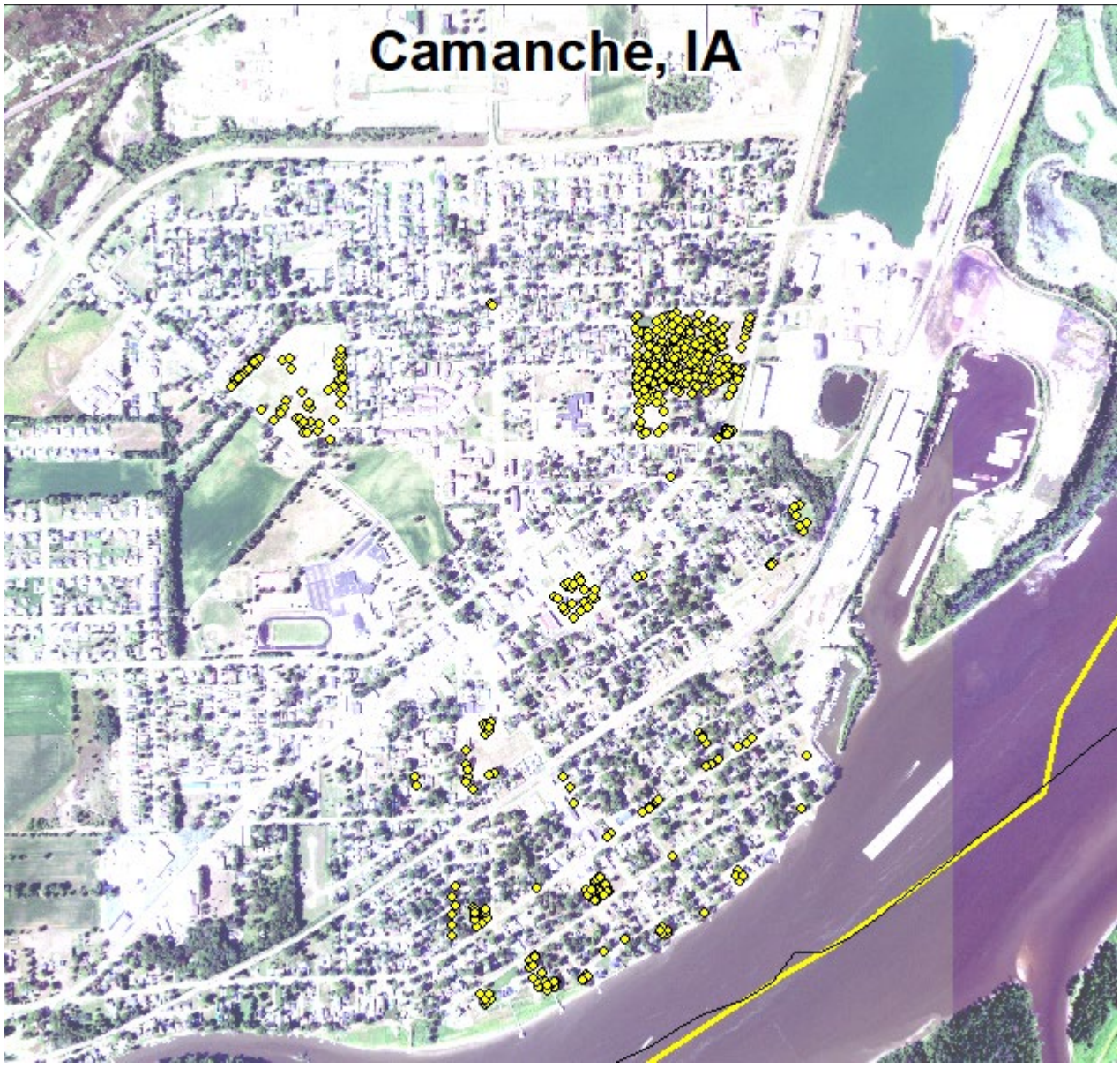

2022 Urban Forest Management Plan

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Executive Summary

Overview

This plan was developed to assist the City of Camanche 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 12% of Camanche'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 2021, 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 507 trees inventoried.

- Camanche's trees provide $73,128 of benefits annually, an average of $144 a tree
- Eastern redcedar are the most common trees in town (due to the cemetery)
- Ash account for 12%, most of the species account for 4% or less
- Of the 507 trees, 110 could use cleaning of dead branches and 62 are recommended to have some other type of management
- 39 trees are recommended for removal, about half of those are ash

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 39 trees needing removal, 4 trees are over 30 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*
- All ash trees should be carefully examined, and a determination should be made if they will be treated long-term, short-term or planned for removal
- All trees should be pruned on a routine schedule- one third of the city every other year
- Plant a diverse mix of trees that do not include: ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut
- Check ash trees with a visual survey yearly
- Current budget is likely to be underfunding the need since EAB – Suggestion: request a budget increase and apply for grants to plant replacement trees

Introduction

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

Trees are an important component of Camanche'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, storm water 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 Camanche 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 Camanche's urban forestry goals.

Inventory

In 2021, 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 507 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. Camanche's trees reduce energy related costs by approximately $20,517 annually (Appendix A, Table 1). These savings are both in Electricity (96.7 MWh) and in Natural Gas (13,445 Therms).

Annual Stormwater Benefits

Camanche's trees intercept about 1,050,434 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $28,467 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 Camanche, it is estimated that trees remove 182.5 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 $1,043 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Camanche, trees sequester about 153,143 lbs of carbon a year with an associated value of $1,149(Appendix A, Table 5). In addition, the trees store 2,613,053lbs of carbon, with a yearly benefit of $19,598 (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. Camanche receives $18,631 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, Camanche's trees provide $73,128 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 507 trees in Camanche provide approximately $144 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Camanche has 10 different tree species along city streets, cemetery and parks that account for 71% of the trees (Appendix A, Figure 1).

The distribution of trees by species is as follows:

Eastern redcedar	23%
Ash	12%
Oak	7%
Spruce	6%
Apple (Crab)	4%
Linden/Basswood	4%
Mountain Ash	4%
Birch	4%
Dogwood	4%
Hackberry	4%
All others	29%

Size Class

Most of Camanche's trees (37%) are between 6 and 18 inches in diameter at 4.5 ft (Appendix A, Figure 2). About 11% of the trees are over 30" DBH. For size, 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. Camanche'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 Camanche indicate that 92% of the trees are in good health, with only 8% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 91% of Camanche'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 9% of the population. This 9% 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	110
Crown Raising	13
Tree Staking	1
Tree Removal	39
Crown Reduction	9

Canopy Cover

The canopy cover on city own properties included in the Camanche inventory includes approximately 11 acres (Appendix A, Figure 4). The City may have a canopy goal is to increase canopy. To achieve this goal plant trees annually on public and/or private lands.

Changes in the Urban Forest Since the 2011 Plan

There are several notable changes since the original plan was written in 2011. It is unusual to see increases in the number of ash, and increases in the amount of maintenance needs after 10 years of plan implementation. Most of this can be attributed to the addition of parks and a large cemetery. One item that illustrates this is the large increase in eastern redcedar.

Size class (and probably correlated to this is age) is one criterion that should be looked at when comparing 10 year plans. These are usually expressed in percentages or possibly just the raw number. But again, the fact that city parks and the cemetery were included in the 2021 inventory nullifies nearly every comparison.

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.

<u>Hazardous trees</u>

Camanche has no trees as identified as critical concern. There are 13 trees in the next most concerning category which is immediate removal. These trees can be seen on the Location of Trees with Recommended Maintenance map (Appendix B, Figure 4). It is recommended to start with the large diameter critical concern trees first. Prepare a plan for removals and other maintenance that allows for the most concerning work on the largest trees to be done first.

<u>Poor tree species</u>

After the removal of the critical concern trees, ash trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, Figure 4). Of the removals, most are of some concern and no other form of management needs to take place other than removal. Over 99% of the ash trees will need to

be treated over the long-term or removed. *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.

Planting

Most of the planting over the next 5 years will replace the trees that are removed. It is recommended to plant 1.2 trees for every tree removed, since survival rates will not be 100%. Please refer to the six year maintenance plan at the end of this section. It is not essential that the new trees be planted in the same location of the trees being removed. However, maintaining the same number of trees helps ensure continuation of the benefits of the existing forest in Camanche.

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 has a lot of diversity other than the cedars in the cemetery. Also, ash trees have not been recommended since 2002, due to the threat of EAB. Other species to avoid because they are public nuisances include: cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut. All trees planted must meet the restrictions listed in a city ordinance.

Continual Monitoring

Wind events, physical damage, diseases and insects can all change a tree health rapidly. Due to the known 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. Information and guidance from this plan will need to be altered if any tree damaging event occurs.

Maintenance and Removal Plan

Six Year Plan

FY 2023

Removal: 8 largest removal trees, $6,400

Planting and Replacement: 8 trees to be planted in open locations, $1200

Young Tree Pruning & Maintenance: $800

Visual Survey for signs and symptoms of EAB

FY 2024

Removal: 8 largest removal trees, $6,400
Planting and Replacement: 8 trees in open locations from removals, $1200
Young Tree Pruning & Maintenance: $800
Routine trimming: Trim 1/3 of the city trees, $2,400
Visual Survey for signs and symptoms of EAB

FY 2025

Removal: 8 largest removal trees, $6,400
Planting and Replacement: 8 trees in open locations from removals, $1200
Young Tree Pruning & Maintenance: $800
Routine trimming: Trim city trees, $2,400
Visual Survey for signs and symptoms of EAB

FY 2026

Removal: anticipated 3 trees, $2,400
Planting and Replacement: 3 trees in open locations from removals, $450
Routine trimming: Trim city trees, $3,200
Young Tree Pruning & Maintenance: $500
Visual Survey for signs and symptoms - storms, insects, disease

FY 2027

Removal: anticipated 3 trees, $2,400
Planting and Replacement: 3 trees in open locations from removals, $450
Routine trimming: Trim city trees, $3,200
Young Tree Pruning & Maintenance: $500
Visual Survey for signs and symptoms - storms, insects, disease

FY 2028

Removal: anticipated 3 trees, $2,400
Planting and Replacement: 3 trees in open locations from removals, $450
Routine trimming: Trim city trees, $3,200
Young Tree Pruning & Maintenance: $500
Visual Survey for signs and symptoms - storms, insects, disease

Ash Tree Removal

Tree removal will be prioritized with dead, dying, hazardous trees to be removed first. Next will be all ash in poor condition and displaying signs and symptoms of EAB. *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. Several private urban forestry consultants provide ash treatment services or the city can learn how to do this. Generally, treatments are done every other year on an individual tree.

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. Newly planted trees should meet the restrictions found in city code or city ordinance if any exist. 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.

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Camanche

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
Eastern red cedar	12.4	939	1,831.4	1,795	2,734	(N/A)	23.0	13.3	23.77
Northern hackberry	23.8	1,809	3,362.0	3,295	5,104	(N/A)	11.6	24.9	88.00
Norway spruce	4.4	333	557.7	547	879	(N/A)	6.8	4.3	25.87
Ash	7.0	529	970.7	951	1,481	(N/A)	5.6	7.2	52.88
Apple	2.8	210	394.0	386	597	(N/A)	4.4	2.9	27.12
Silver maple	4.2	317	562.7	551	869	(N/A)	4.2	4.2	41.37
Swamp white oak	3.0	231	420.8	412	643	(N/A)	4.2	3.1	30.63
Red maple	4.3	328	586.0	574	902	(N/A)	3.8	4.4	47.47
Callery pear	0.7	55	108.5	106	161	(N/A)	3.8	0.8	8.48
Honeylocust	4.3	324	562.3	551	875	(N/A)	3.8	4.3	46.03
Littleleaf linden	3.0	225	399.1	391	616	(N/A)	2.8	3.0	43.99
Bur oak	2.4	184	315.8	309	493	(N/A)	2.6	2.4	37.92
Spruce	1.4	106	171.1	168	274	(N/A)	2.2	1.3	24.90
Black walnut	3.1	236	428.5	420	656	(N/A)	2.2	3.2	59.61
Northern red oak	1.8	135	244.2	239	374	(N/A)	2.0	1.8	37.43
Siberian elm	2.4	180	327.4	321	501	(N/A)	1.8	2.4	55.70
Norway maple	1.9	143	250.2	245	388	(N/A)	1.8	1.9	43.14
Sugar maple	1.3	102	184.0	180	283	(N/A)	1.8	1.4	31.40
American sycamore	1.5	117	211.5	207	324	(N/A)	1.4	1.6	46.32
Northern pin oak	2.0	155	298.3	292	448	(N/A)	1.4	2.2	63.93
Black locust	1.8	133	260.9	256	389	(N/A)	1.2	1.9	64.76
Cottonwood	1.7	128	226.8	222	350	(N/A)	0.8	1.7	87.55
Eastern white pine	0.6	45	73.6	72	117	(N/A)	0.8	0.6	29.23
Maple	1.1	86	159.6	156	243	(N/A)	0.8	1.2	60.68
Conifer Evergreen Small	0.3	25	49.3	48	74	(N/A)	0.6	0.4	24.57
Blue spruce	0.3	24	40.6	40	64	(N/A)	0.6	0.3	21.27
White mulberry	0.4	30	63.2	62	92	(N/A)	0.4	0.4	46.14
River birch	0.5	38	69.1	68	105	(N/A)	0.4	0.5	52.73
Broadleaf Deciduous Small	0.0	1	1.2	1	2	(N/A)	0.4	0.0	0.87
Ginkgo	0.0	0	0.8	1	1	(N/A)	0.4	0.0	0.57
Green ash	0.5	38	65.1	64	102	(N/A)	0.4	0.5	50.77
Red pine	0.1	10	14.6	14	24	(N/A)	0.2	0.1	24.14
Kentucky coffeetree	0.3	25	46.9	46	71	(N/A)	0.2	0.3	70.91
Conifer Evergreen Medium	0.1	11	19.5	19	30	(N/A)	0.2	0.1	29.65
Conifer Evergreen Large	0.1	11	19.7	19	30	(N/A)	0.2	0.1	30.47
Paper birch	0.3	20	38.1	37	57	(N/A)	0.2	0.3	57.32
Common chokecherry	0.0	0	0.6	1	1	(N/A)	0.2	0.0	0.87
Black cherry	0.2	15	31.6	31	46	(N/A)	0.2	0.2	46.14
Eastern redbud	0.2	14	24.7	24	38	(N/A)	0.2	0.2	38.13
American elm	0.4	29	52.8	52	80	(N/A)	0.2	0.4	80.37
Total	96.7	7,341	13,445.0	13,176	20,517	(N/A)	100.0	100.0	41.12

Table 2: Annual Stormwater Benefits

Camanche

Annual Stormwater Benefits of Public Trees

5/30/2022

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Eastern red cedar	181,145	4,909	(N/A)	23.0	17.2	42.69
Northern hackberry	269,863	7,313	(N/A)	11.6	25.7	126.09
Norway spruce	72,682	1,970	(N/A)	6.8	6.9	57.93
Ash	58,146	1,576	(N/A)	5.6	5.5	56.28
Apple	9,995	271	(N/A)	4.4	1.0	12.31
Silver maple	51,870	1,406	(N/A)	4.2	4.9	66.94
Swamp white oak	21,624	586	(N/A)	4.2	2.1	27.91
Red maple	37,598	1,019	(N/A)	3.8	3.6	53.63
Callery pear	3,435	93	(N/A)	3.8	0.3	4.90
Honeylocust	38,599	1,046	(N/A)	3.8	3.7	55.05
Littleleaf linden	26,231	711	(N/A)	2.8	2.5	50.78
Bur oak	18,942	513	(N/A)	2.6	1.8	39.49
Spruce	20,273	549	(N/A)	2.2	1.9	49.95
Black walnut	34,322	930	(N/A)	2.2	3.3	84.56
Northern red oak	16,641	451	(N/A)	2.0	1.6	45.10
Siberian elm	21,685	588	(N/A)	1.8	2.1	65.30
Norway maple	12,106	328	(N/A)	1.8	1.2	36.45
Sugar maple	12,606	342	(N/A)	1.8	1.2	37.96
American sycamore	17,664	479	(N/A)	1.4	1.7	68.38
Northern pin oak	21,425	581	(N/A)	1.4	2.0	82.95
Black locust	18,731	508	(N/A)	1.2	1.8	84.60
Cottonwood	23,911	648	(N/A)	0.8	2.3	162.00
Eastern white pine	10,651	289	(N/A)	0.8	1.0	72.16
Maple	11,468	311	(N/A)	0.8	1.1	77.70
Conifer Evergreen Small	4,904	133	(N/A)	0.6	0.5	44.30
Blue spruce	3,844	104	(N/A)	0.6	0.4	34.72
White mulberry	2,348	64	(N/A)	0.4	0.2	31.82
River birch	3,888	105	(N/A)	0.4	0.4	52.69
Broadleaf Deciduous Small	15	0	(N/A)	0.4	0.0	0.20
Ginkgo	14	0	(N/A)	0.4	0.0	0.19
Green ash	4,056	110	(N/A)	0.4	0.4	54.96
Red pine	1,539	42	(N/A)	0.2	0.1	41.70
Kentucky coffeetree	3,943	107	(N/A)	0.2	0.4	106.85
Conifer Evergreen Medium	2,312	63	(N/A)	0.2	0.2	62.66
Conifer Evergreen Large	2,969	80	(N/A)	0.2	0.3	80.46
Paper birch	2,591	70	(N/A)	0.2	0.2	70.21
Common chokecherry	7	0	(N/A)	0.2	0.0	0.20
Black cherry	1,174	32	(N/A)	0.2	0.1	31.82
Eastern redbud	667	18	(N/A)	0.2	0.1	18.06
American elm	4,551	123	(N/A)	0.2	0.4	123.33
Citywide total	1,050,434	28,467	(N/A)	100.0	100.0	57.05

Table 3: Annual Air Quality Benefits

Camanche

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								
Eastern red cedar	37.5	7.4	29.6	4.6	244	60.1	8.7	8.2	56.0	372	-100.0	-375	112.2	240	(N/A)	23.0	2.09
Northern hackberry	46.4	8.0	22.9	2.1	251	114.9	16.7	15.9	108.1	713	0.0	0	334.9	964	(N/A)	11.6	16.63
Norway spruce	8.3	1.6	6.9	1.0	55	20.5	3.0	2.9	19.9	129	-31.7	-119	32.4	65	(N/A)	6.8	1.90
Ash	11.2	1.9	5.6	0.5	61	33.5	4.9	4.6	31.7	208	-2.7	-10	91.2	259	(N/A)	5.6	9.25
Apple	2.8	0.5	1.4	0.1	15	13.4	1.9	1.8	12.6	83	0.0	0	34.5	98	(N/A)	4.4	4.46
Silver maple	8.0	1.4	4.1	0.4	43	19.8	2.9	2.8	18.9	124	-4.5	-17	53.7	151	(N/A)	4.2	7.17
Swamp white oak	3.7	0.6	1.9	0.2	20	14.6	2.1	2.0	13.8	91	-0.9	-3	38.0	107	(N/A)	4.2	5.12
Red maple	9.1	1.5	4.2	0.4	48	20.5	3.0	2.9	19.6	128	-3.0	-11	58.2	165	(N/A)	3.8	8.69
Callery pear	0.3	0.1	0.2	0.0	2	3.5	0.5	0.5	3.3	22	-0.1	0	8.3	23	(N/A)	3.8	1.22
Honeylocust	7.2	1.2	3.4	0.3	38	20.1	2.9	2.8	19.3	126	-5.2	-20	52.0	145	(N/A)	3.8	7.61
Littleleaf linden	4.2	0.7	2.1	0.2	23	14.1	2.1	2.0	13.4	88	-2.1	-8	36.6	103	(N/A)	2.8	7.35
Bur oak	1.7	0.3	0.9	0.1	9	11.4	1.7	1.6	11.0	71	0.0	0	28.6	81	(N/A)	2.6	6.20
Spruce	2.3	0.4	1.9	0.3	15	6.5	1.0	0.9	6.3	41	-8.1	-30	11.5	26	(N/A)	2.2	2.32
Black walnut	4.2	0.7	2.0	0.2	22	14.9	2.2	2.1	14.1	93	0.0	0	40.2	115	(N/A)	2.2	10.44
Northern red oak	3.4	0.6	1.7	0.2	19	8.5	1.2	1.2	8.1	53	-4.8	-18	20.0	53	(N/A)	2.0	5.33
Siberian elm	3.0	0.5	1.5	0.1	16	11.4	1.7	1.6	10.8	71	0.0	0	30.5	87	(N/A)	1.8	9.65
Norway maple	1.9	0.3	1.0	0.1	11	8.9	1.3	1.2	8.6	56	-0.5	-2	22.9	65	(N/A)	1.8	7.18
Sugar maple	1.5	0.3	0.8	0.1	8	6.4	0.9	0.9	6.1	40	-1.2	-4	15.7	44	(N/A)	1.8	4.86
American sycamore	2.2	0.4	1.1	0.1	12	7.4	1.1	1.0	7.0	46	0.0	0	20.2	58	(N/A)	1.4	8.24
Northern pin oak	4.7	0.8	2.3	0.2	25	9.9	1.4	1.4	9.3	62	-1.1	-4	28.9	83	(N/A)	1.4	11.79
Black locust	4.1	0.7	2.0	0.2	22	8.6	1.2	1.2	7.9	53	-0.9	-3	24.9	71	(N/A)	1.2	11.87
Cottonwood	4.5	0.7	2.0	0.2	23	8.0	1.2	1.1	7.6	50	0.0	0	25.3	73	(N/A)	0.8	18.32
Eastern white pine	1.3	0.2	1.0	0.2	8	2.7	0.4	0.4	2.7	17	-5.3	-20	3.6	6	(N/A)	0.8	1.38
Maple	3.0	0.5	1.4	0.1	16	5.5	0.8	0.8	5.2	34	-1.0	-4	16.2	46	(N/A)	0.8	11.54
Conifer Evergreen Small	1.0	0.2	0.8	0.1	7	1.6	0.2	0.2	1.5	10	-2.7	-10	3.1	7	(N/A)	0.6	2.19
Blue spruce	0.5	0.1	0.4	0.1	3	1.5	0.2	0.2	1.4	9	-1.3	-5	3.0	7	(N/A)	0.6	2.44
White mulberry	0.9	0.1	0.4	0.0	5	2.0	0.3	0.3	1.8	12	0.0	0	5.8	17	(N/A)	0.4	8.35
River birch	0.7	0.1	0.4	0.0	4	2.4	0.3	0.3	2.3	15	-0.2	-1	6.4	18	(N/A)	0.4	9.04
Broadleaf Deciduous Small	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	0.11
Ginkgo	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)	0.4	0.07
Green ash	0.4	0.1	0.2	0.0	2	2.3	0.3	0.3	2.3	15	0.0	0	5.9	17	(N/A)	0.4	8.38
Red 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
Kentucky coffeetree	0.5	0.1	0.2	0.0	3	1.6	0.2	0.2	1.5	10	0.0	0	4.4	12	(N/A)	0.2	12.48
Conifer Evergreen Medium	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)	0.2	3.10
Conifer Evergreen Large	0.3	0.1	0.3	0.0	2	0.7	0.1	0.1	0.7	4	-1.4	-5	0.9	1	(N/A)	0.2	1.45
Paper birch	0.3	0.0	0.1	0.0	1	1.3	0.2	0.2	1.2	8	0.0	0	3.3	9	(N/A)	0.2	9.34
Common chokecherry	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
Black cherry	0.4	0.1	0.2	0.0	2	1.0	0.1	0.1	0.9	6	0.0	0	2.9	8	(N/A)	0.2	8.35
Eastern redbud	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)	0.2	6.56
American elm	0.5	0.1	0.3	0.0	3	1.8	0.3	0.3	1.7	11	0.0	0	4.9	14	(N/A)	0.2	14.10
Citywide total	182.5	32.5	105.5	12.2	1,043	463.6	67.4	64.2	438.4	2,883	-180.2	-676	1,185.9	3,250	(N/A)	100.0	6.51

Table 4: Annual Carbon Stored

Camanche

Stored CO2 Benefits of Public Trees

5/30/2022

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Eastern red cedar	120,963	907	(N/A)	23.0	4.6	7.89
Northern hackberry	729,117	5,468	(N/A)	11.6	27.9	94.28
Norway spruce	74,823	561	(N/A)	6.8	2.9	16.51
Ash	184,278	1,382	(N/A)	5.6	7.1	49.36
Apple	43,171	324	(N/A)	4.4	1.7	14.72
Silver maple	179,077	1,343	(N/A)	4.2	6.9	63.96
Swamp white oak	60,570	454	(N/A)	4.2	2.3	21.63
Red maple	98,369	738	(N/A)	3.8	3.8	38.83
Callery pear	6,347	48	(N/A)	3.8	0.2	2.51
Honeylocust	90,480	679	(N/A)	3.8	3.5	35.72
Littleleaf linden	89,539	672	(N/A)	2.8	3.4	47.97
Bur oak	54,283	407	(N/A)	2.6	2.1	31.32
Spruce	18,477	139	(N/A)	2.2	0.7	12.60
Black walnut	136,101	1,021	(N/A)	2.2	5.2	92.80
Northern red oak	70,565	529	(N/A)	2.0	2.7	52.92
Siberian elm	72,258	542	(N/A)	1.8	2.8	60.22
Norway maple	31,892	239	(N/A)	1.8	1.2	26.58
Sugar maple	41,808	314	(N/A)	1.8	1.6	34.84
American sycamore	72,498	544	(N/A)	1.4	2.8	77.68
Northern pin oak	76,635	575	(N/A)	1.4	2.9	82.11
Black locust	66,676	500	(N/A)	1.2	2.6	83.35
Cottonwood	153,680	1,153	(N/A)	0.8	5.9	288.15
Eastern white pine	13,174	99	(N/A)	0.8	0.5	24.70
Maple	31,781	238	(N/A)	0.8	1.2	59.59
Conifer Evergreen Sm	3,306	25	(N/A)	0.6	0.1	8.27
Blue spruce	2,521	19	(N/A)	0.6	0.1	6.30
White mulberry	13,485	101	(N/A)	0.4	0.5	50.57
River birch	11,569	87	(N/A)	0.4	0.4	43.39
Broadleaf Deciduous	28	0	(N/A)	0.4	0.0	0.10
Ginkgo	9	0	(N/A)	0.4	0.0	0.03
Green ash	12,130	91	(N/A)	0.4	0.5	45.49
Red pine	1,170	9	(N/A)	0.2	0.0	8.78
Kentucky coffeetree	15,773	118	(N/A)	0.2	0.6	118.30
Conifer Evergreen Me	2,661	20	(N/A)	0.2	0.1	19.96
Conifer Evergreen La	3,343	25	(N/A)	0.2	0.1	25.07
Paper birch	8,458	63	(N/A)	0.2	0.3	63.43
Common chokecherry	14	0	(N/A)	0.2	0.0	0.10
Black cherry	6,743	51	(N/A)	0.2	0.3	50.57
Eastern redbud	3,037	23	(N/A)	0.2	0.1	22.78
American elm	12,245	92	(N/A)	0.2	0.5	91.84
Citywide total	2,613,053	19,598	(N/A)	100.0	100.0	39.27

Table 5: Annual Carbon Sequestered

Camanche

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
Eastern red cedar	2,422	18	-581	-219	-6	20,753	156	22,376	168 (N/A)	23.0	7.4	1.46
Northern hackberry	33,151	249	-3,500	-236	-28	39,983	300	69,399	520 (N/A)	11.6	23.0	8.97
Norway spruce	4,860	36	-359	-76	-3	7,359	55	11,784	88 (N/A)	6.8	3.9	2.60
Ash	9,965	75	-885	-69	-7	11,700	88	20,711	155 (N/A)	5.6	6.9	5.55
Apple	4,093	31	-207	-33	-2	4,651	35	8,504	64 (N/A)	4.4	2.8	2.90
Silver maple	15,266	114	-864	-46	-7	7,015	53	21,372	160 (N/A)	4.2	7.1	7.63
Swamp white oak	5,291	40	-291	-29	-2	5,103	38	10,074	76 (N/A)	4.2	3.3	3.60
Red maple	9,060	68	-472	-40	-4	7,242	54	15,790	118 (N/A)	3.8	5.2	6.23
Callery pear	1,566	12	-39	-10	0	1,212	9	2,729	20 (N/A)	3.8	0.9	1.08
Honeylocust	10,776	81	-435	-35	-4	7,151	54	17,457	131 (N/A)	3.8	5.8	6.89
Littleleaf linden	9,217	69	-430	-33	-3	4,967	37	13,721	103 (N/A)	2.8	4.5	7.35
Bur oak	5,288	40	-261	-23	-2	4,056	30	9,060	68 (N/A)	2.6	3.0	5.23
Spruce	1,424	11	-89	-23	-1	2,349	18	3,661	27 (N/A)	2.2	1.2	2.50
Black walnut	7,418	56	-653	-32	-5	5,212	39	11,945	90 (N/A)	2.2	4.0	8.14
Northern red oak	2,470	19	-339	-22	-3	2,983	22	5,092	38 (N/A)	2.0	1.7	3.82
Siberian elm	4,342	33	-347	-24	-3	3,988	30	7,959	60 (N/A)	1.8	2.6	6.63
Norway maple	3,234	24	-153	-17	-1	3,162	24	6,225	47 (N/A)	1.8	2.1	5.19
Sugar maple	2,719	20	-201	-14	-2	2,259	17	4,763	36 (N/A)	1.8	1.6	3.97
American sycamore	3,689	28	-348	-16	-3	2,584	19	5,909	44 (N/A)	1.4	2.0	6.33
Northern pin oak	2,436	18	-368	-22	-3	3,429	26	5,475	41 (N/A)	1.4	1.8	5.87
Black locust	2,150	16	-320	-20	-3	2,936	22	4,746	36 (N/A)	1.2	1.6	5.93
Cottonwood	2,774	21	-738	-20	-6	2,828	21	4,845	36 (N/A)	0.8	1.6	9.08
Eastern white pine	418	3	-63	-11	-1	990	7	1,335	10 (N/A)	0.8	0.4	2.50
Maple	3,693	28	-153	-11	-1	1,908	14	5,438	41 (N/A)	0.8	1.8	10.20
Conifer Evergreen Small	43	0	-16	-6	0	561	4	582	4 (N/A)	0.6	0.2	1.45
Blue spruce	220	2	-12	-5	0	532	4	735	6 (N/A)	0.6	0.2	1.84
White mulberry	478	4	-65	-6	-1	670	5	1,077	8 (N/A)	0.4	0.4	4.04
River birch	856	6	-56	-5	0	835	6	1,631	12 (N/A)	0.4	0.5	6.12
Broadleaf Deciduous Smal	17	0	0	0	0	11	0	28	0 (N/A)	0.4	0.0	0.10
Ginkgo	4	0	0	0	0	7	0	11	0 (N/A)	0.4	0.0	0.04
Green ash	1,105	8	-58	-5	0	834	6	1,876	14 (N/A)	0.4	0.6	7.04
Red pine	116	1	-6	-2	0	216	2	324	2 (N/A)	0.2	0.1	2.43
Kentucky coffeetree	857	6	-76	-4	-1	552	4	1,330	10 (N/A)	0.2	0.4	9.97
Conifer Evergreen Mediun	147	1	-13	-3	0	233	2	364	3 (N/A)	0.2	0.1	2.73
Conifer Evergreen Large	187	1	-16	-3	0	246	2	415	3 (N/A)	0.2	0.1	3.11
Paper birch	660	5	-41	-3	0	441	3	1,058	8 (N/A)	0.2	0.4	7.93
Common chokecherry	9	0	0	0	0	6	0	14	0 (N/A)	0.2	0.0	0.10
Black cherry	0	0	-32	-4	0	335	3	299	2 (N/A)	0.2	0.1	2.24
Eastern redbud	268	2	-15	-2	0	308	2	560	4 (N/A)	0.2	0.2	4.20
American elm	454	3	-59	-4	0	632	5	1,023	8 (N/A)	0.2	0.3	7.68
Citywide total	153,143	1,149	-12,558	-1,132	-103	162,241	1,217	301,695	2,263 (N/A)	100.0	100.0	4.53

Table 6: Annual Social and Aesthetic Benefits

Camanche

Annual Aesthetic/Other Benefits of Public Trees

5/30/2022

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Eastern red cedar	834	(N/A)	23.0	4.5	7.25
Northern hackberry	3,990	(N/A)	11.6	21.4	68.79
Norway spruce	1,238	(N/A)	6.8	6.6	36.41
Ash	969	(N/A)	5.6	5.2	34.60
Apple	235	(N/A)	4.4	1.3	10.67
Silver maple	1,375	(N/A)	4.2	7.4	65.47
Swamp white oak	544	(N/A)	4.2	2.9	25.91
Red maple	1,146	(N/A)	3.8	6.2	60.34
Callery pear	210	(N/A)	3.8	1.1	11.06
Honeylocust	2,397	(N/A)	3.8	12.9	126.15
Littleleaf linden	955	(N/A)	2.8	5.1	68.20
Bur oak	528	(N/A)	2.6	2.8	40.59
Spruce	383	(N/A)	2.2	2.1	34.81
Black walnut	614	(N/A)	2.2	3.3	55.82
Northern red oak	185	(N/A)	2.0	1.0	18.50
Siberian elm	347	(N/A)	1.8	1.9	38.59
Norway maple	330	(N/A)	1.8	1.8	36.72
Sugar maple	294	(N/A)	1.8	1.6	32.63
American sycamore	305	(N/A)	1.4	1.6	43.56
Northern pin oak	220	(N/A)	1.4	1.2	31.38
Black locust	192	(N/A)	1.2	1.0	32.01
Cottonwood	189	(N/A)	0.8	1.0	47.33
Eastern white pine	112	(N/A)	0.8	0.6	27.93
Maple	436	(N/A)	0.8	2.3	109.08
Conifer Evergreen Small	14	(N/A)	0.6	0.1	4.56
Blue spruce	72	(N/A)	0.6	0.4	23.85
White mulberry	29	(N/A)	0.4	0.2	14.40
River birch	82	(N/A)	0.4	0.4	41.11
Broadleaf Deciduous Small	0	(N/A)	0.4	0.0	0.03
Ginkgo	1	(N/A)	0.4	0.0	0.37
Green ash	104	(N/A)	0.4	0.6	51.77
Red pine	32	(N/A)	0.2	0.2	32.32
Kentucky coffeetree	66	(N/A)	0.2	0.4	65.59
Conifer Evergreen Medium	20	(N/A)	0.2	0.1	19.97
Conifer Evergreen Large	47	(N/A)	0.2	0.3	47.08
Paper birch	58	(N/A)	0.2	0.3	57.69
Common chokecherry	0	(N/A)	0.2	0.0	0.03
Black cherry	0	(N/A)	0.2	0.0	0.00
Eastern redbud	15	(N/A)	0.2	0.1	15.48
American elm	64	(N/A)	0.2	0.3	64.36
Citywide total	18,631	(N/A)	100.0	100.0	37.34

Table 7: Summary of Benefits in Dollars

Camanche

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 $
Eastern red cedar	2,734	168	240	4,909	834	8,885	(N/A)	12.1
Northern hackberry	5,104	520	964	7,313	3,990	17,892	(N/A)	24.5
Norway spruce	879	88	65	1,970	1,238	4,240	(N/A)	5.8
Ash	1,481	155	259	1,576	969	4,440	(N/A)	6.1
Apple	597	64	98	271	235	1,264	(N/A)	1.7
Silver maple	869	160	151	1,406	1,375	3,960	(N/A)	5.4
Swamp white oak	643	76	107	586	544	1,956	(N/A)	2.7
Red maple	902	118	165	1,019	1,146	3,351	(N/A)	4.6
Callery pear	161	20	23	93	210	508	(N/A)	0.7
Honeylocust	875	131	145	1,046	2,397	4,593	(N/A)	6.3
Littleleaf linden	616	103	103	711	955	2,487	(N/A)	3.4
Bur oak	493	68	81	513	528	1,683	(N/A)	2.3
Spruce	274	27	26	549	383	1,259	(N/A)	1.7
Black walnut	656	90	115	930	614	2,404	(N/A)	3.3
Northern red oak	374	38	53	451	185	1,102	(N/A)	1.5
Siberian elm	501	60	87	588	347	1,583	(N/A)	2.2
Norway maple	388	47	65	328	330	1,158	(N/A)	1.6
Sugar maple	283	36	44	342	294	997	(N/A)	1.4
American sycamore	324	44	58	479	305	1,210	(N/A)	1.7
Northern pin oak	448	41	83	581	220	1,371	(N/A)	1.9
Black locust	389	36	71	508	192	1,195	(N/A)	1.6
Cottonwood	350	36	73	648	189	1,297	(N/A)	1.8
Eastern white pine	117	10	6	289	112	533	(N/A)	0.7
Maple	243	41	46	311	436	1,077	(N/A)	1.5
Conifer Evergreen Smal	74	4	7	133	14	231	(N/A)	0.3
Blue spruce	64	6	7	104	72	252	(N/A)	0.3
White mulberry	92	8	17	64	29	209	(N/A)	0.3
River birch	105	12	18	105	82	323	(N/A)	0.4
Broadleaf Deciduous Sn	2	0	0	0	0	3	(N/A)	0.0
Ginkgo	1	0	0	0	1	2	(N/A)	0.0
Green ash	102	14	17	110	104	346	(N/A)	0.5
Red pine	24	2	3	42	32	103	(N/A)	0.1
Kentucky coffeetree	71	10	12	107	66	266	(N/A)	0.4
Conifer Evergreen Medi	30	3	3	63	20	118	(N/A)	0.2
Conifer Evergreen Large	30	3	1	80	47	163	(N/A)	0.2
Paper birch	57	8	9	70	58	202	(N/A)	0.3
Common chokecherry	1	0	0	0	0	1	(N/A)	0.0
Black cherry	46	2	8	32	0	89	(N/A)	0.1
Eastern redbud	38	4	7	18	15	82	(N/A)	0.1
American elm	80	8	14	123	64	290	(N/A)	0.4
Citywide Total	20,517	2,263	3,250	28,467	18,631	73,128	(N/A)	100.0

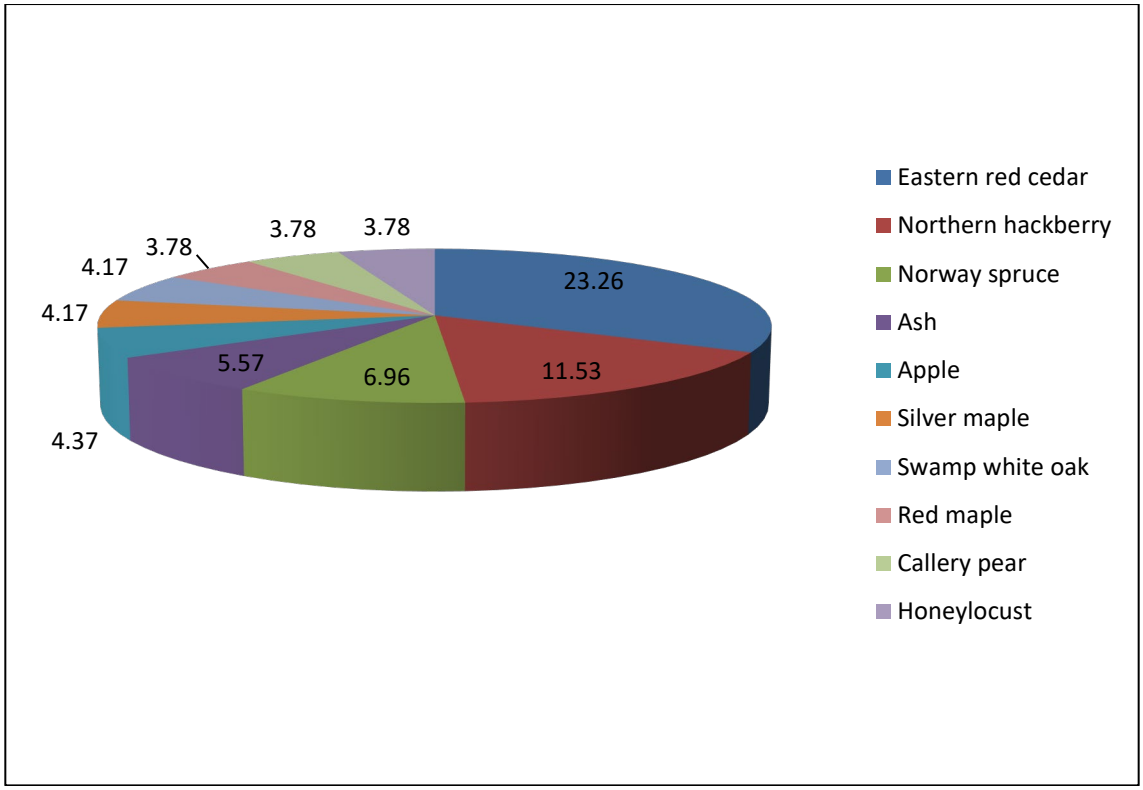

Figure 1: Species Distribution

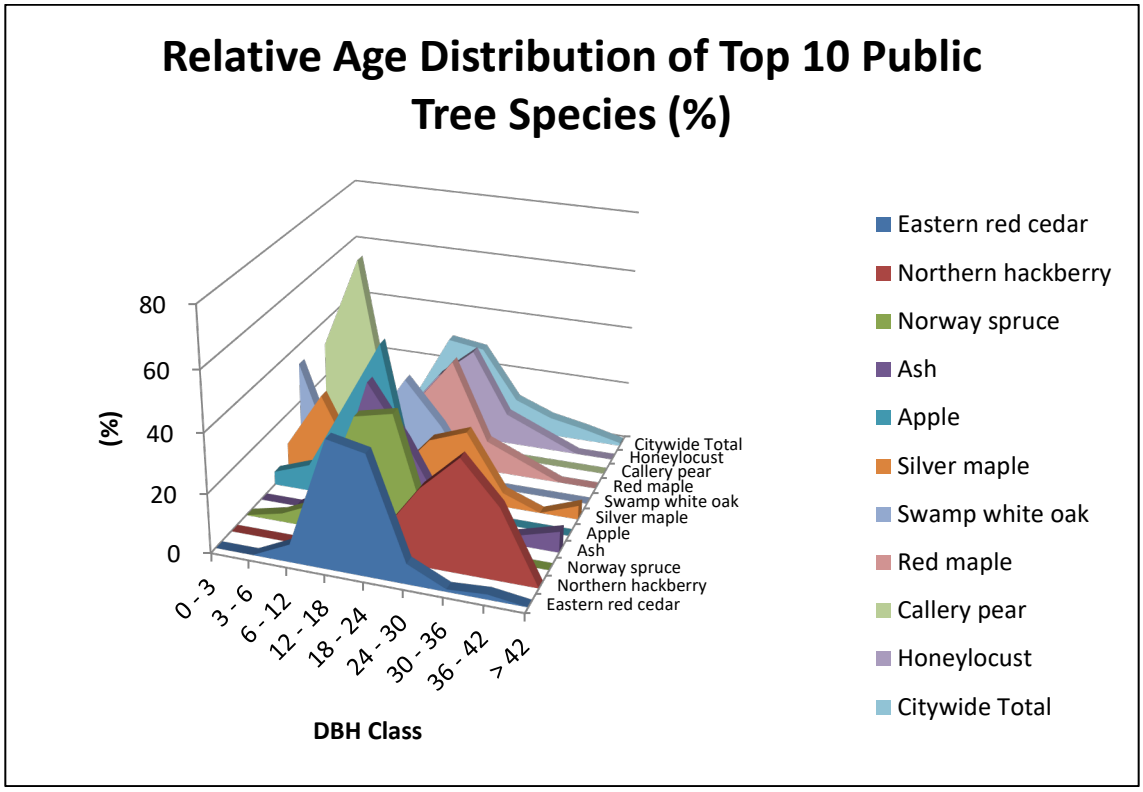

Figure 2: Relative Age Class

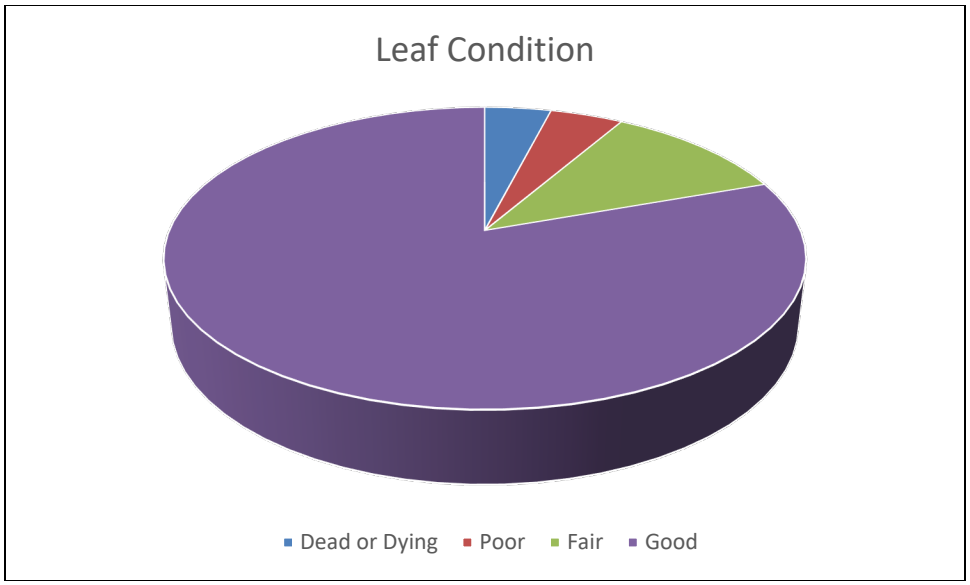

Figure 3: Foliage Condition

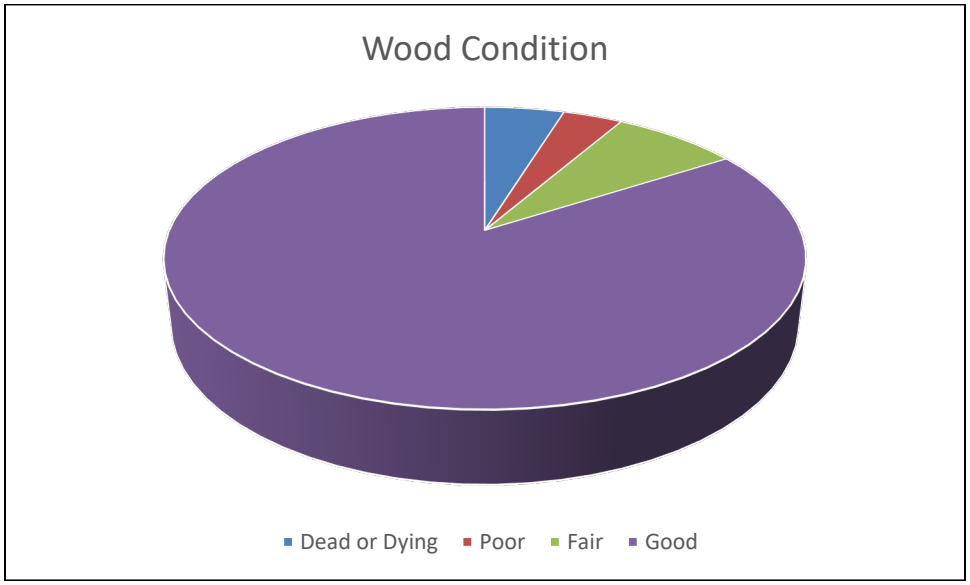

Figure 4: Wood Condition

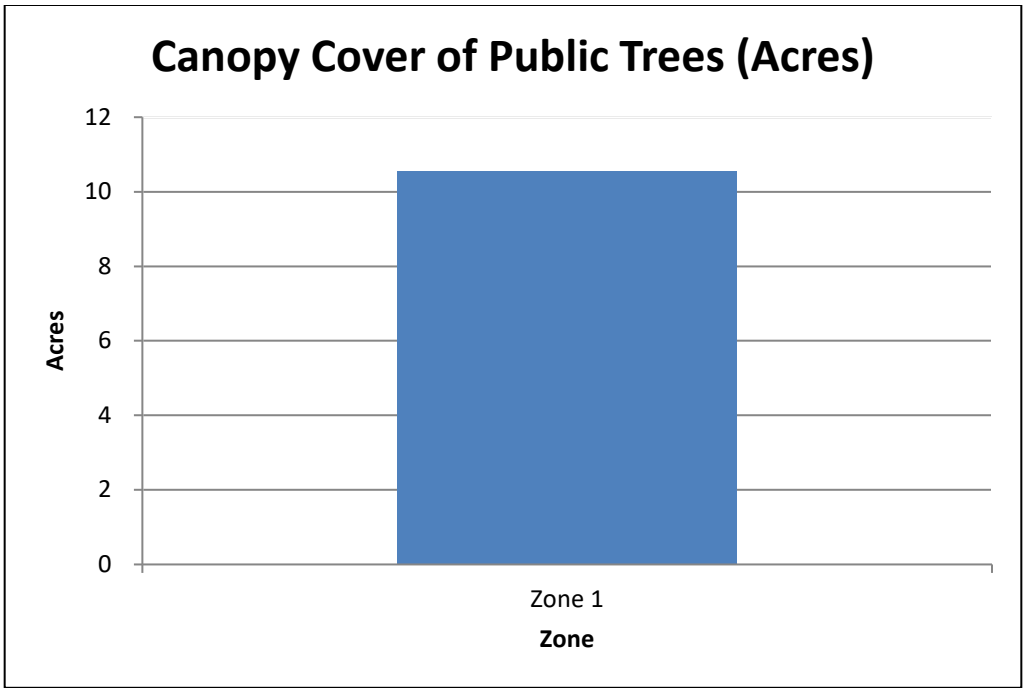

Figure 5: Canopy Cover in Acres

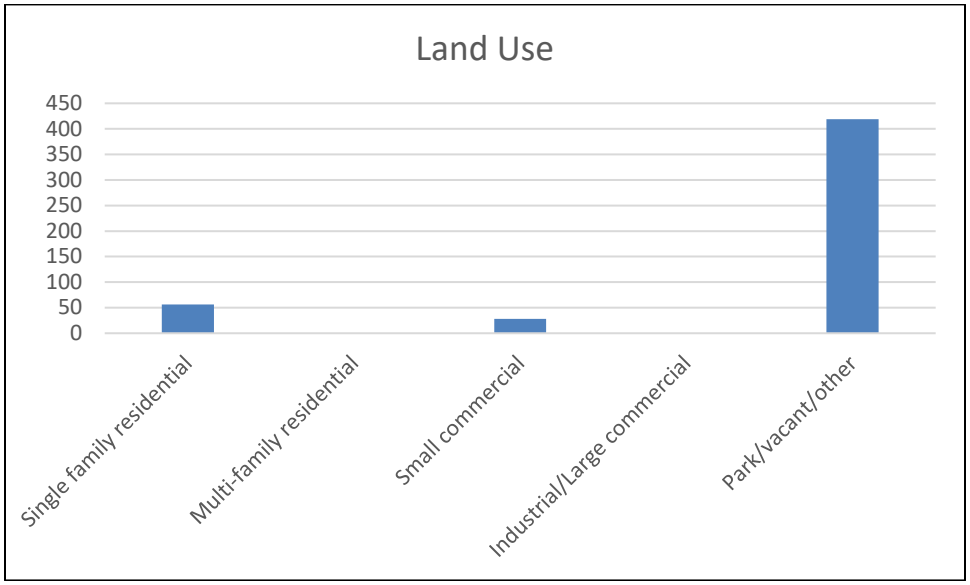

Figure 6: Land Use of city/park trees

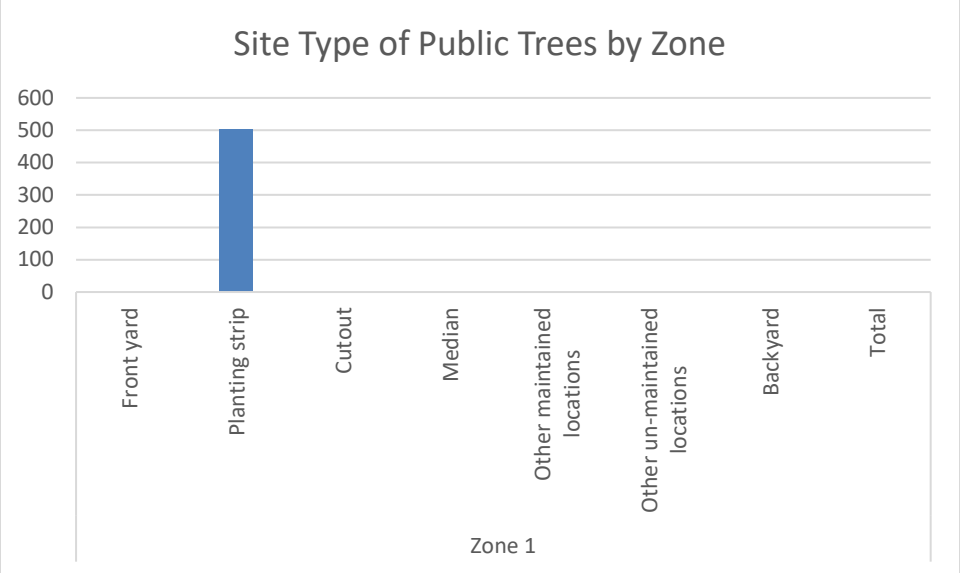

Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

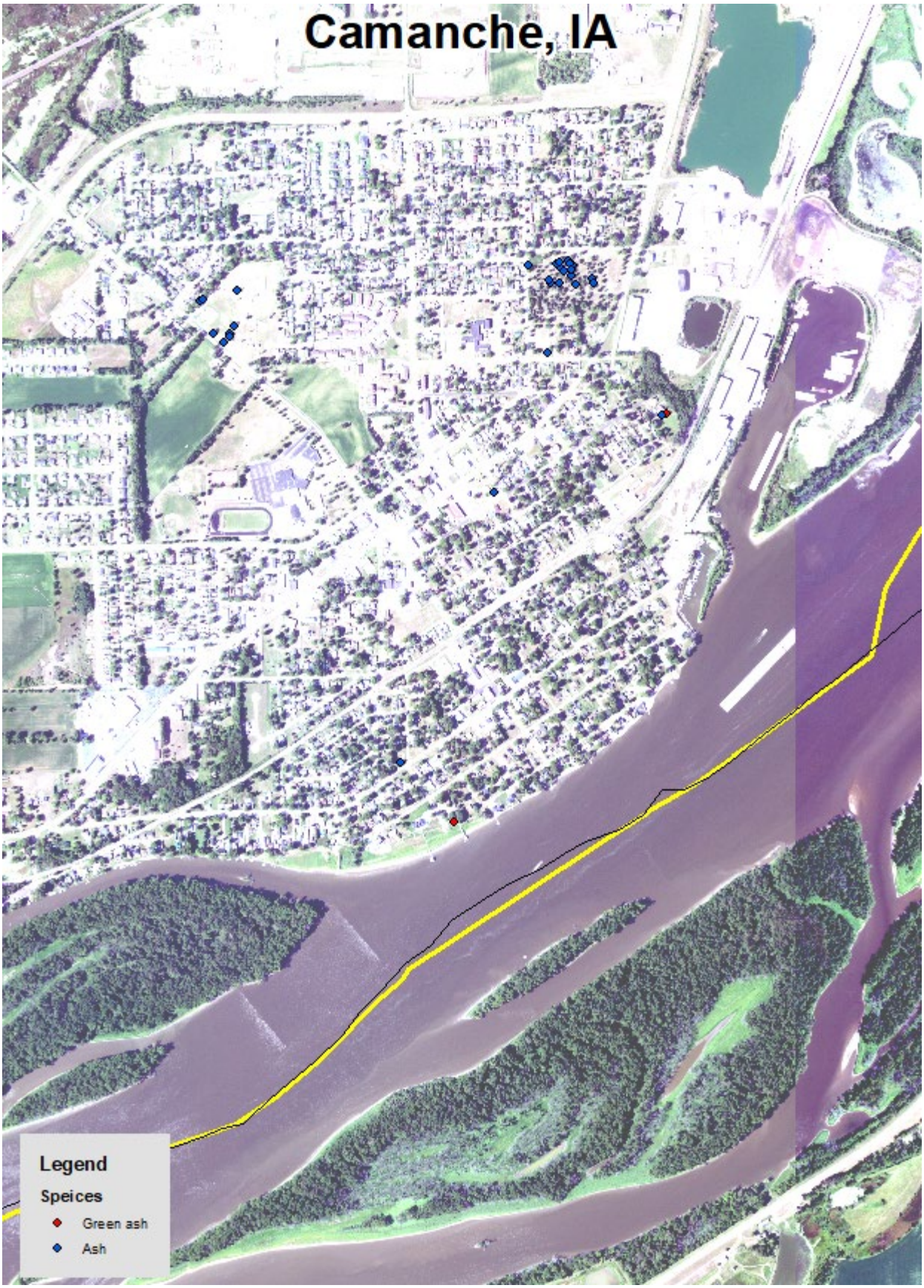

Figure 1: Location of Ash Trees

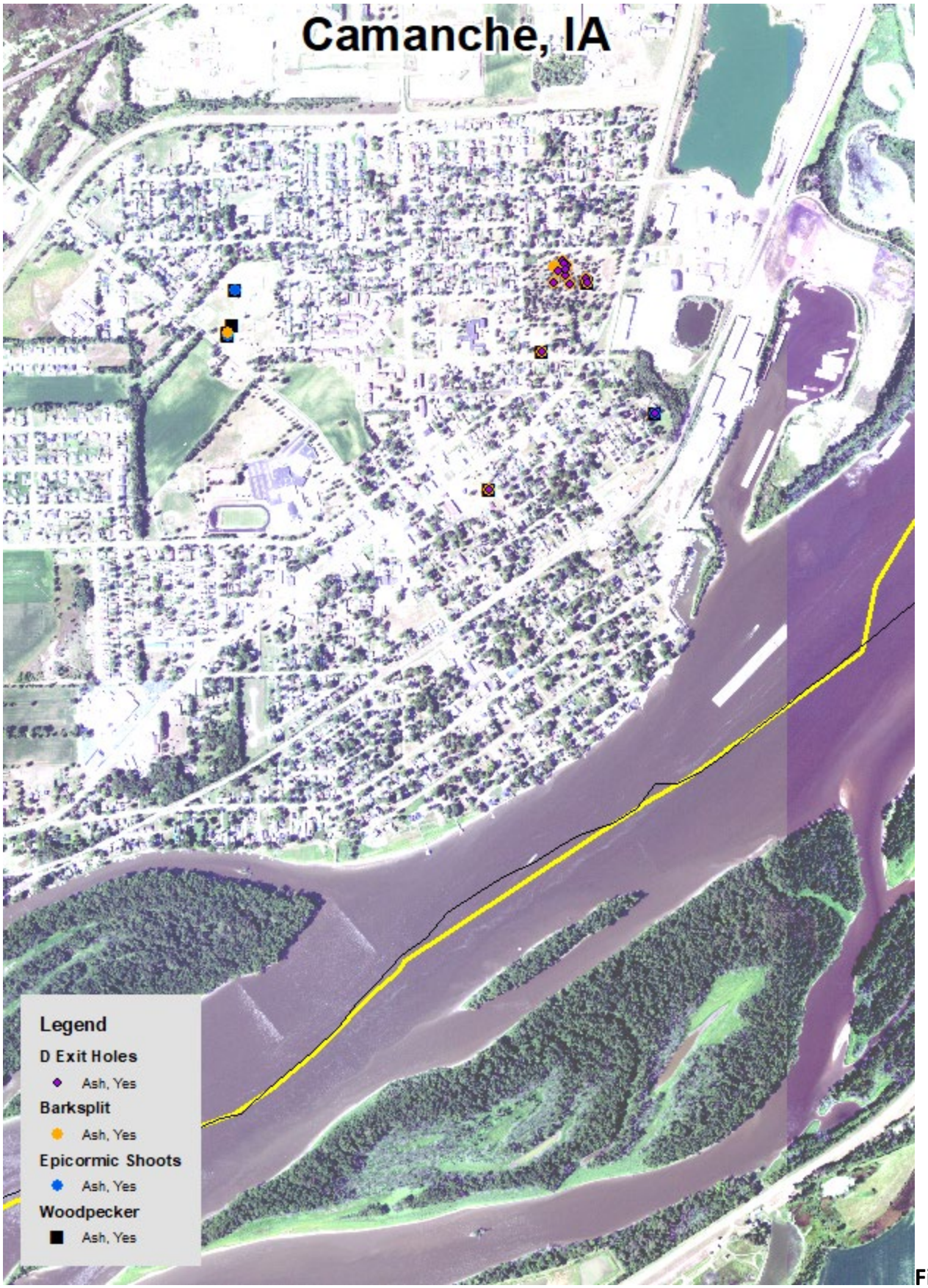

Figure 2: Location of EAB symptoms

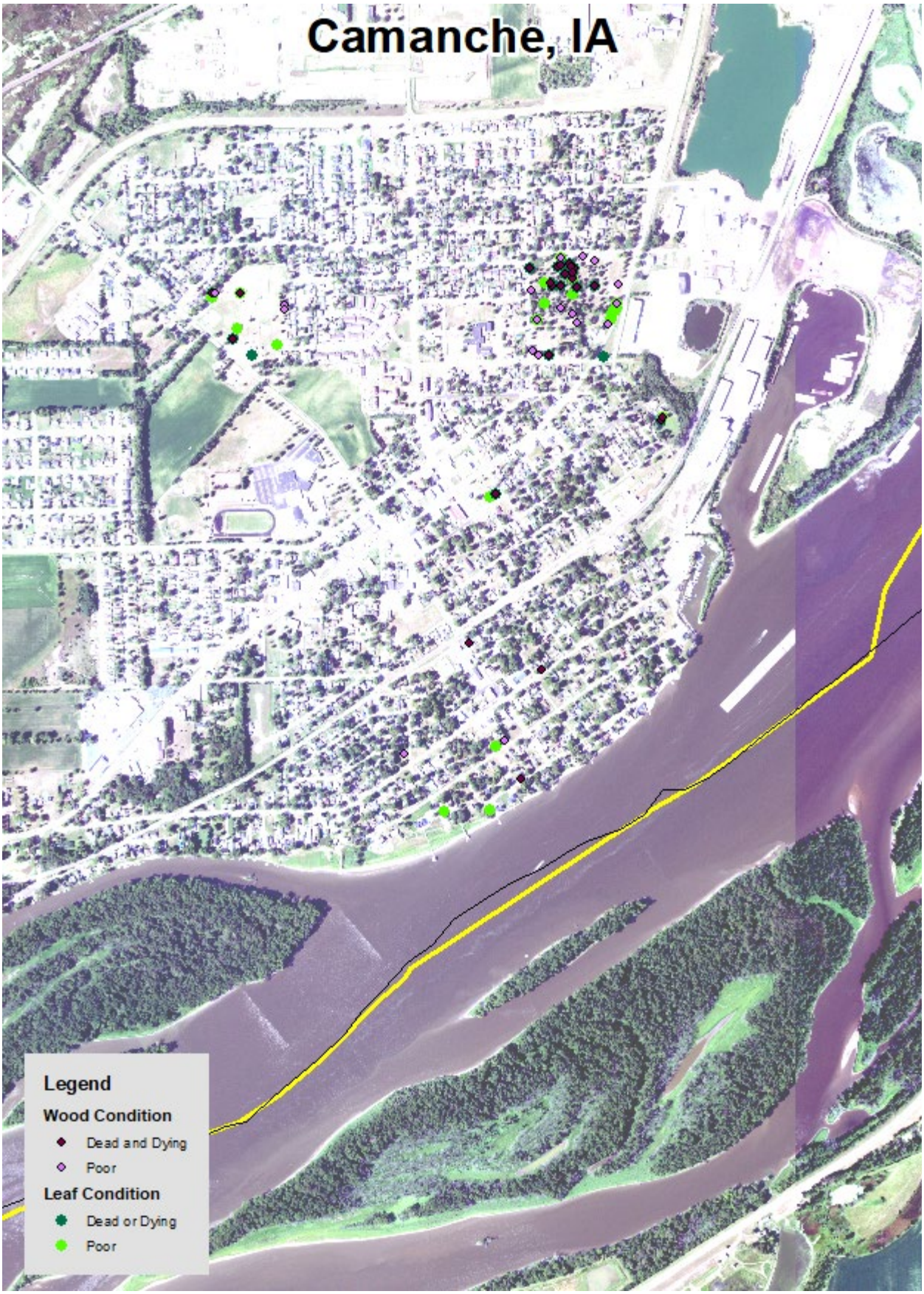

Figure 3: Location of Poor Condition Trees

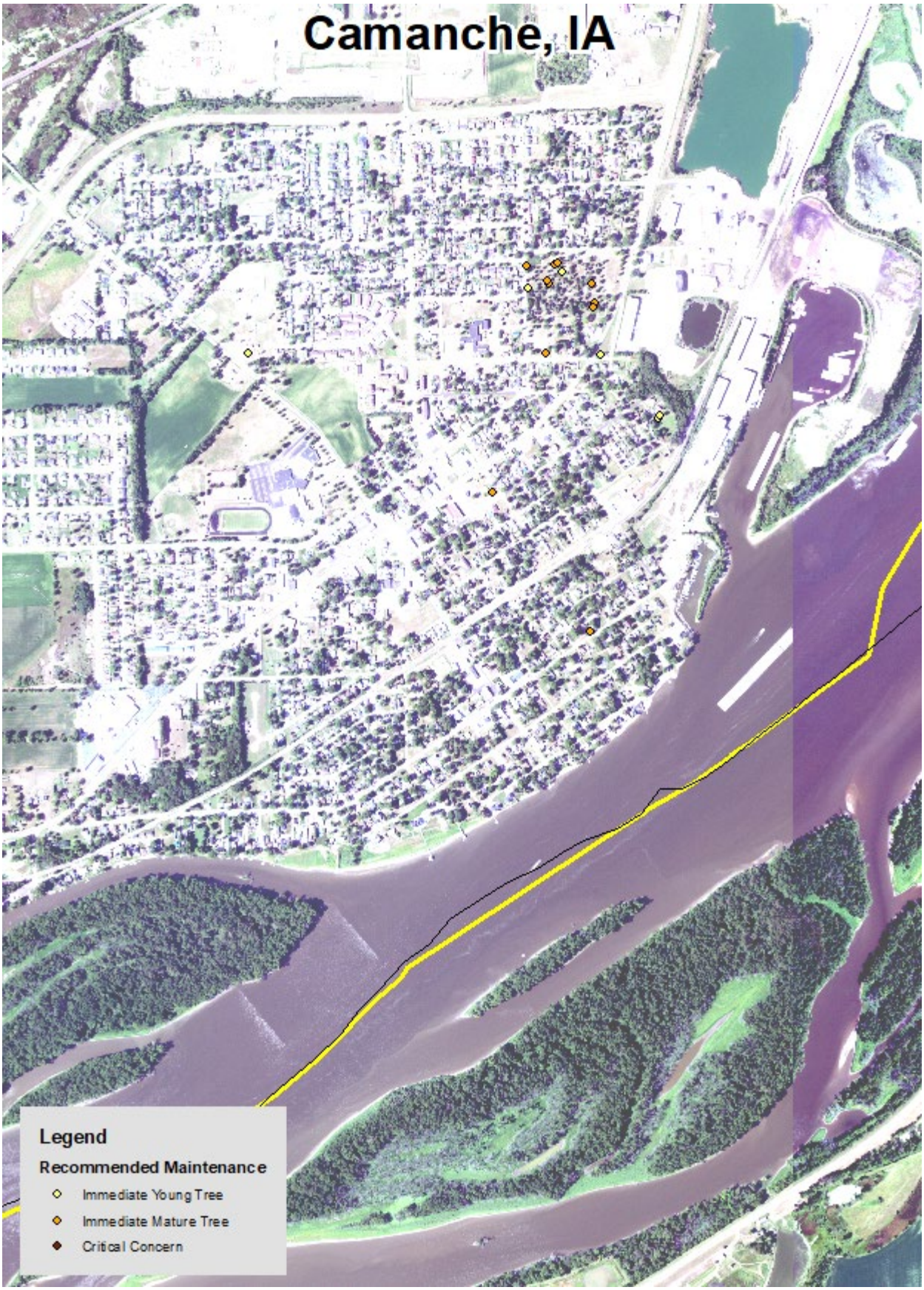

Figure 4: Location of Trees with Recommended Maintenance

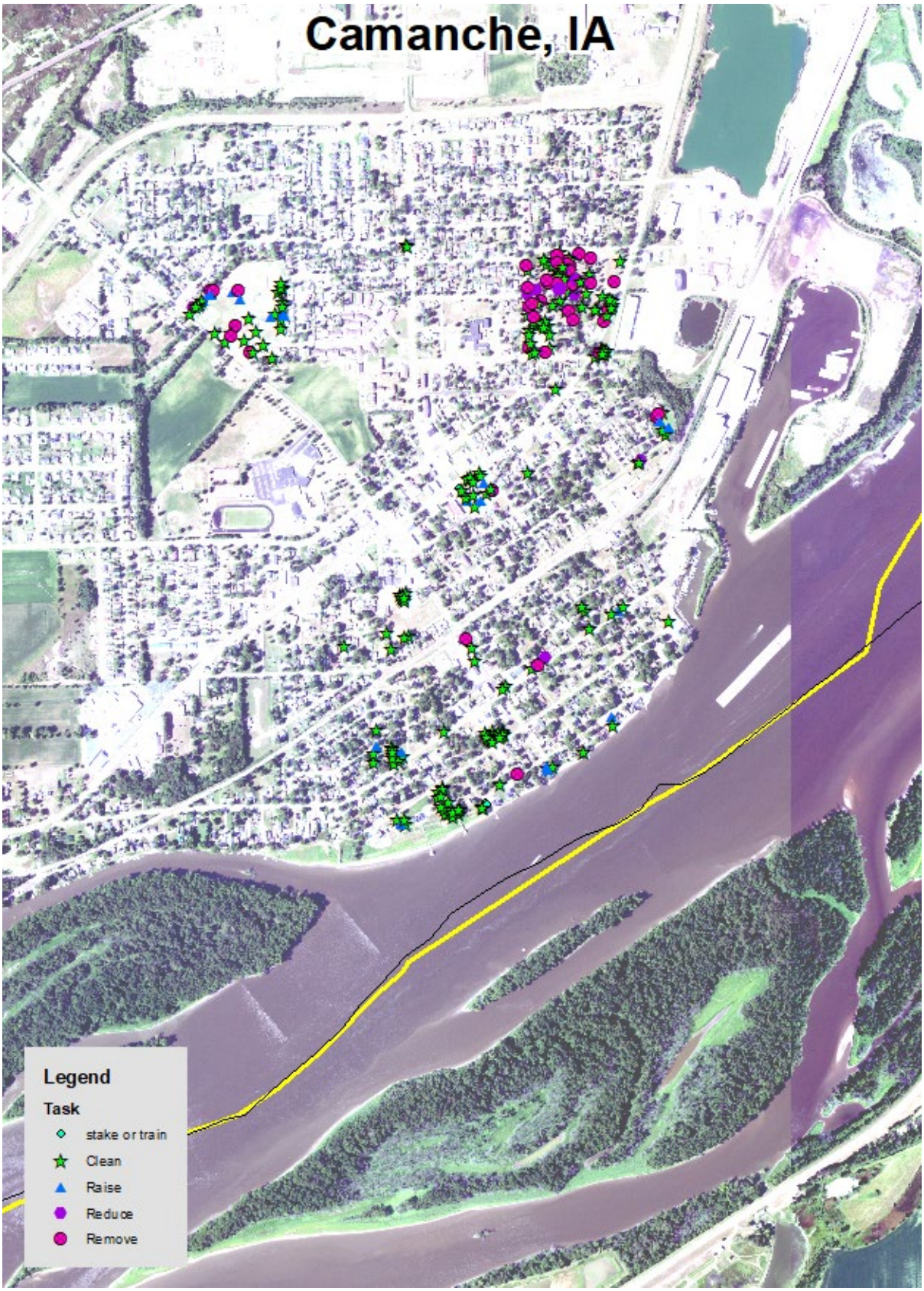

Figure 5: Maintenance Tasks ***City ownership of the trees recommended for removal should be verified prior to any removal***

Directions for Using ArcGIS Tree Inventory Viewer

Open the following link:
https://iowadnr.maps.arcgis.com/apps/webappviewer/index.html?id=63447a37a80f4feebb1c977a6046743a
Click and hold your mouse to adjust the map so that your community is in the middle of your computer screen. Click the plus (+) button at the top left corner of the screen as many times as necessary to zoom into your community. Yellow dots representing inventoried trees will appear and become smaller as you continue to zoom in.
To look at information for individual trees or groups of trees:
1. Zoom in and adjust the map until you find the tree or area of your community that you are looking for.
2. Move your curser arrow above the tree you would like to view and click on the yellow dot; a small window containing information for that tree will appear. (NOTE: If you click on the dot and a small box with
a “Roads” heading appears, close this box and zoom out slightly by clicking on the minus (-) button at the top left of the
screen. Continue to zoom out until clicking on the dot brings up the tree data).
To close this window and go back to the map, click on the “x” at the top right corner of the window.
To view trees with a common feature (species, size, or leaf condition, for example):
1. Click on the up arrow in the small gray tab at the bottom of the screen; a rectangular box will appear in roughly the bottom third of the screen.
2. Click on the “Tree Inventory” tab at the top left corner of this box (next to the “Roads” tab).
3. Click on the “Options” tab that appears just below and to the left of this; scroll down and click on “Filter.” A box will appear in the middle of the screen.
4. Click on “Add a filter expression.” Three fields will appeara. In the first field, click on the arrow and select the feature you’d like to observe from the list
of options;
b. Use the second field to define how you’d like your data to relate to the first field - for instance, you could choose “Species” in the first field and “is” or “is not” in the second field depending on whether you want to view only one particular species or to view everything
BUT that species;
c. Once you’ve selected options for the first two fields, a unique set of options should appear in the third field. Select which characteristic you’d like and then click on “OK” in the bottom
right corner of the window.
The box in the middle of the screen will disappear and the map will refresh so that only the trees with that particular set of features appear.
To go back to the main map, first click on “Options” and “Filter” to bring the box with the features that you’ve selected back
to the middle of the screen. Click on the “x” to the right of the third field; once the fields disappear, click on the down arrow
on the small gray tab, which is now located at the top of the rectangular box. This will collapse the box and bring the map

back to full screen with all trees displayed.
To view trees with more than one shared feature (i.e. Green Ash trees with a DBH over 42”):
1. Click on the small gray tab, click on “Tree Inventory,” click on “Options” and scroll down and click “Filter” just like above.
2. Click on “Add filter expression” twice; this will bring up two sets of data fields.
3. A small drop box will appear just below the word “expression”. Select “All” from this box. Enter the information you’d like to observe for the first characteristic (Species – is – Green ash) in the first line of data fields and the information for the second characteristic (DBH – is – >42) in the second line.
4. Click “OK.” The map should refresh so that only Green ash with a DBH over 42” will appear.
To view locations of trees with different sets of characteristics(i.e. Green ash trees and white ash trees):
1. Complete steps 1 and 2 from the “shared feature” action, but then select “Any” from the small drop down menu instead of “All.”
2. Select “Species – is – Green Ash “ in the first field and “Species – is – White ash” in the second field.
3. Click “OK;” the map should refresh so that all of the green ash AND white ash in your community will appear.

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