.4	1.18
Ash	1,836	14	-97	-10	-1	1,583	12	3,312	25 (N/A)	1.4	1.1	4.14
Littleleaf linden	3,895	29	-180	-14	-1	1,990	15	5,691	43 (N/A)	1.4	1.9	7.11
Bur oak	2,650	20	-116	-12	-1	2,172	16	4,694	35 (N/A)	1.4	1.6	5.87
Mulberry	228	2	-5	-4	0	223	2	442	3 (N/A)	1.4	0.1	0.55
Callery pear	588	4	-21	-4	0	538	4	1,102	8 (N/A)	1.2	0.4	1.65
Eastern red cedar	0	0	-26	-10	0	934	7	898	7 (N/A)	1.2	0.3	1.35
Black spruce	343	3	-29	-8	0	705	5	1,011	8 (N/A)	1.2	0.3	1.52
Northern pin oak	840	6	-244	-15	-2	2,056	15	2,637	20 (N/A)	0.9	0.9	4.94
Eastern white pine	462	3	-22	-8	0	866	6	1,298	10 (N/A)	0.9	0.4	2.43
Norway spruce	562	4	-84	-12	-1	1,050	8	1,516	11 (N/A)	0.9	0.5	2.84
Amur maple	649	5	-34	-5	0	741	6	1,352	10 (N/A)	0.7	0.5	3.38
Cottonwood	5	0	0	0	0	9	0	13	0 (N/A)	0.5	0.0	0.05
Black walnut	1,816	14	-200	-8	-2	1,202	9	2,811	21 (N/A)	0.5	0.9	10.54
Ginkgo	225	2	-20	-3	0	319	2	521	4 (N/A)	0.2	0.2	3.91
Scotch pine	116	1	-6	-2	0	216	2	324	2 (N/A)	0.2	0.1	2.43
Willow	370	3	-69	-4	-1	539	4	837	6 (N/A)	0.2	0.3	6.27
River birch	470	4	-38	-3	0	440	3	869	7 (N/A)	0.2	0.3	6.52
American sycamore	960	7	-125	-4	-1	650	5	1,481	11 (N/A)	0.2	0.5	11.11
American basswood	925	7	-73	-4	-1	505	4	1,353	10 (N/A)	0.2	0.5	10.15
Maple	3	0	0	0	0	7	0	9	0 (N/A)	0.2	0.0	0.07
Japanese tree lilac	9	0	0	0	0	6	0	14	0 (N/A)	0.2	0.0	0.10
Citywide total	178,340	1,338	-12,549	-871	-101	133,046	998	297,965	2,235 (N/A)	100.0	100.0	5.19

Table 6: Annual Social and Aesthetic Benefits

Kalona

Annual Aesthetic/Other Benefits of Public Trees

5/30/2022

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	2,202	(N/A)	11.4	11.4	44.95
Norway maple	1,098	(N/A)	8.6	5.7	29.67
Silver maple	3,149	(N/A)	6.3	16.3	116.63
Pin oak	1,081	(N/A)	6.3	5.6	40.05
Northern white cedar	578	(N/A)	6.0	3.0	22.24
Siberian elm	645	(N/A)	5.1	3.3	29.32
Sugar maple	1,539	(N/A)	5.1	8.0	69.96
Honeylocust	3,191	(N/A)	4.9	16.6	151.95
Red maple	961	(N/A)	4.6	5.0	48.07
Black locust	543	(N/A)	4.2	2.8	30.18
Apple	233	(N/A)	4.2	1.2	12.96
White ash	1,010	(N/A)	2.8	5.2	84.19
Northern red oak	143	(N/A)	2.8	0.7	11.95
White oak	53	(N/A)	2.3	0.3	5.26
Kentucky coffeetree	53	(N/A)	2.3	0.3	5.26
Elm	128	(N/A)	2.3	0.7	12.84
Northern hackberry	564	(N/A)	2.1	2.9	62.67
Blue spruce	179	(N/A)	1.9	0.9	22.36
Swamp white oak	90	(N/A)	1.6	0.5	12.89
Ash	191	(N/A)	1.4	1.0	31.83
Littleleaf linden	412	(N/A)	1.4	2.1	68.70
Bur oak	270	(N/A)	1.4	1.4	44.94
Mulberry	12	(N/A)	1.4	0.1	2.06
Callery pear	70	(N/A)	1.2	0.4	14.08
Eastern red cedar	0	(N/A)	1.2	0.0	0.00
Black spruce	97	(N/A)	1.2	0.5	19.43
Northern pin oak	75	(N/A)	0.9	0.4	18.63
Eastern white pine	129	(N/A)	0.9	0.7	32.32
Norway spruce	141	(N/A)	0.9	0.7	35.31
Amur maple	37	(N/A)	0.7	0.2	12.46
Cottonwood	11	(N/A)	0.5	0.1	5.26
Black walnut	132	(N/A)	0.5	0.7	66.10
Ginkgo	17	(N/A)	0.2	0.1	17.46
Scotch pine	32	(N/A)	0.2	0.2	32.32
Willow	31	(N/A)	0.2	0.2	31.46
River birch	43	(N/A)	0.2	0.2	43.05
American sycamore	67	(N/A)	0.2	0.3	66.60
American basswood	70	(N/A)	0.2	0.4	69.73
Maple	0	(N/A)	0.2	0.0	0.04
Japanese tree lilac	0	(N/A)	0.2	0.0	0.03
Citywide total	19,281	(N/A)	100.0	100.0	44.74

Table 7: Summary of Benefits in Dollars

Kalona

Total Annual Benefits of Public Trees by Species ($)

5/30/2022

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Green ash	2,096	289	347	2,267	2,202	7,202	(N/A)	11.5
Norway maple	2,144	199	388	2,599	1,098	6,428	(N/A)	10.3
Silver maple	1,938	412	366	3,849	3,149	9,714	(N/A)	15.5
Pin oak	625	139	82	896	1,081	2,823	(N/A)	4.5
Northern white cedar	461	42	52	690	578	1,824	(N/A)	2.9
Siberian elm	810	99	146	1,033	645	2,732	(N/A)	4.4
Sugar maple	1,335	182	216	2,065	1,539	5,336	(N/A)	8.5
Honeylocust	1,095	165	179	1,303	3,191	5,933	(N/A)	9.5
Red maple	735	95	128	708	961	2,627	(N/A)	4.2
Black locust	596	72	96	488	543	1,795	(N/A)	2.9
Apple	516	58	86	265	233	1,159	(N/A)	1.9
White ash	694	106	124	879	1,010	2,812	(N/A)	4.5
Northern red oak	393	32	55	474	143	1,098	(N/A)	1.8
White oak	7	1	1	5	53	65	(N/A)	0.1
Kentucky coffeetree	7	1	1	5	53	65	(N/A)	0.1
Elm	48	7	7	38	128	229	(N/A)	0.4
Northern hackberry	721	72	129	902	564	2,389	(N/A)	3.8
Blue spruce	177	15	19	312	179	703	(N/A)	1.1
Swamp white oak	63	8	8	31	90	201	(N/A)	0.3
Ash	215	25	34	198	191	663	(N/A)	1.1
Littleleaf linden	258	43	42	303	412	1,058	(N/A)	1.7
Bur oak	255	35	42	246	270	847	(N/A)	1.4
Mulberry	32	3	4	11	12	64	(N/A)	0.1
Callery pear	67	8	11	48	70	204	(N/A)	0.3
Eastern red cedar	123	7	11	221	0	362	(N/A)	0.6
Black spruce	95	8	10	161	97	371	(N/A)	0.6
Northern pin oak	271	20	51	373	75	790	(N/A)	1.3
Eastern white pine	97	10	11	167	129	414	(N/A)	0.7
Norway spruce	130	11	3	366	141	651	(N/A)	1.0
Amur maple	94	10	16	43	37	201	(N/A)	0.3
Cottonwood	1	0	0	1	11	13	(N/A)	0.0
Black walnut	153	21	28	256	132	590	(N/A)	0.9
Ginkgo	40	4	7	34	17	102	(N/A)	0.2
Scotch pine	24	2	3	42	32	103	(N/A)	0.2
Willow	71	6	14	102	31	224	(N/A)	0.4
River birch	59	7	10	67	43	186	(N/A)	0.3
American sycamore	82	11	16	149	67	324	(N/A)	0.5
American basswood	67	10	10	89	70	246	(N/A)	0.4
Maple	1	0	0	0	0	2	(N/A)	0.0
Japanese tree lilac	1	0	0	0	0	1	(N/A)	0.0
Citywide Total	16,596	2,235	2,752	21,687	19,281	62,550	(N/A)	100.0

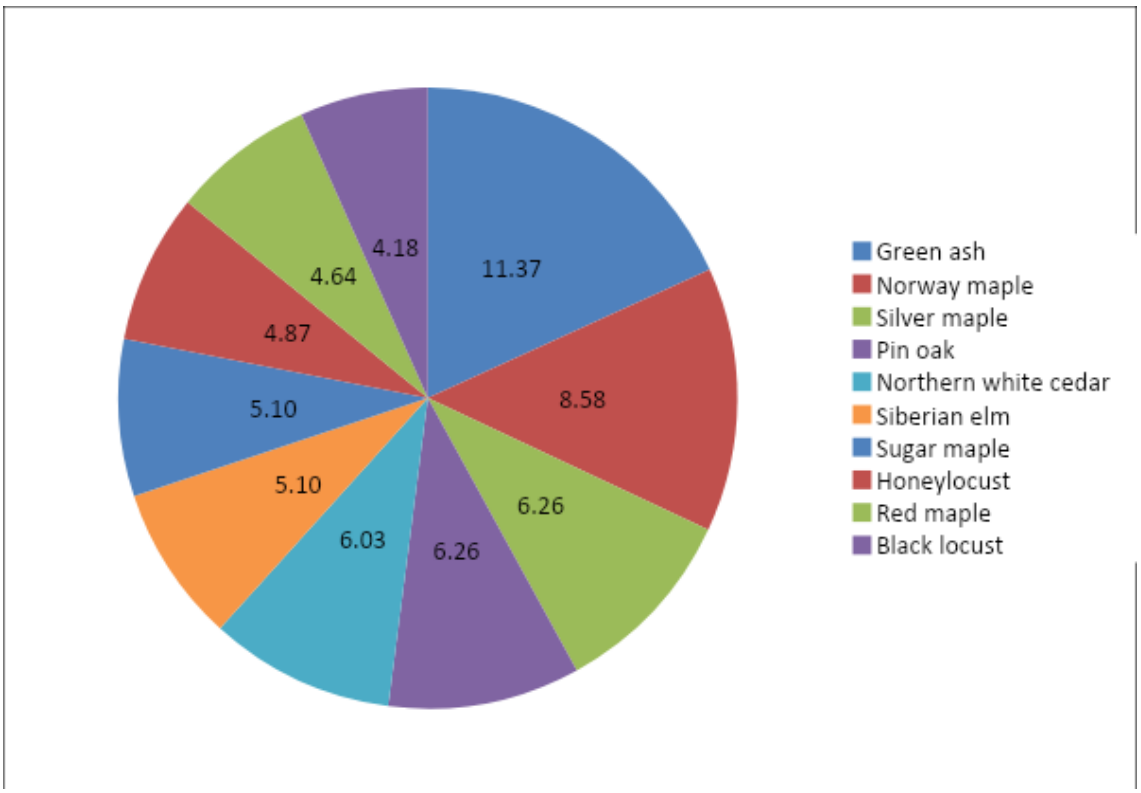

Figure 1: Species Distribution

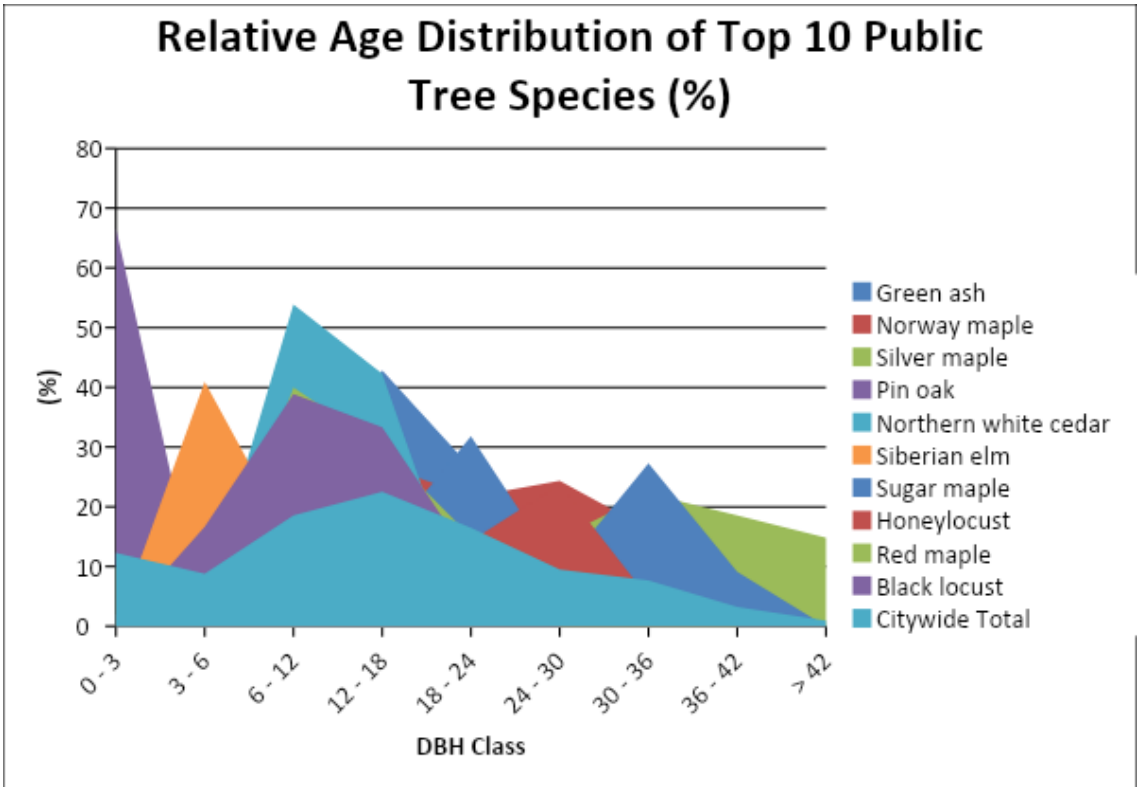

Figure 2: Relative Age Class

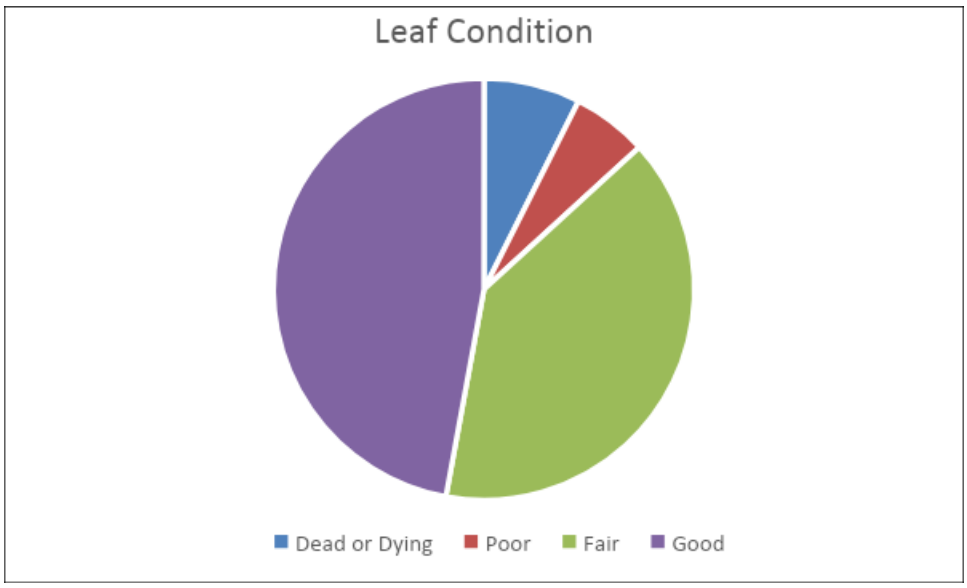

Figure 3: Foliage Condition

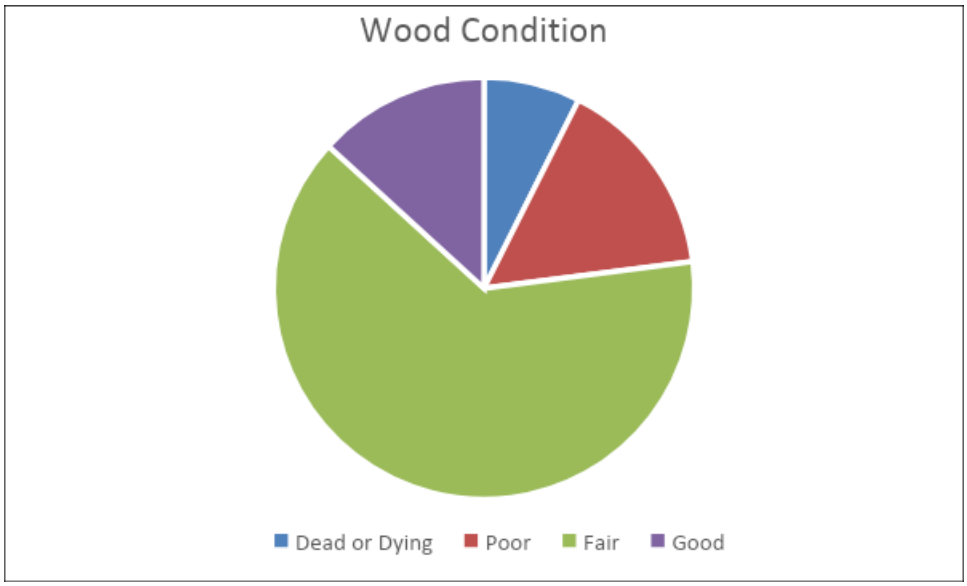

Figure 4: Wood Condition

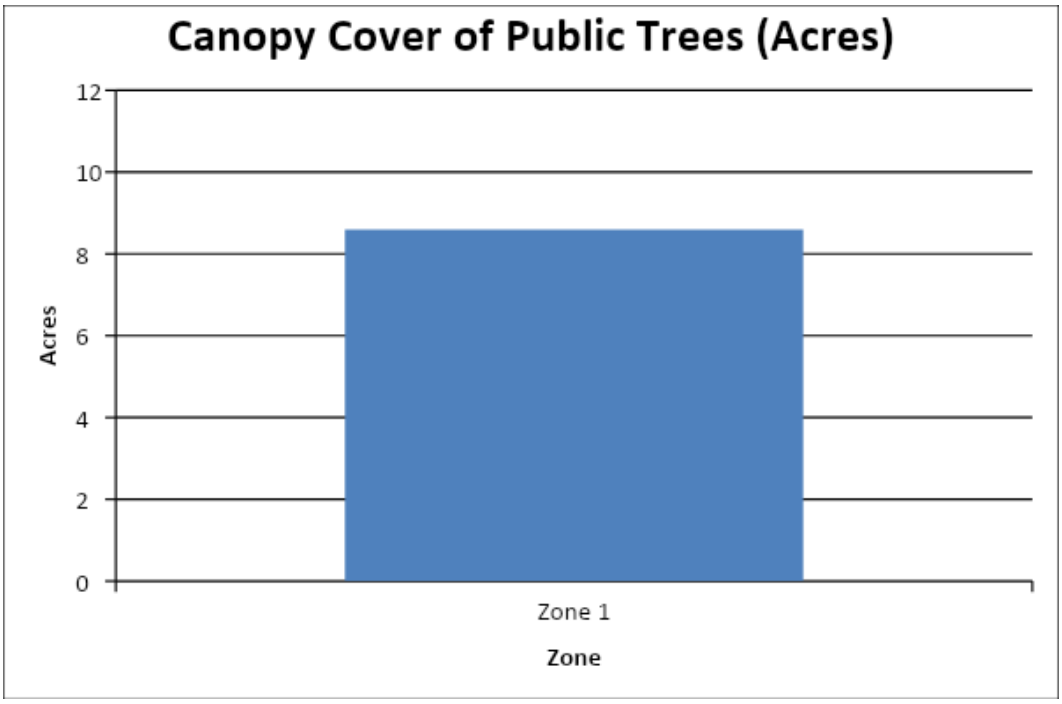

Figure 5: Canopy Cover in Acres

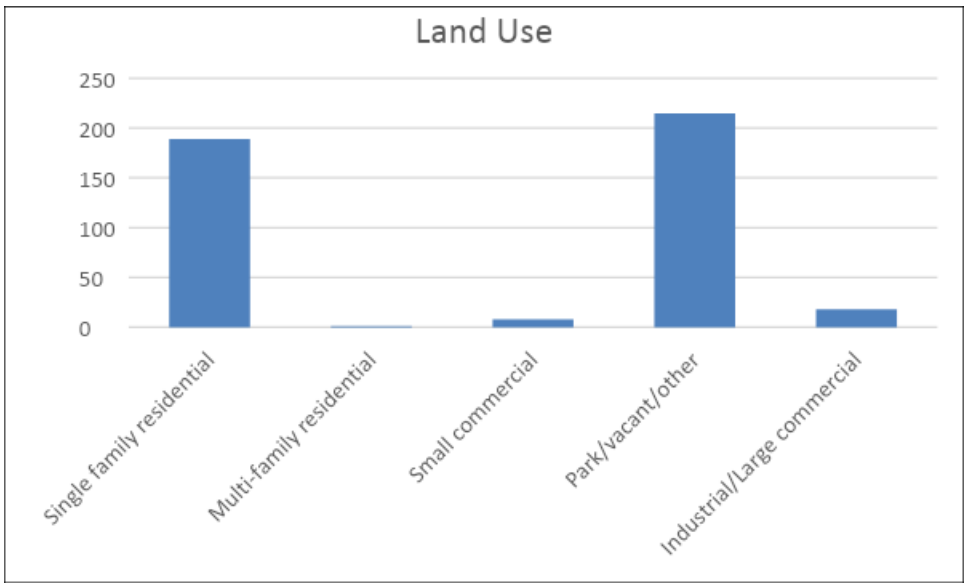

Figure 6: Land Use of city/park trees

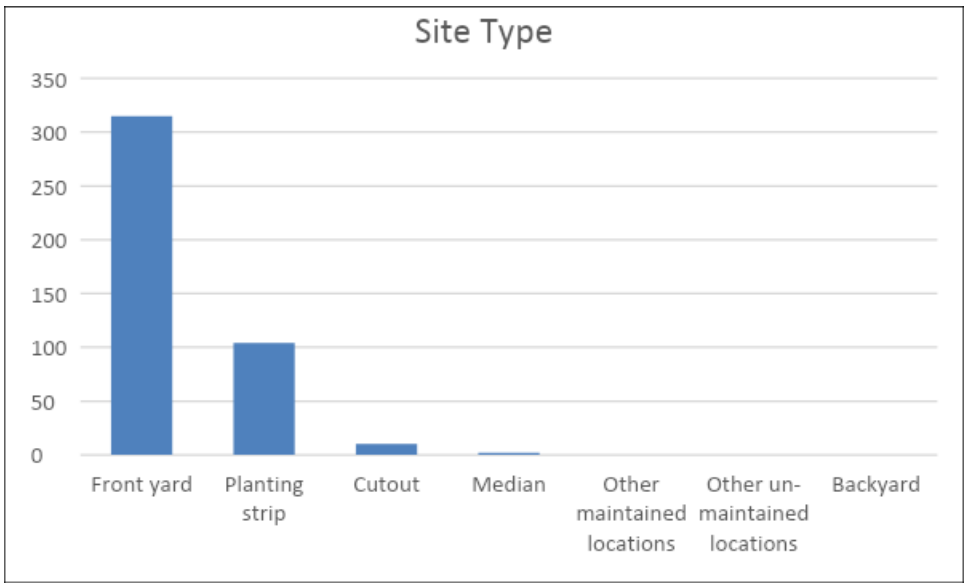

Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

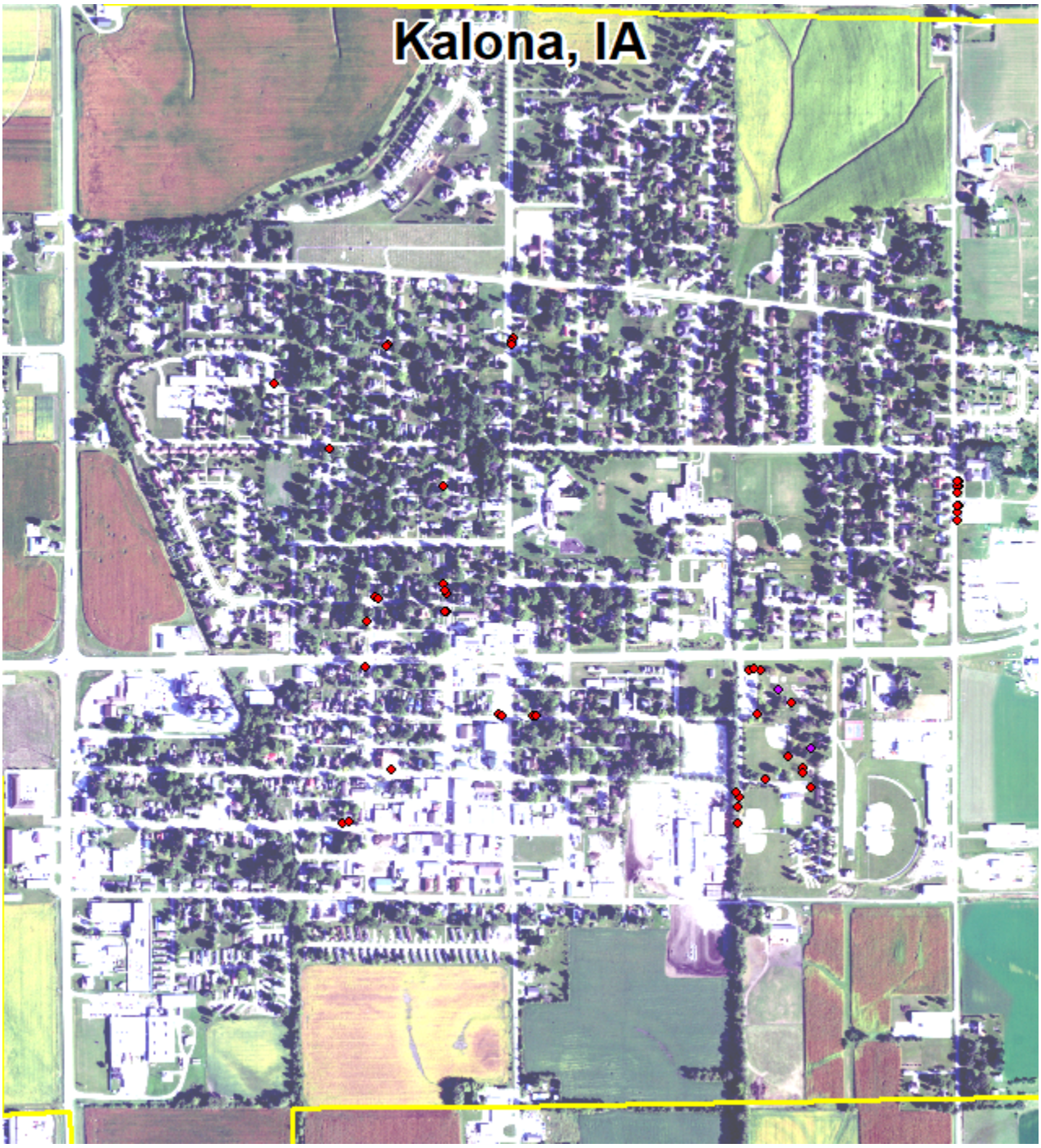

Figure 1: Location of Ash Trees

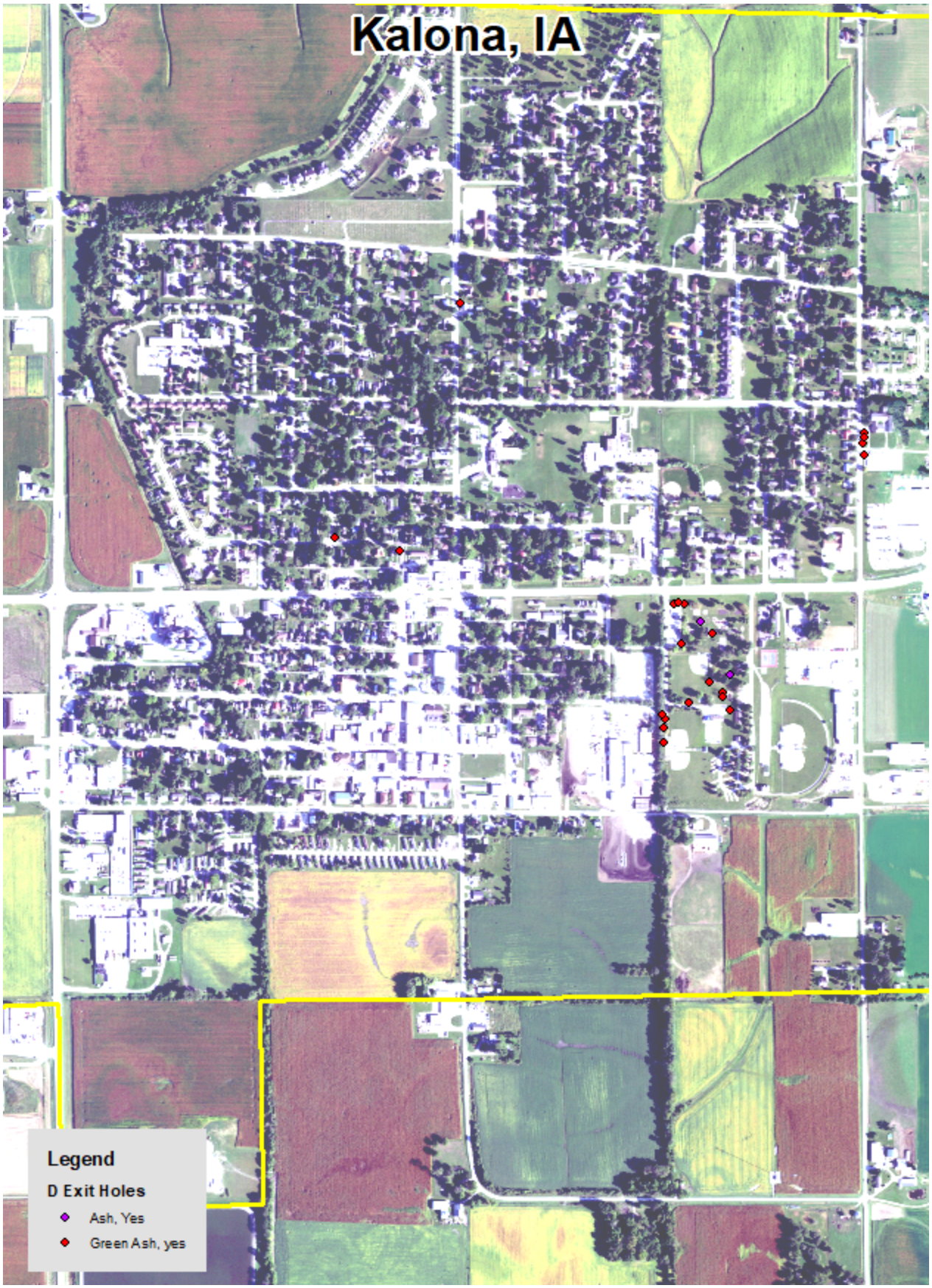

Figure 2: Location of EAB symptoms

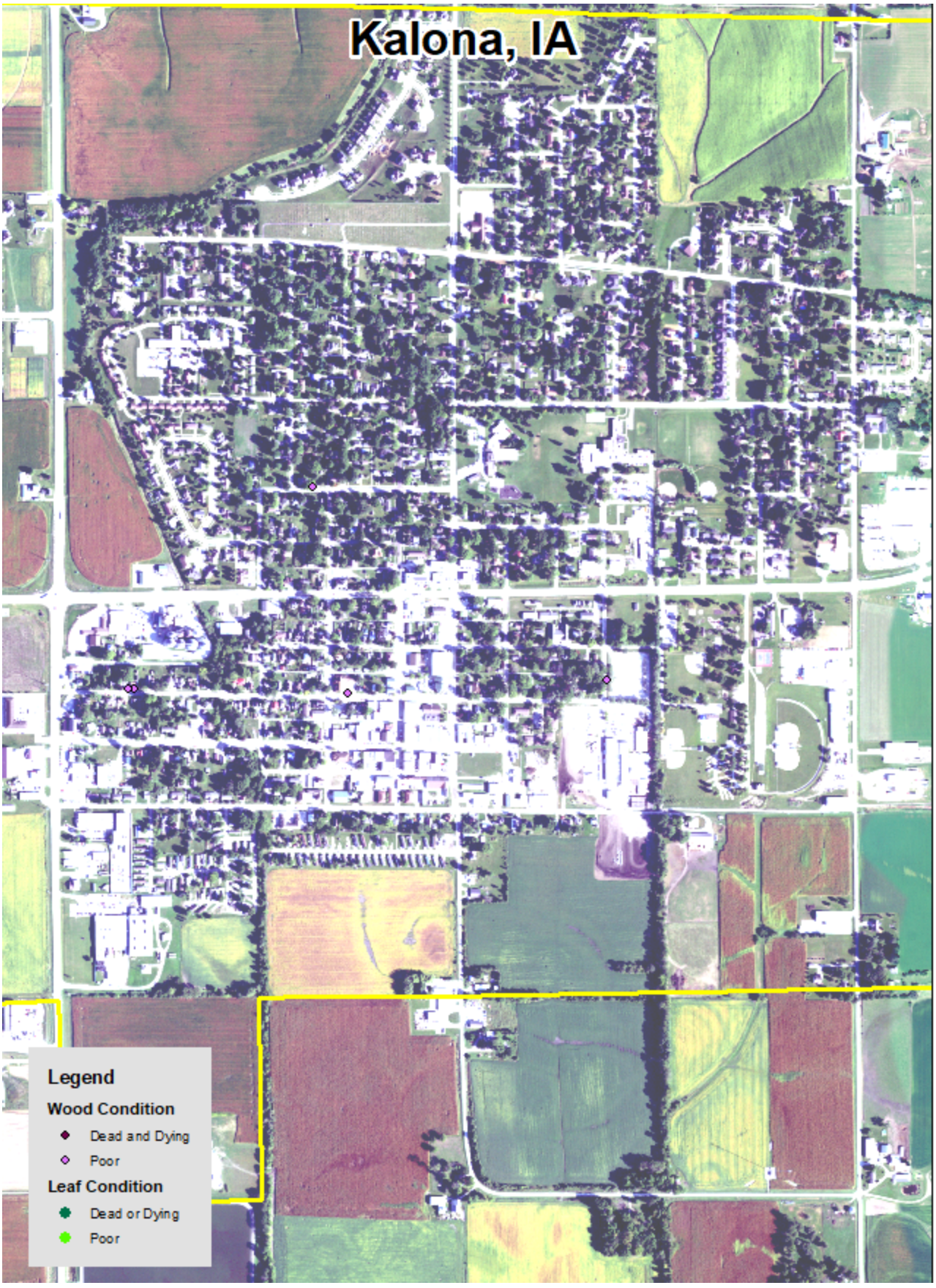

Figure 3: Location of Poor Condition Trees

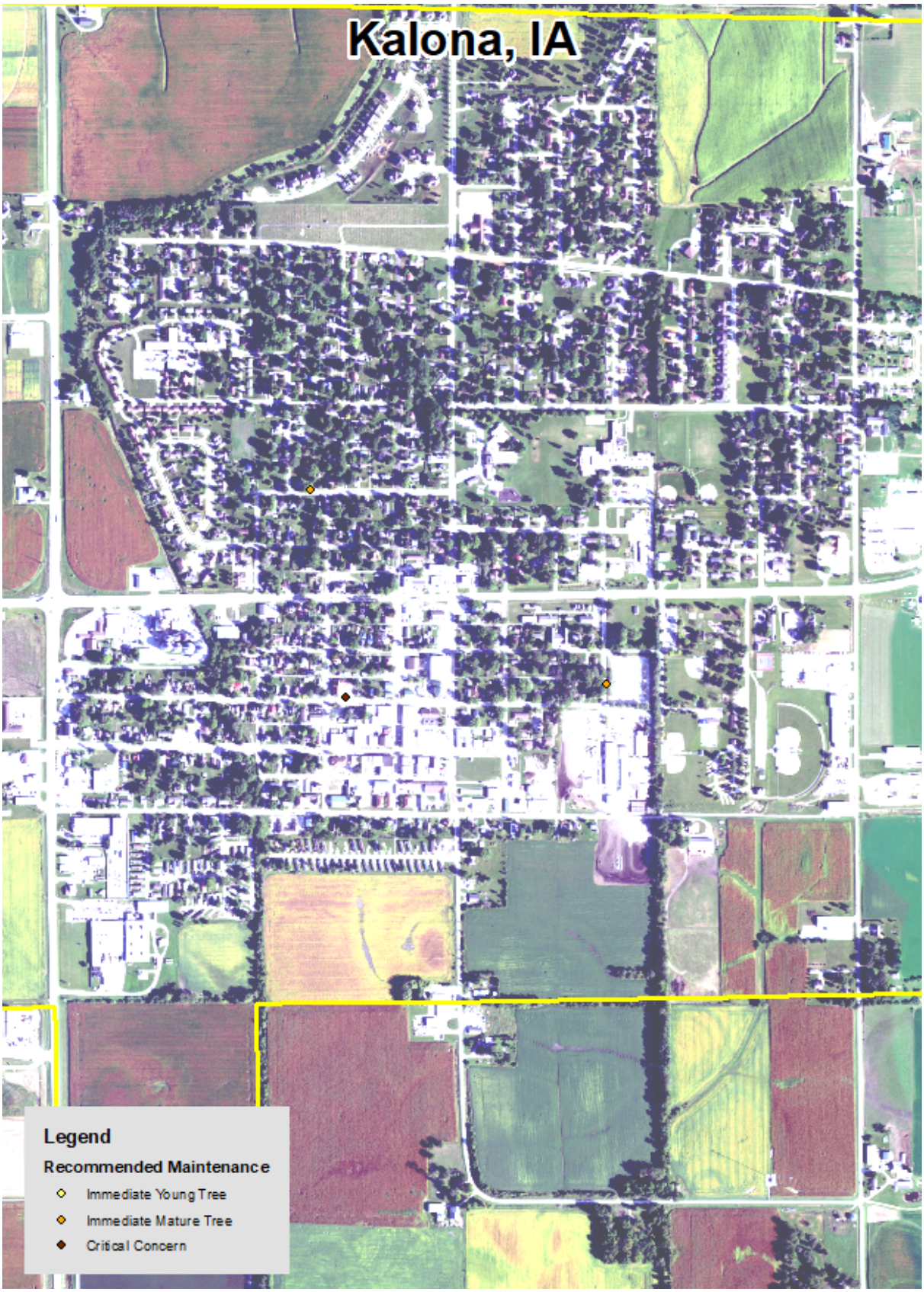

Figure 4: Location of Trees with Recommended Maintenance

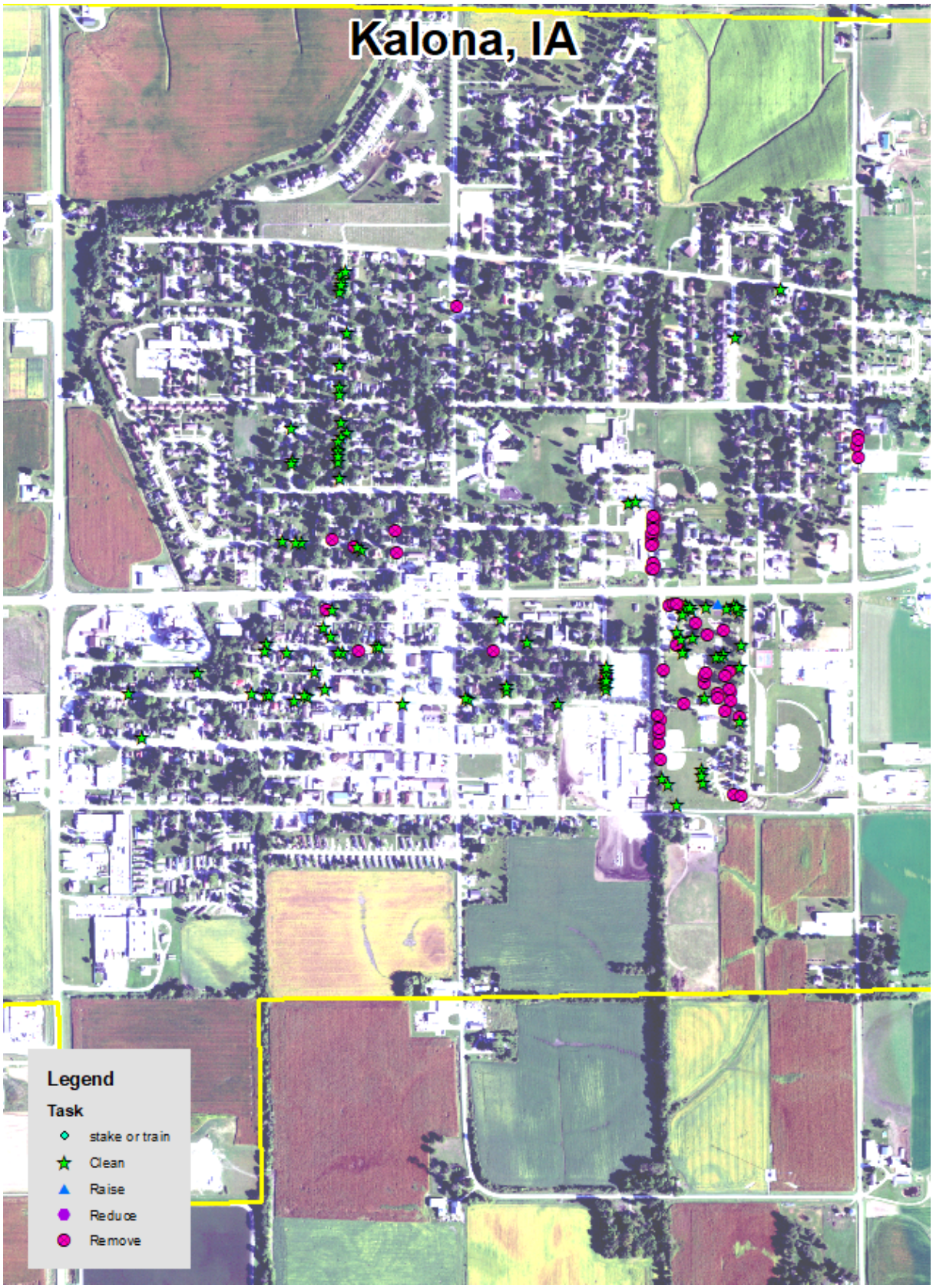

Figure 5: Maintenance Tasks ***City ownership of the trees recommended for removal should be verified prior to any removal****

Appendix C: Kalona Tree Ordinances

CHAPTER 151

TREES

151.01 DEFINITION.

For use in this chapter, "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.

151.02 PLANTING RESTRICTIONS.

No trees, shrubs, or bushes shall be planted in any parking or street. Trees, shrubs, or bushes shall be planted inside the property lines and not between the sidewalk and curb.

151.03 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 15 feet above the surface of the street and eight feet above the sidewalks. If the abutting property owner fails to trim the trees, the City may serve notice on the abutting property owner requiring that such action be taken within five 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 Iowa, Sec. 364.12[2c and e])

151.04 TRIMMING TREES TO BE SUPERVISED.

Except as allowed in Section 151.03, it is 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.

151.05 DISEASE CONTROL.

Any dead, diseased, or damaged tree or shrub that may harbor serious insect or disease pests or disease injurious to other trees is hereby declared to be a nuisance.

151.06 INSPECTION AND REMOVAL.

The Council shall inspect or cause to be inspected any trees or shrubs in the City reported or suspected to be dead, diseased or damaged, and such trees and shrubs shall be subject to the following:

1. City Property. If it is determined that any such condition exists on any public property, including the strip between the curb and the lot line of private property, the Council may cause such condition to be corrected by treatment or removal. The Council may also order the removal of any trees on the streets of the City which interfere with the making of improvements or with travel thereon.

2. Private Property. If it is determined with reasonable certainty that any such condition exists on private property and that 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 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.

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