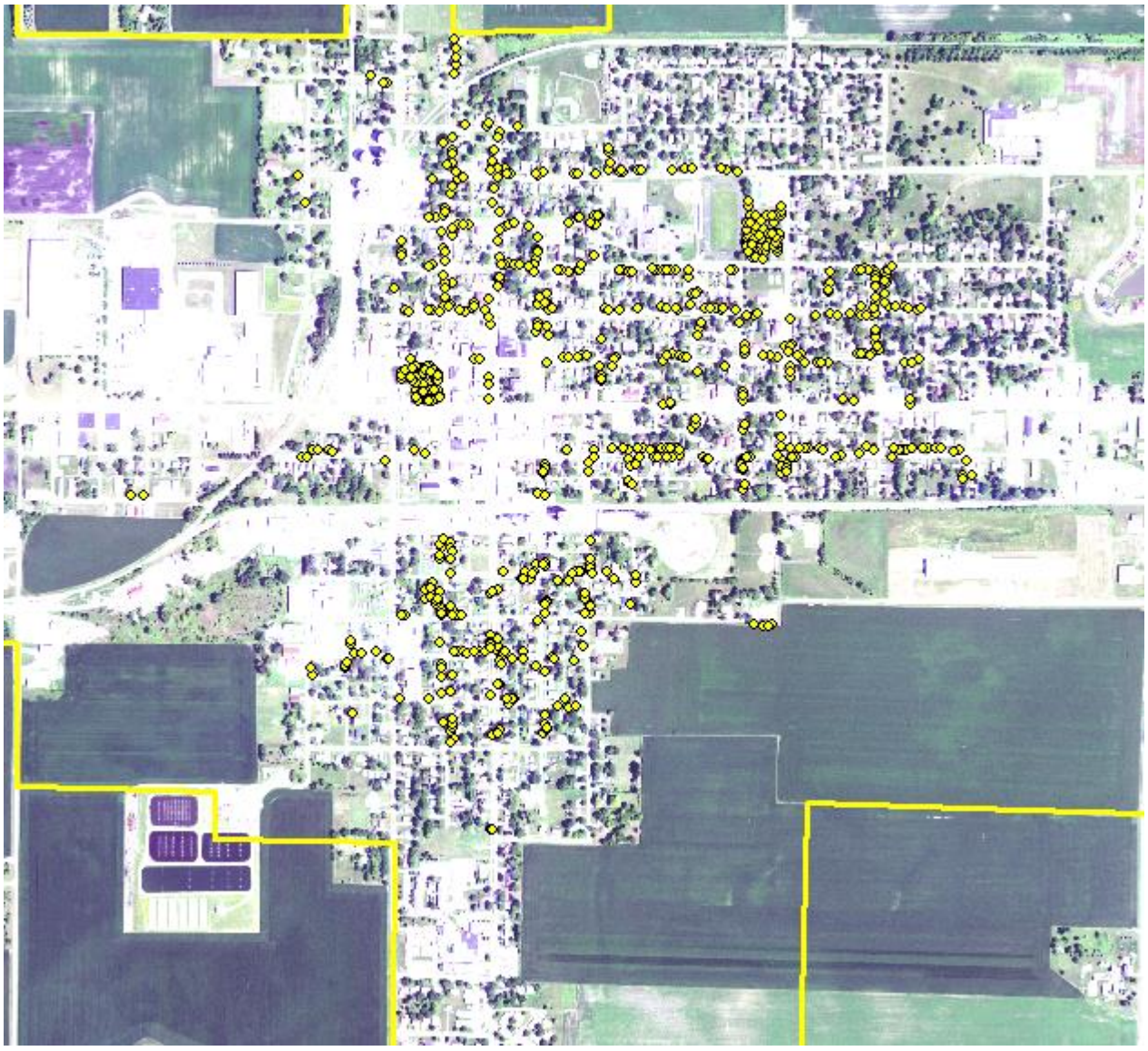
Clarion, IA



2023 Urban Forest Management Plan
Iowa Department of Natural Resources

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Executive Summary

Overview

This plan was developed to assist the City of Clarion 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 25% of Clarion'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 681 trees inventoried.

- Clarion's trees provide $143,113 of benefits annually, an average of $210 a tree
- There are at least 41 species of trees
- The top three genera are: Maple 38%, Ash 25%, and Hackberry 7%
- 59% of trees are in need of some type of management
- 28 trees are recommended for removal

Recommendations

The core recommendations are detailed in the Recommendations Section. Below are some key recommendations.

- Of the 28 trees needing removal, 3 trees are considered "critical concerns" and another 10 are considered "immediate" maintenance needs, implying action should be taken within the next 1-3 years. The remaining balance of 15 trees recommended for removal would be considered "routine" maintenance removals, as in sometime in the next 6 years. *City ownership of the trees recommended for removal should be verified prior to any removal*
- All 169 ash trees should either be scheduled for immediate treatment or else scheduled for routine removal within the next 5-7 years. Assume that all untreated ash trees in town will die.
- All trees should be pruned on a routine schedule- one third of the city every other year
- Begin planting a diverse mix of trees that do not include: ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut

Introduction

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

Trees are an important component of Clarion'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 Clarion 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 Clarion'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 681 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. Clarion's trees reduce energy related costs by approximately $38,426 annually (Appendix A, Table 1). These savings are both in Electricity (182 MWh) and in Natural Gas (25,116 Therms).

Annual Stormwater Benefits

Clarion's trees intercept about 2,012,285 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $54,533 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 Clarion, it is estimated that trees remove 2,371 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 $6,703 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Clarion, trees sequester about 415,565 lbs of carbon a year with an associated value of $3,117 (Appendix A, Table 5). In addition, the trees store 7,411,305 lbs of carbon, with a yearly benefit of $55,585 (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. Clarion receives $38,326 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, Clarion's trees provide $143,113 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 681 trees in Clarion provide approximately $210 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Clarion has over 41 different tree species along city streets and parks (Appendix A, Figure 1).
The distribution of trees by genera is as follows:

Maple	261	38%
Ash	169	25%

Hackberry	49	7%
Walnut	34	5%
Basswood	31	5%
Oak	25	4%
Locust	22	3%
Apple (Crabapple)	20	3%
All others	<20	<3%

Age/Size Class

Most of Clarion's trees (68%) are larger than 18 inches in diameter at 4.5 ft, with 26% between 6-18" and just 44 trees or 6% smaller than 6" in diameter (Appendix A, Figure 2). For age or size class distribution, it is preferred that there be an approximately equal number of trees among the three main size classes to maintain continuous canopy cover and community benefits. Clarion's size curve is heavily skewed towards the larger size classes, indicating a deficit in young trees across the community.

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 Clarion indicate that 94% of the trees are in good health, with only 6% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 90% of Clarion'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 10% of the population. All trees having "poor, dead or dying" condition either in the wood or in the foliage should be reviewed for possible follow-up removal and replacement with a healthy new tree.

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). Needs are broken down by type of maintenance needed (category in left column) and the approximate urgency or importance, defined by the top row headers of the table. All trees can be seen in the maps and are viewable by GIS database queries.

Maintenance category	Critical Concern Trees (Complete action ASAP)	Immediate (Complete action within next 1-3 yrs)	Routine (Schedule maintenance up to 3-6 yrs out)	Total # of trees
Crown Cleaning	20	32	121	173
Crown Raising	0	6	141	147
Crown Reduction	0	14	26	40
Tree Removal	3	10	15	28
Tree Staking	0	13	1	14
Totals	23	75	304	402

Canopy Cover

Based on satellite imagery, the total canopy coverage provided by all trees in the community (private and public) totals 155 acres, or 7% of Clarion's incorporated land area. Municipally-owned trees on streets, parks, and other public spaces inventoried during this survey comprise 21 acres (Appendix A, Figure 4). If the City were to set a Canopy goal to increase canopy by 50% in 30 years on all lands, the community could achieve this goal by planting approximately 10-12 trees annually on public and/or private lands.

Land Use and Location

The majority of Clarion'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	80%
Park/vacant/other	19%
Industrial/Large commercial	<1%
Small commercial	1%
Multifamily residential	<1%

Location	
Planting strip	81%
Other maintained locations	18%
Cutout (surrounded by pavement)	<1%
Front yard	<1%

Changes in Forest Structure Since plan in 2013

The urban forest canopy in Clarion has remained relatively stable over the past 10 years since the previous inventory in 2012-2013. Species distribution (Maple, Ash, and Hackberry) has remained relatively unchanged, as has species richness, size class, foliage and wood condition, and other primary metrics. A couple notable changes include a sizable increase in the benefits provided by the average urban tree (an increase from $167 per tree to $210 per tree annually), and the proportion of trees needing maintenance increased from 25% of the population to 59%. Note: the 2013 tree report also contained a significantly greater number of total trees included in the inventory than the 2023 report – this change is attributed to a change in inventory methods as to which trees were included in the public right of way.

It's worth noting that with pending widespread mortality of the ash tree population, significant changes are still forthcoming in the next ten-year cycle.

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

Clarion has 23 critical concern trees that need attention as soon as possible. Three of these are recommended for complete removal, with the other twenty suggested for branch trimming to mitigate the hazard. These trees can be seen on the Location of Trees with Recommended Maintenance map (Appendix B, Figure 4).

After all of the critical concern trees are addressed, there should be follow up on the trees marked as needing "Immediate" maintenance within the next 1-3 years. There are a total of 75 trees with these needs as shown in Appendix B, Figure 4.

Trees needing "routine" maintenance should be reviewed within the next 3-6 years max once all "critical concern" and "immediate" maintenance needs have been met.

Poor tree species

After the above trees are reviewed, all trees cited as being in poor or dead/dying health should be assessed for removal and possible replacement (Appendix B, Figure 3 & Appendix B, Figure 4). There are 84 trees that are rated either poor or dead/dying for leaf or wood 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 should focus on replacing the trees that are removed. It is recommended to plant 1.2 trees for every tree removed, since survival rates will not be 100%. 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 Clarion.

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 (38%) (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 may be public

nuisances include: cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut, as outlined in section 151.02 of the city ordinance (Appendix C). All trees planted must meet the restrictions in city ordinance 151.02 (Appendix C).

Continual Monitoring

Due to the threat of EAB, it is important to continuously check the health of ash trees. It is recommended that ash trees be checked with a visual survey every year for tree decline and for the following signs and symptoms: canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage.

Emerald Ash Borer Plan

Ash Tree Removal

All ash trees should be scheduled for pending removal if they are not treated with a registered pesticide to prevent EAB mortality. Tree removal will be prioritized with dead, dying, hazardous trees to be removed first (Appendix B, Figure 4). Next will be all ash in poor condition and displaying signs and symptoms of EAB (Appendix B, Figure 2 & Appendix B, Figure 3). *City ownership of the tree recommended for removal should be verified prior to any removal*

Treatment of Ash Trees

Chemical treatment can be effective tool for communities to spread removal costs out over several years while allowing trees to continue to provide benefits. However, treatment is not recommended if EAB is more than 15 miles away from the community. For more information on the cost of treatment strategies visit http://extension.entm.purdue.edu/treecomputer/

EAB Quarantines

EAB is an extremely destructive plant pest and it is responsible for the death and decline of millions of ash trees. Ash in both forested and urban settings constitute a significant portion of the canopy cover in the United States. Current tools to detect, control, suppress and eradicate this pest are not as robust as the USDA would desire. In order to stay ahead of this hard to detect beetle, the USDA is attempting to contain the beetle before it spreads beyond its known positions by regulating articles.

A regulated article under the USDA's quarantine includes any of the following items:

- emerald ash borer
- firewood of all hardwood species (for example ash, oak, maple and hickory)
- nursery stock and green lumber of ash
- any other ash material, whether living, dead, cut or fallen, including logs, stumps, roots, branches, as well as composted and not composted chips of the genus ash (Mountain ash is not included)

In addition, any other article, product or means of conveyance not listed above may be designated as a regulated article if a USDA inspector determines that it presents a risk of spreading EAB once a quarantine is in effect for your county.

Wood Disposal

A very important aspect of planning is determining how wood infested with EAB will be handled, keeping in mind that quarantines will restrict its movement. Consider who will cut and haul the dead and dying trees? Is there an accessible, secured site big enough to store and sort the hundreds of trees and the associated brush and chips? How will wood be disposed of or utilized? Do you have equipment capable of handling the amount and size of ash trees your tree inventory has identified? Once your county is under quarantine for EAB, contact USDA-APHIS-PPQ at 515-251-4083 or visit the website http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/regulatory.shtml. Wood waste can be disposed of as you normally would if your county is not part of a quarantine.

Canopy Replacement

As budget permits, all removed trees will be replaced. All trees will meet the restrictions in city ordinance 151.02 (Appendix C). The new plantings will be a diverse mix and will not include ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut.

Postponed Work

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

Monitoring

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

Private Ash Trees

It is strongly recommended that private property owners start removing ash trees on their property upon arrival of EAB if preventative treatments are not being used. City 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.”

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Clarion

Annual Energy Benefits of Public Trees

2/1/2023

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	49.2	3,731	6,683.3	6,550	10,281	(N/A)	24.5	26.8	61.56
Norway maple	32.9	2,499	4,737.0	4,642	7,141	(N/A)	18.4	18.6	57.13
Silver maple	28.2	2,140	3,761.7	3,686	5,827	(N/A)	12.9	15.2	66.21
Northern hackberry	17.7	1,343	2,524.3	2,474	3,816	(N/A)	7.2	9.9	77.89
Black walnut	9.9	752	1,365.4	1,338	2,090	(N/A)	5.0	5.4	61.47
Sugar maple	8.1	616	1,063.8	1,043	1,658	(N/A)	4.1	4.3	59.23
American basswood	7.7	588	1,141.3	1,118	1,706	(N/A)	3.8	4.4	65.62
Honeylocust	7.8	594	1,022.6	1,002	1,596	(N/A)	3.2	4.2	72.55
Apple	3.2	239	463.7	454	694	(N/A)	2.9	1.8	34.68
Northern red oak	3.2	242	453.2	444	686	(N/A)	2.5	1.8	40.38
Red maple	2.8	209	358.6	351	560	(N/A)	2.1	1.5	40.01
Blue spruce	1.3	98	160.5	157	255	(N/A)	1.5	0.7	25.54
Ginkgo	0.3	22	41.5	41	62	(N/A)	1.0	0.2	8.88
Bur oak	1.0	75	133.9	131	206	(N/A)	1.0	0.5	29.45
American elm	0.8	63	114.7	112	176	(N/A)	1.0	0.5	25.12
Catalpa	0.3	26	49.2	48	74	(N/A)	0.9	0.2	12.36
Spruce	0.8	59	97.7	96	155	(N/A)	0.9	0.4	25.77
Pear	0.7	53	99.7	98	151	(N/A)	0.7	0.4	30.16
Littleleaf linden	1.2	95	185.3	182	276	(N/A)	0.7	0.7	55.28
Amur maple	0.3	22	51.3	50	73	(N/A)	0.6	0.2	18.19
Quaking aspen	0.3	25	41.2	40	66	(N/A)	0.4	0.2	21.84
American sycamore	0.0	1	1.4	1	2	(N/A)	0.4	0.0	0.66
Broadleaf Deciduous Small	0.2	11	26.3	26	37	(N/A)	0.4	0.1	12.42
Boxelder	0.8	62	108.8	107	168	(N/A)	0.4	0.4	56.14
Conifer Evergreen Large	0.5	38	63.8	63	100	(N/A)	0.4	0.3	33.49
Eastern hophornbeam	0.1	6	13.5	13	19	(N/A)	0.3	0.0	9.53
Paper birch	0.1	4	7.4	7	12	(N/A)	0.3	0.0	5.82
White ash	0.5	39	67.8	66	105	(N/A)	0.3	0.3	52.69
Swamp white oak	0.0	0	0.8	1	1	(N/A)	0.1	0.0	1.10
Eastern redbud	0.0	2	3.8	4	5	(N/A)	0.1	0.0	5.40
Austrian pine	0.1	11	19.5	19	30	(N/A)	0.1	0.1	29.65
River birch	0.2	18	29.5	29	47	(N/A)	0.1	0.1	46.78
Mulberry	0.2	14	24.7	24	38	(N/A)	0.1	0.1	38.13
Siberian elm	0.4	34	58.3	57	91	(N/A)	0.1	0.2	91.06
Japanese maple	0.2	14	24.7	24	38	(N/A)	0.1	0.1	38.13
Eastern cottonwood	0.2	18	27.0	26	44	(N/A)	0.1	0.1	44.23
Tulip tree	0.1	7	13.7	13	21	(N/A)	0.1	0.1	20.64
Black maple	0.3	19	30.1	29	49	(N/A)	0.1	0.1	48.95
Broadleaf Deciduous Mediur	0.3	20	39.6	39	59	(N/A)	0.1	0.2	58.69
Southern magnolia	0.0	3	5.6	5	8	(N/A)	0.1	0.0	8.11
Alder	0.0	0	0.6	1	1	(N/A)	0.1	0.0	0.87
Total	182.0	13,812	25,116.5	24,614	38,426	(N/A)	100.0	100.0	56.43

Table 2: Annual Stormwater Benefits

Clarion

Annual Stormwater Benefits of Public Trees

2/1/2023

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	549,094	14,880	(N/A)	24.5	27.3	89.10
Norway maple	307,603	8,336	(N/A)	18.4	15.3	66.69
Silver maple	398,820	10,808	(N/A)	12.9	19.8	122.82
Northern hackberry	180,866	4,901	(N/A)	7.2	9.0	100.03
Black walnut	108,171	2,931	(N/A)	5.0	5.4	86.22
Sugar maple	93,717	2,540	(N/A)	4.1	4.7	90.70
American basswood	87,779	2,379	(N/A)	3.8	4.4	91.49
Honeylocust	95,947	2,600	(N/A)	3.2	4.8	118.19
Apple	14,108	382	(N/A)	2.9	0.7	19.12
Northern red oak	34,661	939	(N/A)	2.5	1.7	55.25
Red maple	21,150	573	(N/A)	2.1	1.1	40.94
Blue spruce	16,979	460	(N/A)	1.5	0.8	46.01
Ginkgo	1,231	33	(N/A)	1.0	0.1	4.77
Bur oak	10,208	277	(N/A)	1.0	0.5	39.52
American elm	9,119	247	(N/A)	1.0	0.5	35.30
Catalpa	4,032	109	(N/A)	0.9	0.2	18.21
Spruce	12,785	346	(N/A)	0.9	0.6	57.75
Pear	2,529	69	(N/A)	0.7	0.1	13.70
Littleleaf linden	14,587	395	(N/A)	0.7	0.7	79.06
Amur maple	1,058	29	(N/A)	0.6	0.1	7.17
Quaking aspen	2,091	57	(N/A)	0.4	0.1	18.89
American sycamore	54	1	(N/A)	0.4	0.0	0.48
Broadleaf Deciduous Small	536	15	(N/A)	0.4	0.0	4.85
Boxelder	10,524	285	(N/A)	0.4	0.5	95.07
Conifer Evergreen Large	10,748	291	(N/A)	0.4	0.5	97.09
Eastern hophornbeam	272	7	(N/A)	0.3	0.0	3.68
Paper birch	343	9	(N/A)	0.3	0.0	4.65
White ash	5,913	160	(N/A)	0.3	0.3	80.12
Swamp white oak	12	0	(N/A)	0.1	0.0	0.33
Eastern redbud	69	2	(N/A)	0.1	0.0	1.86
Austrian pine	2,312	63	(N/A)	0.1	0.1	62.66
River birch	1,409	38	(N/A)	0.1	0.1	38.19
Mulberry	667	18	(N/A)	0.1	0.0	18.06
Siberian elm	5,904	160	(N/A)	0.1	0.3	159.99
Japanese maple	667	18	(N/A)	0.1	0.0	18.06
Eastern cottonwood	1,466	40	(N/A)	0.1	0.1	39.72
Tulip tree	608	16	(N/A)	0.1	0.0	16.47
Black maple	1,604	43	(N/A)	0.1	0.1	43.46
Broadleaf Deciduous Medium	2,479	67	(N/A)	0.1	0.1	67.19
Southern magnolia	155	4	(N/A)	0.1	0.0	4.21
Alder	7	0	(N/A)	0.1	0.0	0.20
Citywide total	2,012,285	54,533	(N/A)	100.0	100.0	80.08

Table 3: Annual Air Quality Benefits

Clarion

Annual Air Quality Benefits of Public Trees

2/1/2023

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	70.7	11.3	33.6	3.2	376	234.3	34.1	32.6	222.8	1,461	0.0	0	642.6	1,837 (N/A)	24.5	11.00
Norway maple	62.8	10.8	30.8	2.8	339	159.5	23.1	22.0	149.4	988	-14.7	-55	446.4	1,272 (N/A)	18.4	10.18
Silver maple	66.8	11.3	33.0	3.0	361	133.4	19.5	18.6	127.6	833	-34.9	-131	378.3	1,063 (N/A)	12.9	12.08
Northern hackberry	29.1	5.0	14.6	1.3	158	85.5	12.4	11.8	80.2	530	0.0	0	240.0	688 (N/A)	7.2	14.05
Black walnut	13.0	2.1	6.3	0.6	69	47.4	6.9	6.6	44.9	295	0.0	0	127.6	364 (N/A)	5.0	10.71
Sugar maple	13.2	2.2	6.5	0.6	71	38.3	5.6	5.4	36.8	240	-10.3	-39	98.2	272 (N/A)	4.1	9.72
American basswood	11.9	2.0	5.8	0.5	64	37.8	5.4	5.2	35.1	233	-10.1	-38	93.6	259 (N/A)	3.8	9.98
Honeylocust	19.1	3.1	8.6	0.9	101	36.8	5.4	5.2	35.4	231	-15.2	-57	99.3	274 (N/A)	3.2	12.46
Apple	4.7	0.8	2.2	0.2	25	15.3	2.2	2.1	14.3	95	0.0	0	41.7	119 (N/A)	2.9	5.97
Northern red oak	7.5	1.3	3.6	0.3	40	15.4	2.2	2.1	14.5	95	-10.7	-40	36.2	95 (N/A)	2.5	5.62
Red maple	4.8	0.8	2.3	0.2	26	13.0	1.9	1.8	12.5	81	-1.6	-6	35.6	101 (N/A)	2.1	7.18
Blue spruce	2.2	0.4	1.9	0.3	15	6.0	0.9	0.8	5.9	38	-6.2	-23	12.2	29 (N/A)	1.5	2.93
Ginkgo	0.1	0.0	0.1	0.0	1	1.4	0.2	0.2	1.3	8	-0.1	0	3.2	9 (N/A)	1.0	1.28
Bur oak	1.2	0.2	0.6	0.1	6	4.7	0.7	0.7	4.5	29	0.0	0	12.5	36 (N/A)	1.0	5.10
American elm	1.5	0.2	0.7	0.1	8	4.0	0.6	0.6	3.8	25	0.0	0	11.4	33 (N/A)	1.0	4.68
Catalpa	0.5	0.1	0.2	0.0	3	1.7	0.2	0.2	1.6	10	0.0	0	4.5	13 (N/A)	0.9	2.15
Spruce	1.5	0.3	1.2	0.2	10	3.6	0.5	0.5	3.5	23	-6.0	-23	5.3	10 (N/A)	0.9	1.63
Pear	0.7	0.1	0.3	0.0	4	3.4	0.5	0.5	3.2	21	0.0	0	8.7	25 (N/A)	0.7	4.95
Littleleaf linden	2.6	0.5	1.3	0.1	14	6.1	0.9	0.8	5.7	38	-1.2	-5	16.7	47 (N/A)	0.7	9.42
Amur maple	0.2	0.0	0.1	0.0	1	1.5	0.2	0.2	1.3	9	0.0	0	3.6	10 (N/A)	0.6	2.55
Quaking aspen	0.1	0.0	0.1	0.0	1	1.5	0.2	0.2	1.5	10	0.0	0	3.7	10 (N/A)	0.4	3.50
American sycamore	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)	0.4	0.08
Broadleaf Deciduous Small	0.1	0.0	0.1	0.0	1	0.8	0.1	0.1	0.7	5	0.0	0	1.8	5 (N/A)	0.4	1.73
Boxelder	1.5	0.2	0.7	0.1	8	3.9	0.6	0.5	3.7	24	-0.4	-2	10.8	31 (N/A)	0.4	10.20
Conifer Evergreen Large	1.3	0.3	1.0	0.2	9	2.3	0.3	0.3	2.3	15	-6.3	-24	1.8	0 (N/A)	0.4	-0.11
Eastern hophornbeam	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.4	2	0.0	0	0.9	3 (N/A)	0.3	1.33
Paper birch	0.0	0.0	0.0	0.0	0	0.3	0.0	0.0	0.3	2	0.0	0	0.6	2 (N/A)	0.3	0.87
White ash	0.9	0.2	0.4	0.0	5	2.4	0.4	0.3	2.3	15	0.0	0	7.0	20 (N/A)	0.3	10.05
Swamp white oak	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0 (N/A)	0.1	0.14
Eastern redbud	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)	0.1	0.71
Austrian pine	0.4	0.1	0.3	0.0	2	0.7	0.1	0.1	0.6	4	-0.9	-3	1.3	3 (N/A)	0.1	3.10
River birch	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)	0.1	7.92
Mulberry	0.2	0.0	0.1	0.0	1	0.9	0.1	0.1	0.8	5	0.0	0	2.3	7 (N/A)	0.1	6.56
Siberian elm	1.2	0.2	0.6	0.1	6	2.1	0.3	0.3	2.0	13	0.0	0	6.8	20 (N/A)	0.1	19.64
Japanese maple	0.2	0.0	0.1	0.0	1	0.9	0.1	0.1	0.8	5	0.0	0	2.3	7 (N/A)	0.1	6.56
Eastern cottonwood	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)	0.1	7.42
Tulip tree	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)	0.1	2.99
Black maple	0.3	0.1	0.2	0.0	2	1.2	0.2	0.2	1.2	7	-0.1	0	3.1	9 (N/A)	0.1	8.75
Broadleaf Deciduous Medium	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)	0.1	10.16
Southern magnolia	0.0	0.0	0.0	0.0	0	0.2	0.0	0.0	0.2	1	0.0	0	0.4	1 (N/A)	0.1	1.05
Alder	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)	0.1	0.11
Citywide total	321.1	54.0	157.7	14.7	1,731	870.6	126.6	120.7	824.6	5,419	-119.1	-447	2,371.0	6,703 (N/A)	100.0	9.84

Table 4: Annual Carbon Stored

Clarion

Stored CO2 Benefits of Public Trees

2/1/2023

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	2,326,762	17,451	(N/A)	24.5	31.4	104.50
Norway maple	1,030,706	7,730	(N/A)	18.4	13.9	61.84
Silver maple	1,491,164	11,184	(N/A)	12.9	20.1	127.09
Northern hackberry	440,899	3,307	(N/A)	7.2	5.9	67.48
Black walnut	418,257	3,137	(N/A)	5.0	5.6	92.26
Sugar maple	387,261	2,904	(N/A)	4.1	5.2	103.73
American basswood	434,936	3,262	(N/A)	3.8	5.9	125.46
Honeylocust	247,378	1,855	(N/A)	3.2	3.3	84.33
Apple	71,436	536	(N/A)	2.9	1.0	26.79
Northern red oak	163,226	1,224	(N/A)	2.5	2.2	72.01
Red maple	52,759	396	(N/A)	2.1	0.7	28.26
Blue spruce	14,268	107	(N/A)	1.5	0.2	10.70
Ginkgo	1,732	13	(N/A)	1.0	0.0	1.86
Bur oak	39,144	294	(N/A)	1.0	0.5	41.94
American elm	32,042	240	(N/A)	1.0	0.4	34.33
Catalpa	15,834	119	(N/A)	0.9	0.2	19.79
Spruce	14,600	110	(N/A)	0.9	0.2	18.25
Pear	10,927	82	(N/A)	0.7	0.1	16.39
Littleleaf linden	55,132	413	(N/A)	0.7	0.7	82.70
Amur maple	3,632	27	(N/A)	0.6	0.0	6.81
Quaking aspen	4,719	35	(N/A)	0.4	0.1	11.80
American sycamore	36	0	(N/A)	0.4	0.0	0.09
Broadleaf Deciduous	1,830	14	(N/A)	0.4	0.0	4.57
Boxelder	60,104	451	(N/A)	0.4	0.8	150.26
Conifer Evergreen La	16,151	121	(N/A)	0.4	0.2	40.38
Eastern hophornbeam	922	7	(N/A)	0.3	0.0	3.46
Paper birch	371	3	(N/A)	0.3	0.0	1.39
White ash	16,807	126	(N/A)	0.3	0.2	63.03
Swamp white oak	17	0	(N/A)	0.1	0.0	0.13
Eastern redbud	178	1	(N/A)	0.1	0.0	1.33
Austrian pine	2,661	20	(N/A)	0.1	0.0	19.96
River birch	3,624	27	(N/A)	0.1	0.0	27.18
Mulberry	3,037	23	(N/A)	0.1	0.0	22.78
Siberian elm	29,353	220	(N/A)	0.1	0.4	220.15
Japanese maple	3,037	23	(N/A)	0.1	0.0	22.78
Eastern cottonwood	3,672	28	(N/A)	0.1	0.0	27.54
Tulip tree	1,035	8	(N/A)	0.1	0.0	7.76
Black maple	3,624	27	(N/A)	0.1	0.0	27.18
Broadleaf Deciduous	7,945	60	(N/A)	0.1	0.1	59.59
Southern magnolia	73	1	(N/A)	0.1	0.0	0.55
Alder	14	0	(N/A)	0.1	0.0	0.10
Citywide total	7,411,305	55,585	(N/A)	100.0	100.0	81.62

Table 5: Annual Carbon Sequestered

Clarion

Annual CO Benefits of Public Trees

2/1/2023

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	112,766	846	-11,168	-511	-88	82,462	618	183,549	1,377 (N/A)	24.5	26.9	8.24
Norway maple	47,691	358	-4,947	-339	-40	55,217	414	97,621	732 (N/A)	18.4	14.3	5.86
Silver maple	114,408	858	-7,158	-309	-56	47,302	355	154,243	1,157 (N/A)	12.9	22.6	13.15
Northern hackberry	23,492	176	-2,116	-169	-17	29,672	223	50,878	382 (N/A)	7.2	7.4	7.79
Black walnut	24,176	181	-2,008	-102	-16	16,617	125	38,684	290 (N/A)	5.0	5.7	8.53
Sugar maple	18,691	140	-1,859	-87	-15	13,612	102	30,357	228 (N/A)	4.1	4.4	8.13
American basswood	25,708	193	-2,088	-91	-16	12,986	97	36,514	274 (N/A)	3.8	5.3	10.53
Honeylocust	14,146	106	-1,187	-60	-9	13,127	98	26,025	195 (N/A)	3.2	3.8	8.87
Apple	5,265	39	-343	-40	-3	5,287	40	10,170	76 (N/A)	2.9	1.5	3.81
Northern red oak	3,459	26	-784	-43	-6	5,355	40	7,987	60 (N/A)	2.5	1.2	3.52
Red maple	3,786	28	-253	-25	-2	4,614	35	8,122	61 (N/A)	2.1	1.2	4.35
Blue spruce	1,020	8	-68	-21	-1	2,168	16	3,098	23 (N/A)	1.5	0.5	2.32
Ginkgo	238	2	-8	-6	0	475	4	699	5 (N/A)	1.0	0.1	0.75
Bur oak	2,281	17	-188	-11	-1	1,656	12	3,739	28 (N/A)	1.0	0.5	4.01
American elm	1,057	8	-154	-9	-1	1,403	11	2,298	17 (N/A)	1.0	0.3	2.46
Catalpa	870	7	-76	-4	-1	574	4	1,363	10 (N/A)	0.9	0.2	1.70
Spruce	843	6	-70	-13	-1	1,301	10	2,061	15 (N/A)	0.9	0.3	2.58
Pear	1,031	8	-52	-8	0	1,174	9	2,144	16 (N/A)	0.7	0.3	3.22
Littleleaf linden	3,486	26	-265	-16	-2	2,095	16	5,301	40 (N/A)	0.7	0.8	7.95
Amur maple	455	3	-17	-5	0	497	4	930	7 (N/A)	0.6	0.1	1.74
Quaking aspen	657	5	-23	-3	0	556	4	1,187	9 (N/A)	0.4	0.2	2.97
American sycamore	8	0	0	-1	0	13	0	20	0 (N/A)	0.4	0.0	0.05
Broadleaf Deciduous Smal	236	2	-9	-3	0	254	2	479	4 (N/A)	0.4	0.1	1.20
Boxelder	3,745	28	-289	-11	-2	1,365	10	4,811	36 (N/A)	0.4	0.7	12.03
Conifer Evergreen Large	628	5	-78	-9	-1	838	6	1,380	10 (N/A)	0.4	0.2	3.45
Eastern hophornbeam	123	1	-4	-1	0	130	1	246	2 (N/A)	0.3	0.0	0.92
Paper birch	148	1	-2	-1	0	97	1	243	2 (N/A)	0.3	0.0	0.91
White ash	1,497	11	-81	-5	-1	860	6	2,272	17 (N/A)	0.3	0.3	8.52
Swamp white oak	5	0	0	0	0	7	0	12	0 (N/A)	0.1	0.0	0.09
Eastern redbud	38	0	-1	-1	0	37	0	74	1 (N/A)	0.1	0.0	0.55
Austrian pine	147	1	-13	-3	0	233	2	364	3 (N/A)	0.1	0.1	2.73
River birch	386	3	-17	-2	0	395	3	762	6 (N/A)	0.1	0.1	5.71
Mulberry	268	2	-15	-2	0	308	2	560	4 (N/A)	0.1	0.1	4.20
Siberian elm	911	7	-141	-5	-1	749	6	1,514	11 (N/A)	0.1	0.2	11.36
Japanese maple	268	2	-15	-2	0	308	2	560	4 (N/A)	0.1	0.1	4.20
Eastern cottonwood	445	3	-18	-2	0	393	3	819	6 (N/A)	0.1	0.1	6.14
Tulip tree	209	2	-5	-1	0	159	1	361	3 (N/A)	0.1	0.1	2.71
Black maple	483	4	-17	-2	0	431	3	895	7 (N/A)	0.1	0.1	6.71
Broadleaf Deciduous Medi	470	4	-38	-3	0	440	3	869	7 (N/A)	0.1	0.1	6.52
Southern magnolia	16	0	0	-1	0	59	0	74	1 (N/A)	0.1	0.0	0.55
Alder	9	0	0	0	0	6	0	14	0 (N/A)	0.1	0.0	0.10
Citywide total	415,565	3,117	-35,576	-1,925	-281	305,233	2,289	683,297	5,125 (N/A)	100.0	100.0	7.53

Table 6: Annual Social and Aesthetic Benefits

Clarion

Annual Aesthetic/Other Benefits of Public Trees

2/1/2023

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	9,245	(N/A)	24.5	24.1	55.36
Norway maple	4,466	(N/A)	18.4	11.7	35.73
Silver maple	9,045	(N/A)	12.9	23.6	102.78
Northern hackberry	2,985	(N/A)	7.2	7.8	60.92
Black walnut	1,970	(N/A)	5.0	5.1	57.94
Sugar maple	1,910	(N/A)	4.1	5.0	68.21
American basswood	1,839	(N/A)	3.8	4.8	70.71
Honeylocust	3,501	(N/A)	3.2	9.1	159.12
Apple	309	(N/A)	2.9	0.8	15.45
Northern red oak	245	(N/A)	2.5	0.6	14.38
Red maple	520	(N/A)	2.1	1.4	37.15
Blue spruce	242	(N/A)	1.5	0.6	24.18
Ginkgo	31	(N/A)	1.0	0.1	4.48
Bur oak	214	(N/A)	1.0	0.6	30.64
American elm	148	(N/A)	1.0	0.4	21.20
Catalpa	92	(N/A)	0.9	0.2	15.32
Spruce	186	(N/A)	0.9	0.5	30.95
Pear	59	(N/A)	0.7	0.2	11.85
Littleleaf linden	350	(N/A)	0.7	0.9	70.09
Amur maple	26	(N/A)	0.6	0.1	6.40
Quaking aspen	80	(N/A)	0.4	0.2	26.56
American sycamore	16	(N/A)	0.4	0.0	5.26
Broadleaf Deciduous Small	13	(N/A)	0.4	0.0	4.28
Boxelder	213	(N/A)	0.4	0.6	71.07
Conifer Evergreen Large	85	(N/A)	0.4	0.2	28.27
Eastern hophornbeam	6	(N/A)	0.3	0.0	3.22
Paper birch	29	(N/A)	0.3	0.1	14.73
White ash	160	(N/A)	0.3	0.4	79.89
Swamp white oak	3	(N/A)	0.1	0.0	2.74
Eastern redbud	2	(N/A)	0.1	0.0	2.06
Austrian pine	20	(N/A)	0.1	0.1	19.97
River birch	39	(N/A)	0.1	0.1	39.16
Mulberry	15	(N/A)	0.1	0.0	15.48
Siberian elm	54	(N/A)	0.1	0.1	53.50
Japanese maple	15	(N/A)	0.1	0.0	15.48
Eastern cottonwood	46	(N/A)	0.1	0.1	45.86
Tulip tree	29	(N/A)	0.1	0.1	28.56
Black maple	66	(N/A)	0.1	0.2	65.89
Broadleaf Deciduous Medium	43	(N/A)	0.1	0.1	43.05
Southern magnolia	9	(N/A)	0.1	0.0	9.46
Alder	0	(N/A)	0.1	0.0	0.03
Citywide total	38,326	(N/A)	100.0	100.0	56.28

Table 7: Summary of Benefits in Dollars

Clarion

Total Annual Benefits of Public Trees by Species ($)

2/1/2023

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Green ash	10,281	1,377	1,837	14,880	9,245	37,620	(N/A)	26.3
Norway maple	7,141	732	1,272	8,336	4,466	21,947	(N/A)	15.3
Silver maple	5,827	1,157	1,063	10,808	9,045	27,900	(N/A)	19.5
Northern hackberry	3,816	382	688	4,901	2,985	12,773	(N/A)	8.9
Black walnut	2,090	290	364	2,931	1,970	7,646	(N/A)	5.3
Sugar maple	1,658	228	272	2,540	1,910	6,608	(N/A)	4.6
American basswood	1,706	274	259	2,379	1,839	6,457	(N/A)	4.5
Honeylocust	1,596	195	274	2,600	3,501	8,166	(N/A)	5.7
Apple	694	76	119	382	309	1,581	(N/A)	1.1
Northern red oak	686	60	95	939	245	2,026	(N/A)	1.4
Red maple	560	61	101	573	520	1,815	(N/A)	1.3
Blue spruce	255	23	29	460	242	1,010	(N/A)	0.7
Ginkgo	62	5	9	33	31	141	(N/A)	0.1
Bur oak	206	28	36	277	214	761	(N/A)	0.5
American elm	176	17	33	247	148	621	(N/A)	0.4
Catalpa	74	10	13	109	92	298	(N/A)	0.2
Spruce	155	15	10	346	186	712	(N/A)	0.5
Pear	151	16	25	69	59	319	(N/A)	0.2
Littleleaf linden	276	40	47	395	350	1,109	(N/A)	0.8
Amur maple	73	7	10	29	26	144	(N/A)	0.1
Quaking aspen	66	9	10	57	80	221	(N/A)	0.2
American sycamore	2	0	0	1	16	20	(N/A)	0.0
Broadleaf Deciduous Sn	37	4	5	15	13	73	(N/A)	0.1
Boxelder	168	36	31	285	213	734	(N/A)	0.5
Conifer Evergreen Large	100	10	0	291	85	487	(N/A)	0.3
Eastern hophornbeam	19	2	3	7	6	37	(N/A)	0.0
Paper birch	12	2	2	9	29	54	(N/A)	0.0
White ash	105	17	20	160	160	463	(N/A)	0.3
Swamp white oak	1	0	0	0	3	4	(N/A)	0.0
Eastern redbud	5	1	1	2	2	11	(N/A)	0.0
Austrian pine	30	3	3	63	20	118	(N/A)	0.1
River birch	47	6	8	38	39	138	(N/A)	0.1
Mulberry	38	4	7	18	15	82	(N/A)	0.1
Siberian elm	91	11	20	160	54	336	(N/A)	0.2
Japanese maple	38	4	7	18	15	82	(N/A)	0.1
Eastern cottonwood	44	6	7	40	46	143	(N/A)	0.1
Tulip tree	21	3	3	16	29	71	(N/A)	0.0
Black maple	49	7	9	43	66	174	(N/A)	0.1
Broadleaf Deciduous M	59	7	10	67	43	186	(N/A)	0.1
Southern magnolia	8	1	1	4	9	23	(N/A)	0.0
Alder	1	0	0	0	0	1	(N/A)	0.0
Citywide Total	38,426	5,125	6,703	54,533	38,326	143,113	(N/A)	100.0

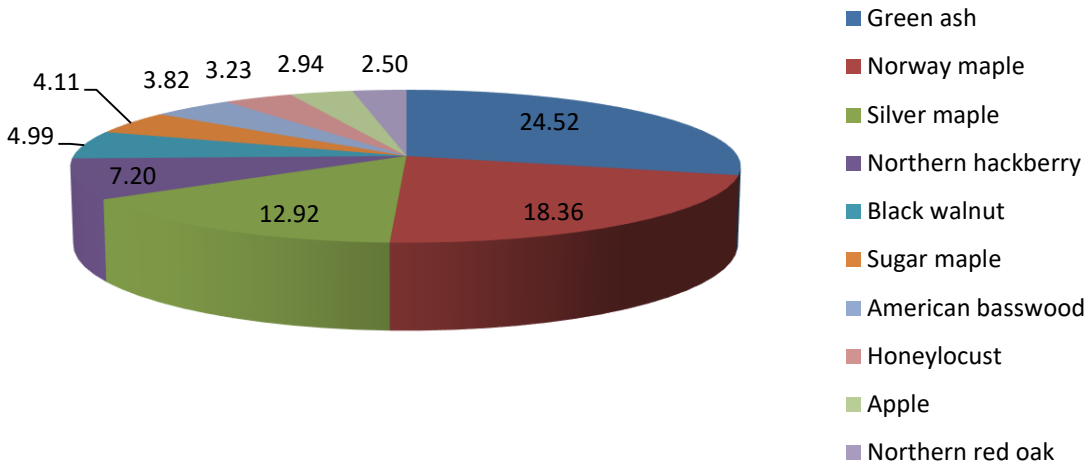

Figure 1: Species Distribution

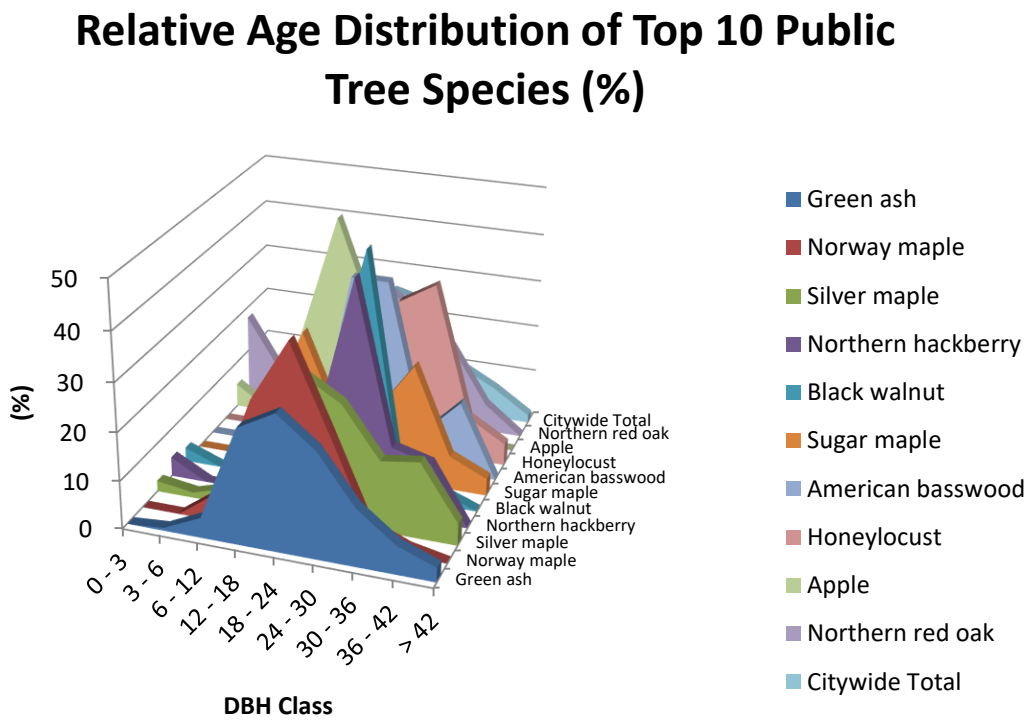

Figure 2: Relative Age Class

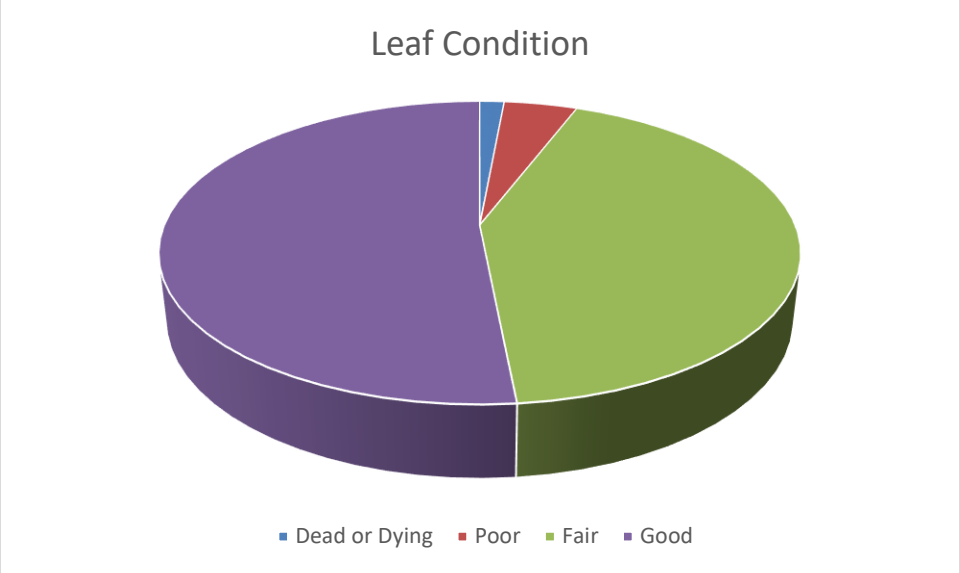

Figure 3: Foliage Condition

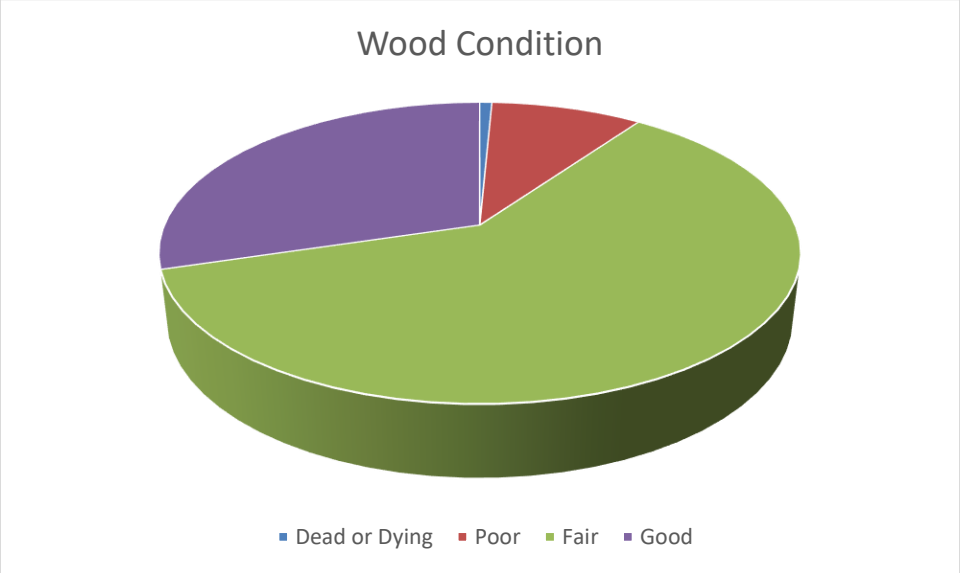

Figure 4: Wood Condition

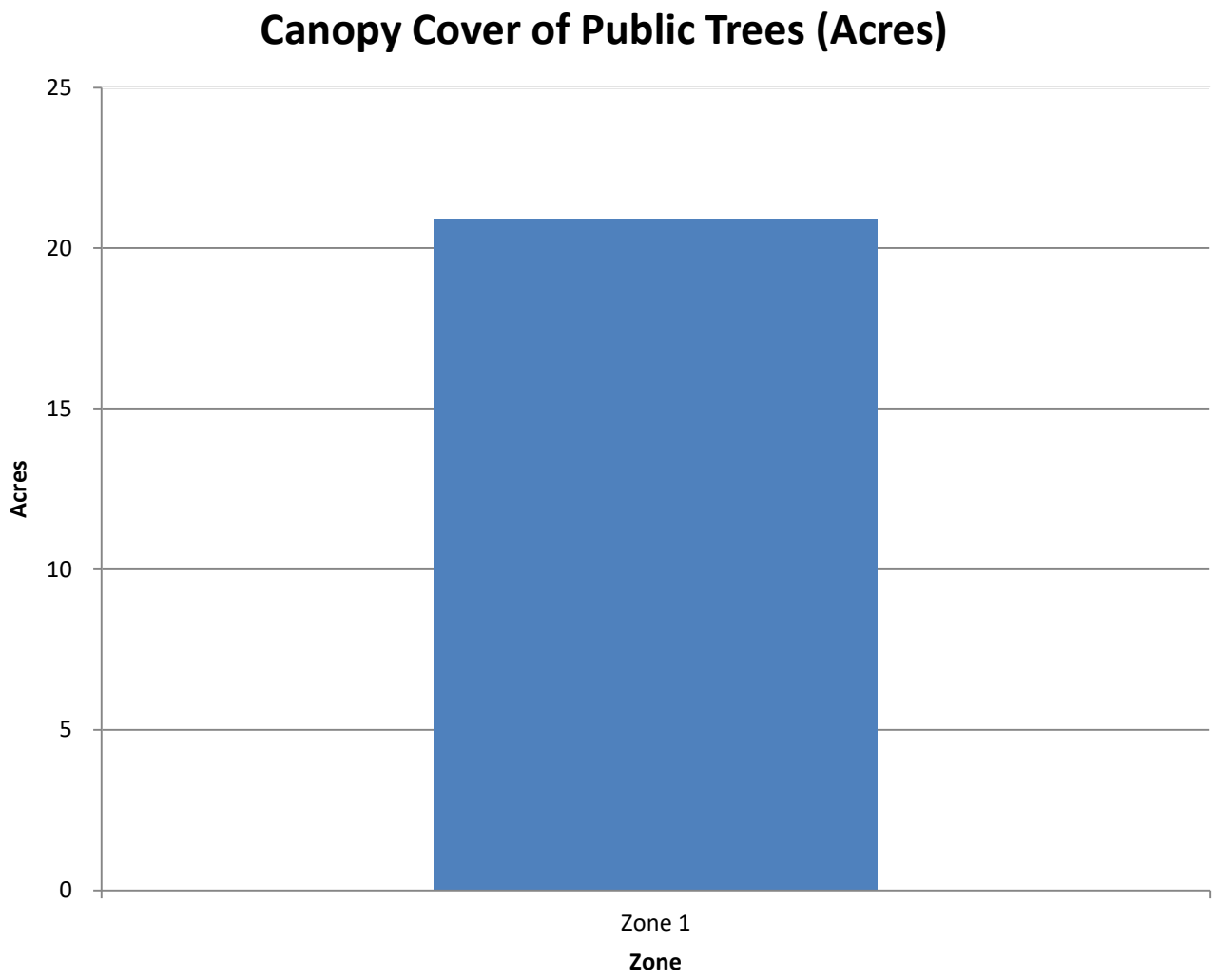

Figure 5: Canopy Cover in Acres

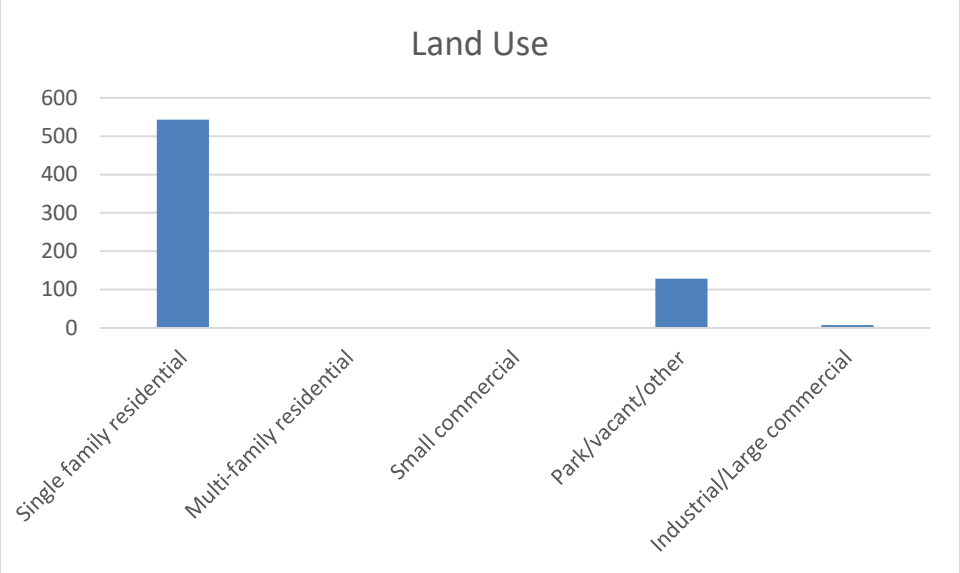

Figure 6: Land Use of city/park trees

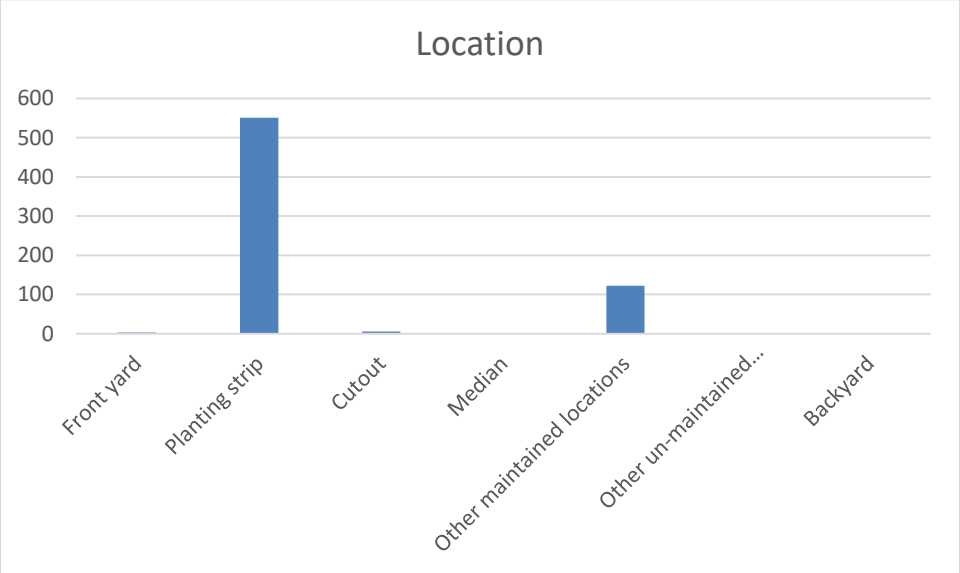

Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

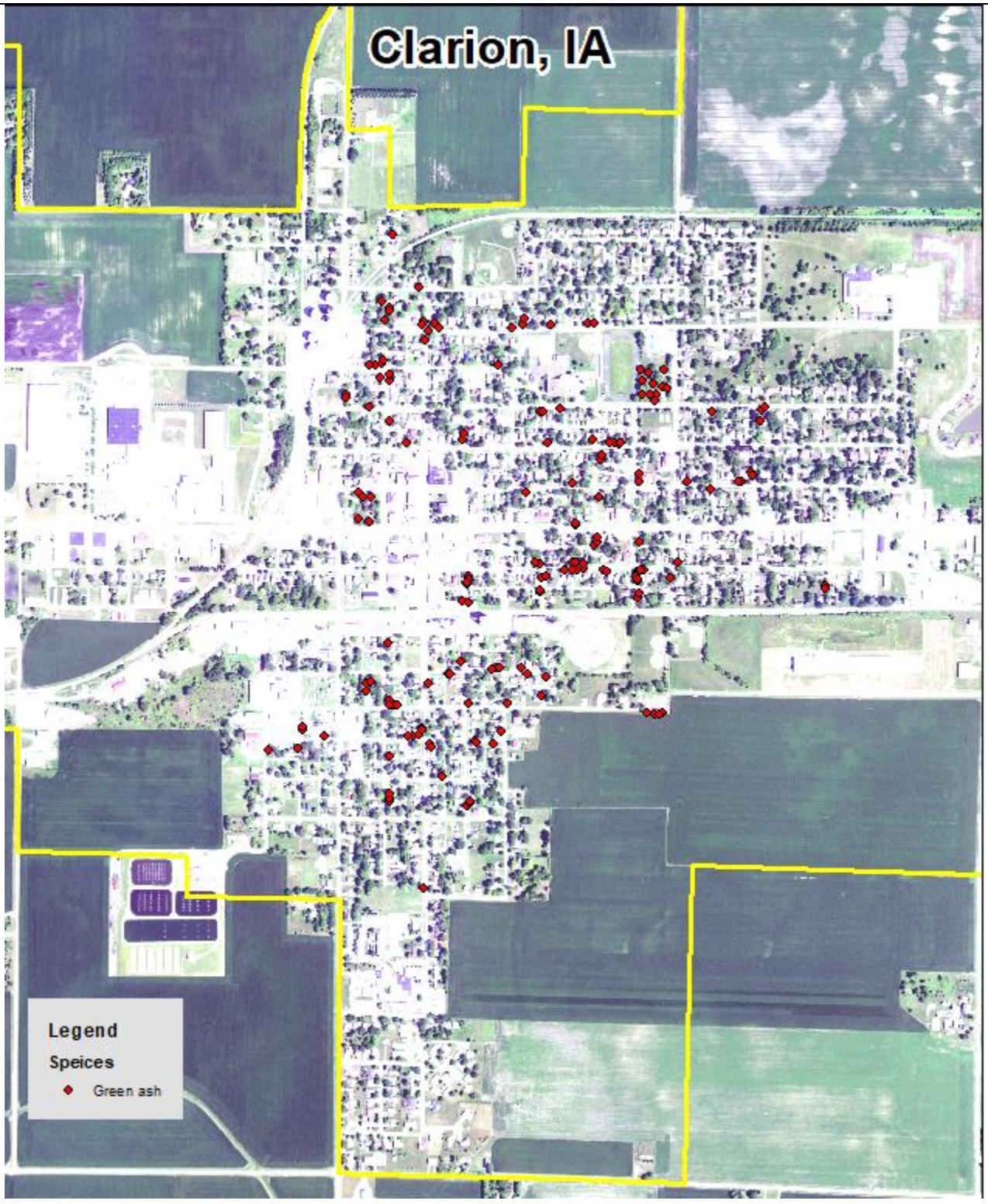

Figure 1: Location of Ash Trees

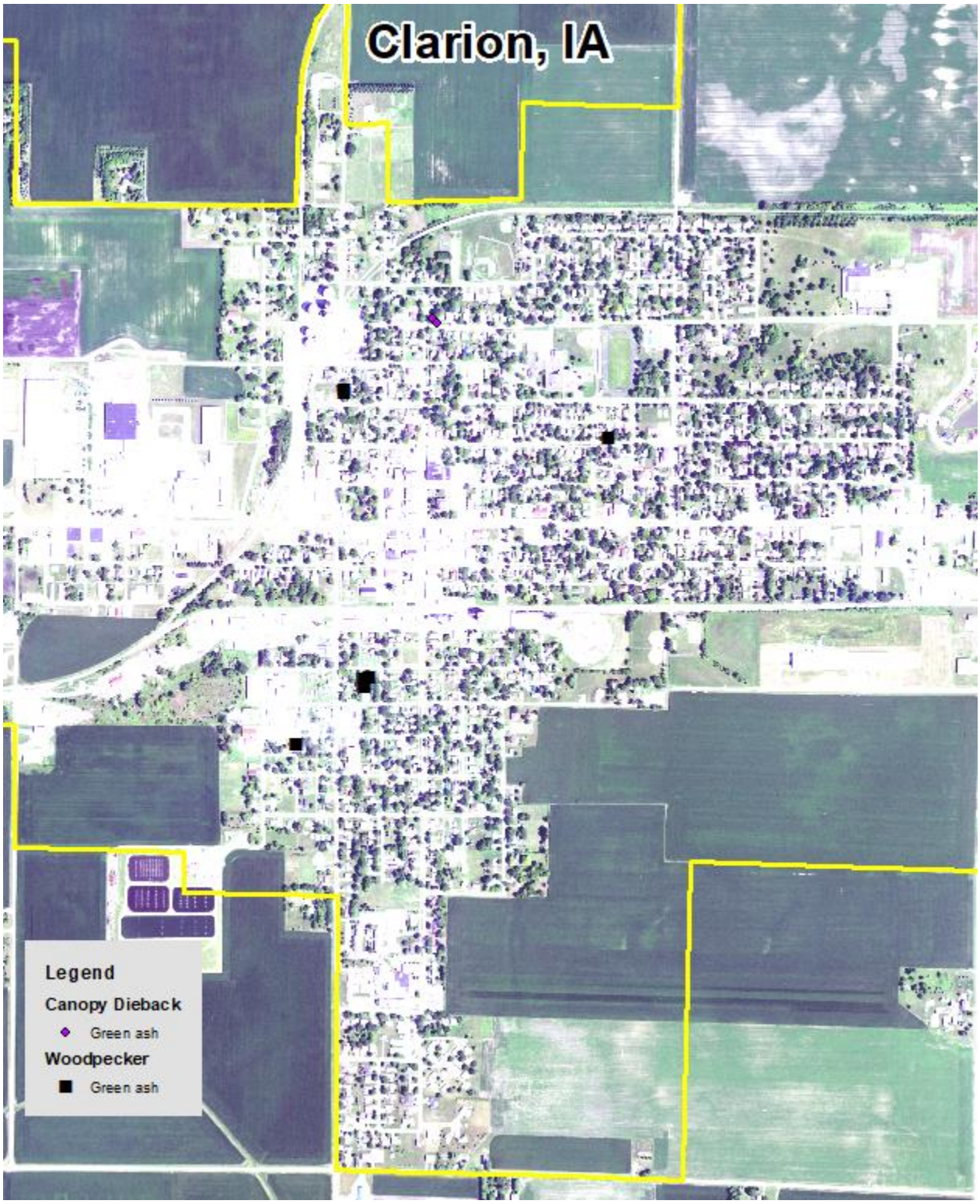

Figure 2: Location of EAB symptoms

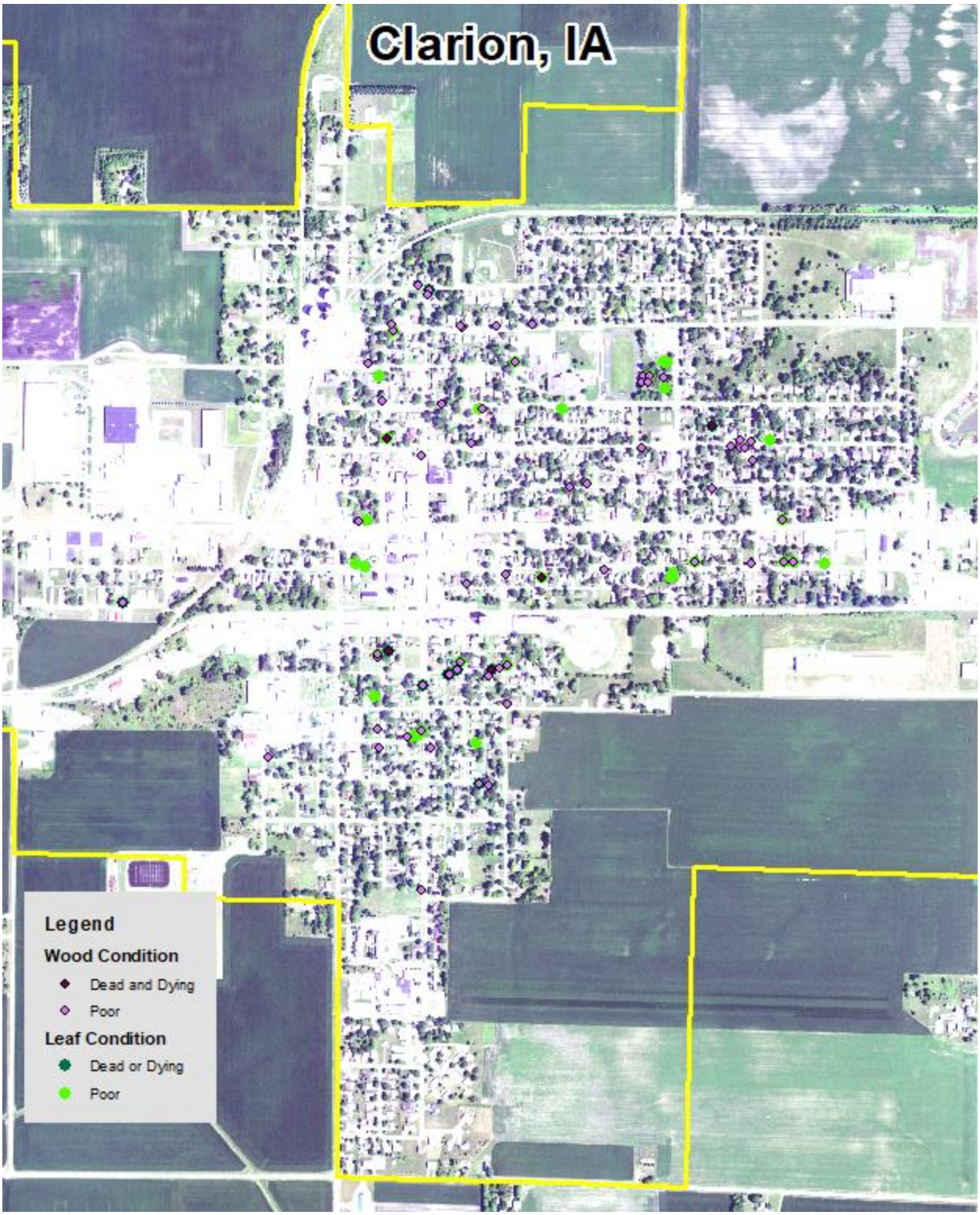
Clarion, IA
Legend
Wood Condition
Dead and Dying
Poor
Leaf Condition
Dead or Dying
Poor

Figure 3: Location of Poor Condition Trees

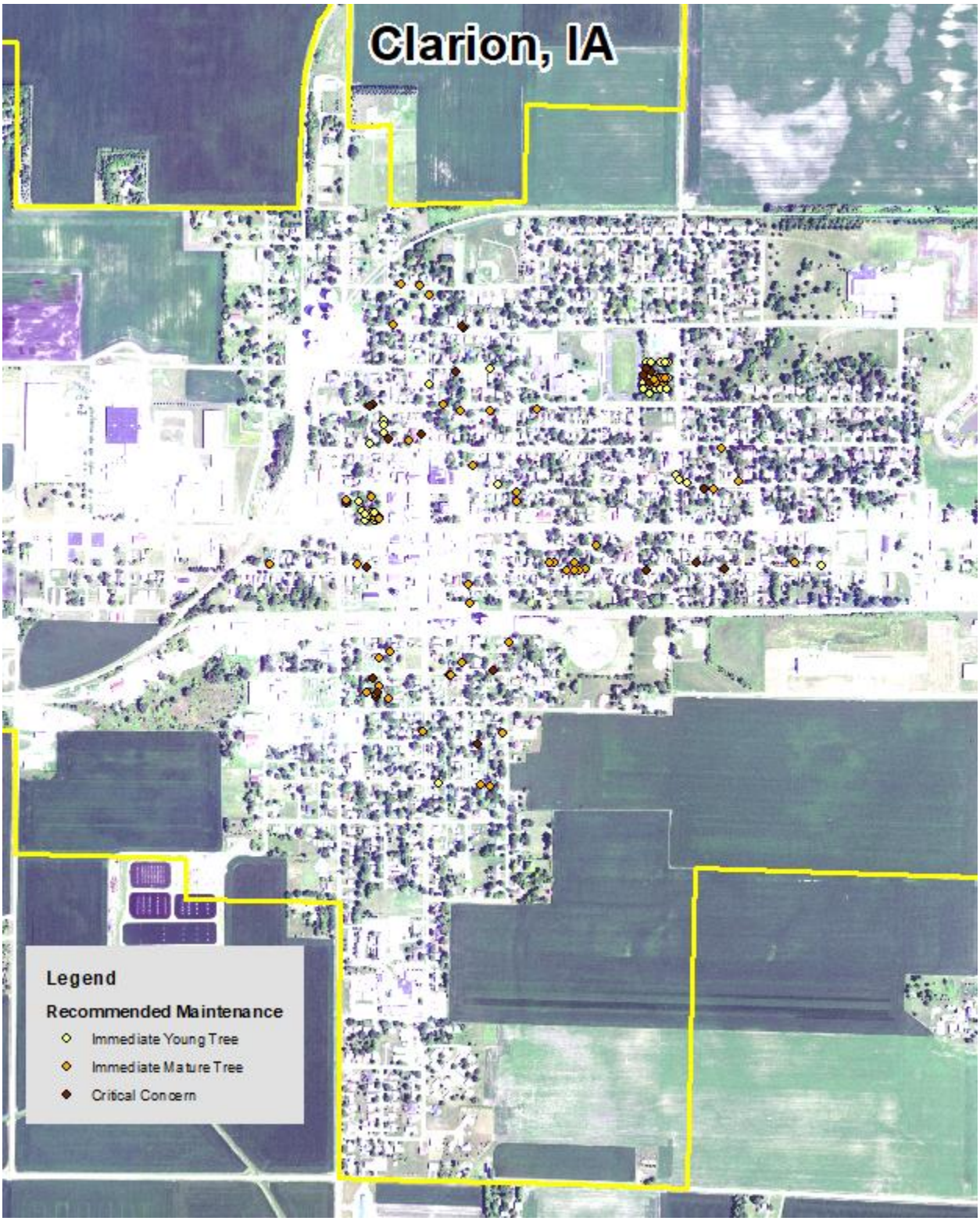

Figure 4: Location of Trees with Recommended Maintenance

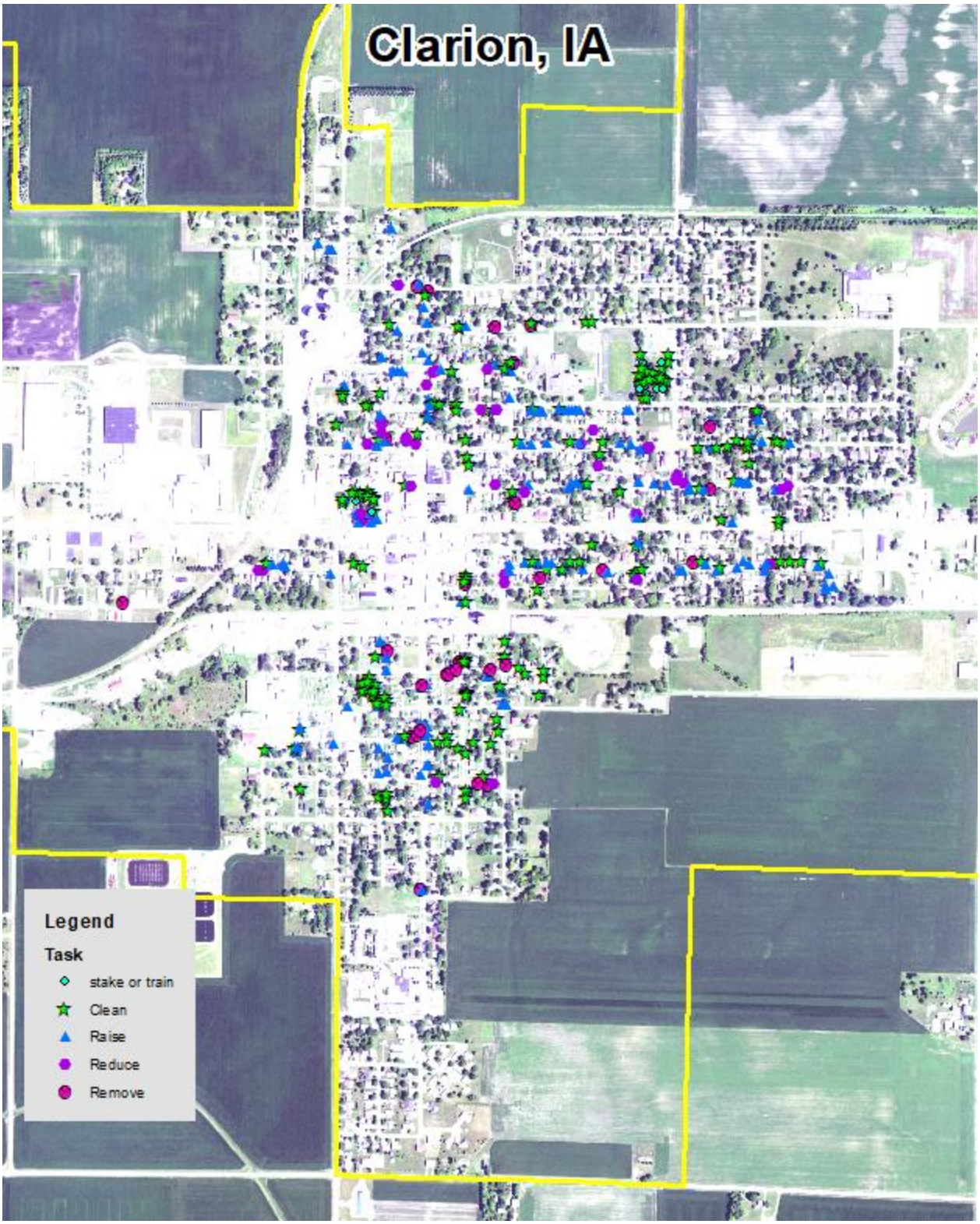

Figure 5: Maintenance Tasks ***City ownership of the trees recommended for removal should be verified prior to any removal****

Appendix C: Clarion 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 tree shall be planted in any parking or street except in accordance with the following:
1. Alignment. All trees planted in any street shall be planted in the parking midway between the outer line of the sidewalk and the curb. In the event a curb line is not established, trees shall be planted on a line 10 feet from the property line.
2. Spacing. Trees shall not be planted on any parking that is less than nine feet in width, or contains less than 81 square feet of exposed soil surface per tree. Trees shall not be planted closer than 20 feet from street intersections (property lines extended) and 10 feet from driveways. If it is at all possible, trees should be planted inside the property lines and not between the sidewalk and the curb.
3. Prohibited Trees. No person shall plant in any street any fruit-bearing tree or any tree of the kinds commonly known as cottonwood, poplar, box elder, Chinese elm, evergreen, willow, or black walnut.

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.

The State of Iowa is an Equal Opportunity Employer and provider of ADA services.

Federal law prohibits employment discrimination on the basis of race, color, age, religion, national origin, sex or disability. State law prohibits employment discrimination on the basis of race, color, creed, age, sex, sexual orientation, gender identity, national origin, religion, pregnancy, or disability. State law also prohibits public accommodation (such as access to services or physical facilities) discrimination on the basis of race, color, creed, religion, sex, sexual orientation, gender identity, religion, national origin, or disability. If you believe you have been discriminated against in any program, activity or facility as described above, or if you desire further information, please contact the Iowa Civil Rights Commission, 1-800-457-4416, or write to the Iowa Department of Natural Resources, Wallace State Office Bldg., 502 E 9th St, Des Moines IA 50319.

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