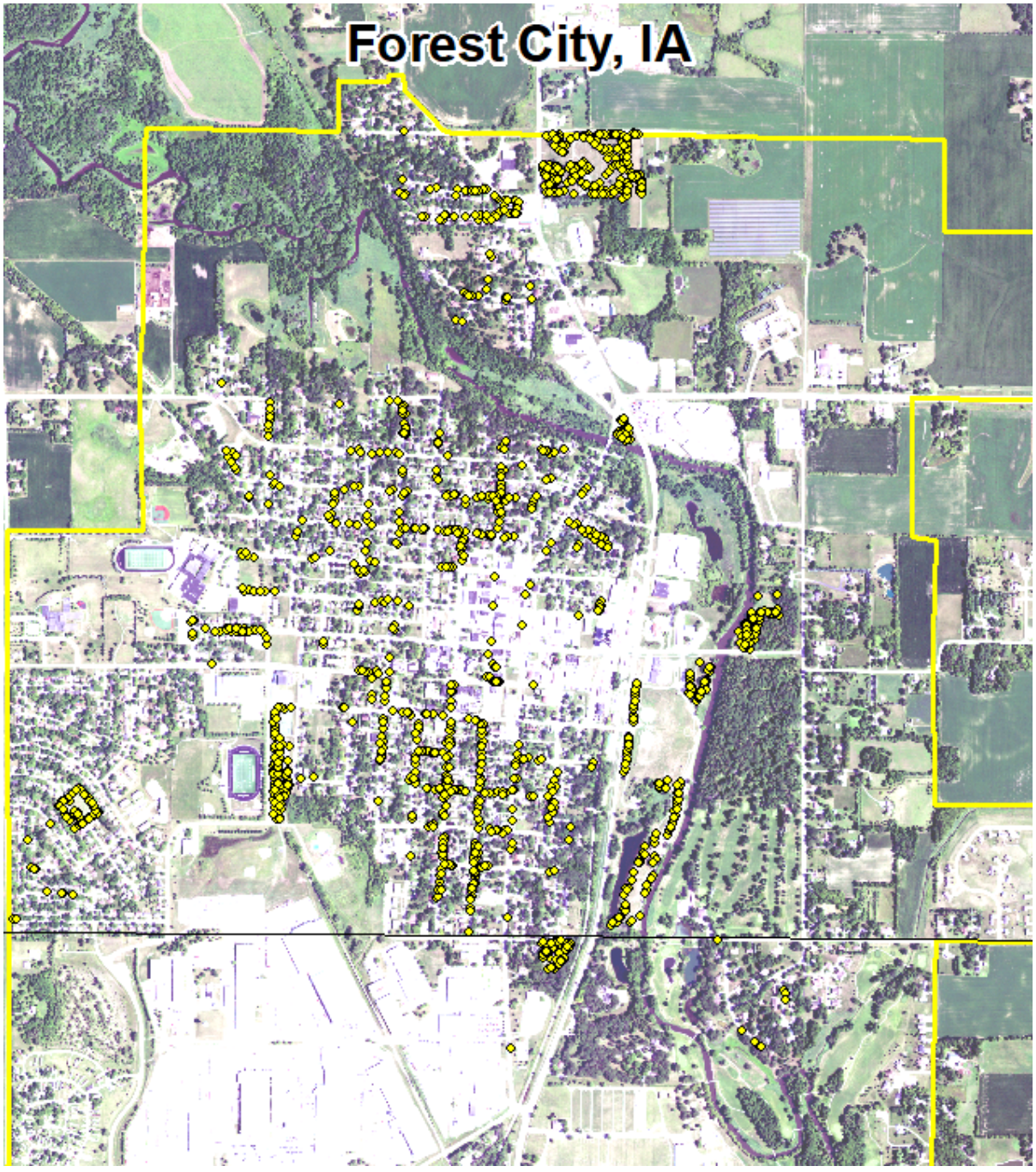
Forest City, IA



2022 Urban Forest Management Plan
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Executive Summary

Overview

This plan was developed to assist the City of Forest City with managing its urban forest, including budgeting and future planning. Trees can provide a multitude of benefits to the community, and sound management allows a community to best take advantage of these benefits. Management is especially important considering the serious threats posed by forest pests such as the emerald ash borer (EAB). EAB is an invasive insect imported from Eastern Asia on wood shipping crates that kills all species of ash trees (this does not include mountain ash). There is a strong possibility that 23% of Forest City's city owned trees (ash) will die once EAB becomes established in the community, unless preventative treatment is used. With proper planning and management, the costs of removing dead and dying trees can be extended over years, mitigating public safety issues.

Inventory and Results

In 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 1346 trees inventoried.

- Forest City's trees provide $208,444 of benefits annually, an average of $154 a tree
- There are over 41 species of trees
- The top three genera are: Maple 29%, Ash 23%, and Spruce 14%
- 29% of trees need some type of management
- 41 trees are recommended for removal

Recommendations

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

- Of the 41 trees needing removal, 12 trees are over 24 inches in diameter at 4.5 ft and must be addressed immediately *City ownership of the trees recommended for removal should be verified prior to any removal*
- All of the ash trees should be carefully examined, since EAB is already infecting most city trees.
- 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
- There is no current tree removal budget – Suggestion: request a budget for tree removal and annually and apply for grants to plant replacement trees

Introduction

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

Trees are an important component of Forest City's infrastructure and one of the greatest assets to the community. The benefits of trees are immense. Trees provide the community with improved air quality, stormwater runoff interception, energy conservation, lower traffic speeds, increased property values, reduced crime, improved mental health and create a desirable place to live, to name just a few benefits. It is essential that these benefits be maintained for the people of Forest City and future generations through good urban forestry management.

Good urban forestry management involves setting goals and developing management strategies to achieve these goals. An essential part of developing management strategies is a comprehensive public tree inventory. The inventory supplies information that will be used for maintenance, removal schedules, tree planting and budgeting. Basing actions on this information will help meet Forest City'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 1346 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. Forest City's trees reduce energy related costs by approximately $58,723 annually (Appendix A, Table 1). These savings are both in Electricity (277.7 MWh) and in Natural Gas (38,412.3 Therms).

Annual Stormwater Benefits

Forest City's trees intercept about 2,820,618 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $76,439 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 Forest City, it is estimated that trees remove 3,509 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 $8,275 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Forest City, trees sequester about 555,589 lbs of carbon a year with an associated value of $4,167 (Appendix A, Table 5). In addition, the trees store 9,462,429 lbs of carbon, with a yearly benefit of $70,968 (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. Forest City receives $56,135 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, Forest City's trees provide $208,444 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 1346 trees in Forest City provide approximately $155 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Forest City 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	392	29%
Ash	310	23%
Spruce	192	14%
Oak	177	13%
Apple (Crab)	48	4%
Linden/Basswood	40	3%
Northern White Cedar	36	3%
Cottonwood	28	2%
Walnut	26	2%
Locust	25	2%
Eastern Red Cedar	18	1%
Birch	13	<1%
Buckthorn	6	<1%
Hickory	6	<1%
Hackberry	3	<1%
Mulberry	3	<1%
Pine	3	<1%
Catalpa	2	<1%
Elm	2	<1%
Lilac	2	<1%
Boxelder	1	<1%
Chokecherry	1	<1%
Magnolia	1	<1%
Mountain Ash	1	<1%
Sycamore	1	<1%
Willow	1	<1%
Deciduous Small	6	<1%
Conifer Med. Evergreen	2	<1%

Age Class

Most of Forest City's trees (56%) are between 6 and 18 inches in diameter at 4.5 ft (Appendix A, Figure 2). For age, it is preferred that the highest amounts of trees are in the smallest size category (a downward slope) to prepare for natural mortality and to maintain canopy cover. Forest City'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 Forest City indicate that 86% of the trees are in good health, with only 3% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 83% of Forest City's trees are in good health for wood condition (appendix A, Figure 4 & Appendix B, Figure 3). Wood condition that is in poor health, dead or dying is about 4% of the population. This 4% 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	254	19%
Crown Raising	85	6%
Tree Removal	41	3%
Crown Reduction	5	<1%
Tree Staking	1	<1%

Canopy Cover

The total canopy with both private and public trees is 16%, 479 acres. The canopy cover on city own properties included in the Forest City inventory includes approximately 29 acres (Appendix A, Figure 5). The City's Canopy goal is to increase canopy by 1%, in 30 years on all lands. To achieve this goal, it is estimated that 72 trees need to be planted annually on public and/or private lands.

Land Use and Location

Forest City's trees are split about 50/50 in parks/ vacant/ other and Single-family planting strips. (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	50%
Park/vacant/other	50%
Industrial/Large commercial	0%
Small commercial	0%
Multifamily residential	0%

Location	
Planting strip	100%
Other maintained locations	0%
Cutout (surrounded by pavement)	0%
Front yard	0%

Changes in Forest Structure Since plan in 2014

The 2014 Urban Forest Management Plan covered all of the same areas as the 2022 plan with the exception of the city cemetery. This area was added to the 2022 plan. There are more ash trees in the 2022 plan than in the 2014 plan. It is imperative that the city start focusing on the ash trees for removal and/or treatment.

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

Forest City has 13 critical concern trees that need immediate removal. These trees can be seen on the Location of Trees with Recommended Maintenance map (Appendix B, Figure 4). It is recommended to start with the large diameter critical concern trees first. There are 6 trees over 24 inches in diameter at 4.5 ft that should be addressed immediately. Please refer to the six-year maintenance plan at the end of this section. After all of the critical concern trees are addressed, there should be follow up on the trees marked as needing maintenance. There is a total of 2 trees with these needs.

Poor tree species

After the removal of the critical concern trees, ash trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, Figure 4). Of the 13 removals, 2 are ash trees. There is a total of 310 ash trees, and 79 of those have signs and symptoms that have been associated with EAB. In addition, there are 13 trees that are in poor health. *City ownership of the trees recommended for removal should be verified prior to any removal*

Pruning Cycle

Proper pruning can extend the life and good health of trees, as well as reduce public safety issues. In the Management Needs section of the Findings there are four main maintenance issues to be addressed: routine pruning, crown cleaning, crown raising, and crown reduction. Crown cleaning removes dead, diseased, and damaged limbs. Crown raising is the removal of lower branches that are 2 inches in diameter or larger in the case of providing clearance for pedestrians or vehicles. Crown reduction is removing individual limbs from structures or utility wires. It is recommended that all trees be pruned on a routine schedule every five to seven years. Please refer to the six-year maintenance plan for further information.

Planting

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

It is important to plant a diverse mix of species in the urban forest to maintain canopy health, since most insects and diseases target a genus (ash) or species (green ash) of trees. Current diversity recommendations advise that a genus (i.e. maple, oak) not make up more than 20% of the urban forest and a single species (i.e. silver maple, sugar maple, white oak, bur oak) not make up more than 10% of the total urban forest. Presently, the forest is heavily planted with maple (29%) (Appendix A, Figure 1). Maples should not be planted until this percentage can be lowered. Also, ash trees have not been recommended since 2002, due to the threat of EAB. Other species to avoid because they are public nuisances include: cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut, as outlined in 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.

Budget and Emerald Ash Borer Plan

Forest City has no line item budget for tree maintenance but they have chosen to spend $80,000 every 2 years on treatment of ash trees. Their current budget does not include maintenance on any of the city trees, replanting or removal of the 13 critical concern trees. You should add routine trimming to the budget for the 344 listed under the clean and raise section of the plan. I would break this out over a 6-year period.

At $1300 for removal and disposal of each ash tree it will cost $403,000 to remove all city managed ash trees. I suggest that Forest City treat their nicest and strategically placed ash trees and start the removal process on the rest. You currently have 217 ash trees that have good leaf health and wood health that should be considered for treatment. As ash trees die and are removed, these trees should be replaced. I suggest that you plant 1.2 trees for every tree that is removed and that Forest City start a maintenance plan on all of the city managed trees. I would try to look at a 1/3 of the trees every year.

Ash Tree Removal

Tree removal will be prioritized with dead, dying, hazardous trees to be removed first (Appendix B, Figure 4). Next will be all ash in poor condition and displaying signs and symptoms of EAB (Appendix B, Figure 2 & Appendix B, Figure 3). *City ownership of the tree recommended for removal should be verified prior to any removal*

Treatment of Ash Trees

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

EAB Quarantines

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

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

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

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

Wood Disposal

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

Canopy Replacement

As budget permits, all removed trees will be replaced. All trees will meet the restrictions in city 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 for 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 fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14 days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property."

Proposed Budget Increase

EAB could potentially kill all ash trees in Forest City within the next 2 years. To remove all ash trees within 2 years the budget would need to be increased to $201,500 a year. Additionally, it is recommended that Forest City apply for grants to fund replacement trees. Utility Company grants are usually between $500 and $10,000 for community-based, tree-planting projects that include parks, gateways, cemeteries, nature trails, libraries, nursing homes, and schools.

Another option being considered by many communities is treating a number of selected trees, either to maintain those trees in the landscape or to delay their removal – to spread out the costs and number of trees needing removed all at once. Trunk injection is administered every two years for the life of the tree. If treatment is discontinued, the tree dies. For instance, in this treatment scenario, the average ash diameter is 20 inches and at $15 per inch, about 4 trees could be treated per year (every other year treatment) would be $1,200. This would be 8 trees selected for treatment, and Forest City would still need to find $392,600 for removal of the remaining 302 ash trees. Alternatively, if there are 15 treatable trees, it would cost approximately $2,250 a year for treatment and leave $383,500 for removal. These are alternatives to straight removal of ash trees.

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Forest City

Annual Energy Benefits of Public Trees

5/6/2022

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Ash	71.1	5,396	10,033.4	9,833	15,229	(N/A)	23.0	25.9	49.13
Norway maple	40.2	3,054	5,645.7	5,533	8,587	(N/A)	13.5	14.6	47.18
Bur oak	47.4	3,595	6,526.0	6,396	9,990	(N/A)	11.2	17.0	66.16
Silver maple	31.1	2,361	4,106.0	4,024	6,385	(N/A)	9.1	10.9	52.33
Spruce	5.2	394	721.8	707	1,101	(N/A)	7.6	1.9	10.80
Blue spruce	7.3	556	976.1	957	1,513	(N/A)	5.9	2.6	19.15
Sugar maple	17.5	1,327	2,366.3	2,319	3,646	(N/A)	4.9	6.2	55.24
Apple	5.0	383	745.3	730	1,113	(N/A)	3.6	1.9	23.19
Northern white cedar	2.8	213	379.1	372	585	(N/A)	2.7	1.0	16.24
Cottonwood	9.5	723	1,316.7	1,290	2,014	(N/A)	2.1	3.4	71.91
American basswood	5.7	434	833.1	816	1,251	(N/A)	2.0	2.1	46.32
Northern red oak	4.2	322	598.5	587	909	(N/A)	1.9	1.5	34.95
Black walnut	7.5	569	1,020.9	1,000	1,570	(N/A)	1.9	2.7	60.38
Honeylocust	7.8	590	1,013.9	994	1,584	(N/A)	1.9	2.7	63.35
Eastern red cedar	1.9	145	282.0	276	421	(N/A)	1.3	0.7	23.41
Red maple	1.9	141	255.4	250	391	(N/A)	1.0	0.7	27.95
Littleleaf linden	1.3	95	172.3	169	264	(N/A)	0.8	0.4	24.01
Norway spruce	1.3	101	165.9	163	263	(N/A)	0.8	0.4	23.94
Amur maple	0.2	16	35.6	35	51	(N/A)	0.5	0.1	7.23
Broadleaf Deciduous Small	0.3	23	46.3	45	69	(N/A)	0.4	0.1	11.48
Birch	0.9	68	126.4	124	191	(N/A)	0.4	0.3	31.91
Buckthorn	0.3	20	46.7	46	66	(N/A)	0.4	0.1	11.04
Hickory	1.5	115	206.4	202	318	(N/A)	0.4	0.5	52.96
Paper birch	0.8	57	95.2	93	150	(N/A)	0.4	0.3	30.07
White mulberry	0.6	44	87.9	86	130	(N/A)	0.2	0.2	43.47
Northern hackberry	0.8	64	111.8	110	173	(N/A)	0.2	0.3	57.74
Elm	0.7	51	86.0	84	135	(N/A)	0.1	0.2	67.63
Red pine	0.1	6	13.5	13	19	(N/A)	0.1	0.0	9.59
Conifer Evergreen Medium	0.3	19	30.4	30	49	(N/A)	0.1	0.1	24.51
Basswood	0.5	38	65.1	64	102	(N/A)	0.1	0.2	50.77
Catalpa	0.7	54	100.5	99	153	(N/A)	0.1	0.3	76.46
River birch	0.2	16	33.7	33	49	(N/A)	0.1	0.1	24.47
Lilac	0.0	2	3.8	4	5	(N/A)	0.1	0.0	5.40
Scotch pine	0.1	4	9.5	9	14	(N/A)	0.1	0.0	13.58
Common chokecherry	0.0	2	3.8	4	5	(N/A)	0.1	0.0	5.40
Willow	0.3	24	47.4	46	71	(N/A)	0.1	0.1	70.84
Boxelder	0.2	17	30.8	30	47	(N/A)	0.1	0.1	46.76
American sycamore	0.4	29	53.7	53	82	(N/A)	0.1	0.1	82.02
Mountain ash	0.1	6	12.8	13	18	(N/A)	0.1	0.0	18.19
Southern magnolia	0.0	1	2.8	3	4	(N/A)	0.1	0.0	3.94
Japanese tree lilac	0.0	2	3.8	4	5	(N/A)	0.1	0.0	5.40
Total	277.7	21,079	38,412.3	37,644	58,723	(N/A)	100.0	100.0	43.66

Table 2: Annual Stormwater Benefits

Forest City

Annual Stormwater Benefits of Public Trees

5/6/2022

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Ash	603,686	16,360	(N/A)	23.0	21.4	52.77
Norway maple	330,886	8,967	(N/A)	13.5	11.7	49.27
Bur oak	573,739	15,548	(N/A)	11.2	20.3	102.97
Silver maple	382,325	10,361	(N/A)	9.1	13.6	84.93
Spruce	61,538	1,668	(N/A)	7.6	2.2	16.35
Blue spruce	89,621	2,429	(N/A)	5.9	3.2	30.74
Sugar maple	186,758	5,061	(N/A)	4.9	6.6	76.68
Apple	19,024	516	(N/A)	3.6	0.7	10.74
Northern white cedar	48,085	1,303	(N/A)	2.7	1.7	36.20
Cottonwood	121,177	3,284	(N/A)	2.1	4.3	117.28
American basswood	58,099	1,574	(N/A)	2.0	2.1	58.31
Northern red oak	47,496	1,287	(N/A)	1.9	1.7	49.51
Black walnut	79,987	2,168	(N/A)	1.9	2.8	83.37
Honeylocust	75,151	2,037	(N/A)	1.9	2.7	81.46
Eastern red cedar	27,971	758	(N/A)	1.3	1.0	42.11
Red maple	13,117	355	(N/A)	1.0	0.5	25.39
Littleleaf linden	8,549	232	(N/A)	0.8	0.3	21.06
Norway spruce	19,330	524	(N/A)	0.8	0.7	47.62
Amur maple	676	18	(N/A)	0.5	0.0	2.62
Broadleaf Deciduous Small	1,083	29	(N/A)	0.4	0.0	4.89
Birch	5,162	140	(N/A)	0.4	0.2	23.32
Buckthorn	938	25	(N/A)	0.4	0.0	4.24
Hickory	13,294	360	(N/A)	0.4	0.5	60.04
Paper birch	4,755	129	(N/A)	0.4	0.2	25.77
White mulberry	3,015	82	(N/A)	0.2	0.1	27.23
Northern hackberry	5,285	143	(N/A)	0.2	0.2	47.74
Elm	8,704	236	(N/A)	0.1	0.3	117.95
Red pine	808	22	(N/A)	0.1	0.0	10.95
Conifer Evergreen Medium	3,089	84	(N/A)	0.1	0.1	41.85
Basswood	4,056	110	(N/A)	0.1	0.1	54.96
Catalpa	9,433	256	(N/A)	0.1	0.3	127.82
River birch	1,172	32	(N/A)	0.1	0.0	15.88
Lilac	69	2	(N/A)	0.1	0.0	1.86
Scotch pine	596	16	(N/A)	0.1	0.0	16.14
Common chokecherry	69	2	(N/A)	0.1	0.0	1.86
Willow	3,764	102	(N/A)	0.1	0.1	102.01
Boxelder	2,233	61	(N/A)	0.1	0.1	60.52
American sycamore	5,491	149	(N/A)	0.1	0.2	148.79
Mountain ash	264	7	(N/A)	0.1	0.0	7.17
Southern magnolia	56	2	(N/A)	0.1	0.0	1.53
Japanese tree lilac	69	2	(N/A)	0.1	0.0	1.86
Citywide total	2,820,618	76,439	(N/A)	100.0	100.0	56.83

Table 3: Annual Air Quality Benefits

Forest City

Annual Air Quality Benefits of Public Trees

5/6/2022

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							
Ash	117.0	20.2	58.3	5.2	634	342.8	49.7	47.3	322.6	2,128	-28.0	-105	935.1	2,658 (N/A)	23.0	8.57
Norway maple	62.8	10.8	31.5	2.8	341	193.7	28.1	26.8	182.6	1,203	-15.2	-57	524.1	1,488 (N/A)	13.5	8.18
Bur oak	75.3	12.0	35.2	3.4	399	226.5	33.0	31.4	214.6	1,410	0.0	0	631.5	1,809 (N/A)	11.2	11.98
Silver maple	57.3	9.7	29.2	2.5	312	146.8	21.5	20.5	140.8	918	-31.4	-118	396.9	1,112 (N/A)	9.1	9.12
Spruce	6.0	1.2	5.6	0.7	42	24.8	3.6	3.4	23.5	155	-21.4	-80	47.6	116 (N/A)	7.6	1.14
Blue spruce	10.4	2.1	9.1	1.3	70	34.6	5.1	4.8	33.2	217	-31.0	-116	69.5	170 (N/A)	5.9	2.15
Sugar maple	24.1	4.1	12.1	1.1	131	83.1	12.1	11.6	79.2	519	-19.0	-71	208.4	578 (N/A)	4.9	8.76
Apple	5.3	0.9	2.6	0.2	28	24.6	3.5	3.4	22.8	152	0.0	0	63.2	180 (N/A)	3.6	3.75
Northern white cedar	5.3	1.0	4.4	0.6	35	13.3	1.9	1.9	12.7	83	-22.6	-85	18.6	33 (N/A)	2.7	0.93
Cottonwood	16.4	2.6	7.6	0.7	87	45.6	6.6	6.3	43.2	284	0.0	0	129.1	370 (N/A)	2.1	13.23
American basswood	7.4	1.3	3.7	0.3	40	27.8	4.0	3.8	26.0	172	-6.4	-24	67.8	188 (N/A)	2.0	6.96
Northern red oak	10.4	1.8	5.0	0.5	56	20.4	3.0	2.8	19.2	127	-15.0	-56	48.0	126 (N/A)	1.9	4.85
Black walnut	9.6	1.5	4.6	0.4	51	35.8	5.2	5.0	34.0	223	0.0	0	96.1	274 (N/A)	1.9	10.54
Honeylocust	14.3	2.4	6.6	0.7	76	36.6	5.4	5.1	35.2	229	-10.6	-40	95.6	265 (N/A)	1.9	10.60
Eastern red cedar	5.8	1.2	4.6	0.7	38	9.3	1.3	1.3	8.6	57	-15.4	-58	17.4	37 (N/A)	1.3	2.08
Red maple	2.6	0.4	1.3	0.1	14	8.9	1.3	1.2	8.4	55	-0.9	-4	23.4	66 (N/A)	1.0	4.71
Littleleaf linden	1.0	0.2	0.6	0.0	6	6.0	0.9	0.8	5.7	37	-0.6	-2	14.7	41 (N/A)	0.8	3.74
Norway spruce	2.2	0.4	1.8	0.3	14	6.2	0.9	0.9	6.0	39	-7.7	-29	10.9	24 (N/A)	0.8	2.20
Amur maple	0.1	0.0	0.1	0.0	0	1.1	0.1	0.1	0.9	6	0.0	0	2.4	7 (N/A)	0.5	0.97
Broadleaf Deciduous Small	0.3	0.0	0.1	0.0	1	1.5	0.2	0.2	1.4	9	0.0	0	3.8	11 (N/A)	0.4	1.79
Birch	0.7	0.1	0.4	0.0	4	4.3	0.6	0.6	4.0	27	-0.2	-1	10.6	30 (N/A)	0.4	4.95
Buckthorn	0.1	0.0	0.1	0.0	1	1.4	0.2	0.2	1.2	8	0.0	0	3.2	9 (N/A)	0.4	1.53
Hickory	1.3	0.2	0.7	0.1	7	7.2	1.1	1.0	6.9	45	0.0	0	18.4	52 (N/A)	0.4	8.70
Paper birch	0.3	0.0	0.2	0.0	2	3.5	0.5	0.5	3.4	22	0.0	0	8.5	24 (N/A)	0.4	4.76
White mulberry	1.1	0.2	0.5	0.0	6	2.9	0.4	0.4	2.6	18	0.0	0	8.1	23 (N/A)	0.2	7.75
Northern hackberry	0.6	0.1	0.3	0.0	3	4.0	0.6	0.6	3.8	25	0.0	0	10.0	28 (N/A)	0.2	9.39
Elm	1.3	0.2	0.6	0.1	7	3.2	0.5	0.4	3.0	20	0.0	0	9.2	26 (N/A)	0.1	13.23
Red pine	0.1	0.0	0.1	0.0	0	0.4	0.1	0.1	0.4	2	-0.2	-1	0.8	2 (N/A)	0.1	1.02
Conifer Evergreen Medium	0.4	0.1	0.3	0.0	3	1.2	0.2	0.2	1.1	7	-1.1	-4	2.4	6 (N/A)	0.1	2.89
Basswood	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)	0.1	8.38
Catalpa	1.3	0.2	0.6	0.1	7	3.4	0.5	0.5	3.2	21	0.0	0	9.8	28 (N/A)	0.1	14.09
River birch	0.1	0.0	0.1	0.0	1	1.0	0.1	0.1	1.0	6	0.0	0	2.5	7 (N/A)	0.1	3.47
Lilac	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
Scotch pine	0.1	0.0	0.1	0.0	0	0.3	0.0	0.0	0.3	2	-0.2	-1	0.6	1 (N/A)	0.1	1.48
Common chokecherry	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
Willow	0.9	0.1	0.4	0.0	5	1.6	0.2	0.2	1.5	10	-0.2	-1	4.7	14 (N/A)	0.1	13.58
Boxelder	0.3	0.0	0.1	0.0	1	1.0	0.2	0.1	1.0	7	-0.1	0	2.7	8 (N/A)	0.1	7.54
American sycamore	0.8	0.1	0.4	0.0	4	1.9	0.3	0.3	1.8	12	0.0	0	5.5	16 (N/A)	0.1	15.71
Mountain ash	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.3	2	0.0	0	0.9	3 (N/A)	0.1	2.55
Southern magnolia	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	0	0.0	0	0.2	0 (N/A)	0.1	0.47
Japanese tree lilac	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
Citywide total	443.0	75.4	229.1	22.1	2,428	1,329.8	193.4	184.3	1,258.9	8,275	-227.4	-853	3,508.6	9,850 (N/A)	100.0	7.32

Table 4: Annual Carbon Stored

Forest City

Stored CO2 Benefits of Public Trees

5/6/2022

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Ash	1,930,373	14,478	(N/A)	23.0	20.4	46.70
Norway maple	1,038,425	7,788	(N/A)	13.5	11.0	42.79
Bur oak	2,466,125	18,496	(N/A)	11.2	26.1	122.49
Silver maple	1,237,250	9,279	(N/A)	9.1	13.1	76.06
Spruce	41,776	313	(N/A)	7.6	0.4	3.07
Blue spruce	57,570	432	(N/A)	5.9	0.6	5.47
Sugar maple	687,668	5,158	(N/A)	4.9	7.3	78.14
Apple	83,161	624	(N/A)	3.6	0.9	12.99
Northern white cedar	53,655	402	(N/A)	2.7	0.6	11.18
Cottonwood	534,920	4,012	(N/A)	2.1	5.7	143.28
American basswood	265,820	1,994	(N/A)	2.0	2.8	73.84
Northern red oak	233,491	1,751	(N/A)	1.9	2.5	67.35
Black walnut	312,232	2,342	(N/A)	1.9	3.3	90.07
Honeylocust	180,811	1,356	(N/A)	1.9	1.9	54.24
Eastern red cedar	18,778	141	(N/A)	1.3	0.2	7.82
Red maple	30,415	228	(N/A)	1.0	0.3	16.29
Littleleaf linden	24,325	182	(N/A)	0.8	0.3	16.59
Norway spruce	17,563	132	(N/A)	0.8	0.2	11.97
Amur maple	1,975	15	(N/A)	0.5	0.0	2.12
Broadleaf Deciduous	4,328	32	(N/A)	0.4	0.0	5.41
Birch	11,651	87	(N/A)	0.4	0.1	14.56
Buckthorn	3,093	23	(N/A)	0.4	0.0	3.87
Hickory	41,174	309	(N/A)	0.4	0.4	51.47
Paper birch	10,447	78	(N/A)	0.4	0.1	15.67
White mulberry	16,523	124	(N/A)	0.2	0.2	41.31
Northern hackberry	7,501	56	(N/A)	0.2	0.1	18.75
Elm	42,930	322	(N/A)	0.1	0.5	160.99
Red pine	295	2	(N/A)	0.1	0.0	1.11
Conifer Evergreen Me	2,236	17	(N/A)	0.1	0.0	8.39
Basswood	12,130	91	(N/A)	0.1	0.1	45.49
Catalpa	41,716	313	(N/A)	0.1	0.4	156.43
River birch	2,201	17	(N/A)	0.1	0.0	8.26
Lilac	178	1	(N/A)	0.1	0.0	1.33
Scotch pine	257	2	(N/A)	0.1	0.0	1.93
Common chokecherry	178	1	(N/A)	0.1	0.0	1.33
Willow	14,280	107	(N/A)	0.1	0.2	107.10
Boxelder	7,945	60	(N/A)	0.1	0.1	59.59
American sycamore	25,943	195	(N/A)	0.1	0.3	194.57
Mountain ash	908	7	(N/A)	0.1	0.0	6.81
Southern magnolia	3	0	(N/A)	0.1	0.0	0.02
Japanese tree lilac	178	1	(N/A)	0.1	0.0	1.33
Citywide total	9,462,429	70,968	(N/A)	100.0	100.0	52.76

Table 5: Annual Carbon Sequestered

Forest City

Annual CO Benefits of Public Trees

5/6/2022

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
Ash	104,098	781	-9,269	-717	-75	119,255	894	213,367	1,600 (N/A)	23.0	21.9	5.16
Norway maple	62,347	468	-4,987	-397	-40	67,500	506	124,463	933 (N/A)	13.5	12.8	5.13
Bur oak	112,918	847	-11,837	-503	-93	79,440	596	180,018	1,350 (N/A)	11.2	18.5	8.94
Silver maple	109,538	822	-5,941	-322	-47	52,175	391	155,450	1,166 (N/A)	9.1	16.0	9.56
Spruce	4,825	36	-201	-97	-2	8,707	65	13,234	99 (N/A)	7.6	1.4	0.97
Blue spruce	5,083	38	-276	-121	-3	12,292	92	16,977	127 (N/A)	5.9	1.7	1.61
Sugar maple	37,997	285	-3,302	-187	-26	29,325	220	63,834	479 (N/A)	4.9	6.6	7.25
Apple	7,396	55	-399	-65	-3	8,455	63	15,386	115 (N/A)	3.6	1.6	2.40
Northern white cedar	3,133	23	-258	-53	-2	4,713	35	7,535	57 (N/A)	2.7	0.8	1.57
Cottonwood	23,209	174	-2,568	-102	-20	15,981	120	36,521	274 (N/A)	2.1	3.8	9.78
American basswood	16,457	123	-1,276	-66	-10	9,599	72	24,713	185 (N/A)	2.0	2.5	6.86
Northern red oak	2,372	18	-1,121	-58	-9	7,122	53	8,315	62 (N/A)	1.9	0.9	2.40
Black walnut	17,545	132	-1,499	-76	-12	12,583	94	28,553	214 (N/A)	1.9	2.9	8.24
Honeylocust	23,835	179	-868	-61	-7	13,039	98	35,945	270 (N/A)	1.9	3.7	10.78
Eastern red cedar	99	1	-90	-34	-1	3,203	24	3,178	24 (N/A)	1.3	0.3	1.32
Red maple	3,000	23	-146	-18	-1	3,117	23	5,953	45 (N/A)	1.0	0.6	3.19
Littleleaf linden	3,526	26	-117	-15	-1	2,106	16	5,499	41 (N/A)	0.8	0.6	3.75
Norway spruce	1,361	10	-84	-22	-1	2,227	17	3,481	26 (N/A)	0.8	0.4	2.37
Amur maple	342	3	-9	-5	0	347	3	675	5 (N/A)	0.5	0.1	0.72
Broadleaf Deciduous Smal	475	4	-21	-5	0	518	4	967	7 (N/A)	0.4	0.1	1.21
Birch	1,668	13	-56	-9	0	1,493	11	3,097	23 (N/A)	0.4	0.3	3.87
Buckthorn	426	3	-15	-5	0	452	3	859	6 (N/A)	0.4	0.1	1.07
Hickory	3,529	26	-198	-15	-2	2,551	19	5,868	44 (N/A)	0.4	0.6	7.34
Paper birch	1,517	11	-50	-7	0	1,262	9	2,721	20 (N/A)	0.4	0.3	4.08
White mulberry	1,225	9	-79	-7	-1	978	7	2,116	16 (N/A)	0.2	0.2	5.29
Northern hackberry	753	6	-36	-7	0	1,407	11	2,117	16 (N/A)	0.2	0.2	5.29
Elm	1,357	10	-206	-7	-2	1,127	8	2,272	17 (N/A)	0.1	0.2	8.52
Red pine	71	1	-1	-2	0	132	1	200	1 (N/A)	0.1	0.0	0.75
Conifer Evergreen Mediun	181	1	-11	-4	0	426	3	592	4 (N/A)	0.1	0.1	2.22
Basswood	1,105	8	-58	-5	0	834	6	1,876	14 (N/A)	0.1	0.2	7.04
Catalpa	1,816	14	-200	-8	-2	1,202	9	2,811	21 (N/A)	0.1	0.3	10.54
River birch	448	3	-11	-2	0	352	3	787	6 (N/A)	0.1	0.1	2.95
Lilac	38	0	-1	-1	0	37	0	74	1 (N/A)	0.1	0.0	0.55
Scotch pine	53	0	-1	-1	0	94	1	145	1 (N/A)	0.1	0.0	1.08
Common chokecherry	38	0	-1	-1	0	37	0	74	1 (N/A)	0.1	0.0	0.55
Willow	0	0	-69	-4	-1	539	4	466	3 (N/A)	0.1	0.0	3.49
Boxelder	694	5	-38	-3	0	366	3	1,020	8 (N/A)	0.1	0.1	7.65
American sycamore	960	7	-125	-4	-1	650	5	1,481	11 (N/A)	0.1	0.2	11.11
Mountain ash	114	1	-4	-1	0	124	1	232	2 (N/A)	0.1	0.0	1.74
Southern magnolia	1	0	0	0	0	26	0	27	0 (N/A)	0.1	0.0	0.20
Japanese tree lilac	38	0	-1	-1	0	37	0	74	1 (N/A)	0.1	0.0	0.55
Citywide total	555,589	4,167	-45,431	-3,018	-363	465,831	3,494	972,971	7,297 (N/A)	100.0	100.0	5.43

Table 6: Annual Social and Aesthetic Benefits

Forest City

Annual Aesthetic/Other Benefits of Public Trees

5/6/2022

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Ash	10,184	(N/A)	23.0	18.1	32.85
Norway maple	6,128	(N/A)	13.5	10.9	33.67
Bur oak	8,842	(N/A)	11.2	15.8	58.55
Silver maple	9,443	(N/A)	9.1	16.8	77.40
Spruce	1,526	(N/A)	7.6	2.7	14.96
Blue spruce	1,755	(N/A)	5.9	3.1	22.22
Sugar maple	4,005	(N/A)	4.9	7.1	60.68
Apple	422	(N/A)	3.6	0.8	8.79
Northern white cedar	739	(N/A)	2.7	1.3	20.53
Cottonwood	1,742	(N/A)	2.1	3.1	62.23
American basswood	1,256	(N/A)	2.0	2.2	46.54
Northern red oak	179	(N/A)	1.9	0.3	6.89
Black walnut	1,468	(N/A)	1.9	2.6	56.45
Honeylocust	5,613	(N/A)	1.9	10.0	224.52
Eastern red cedar	41	(N/A)	1.3	0.1	2.27
Red maple	442	(N/A)	1.0	0.8	31.55
Littleleaf linden	416	(N/A)	0.8	0.7	37.82
Norway spruce	366	(N/A)	0.8	0.7	33.27
Amur maple	19	(N/A)	0.5	0.0	2.68
Broadleaf Deciduous Small	26	(N/A)	0.4	0.0	4.34
Birch	183	(N/A)	0.4	0.3	30.53
Buckthorn	23	(N/A)	0.4	0.0	3.89
Hickory	322	(N/A)	0.4	0.6	53.74
Paper birch	177	(N/A)	0.4	0.3	35.48
White mulberry	73	(N/A)	0.2	0.1	24.36
Northern hackberry	131	(N/A)	0.2	0.2	43.80
Elm	104	(N/A)	0.1	0.2	52.10
Red pine	22	(N/A)	0.1	0.0	11.13
Conifer Evergreen Medium	50	(N/A)	0.1	0.1	25.23
Basswood	104	(N/A)	0.1	0.2	51.77
Catalpa	132	(N/A)	0.1	0.2	66.10
River birch	52	(N/A)	0.1	0.1	26.22
Lilac	2	(N/A)	0.1	0.0	2.06
Scotch pine	15	(N/A)	0.1	0.0	15.42
Common chokecherry	2	(N/A)	0.1	0.0	2.06
Willow	0	(N/A)	0.1	0.0	0.00
Boxelder	52	(N/A)	0.1	0.1	51.63
American sycamore	67	(N/A)	0.1	0.1	66.60
Mountain ash	6	(N/A)	0.1	0.0	6.40
Southern magnolia	0	(N/A)	0.1	0.0	0.01
Japanese tree lilac	2	(N/A)	0.1	0.0	2.06
Citywide total	56,135	(N/A)	100.0	100.0	41.74

Table 7: Summary of Benefits in Dollars

Forest City

Total Annual Benefits of Public Trees by Species ($)

5/6/2022

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Ash	15,229	1,600	2,658	16,360	10,184	46,031	(N/A)	22.1
Norway maple	8,587	933	1,488	8,967	6,128	26,104	(N/A)	12.5
Bur oak	9,990	1,350	1,809	15,548	8,842	37,539	(N/A)	18.0
Silver maple	6,385	1,166	1,112	10,361	9,443	28,467	(N/A)	13.7
Spruce	1,101	99	116	1,668	1,526	4,511	(N/A)	2.2
Blue spruce	1,513	127	170	2,429	1,755	5,994	(N/A)	2.9
Sugar maple	3,646	479	578	5,061	4,005	13,769	(N/A)	6.6
Apple	1,113	115	180	516	422	2,346	(N/A)	1.1
Northern white cedar	585	57	33	1,303	739	2,717	(N/A)	1.3
Cottonwood	2,014	274	370	3,284	1,742	7,684	(N/A)	3.7
American basswood	1,251	185	188	1,574	1,256	4,455	(N/A)	2.1
Northern red oak	909	62	126	1,287	179	2,564	(N/A)	1.2
Black walnut	1,570	214	274	2,168	1,468	5,694	(N/A)	2.7
Honeylocust	1,584	270	265	2,037	5,613	9,768	(N/A)	4.7
Eastern red cedar	421	24	37	758	41	1,281	(N/A)	0.6
Red maple	391	45	66	355	442	1,299	(N/A)	0.6
Littleleaf linden	264	41	41	232	416	994	(N/A)	0.5
Norway spruce	263	26	24	524	366	1,204	(N/A)	0.6
Amur maple	51	5	7	18	19	100	(N/A)	0.0
Broadleaf Deciduous Sn	69	7	11	29	26	142	(N/A)	0.1
Birch	191	23	30	140	183	567	(N/A)	0.3
Buckthorn	66	6	9	25	23	131	(N/A)	0.1
Hickory	318	44	52	360	322	1,097	(N/A)	0.5
Paper birch	150	20	24	129	177	501	(N/A)	0.2
White mulberry	130	16	23	82	73	324	(N/A)	0.2
Northern hackberry	173	16	28	143	131	492	(N/A)	0.2
Elm	135	17	26	236	104	519	(N/A)	0.2
Red pine	19	1	2	22	22	67	(N/A)	0.0
Conifer Evergreen Medi	49	4	6	84	50	193	(N/A)	0.1
Basswood	102	14	17	110	104	346	(N/A)	0.2
Catalpa	153	21	28	256	132	590	(N/A)	0.3
River birch	49	6	7	32	52	146	(N/A)	0.1
Lilac	5	1	1	2	2	11	(N/A)	0.0
Scotch pine	14	1	1	16	15	48	(N/A)	0.0
Common chokecherry	5	1	1	2	2	11	(N/A)	0.0
Willow	71	3	14	102	0	190	(N/A)	0.1
Boxelder	47	8	8	61	52	174	(N/A)	0.1
American sycamore	82	11	16	149	67	324	(N/A)	0.2
Mountain ash	18	2	3	7	6	36	(N/A)	0.0
Southern magnolia	4	0	0	2	0	6	(N/A)	0.0
Japanese tree lilac	5	1	1	2	2	11	(N/A)	0.0
Citywide Total	58,723	7,297	9,850	76,439	56,135	208,444	(N/A)	100.0

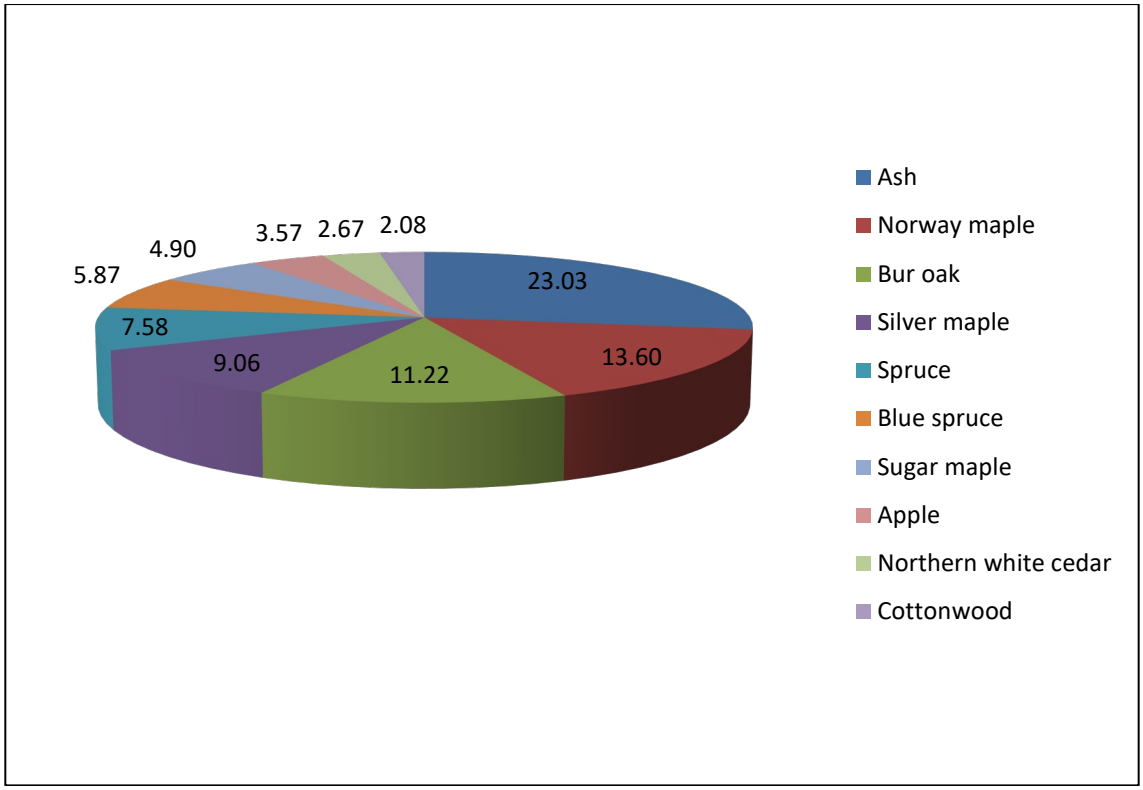

Figure 1: Species Distribution

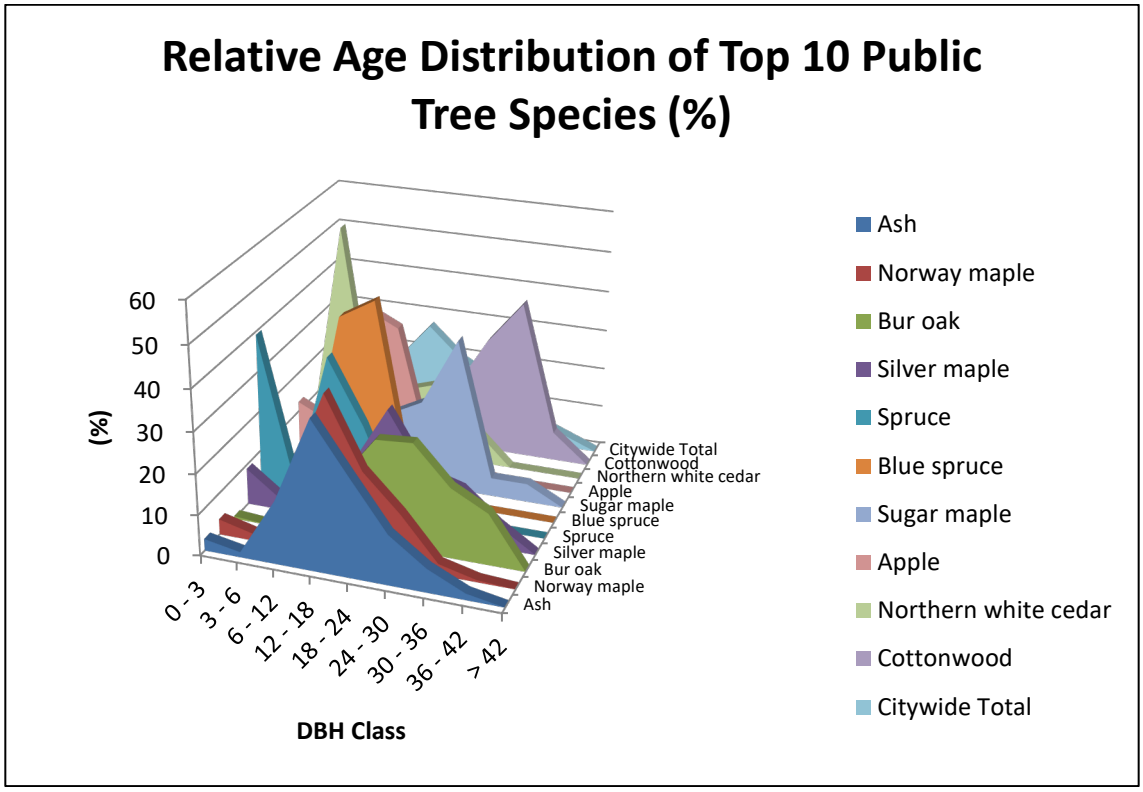

Figure 2: Relative Age Class

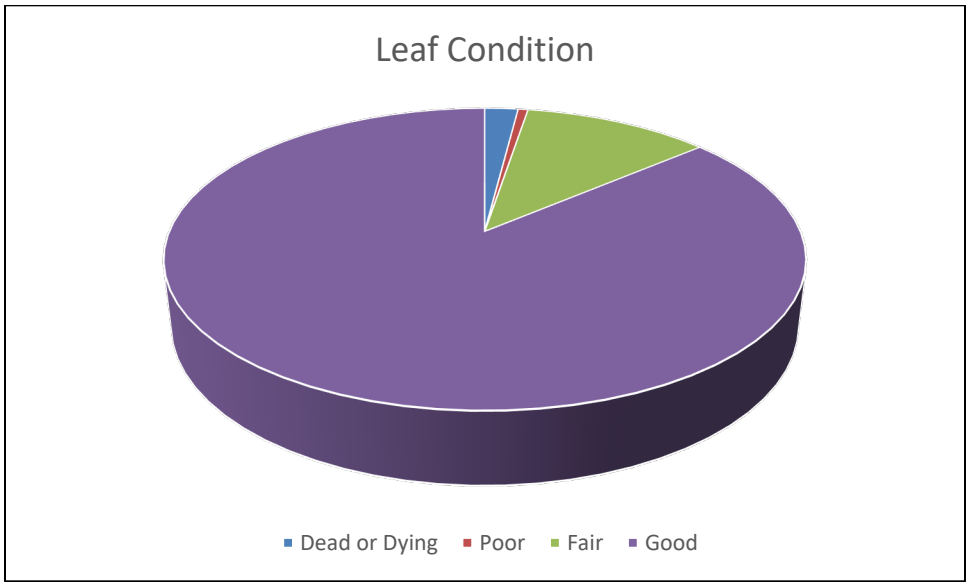

Figure 3: Foliage Condition

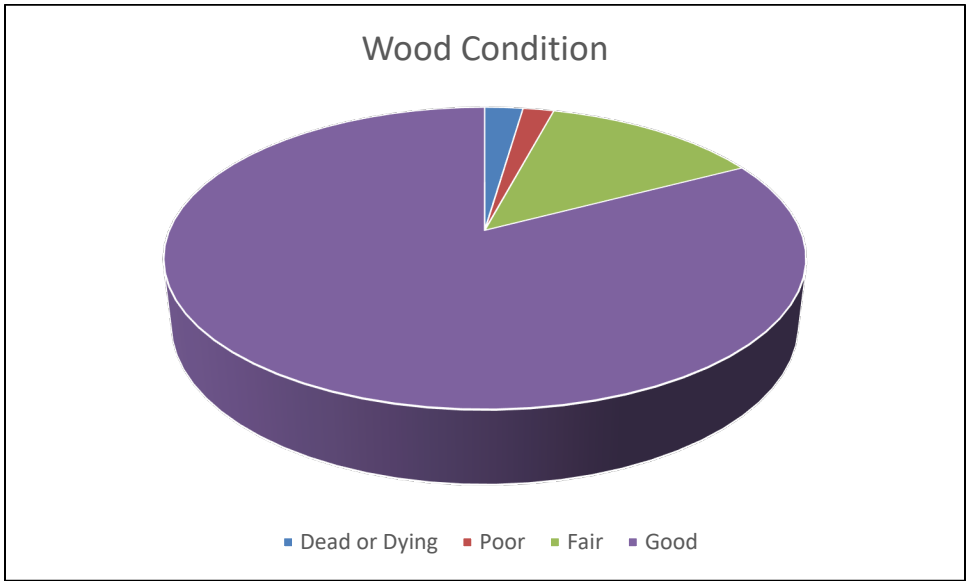

Figure 4: Wood Condition

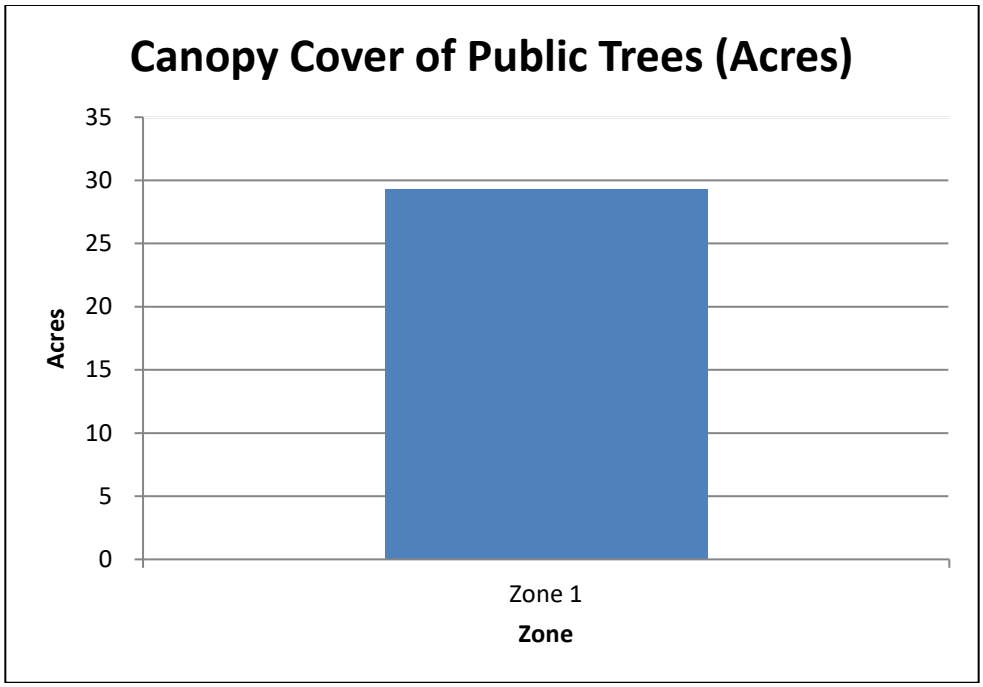

Figure 5: Canopy Cover in Acres

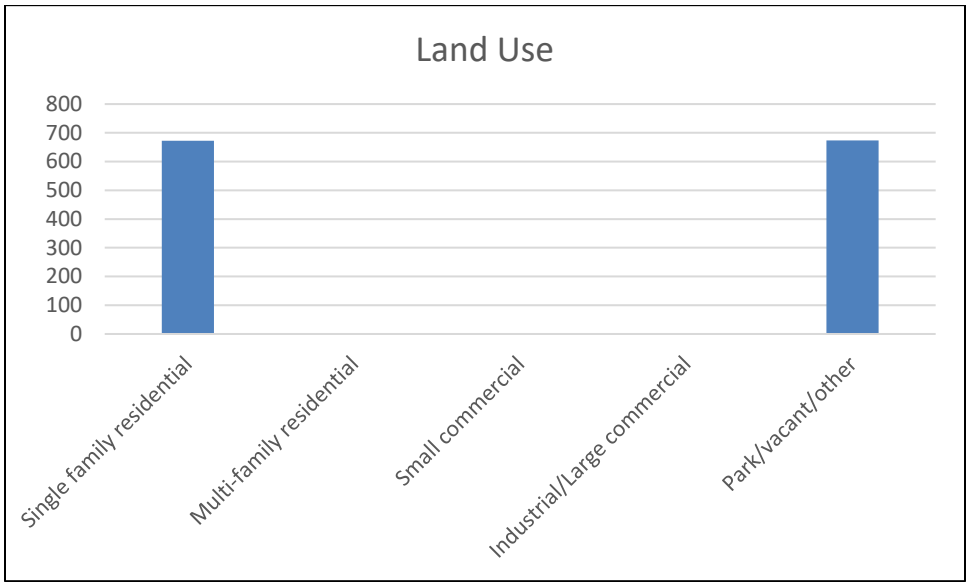

Figure 6: Land Use of city/park trees

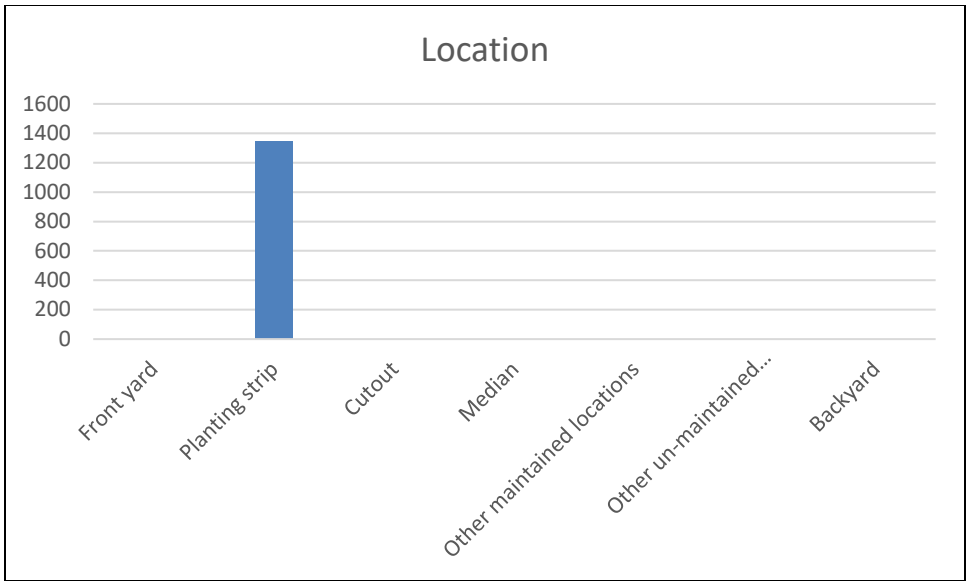

Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

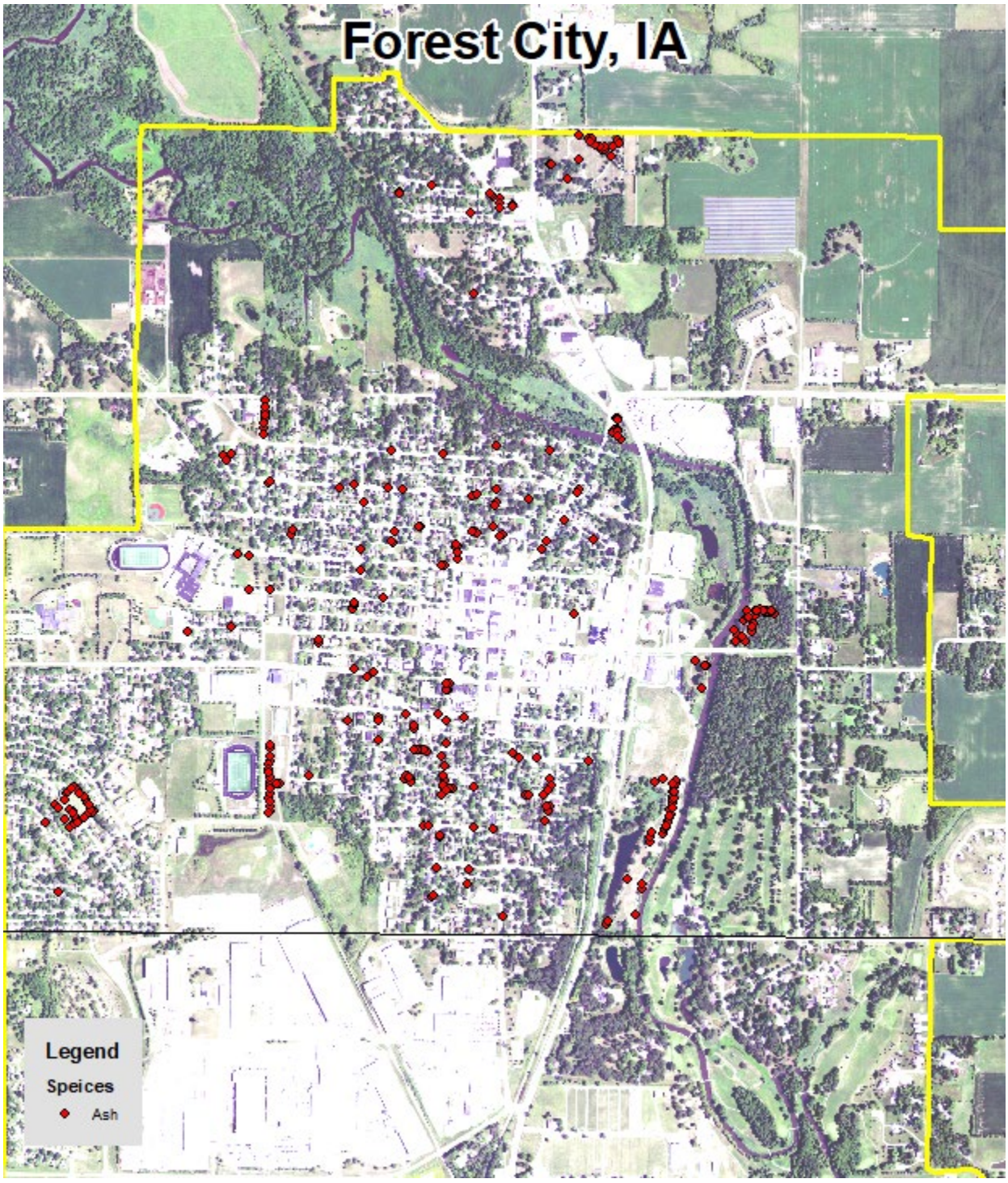

Figure 1: Location of Ash Trees

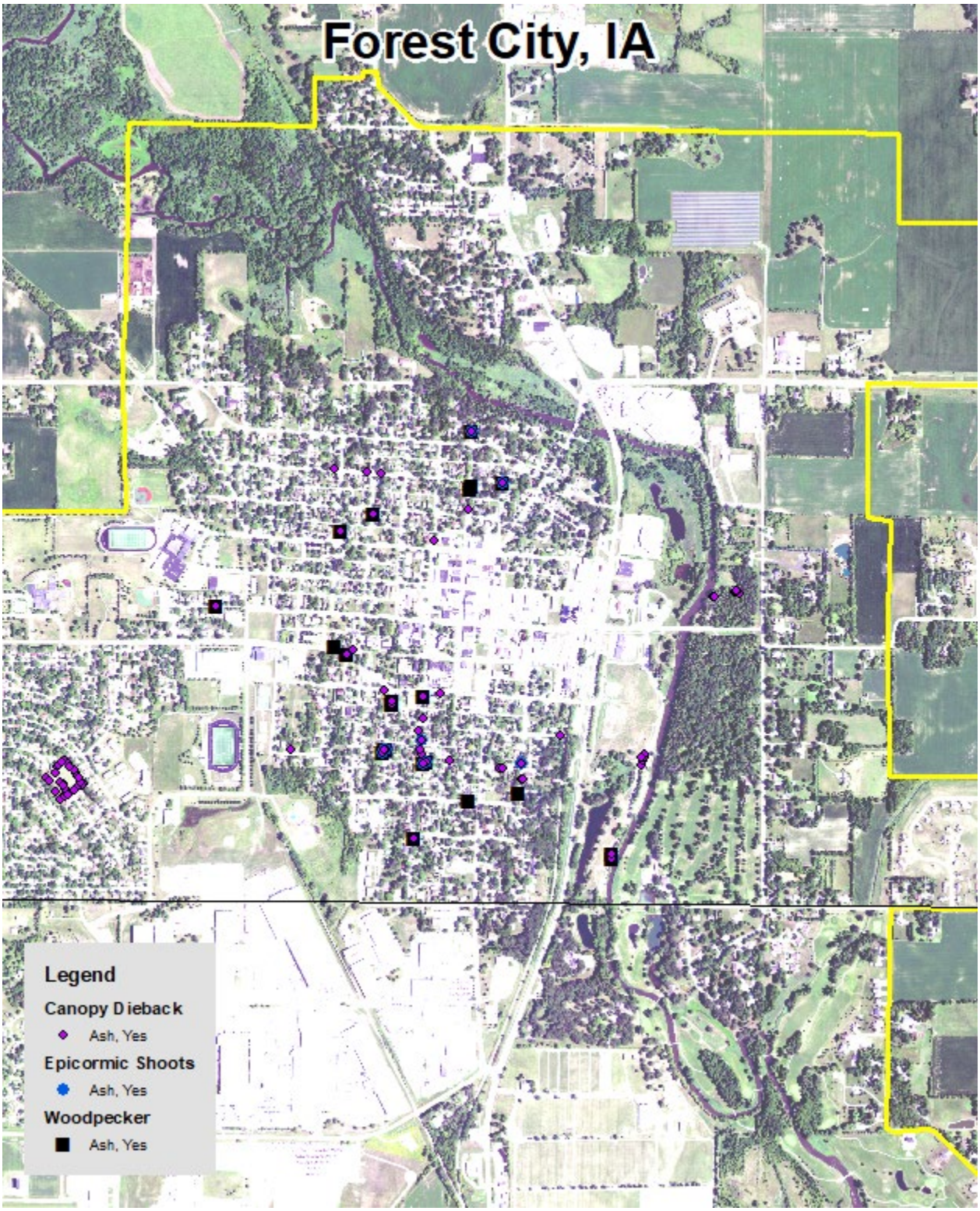

Figure 2: Location of EAB symptoms

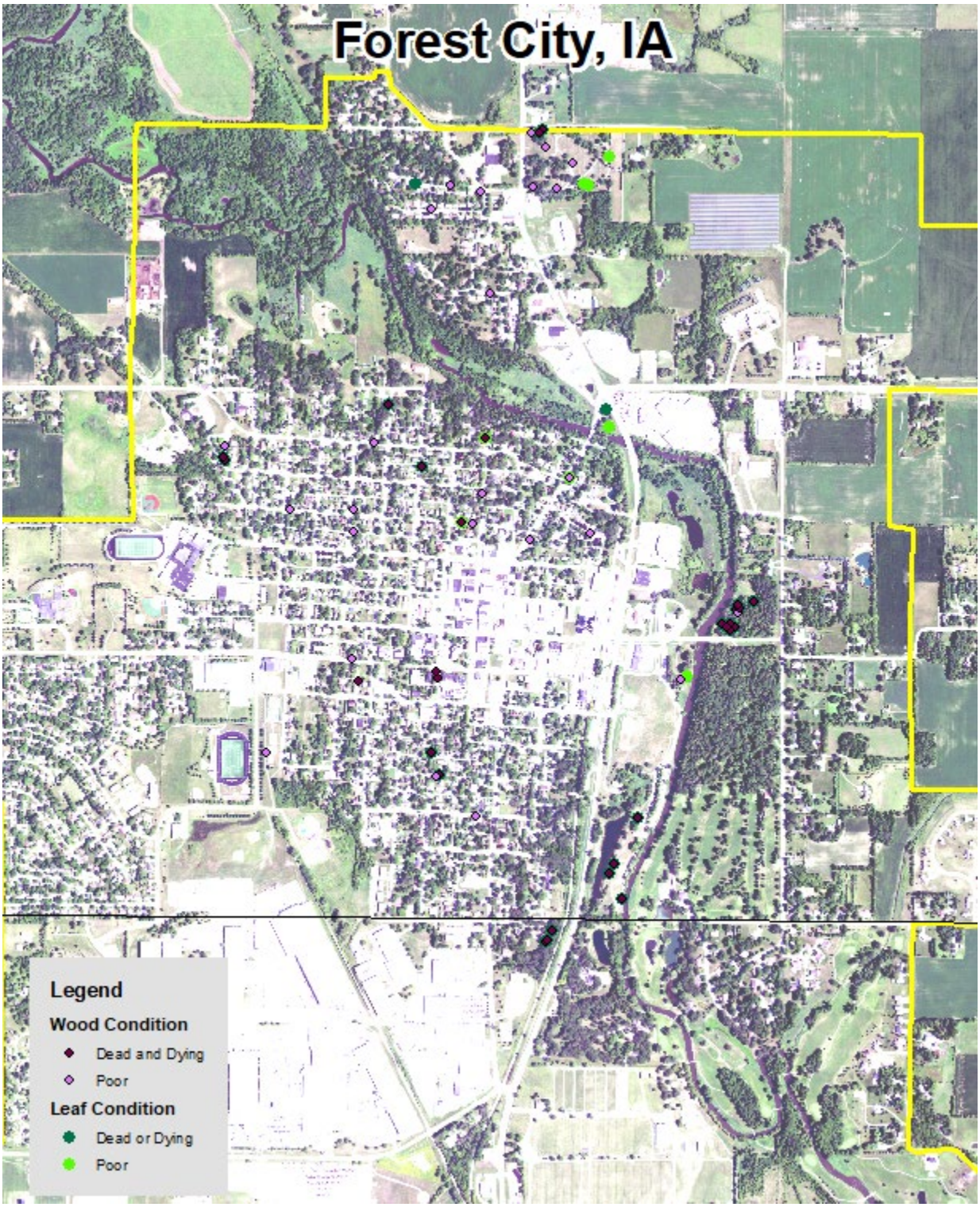

Figure 3: Location of Poor Condition Trees

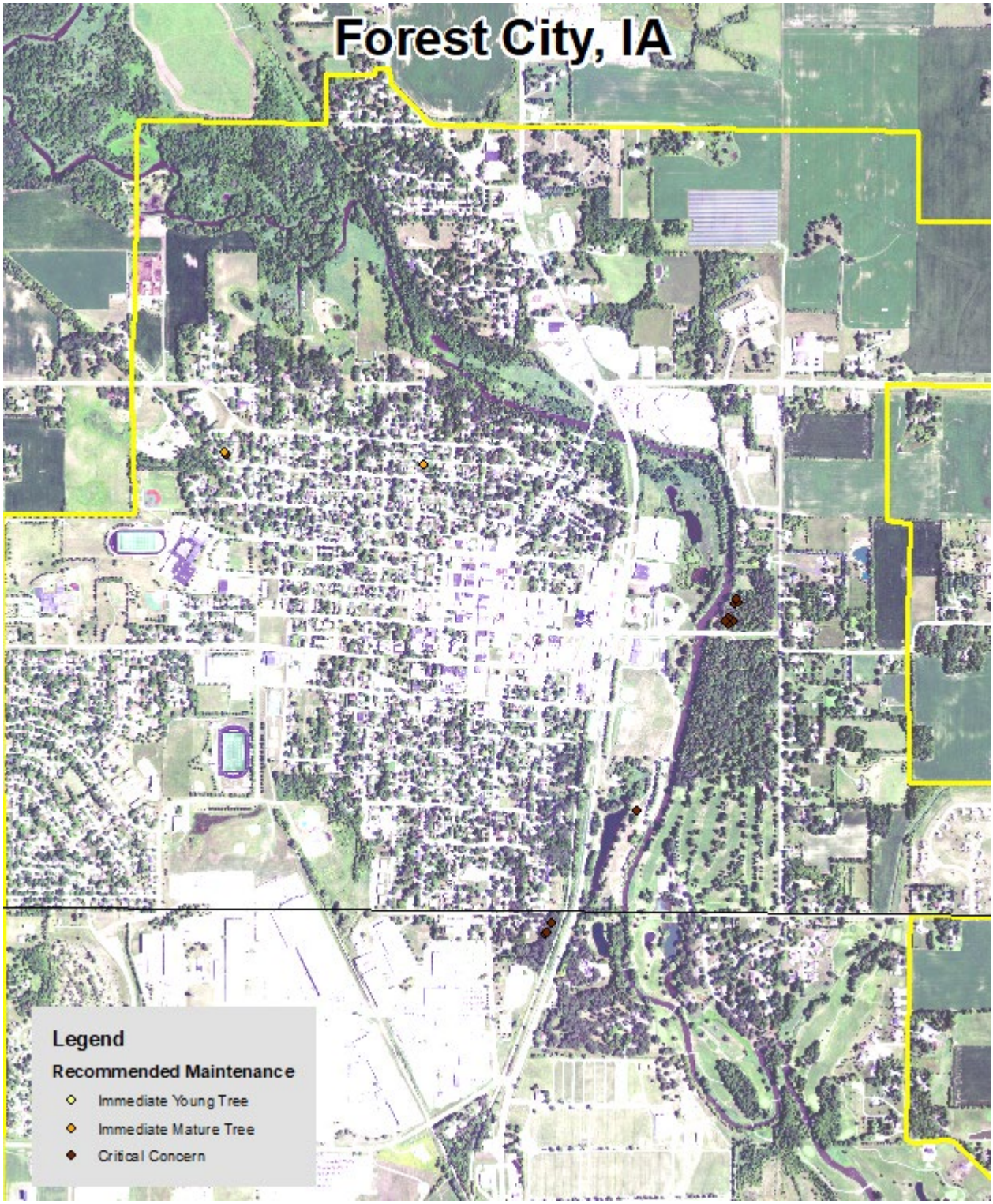

Figure 4: Location of Trees with Recommended Maintenance

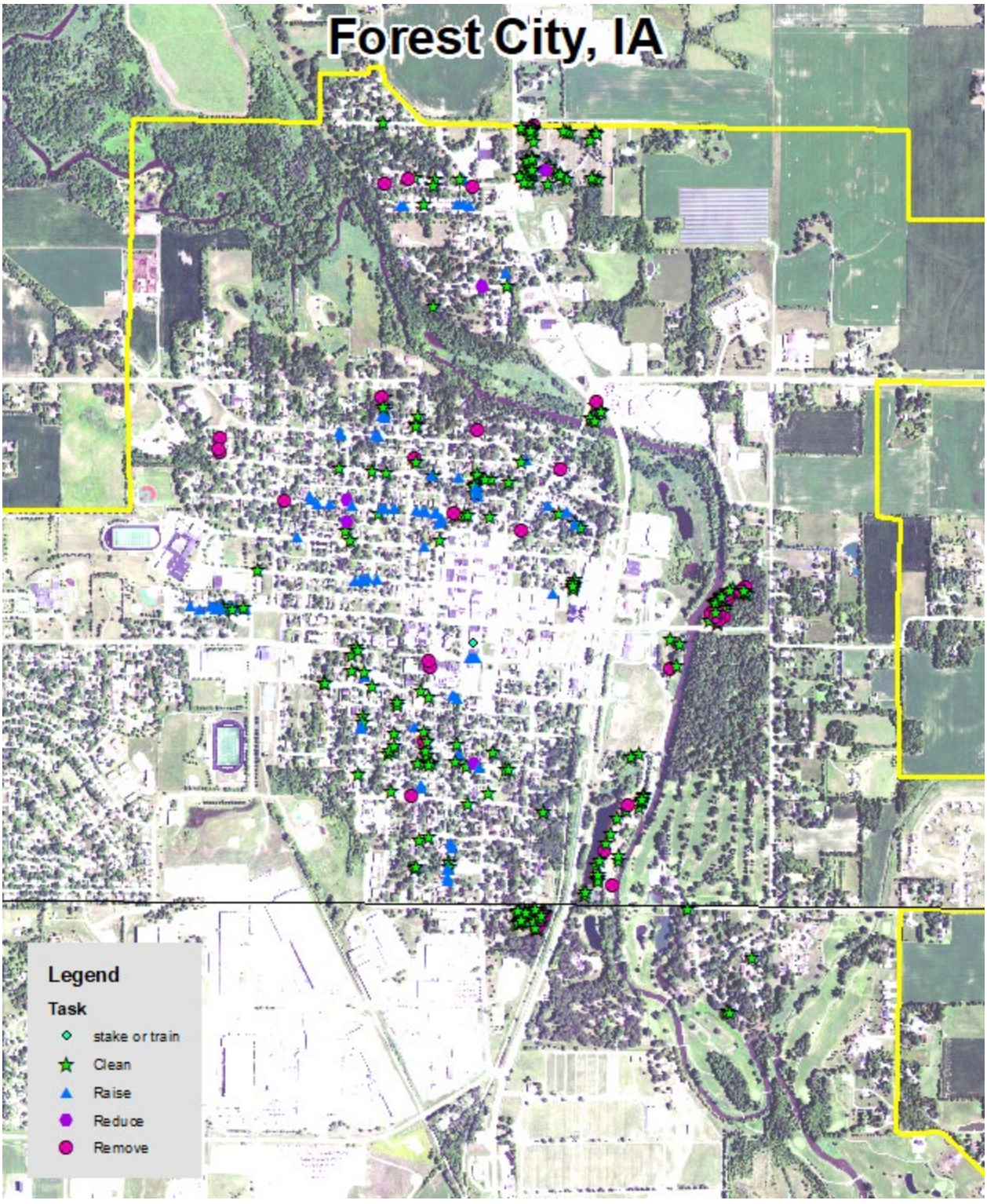

Figure 5: Maintenance Tasks ***City ownership of the trees recommended for removal should be verified prior to any removal***

Appendix C: Forest City 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 right-of-way or parking except in accordance with the following:

1. Alignment. All trees planted in any right-of-way shall be planted in the parking midway between the outer line of the sidewalk and the curb. In the event a curb line is not established, trees shall be planted on a line ten (10) feet from the property line.
2. Spacing. Trees shall not be planted on any parking which is less than nine (9) feet in width, or contains less than eighty-one (81) square feet of exposed soil surface per tree. Trees shall not be planted closer than twenty (20) feet from street intersections (property lines extended) and ten (10) feet from driveways. If it is at all possible trees should be planted inside the property lines and not between the sidewalk and the curb.
3. Prohibited Trees. No person shall plant in any right-of-way any fruit-bearing tree, flowering tree, small ornamental tree or any tree of the kinds commonly known as cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut.
4. Supports. Trees may be guyed or supported in an upright position according to accepted arboricultural practices. The guys or supports shall be fastened in such a way that they will not girdle or cause serious injury to the trees or endanger public safety.
5. Easements. Trees shall not be planted on easements.

151.03 DUTY TO TRIM TREES.
The owner or agent of the abutting property shall keep the trees on or overhanging the sidewalks trimmed so that all branches will be at least nine (9) 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 (5) days. If such action is not taken within that time, the City may perform the required action and assess the costs against the abutting property for collection in the same manner as a property tax.

(Code of Iowa, Sec. 364.12[2c, d & e])

151.04 TREES OVERHANGING RIGHT-OF-WAY.
No unauthorized person shall trim or cut any tree overhanging the traveled portion of the roadway. Trimming of trees overhanging the right-of-way shall be the responsibility of the City.

151.05 DISEASE CONTROL.
Any dead, diseased or damaged tree or shrub which 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 fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14 days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property.

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

151.07 REMOVAL OF NON-DISEASED TREES.

No abutting property owner shall cut or remove any tree on public property without first securing permission from the Council. If the Council grants permission to remove a tree located on public property, the abutting property owner shall agree in writing that all costs and expenses incident to the tree removal shall be borne by the property owner, unless such removal is determined to be a result of Section 151.06(1) of this chapter.

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.