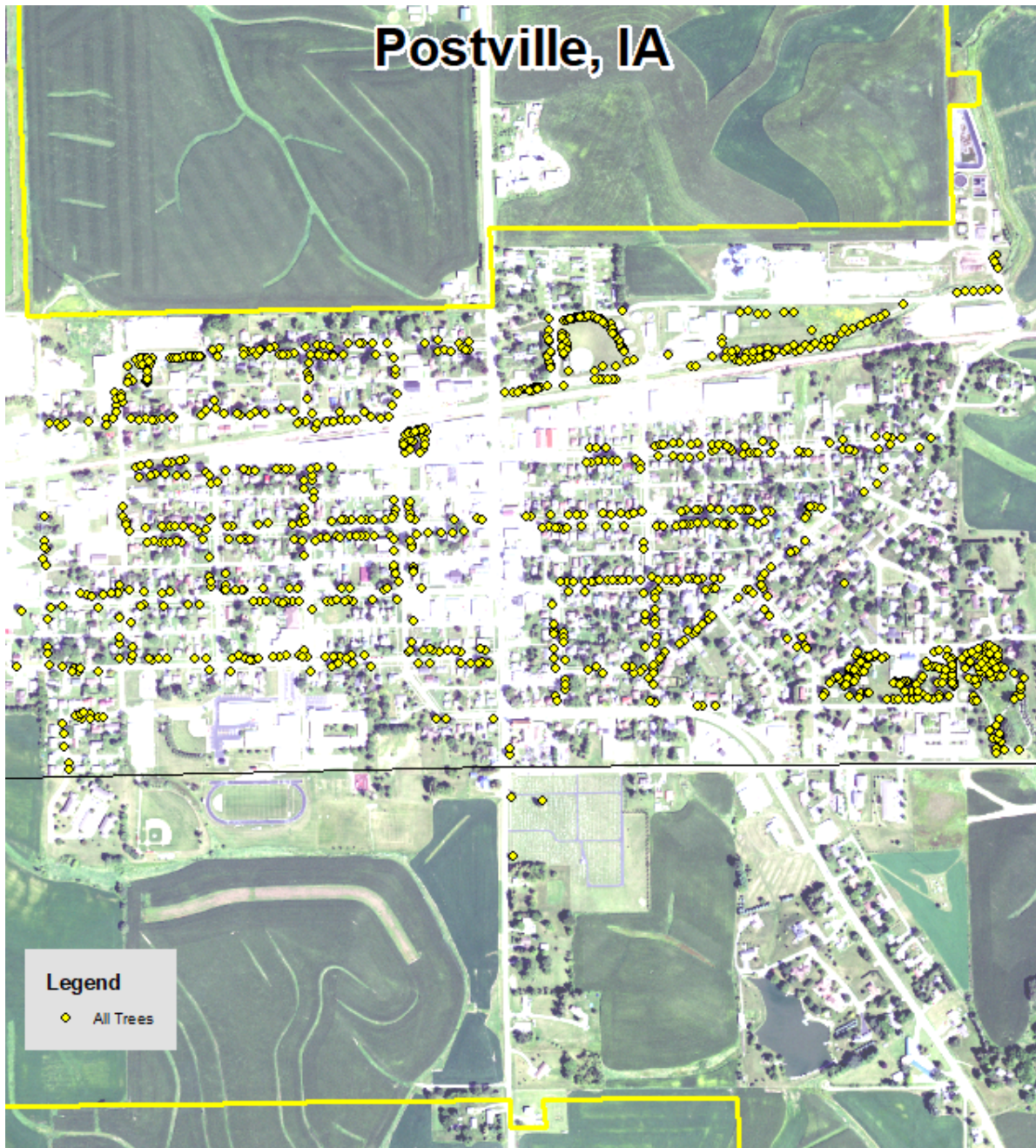


Postville, IA



2022 Urban Forest Management Plan
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Executive Summary

Overview

This plan was developed to assist the City of Postville 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 17% of Postville'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 1082 trees inventoried.

- Postville's trees provide \$143,545 of benefits annually, an average of \$132 a tree
- There are over 28 species of trees
- The top three genera are: Maple 39%, White Cedar 16%, and Ash 11%
- 16% of trees are in need of some type of management
- 107 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 107 trees needing removal, 32 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*
- 92 of the 117 ash trees should be carefully examined, as they have one or more symptoms that could be related to an EAB infestation
- All trees should be pruned on a routine schedule- one third of the city every other year
- Plant a diverse mix of trees that do not include: ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut
- Check ash trees with a visual survey yearly
- With the current budget it could take 43 years to remove ash – Suggestion: request a budget increase to \$10,000 annually and apply for grants to plant replacement trees

Introduction

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

Trees are an important component of Postville'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 Postville 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 Postville'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 1082 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. Postville's trees reduce energy related costs by approximately 40,237 annually (Appendix A, Table 1). These savings are both in Electricity (190.6 MWh) and in Natural Gas (26,292.7 Therms).

Annual Stormwater Benefits

Postville's trees intercept about 1,947,093 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides \$52,766 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 Postville, it is estimated that trees remove 2,353.9 lbs of air pollution (ozone (O₃), particulate matter less than 10 microns (PM10), carbon monoxide (CO), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂)) per year with a net value of \$6,541 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Postville, trees sequester about 665,745 lbs of carbon a year with an associated value of \$4,993 (Appendix A, Table 5). In addition, the trees store 6,593,260 lbs of carbon, with a yearly benefit of \$49,449 (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. Postville receives \$39,008 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, Postville's trees provide \$143,545 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 1082 trees in Postville provide approximately \$133 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Postville has over 28 different tree species along city streets and parks (Appendix A, Figure 1).

The distribution of trees by genera is as follows:

Maple	429	39%
White cedar	151	13%
Ash	117	11%
Oak	77	7%
Spruce	72	6%
Apple (Crab)	58	5%
Deciduous Broadleaf	39	3%
Hackberry	25	2%
Japanese Lilac	15	1%
Linden/Basswood	14	1%
Birch	11	1%
Walnut	11	1%
Lilac	11	1%
Locust	10	<1%
Cottonwood	7	<1%
Mountain Ash	6	<1%
Other Large Evergreen	6	<1%
Pine	5	<1%
Elm	4	<1%
Tulip tree	4	<1%
Dogwood	2	<1%
Kentucky coffee tree	2	<1%
sycamore	1	<1%
willow	1	<1%
mulberry	1	<1%
catalpa	1	<1%
Ginkgo	1	<1%
red cedar	1	<1%

Age Class

Most of Postville's trees (45%) 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. Postville'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 Postville indicate that 92% of the trees are in good health, with only 7% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 91% of Postville’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	42	4%
Crown Raising	3	<1%
Tree Staking	8	<1%
Tree Removal	107	10%
Crown Reduction	0	0%

Canopy Cover

The total canopy with both private and public trees is 7%. The canopy cover on city-owned properties included in the Postville inventory includes approximately 20 acres (Appendix A, Figure 4). The City’s Canopy goal is to increase canopy by 3%, in 30 years on all lands. To achieve this goal it is estimated that 99 trees need to be planted annually on public and/or private lands.

Land Use and Location

The majority of Postville’s city and park trees are in planting strips in single family residential neighborhoods (Appendix A, Figure 6 & Appendix A, Figure7). The following describes the land use and locations for the street and park trees.

<u>Land Use</u>	
Single family residential	57%
Park/vacant/other	0%
Industrial/Large commercial	35%
Small commercial	6%
Multifamily residential	<1%
 <u>Location</u>	
Planting strip	64%
Other maintained locations	0%
Cutout (surrounded by pavement)	0%
Front yard	36%

Changes in Forest Structure Since plan in 2010

Maintenance needs, tree diversity, canopy cover and age class have stayed relatively similar. Removal numbers have increased. Continued planting would be a good thing to replace the aging stand.

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

Postville has 30 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 14 trees over 24 inches in diameter at 4.5 ft that should be addressed immediately. Please refer to the six year maintenance plan at the end of this section. After all of the critical concern trees are addressed, there should be follow up on the trees marked as needing maintenance. There are a total of 56 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 107 removals, 92 are ash trees. There are a total of 117 ash trees, and 92 of those have signs and symptoms that have been associated with EAB. In addition, there are 15 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 Postville.

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 (39%) (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 woodpecker damage.

Budget and Emerald Ash Borer Plan

Six Year Maintenance Plan with No Additional Funding

Current Budget \$4936/year, Total \$29616 over 6 years

FY 2022 - 2027

Removal: 30 critical concern trees and 77 other removals (mostly ash)

Planting and Replacement: as much as possible

Young Tree Pruning & Maintenance: as much as possible

Visual Survey for signs and symptoms of EAB

The budget will need to be increased to accommodate the number of ash that will be needing to be removed in the near future.

Ash Tree Removal

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

Treatment of Ash Trees

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

EAB Quarantines

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

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

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

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

Wood Disposal

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

Canopy Replacement

As budget permits, all removed trees will be replaced. All trees will meet the restrictions in city ordinance 151.02 (Appendix C). The new plantings will be a diverse mix and will not include 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 woodpecker damage.

Private Ash Trees

It is strongly recommended that private property owners start removing ash trees on their property upon arrival of EAB if preventative treatments are not being used. City Code 151.06 states "If it is determined with reasonable certainty that any such condition exists (trees or shrubs in the City reported or suspected to be infected with or damaged by any disease or insect or disease pests) on private property and that the 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.”

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Postville

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
Northern white cedar	5.7	433	981.8	962	1,395	(N/A)	16.1	3.5	8.11
Sugar maple	35.4	2,689	4,706.4	4,612	7,301	(N/A)	12.1	18.1	56.60
Norway maple	28.6	2,173	4,070.2	3,989	6,162	(N/A)	11.6	15.3	49.69
Ash	28.7	2,176	4,089.8	4,008	6,184	(N/A)	9.8	15.4	58.90
Silver maple	25.5	1,935	3,392.8	3,325	5,260	(N/A)	9.5	13.1	51.56
Apple	5.2	391	785.3	770	1,161	(N/A)	5.4	2.9	20.01
Red maple	8.7	663	1,083.7	1,062	1,725	(N/A)	3.6	4.3	44.23
Swamp white oak	4.4	335	610.3	598	933	(N/A)	3.6	2.3	24.56
Spruce	3.4	259	427.0	418	677	(N/A)	3.2	1.7	19.91
Northern hackberry	4.9	370	671.0	658	1,028	(N/A)	2.7	2.6	35.45
Norway spruce	4.8	364	619.1	607	970	(N/A)	2.7	2.4	33.46
Northern red oak	5.5	416	740.4	726	1,142	(N/A)	2.5	2.8	42.29
Broadleaf Deciduous Small	0.6	47	108.5	106	154	(N/A)	2.4	0.4	5.91
Japanese tree lilac	1.1	80	183.4	180	260	(N/A)	1.4	0.6	17.34
Lilac	0.1	7	16.4	16	23	(N/A)	1.0	0.1	2.10
Black walnut	3.5	266	490.2	480	746	(N/A)	1.0	1.9	67.84
Honeylocust	3.3	251	430.7	422	673	(N/A)	0.9	1.7	67.33
Birch	2.0	152	292.5	287	438	(N/A)	0.9	1.1	43.83
White ash	2.8	216	331.7	325	541	(N/A)	0.9	1.3	54.10
Littleleaf linden	1.3	95	178.2	175	270	(N/A)	0.9	0.7	26.99
Amur maple	0.4	30	68.6	67	97	(N/A)	0.7	0.2	13.89
Cottonwood	2.9	216	382.3	375	591	(N/A)	0.7	1.5	84.45
Black spruce	0.7	53	86.1	84	137	(N/A)	0.6	0.3	22.89
Bur oak	2.3	178	320.9	314	492	(N/A)	0.6	1.2	82.05
Mountain ash	0.7	55	103.5	101	156	(N/A)	0.6	0.4	26.03
Eastern white pine	0.7	55	88.2	86	141	(N/A)	0.5	0.4	28.21
Pin oak	1.8	139	238.5	234	373	(N/A)	0.5	0.9	74.63
American basswood	1.3	98	186.3	183	280	(N/A)	0.4	0.7	70.05
Tulip tree	0.2	19	34.8	34	53	(N/A)	0.4	0.1	13.23
Elm	0.4	32	54.4	53	86	(N/A)	0.3	0.2	28.50
Conifer Evergreen Small	0.0	4	7.4	7	11	(N/A)	0.3	0.0	3.62
Blue spruce	0.3	19	30.4	30	49	(N/A)	0.2	0.1	24.51
Dogwood	0.0	1	1.2	1	2	(N/A)	0.2	0.0	0.87
Green ash	0.5	40	76.2	75	115	(N/A)	0.2	0.3	57.32
Conifer Evergreen Medium	0.1	7	15.0	15	22	(N/A)	0.2	0.1	10.87
Kentucky coffeetree	0.2	14	27.5	27	41	(N/A)	0.2	0.1	20.64
Eastern red cedar	0.1	8	16.4	16	25	(N/A)	0.1	0.1	24.57
Kwanzan cherry	0.0	2	3.8	4	5	(N/A)	0.1	0.0	5.40
Mulberry	0.1	6	12.8	13	18	(N/A)	0.1	0.0	18.19
Ginkgo	0.0	0	0.4	0	1	(N/A)	0.1	0.0	0.57
American sycamore	0.1	7	13.7	13	21	(N/A)	0.1	0.1	20.64
Black cherry	0.1	6	12.8	13	18	(N/A)	0.1	0.0	18.19
Conifer Evergreen Large	0.1	11	19.7	19	30	(N/A)	0.1	0.1	30.47
Catalpa	0.3	25	46.9	46	71	(N/A)	0.1	0.2	70.91
River birch	0.2	18	29.5	29	47	(N/A)	0.1	0.1	46.78
Willow	0.3	24	47.4	46	71	(N/A)	0.1	0.2	70.84
Eastern hophornbeam	0.2	15	31.6	31	46	(N/A)	0.1	0.1	46.14
Siberian elm	0.3	25	46.6	46	71	(N/A)	0.1	0.2	71.03
White oak	0.5	37	63.1	62	99	(N/A)	0.1	0.2	98.63
Broadleaf Deciduous Medium	0.1	8	16.9	17	24	(N/A)	0.1	0.1	24.47
Total	190.6	14,470	26,292.7	25,767	40,237	(N/A)	100.0	100.0	37.64

Table 2: Annual Stormwater Benefits

Postville

Annual Stormwater Benefits of Public Trees

5/30/2022

Species	Total rainfall interception (Gal)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Northern white cedar	57,264	1,552	(N/A)	16.1	2.9	9.02
Sugar maple	389,861	10,565	(N/A)	12.1	20.0	81.90
Norway maple	249,216	6,754	(N/A)	11.6	12.8	54.47
Ash	270,662	7,335	(N/A)	9.8	13.9	69.86
Silver maple	341,431	9,253	(N/A)	9.5	17.5	90.71
Apple	18,458	500	(N/A)	5.4	0.9	8.62
Red maple	59,446	1,611	(N/A)	3.6	3.1	41.31
Swamp white oak	25,438	689	(N/A)	3.6	1.3	18.14
Spruce	40,937	1,109	(N/A)	3.2	2.1	32.63
Northern hackberry	27,326	741	(N/A)	2.7	1.4	25.54
Norway spruce	103,895	2,816	(N/A)	2.7	5.3	97.09
Northern red oak	47,866	1,297	(N/A)	2.5	2.5	48.04
Broadleaf Deciduous Small	2,103	57	(N/A)	2.4	0.1	2.19
Japanese tree lilac	3,772	102	(N/A)	1.4	0.2	6.81
Lilac	266	7	(N/A)	1.0	0.0	0.65
Black walnut	41,487	1,124	(N/A)	1.0	2.1	102.21
Honeylocust	35,253	955	(N/A)	0.9	1.8	95.54
Birch	16,364	443	(N/A)	0.9	0.8	44.35
White ash	24,922	675	(N/A)	0.9	1.3	67.54
Littleleaf linden	9,562	259	(N/A)	0.9	0.5	25.91
Amur maple	1,399	38	(N/A)	0.7	0.1	5.41
Cottonwood	39,628	1,074	(N/A)	0.7	2.0	153.42
Black spruce	8,477	230	(N/A)	0.6	0.4	38.29
Bur oak	35,489	962	(N/A)	0.6	1.8	160.29
Mountain ash	2,597	70	(N/A)	0.6	0.1	11.73
Eastern white pine	12,190	330	(N/A)	0.5	0.6	66.07
Pin oak	22,735	616	(N/A)	0.5	1.2	123.22
American basswood	16,458	446	(N/A)	0.4	0.8	111.51
Tulip tree	1,559	42	(N/A)	0.4	0.1	10.56
Elm	2,681	73	(N/A)	0.3	0.1	24.22
Conifer Evergreen Small	550	15	(N/A)	0.3	0.0	4.97
Blue spruce	3,089	84	(N/A)	0.2	0.2	41.85
Dogwood	15	0	(N/A)	0.2	0.0	0.20
Green ash	5,181	140	(N/A)	0.2	0.3	70.21
Conifer Evergreen Medium	1,012	27	(N/A)	0.2	0.1	13.71
Kentucky coffeetree	1,216	33	(N/A)	0.2	0.1	16.47
Eastern red cedar	1,635	44	(N/A)	0.1	0.1	44.30
Kwanzan cherry	69	2	(N/A)	0.1	0.0	1.86
Mulberry	264	7	(N/A)	0.1	0.0	7.17
Ginkgo	7	0	(N/A)	0.1	0.0	0.19
American sycamore	608	16	(N/A)	0.1	0.0	16.47
Black cherry	264	7	(N/A)	0.1	0.0	7.17
Conifer Evergreen Large	2,969	80	(N/A)	0.1	0.2	80.46
Catalpa	3,943	107	(N/A)	0.1	0.2	106.85
River birch	1,409	38	(N/A)	0.1	0.1	38.19
Willow	3,764	102	(N/A)	0.1	0.2	102.01
Eastern hophornbeam	1,174	32	(N/A)	0.1	0.1	31.82
Siberian elm	3,359	91	(N/A)	0.1	0.2	91.03
White oak	7,239	196	(N/A)	0.1	0.4	196.17
Broadleaf Deciduous Medium	586	16	(N/A)	0.1	0.0	15.88
Citywide total	1,947,093	52,766	(N/A)	100.0	100.0	49.36

Table 3: Annual Air Quality Benefits

Postville

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							
Northern white cedar	3.6	0.7	4.4	0.4	28	29.0	4.1	3.9	25.8	176	-15.6	-59	56.4	146 (N/A)	16.1	0.85
Sugar maple	52.8	9.0	26.3	2.3	286	167.7	24.5	23.4	160.4	1,048	-41.5	-156	424.9	1,178 (N/A)	12.1	9.13
Norway maple	48.9	8.4	24.3	2.2	265	138.3	20.0	19.1	129.9	858	-11.6	-44	379.5	1,079 (N/A)	11.6	8.70
Ash	55.9	9.6	27.4	2.5	302	138.6	20.1	19.1	130.1	860	-13.0	-49	390.3	1,113 (N/A)	9.8	10.60
Silver maple	57.1	9.7	28.4	2.5	309	120.5	17.6	16.8	115.3	753	-31.7	-119	336.3	943 (N/A)	9.5	9.25
Apple	4.5	0.7	2.3	0.2	24	25.3	3.6	3.5	23.4	156	0.0	0	63.5	180 (N/A)	5.4	3.11
Red maple	12.4	2.1	6.0	0.5	67	40.7	6.0	5.7	39.6	256	-4.5	-17	108.6	306 (N/A)	3.6	7.84
Swamp white oak	3.4	0.6	1.9	0.2	19	21.2	3.1	2.9	20.0	132	-1.0	-4	52.3	147 (N/A)	3.6	3.87
Spruce	4.3	0.9	3.9	0.5	29	15.9	2.3	2.2	15.4	100	-14.3	-54	31.2	76 (N/A)	3.2	2.22
Northern hackberry	2.4	0.4	1.6	0.1	14	23.4	3.4	3.2	22.1	145	0.0	0	56.7	160 (N/A)	2.7	5.51
Norway spruce	12.6	2.5	10.0	1.5	82	22.5	3.3	3.2	21.7	141	-59.4	-223	17.9	0 (N/A)	2.7	0.01
Northern red oak	9.6	1.7	4.8	0.4	52	26.1	3.8	3.6	24.8	163	-13.5	-51	61.3	164 (N/A)	2.5	6.07
Broadleaf Deciduous Small	0.3	0.0	0.2	0.0	2	3.2	0.4	0.4	2.8	19	0.0	0	7.4	21 (N/A)	2.4	0.81
Japanese tree lilac	0.6	0.1	0.4	0.0	4	5.4	0.8	0.7	4.8	33	0.0	0	12.8	36 (N/A)	1.4	2.42
Lilac	0.0	0.0	0.0	0.0	0	0.5	0.1	0.1	0.4	3	0.0	0	1.1	3 (N/A)	1.0	0.27
Black walnut	5.3	0.8	2.5	0.2	28	16.8	2.4	2.3	15.9	105	0.0	0	46.3	132 (N/A)	1.0	12.04
Honeylocust	6.9	1.1	3.1	0.3	36	15.6	2.3	2.2	15.0	98	-5.3	-20	41.2	114 (N/A)	0.9	11.40
Birch	3.0	0.5	1.5	0.1	16	9.7	1.4	1.3	9.1	60	-0.7	-3	26.0	74 (N/A)	0.9	7.38
White ash	3.3	0.5	1.6	0.2	18	13.1	1.9	1.9	12.9	83	0.0	0	35.4	101 (N/A)	0.9	10.06
Littleleaf linden	1.3	0.2	0.7	0.1	7	6.1	0.9	0.8	5.7	38	-0.7	-3	15.0	42 (N/A)	0.9	4.21
Amur maple	0.2	0.0	0.1	0.0	1	2.0	0.3	0.3	1.8	12	0.0	0	4.8	14 (N/A)	0.7	1.94
Cottonwood	7.7	1.2	3.4	0.3	40	13.5	2.0	1.9	12.9	85	0.0	0	43.0	125 (N/A)	0.7	17.80
Black spruce	1.0	0.2	0.9	0.1	7	3.2	0.5	0.5	3.2	20	-3.0	-11	6.6	16 (N/A)	0.6	2.66
Bur oak	5.4	0.9	2.4	0.2	28	11.2	1.6	1.6	10.6	70	0.0	0	33.9	98 (N/A)	0.6	16.33
Mountain ash	0.7	0.1	0.3	0.0	4	3.5	0.5	0.5	3.3	22	0.0	0	9.0	25 (N/A)	0.6	4.24
Eastern white pine	1.4	0.3	1.2	0.2	9	3.3	0.5	0.5	3.3	21	-5.9	-22	4.7	8 (N/A)	0.5	1.67
Pin oak	4.3	0.8	2.2	0.2	24	8.6	1.3	1.2	8.3	54	-8.0	-30	19.0	48 (N/A)	0.5	9.58
American basswood	2.4	0.4	1.2	0.1	13	6.2	0.9	0.9	5.8	39	-2.0	-8	15.9	44 (N/A)	0.4	11.03
Tulip tree	0.1	0.0	0.1	0.0	0	1.2	0.2	0.2	1.1	7	0.0	0	2.8	8 (N/A)	0.4	1.93
Elm	0.2	0.0	0.1	0.0	1	2.0	0.3	0.3	1.9	12	0.0	0	4.8	13 (N/A)	0.3	4.47
Conifer Evergreen Small	0.0	0.0	0.0	0.0	0	0.2	0.0	0.0	0.2	1	-0.3	-1	0.3	1 (N/A)	0.3	0.20
Blue spruce	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)	0.2	2.89
Dogwood	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)	0.2	0.11
Green ash	0.5	0.1	0.3	0.0	3	2.5	0.4	0.4	2.4	16	0.0	0	6.6	19 (N/A)	0.2	9.34
Conifer Evergreen Medium	0.1	0.0	0.1	0.0	1	0.5	0.1	0.1	0.4	3	-0.3	-1	0.9	2 (N/A)	0.2	1.14
Kentucky coffeetree	0.0	0.0	0.0	0.0	0	0.9	0.1	0.1	0.9	6	0.0	0	2.1	6 (N/A)	0.2	2.99
Eastern red cedar	0.3	0.1	0.3	0.0	2	0.5	0.1	0.1	0.5	3	-0.9	-3	1.0	2 (N/A)	0.1	2.19
Kwanzan cherry	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
Mulberry	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
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)	0.1	0.07
American sycamore	0.0	0.0	0.0	0.0	0	0.5	0.1	0.1	0.4	3	0.0	0	1.1	3 (N/A)	0.1	2.99
Black cherry	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
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)	0.1	1.45
Catalpa	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)	0.1	12.48
River birch	0.2	0.0	0.1	0.0	1	1.1	0.2	0.2	1.1	7	-0.1	0	2.8	8 (N/A)	0.1	7.92
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
Eastern hophornbeam	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)	0.1	8.35
Siberian elm	0.5	0.1	0.3	0.0	3	1.6	0.2	0.2	1.5	10	0.0	0	4.4	13 (N/A)	0.1	12.72
White oak	1.6	0.3	0.7	0.1	8	2.3	0.3	0.3	2.2	14	0.0	0	7.7	23 (N/A)	0.1	22.55
Broadleaf Deciduous Medium	0.1	0.0	0.0	0.0	0	0.5	0.1	0.1	0.5	3	0.0	0	1.2	3 (N/A)	0.1	3.47
Citywide total	317.9	54.7	166.4	16.0	1,750	911.8	132.6	126.4	864.0	5,676	-236.0	-885	2,353.9	6,541 (N/A)	100.0	6.12

Table 4: Annual Carbon Stored

Postville

Stored CO2 Benefits of Public Trees						
5/30/2022						
Species	Total Stored CO2 (lbs)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Northern white cedar	18,366	138	(N/A)	16.1	0.3	0.80
Sugar maple	1,535,046	11,513	(N/A)	12.1	23.3	89.25
Norway maple	805,452	6,041	(N/A)	11.6	12.2	48.72
Ash	919,203	6,894	(N/A)	9.8	13.9	65.66
Silver maple	1,371,407	10,286	(N/A)	9.5	20.8	100.84
Apple	74,122	556	(N/A)	5.4	1.1	9.58
Red maple	139,153	1,044	(N/A)	3.6	2.1	26.76
Swamp white oak	59,026	443	(N/A)	3.6	0.9	11.65
Spruce	29,830	224	(N/A)	3.2	0.5	6.58
Northern hackberry	31,236	234	(N/A)	2.7	0.5	8.08
Norway spruce	152,240	1,142	(N/A)	2.7	2.3	39.37
Northern red oak	193,803	1,454	(N/A)	2.5	2.9	53.83
Broadleaf Deciduous :	6,707	50	(N/A)	2.4	0.1	1.93
Japanese tree lilac	12,888	97	(N/A)	1.4	0.2	6.44
Lilac	644	5	(N/A)	1.0	0.0	0.44
Black walnut	170,255	1,277	(N/A)	1.0	2.6	116.08
Honeylocust	87,527	656	(N/A)	0.9	1.3	65.64
Birch	49,767	373	(N/A)	0.9	0.8	37.33
White ash	65,924	494	(N/A)	0.9	1.0	49.44
Littleleaf linden	28,762	216	(N/A)	0.9	0.4	21.57
Amur maple	4,731	35	(N/A)	0.7	0.1	5.07
Cottonwood	266,786	2,001	(N/A)	0.7	4.0	285.84
Black spruce	5,875	44	(N/A)	0.6	0.1	7.34
Bur oak	181,265	1,359	(N/A)	0.6	2.7	226.58
Mountain ash	11,105	83	(N/A)	0.6	0.2	13.88
Eastern white pine	14,344	108	(N/A)	0.5	0.2	21.52
Pin oak	119,018	893	(N/A)	0.5	1.8	178.53
American basswood	91,668	688	(N/A)	0.4	1.4	171.88
Tulip tree	2,440	18	(N/A)	0.4	0.0	4.57
Elm	5,741	43	(N/A)	0.3	0.1	14.35
Conifer Evergreen Spr	129	1	(N/A)	0.3	0.0	0.32
Blue spruce	2,236	17	(N/A)	0.2	0.0	8.39
Dogwood	28	0	(N/A)	0.2	0.0	0.10
Green ash	16,915	127	(N/A)	0.2	0.3	63.43
Conifer Evergreen Me	327	2	(N/A)	0.2	0.0	1.23
Kentucky coffeetree	2,069	16	(N/A)	0.2	0.0	7.76
Eastern red cedar	1,102	8	(N/A)	0.1	0.0	8.27
Kwanzan cherry	178	1	(N/A)	0.1	0.0	1.33
Mulberry	908	7	(N/A)	0.1	0.0	6.81
Ginkgo	5	0	(N/A)	0.1	0.0	0.03
American sycamore	1,035	8	(N/A)	0.1	0.0	7.76
Black cherry	908	7	(N/A)	0.1	0.0	6.81
Conifer Evergreen La:	3,343	25	(N/A)	0.1	0.1	25.07
Catalpa	15,773	118	(N/A)	0.1	0.2	118.30
River birch	3,624	27	(N/A)	0.1	0.1	27.18
Willow	14,280	107	(N/A)	0.1	0.2	107.10
Eastern hophornbeam	6,743	51	(N/A)	0.1	0.1	50.57
Siberian elm	12,245	92	(N/A)	0.1	0.2	91.84
White oak	55,982	420	(N/A)	0.1	0.8	419.86
Broadleaf Deciduous :	1,101	8	(N/A)	0.1	0.0	8.26
Citywide total	6,593,260	49,449	(N/A)	100.0	100.0	46.26

Table 5: Annual Carbon Sequestered

Postville

Annual CO₂ 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 (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Northern white cedar	4,965	37	-88	-132	-2	9,559	72	14,304	107	(N/A)	16.1	2.1	0.62
Sugar maple	78,961	592	-7,368	-378	-58	59,416	446	130,631	980	(N/A)	12.1	19.6	7.59
Norway maple	41,669	313	-3,869	-293	-31	48,031	360	85,538	642	(N/A)	11.6	12.8	5.17
Ash	41,889	314	-4,412	-290	-35	48,100	361	85,287	640	(N/A)	9.8	12.8	6.09
Silver maple	103,837	779	-6,588	-287	-52	42,754	321	139,716	1,048	(N/A)	9.5	21.0	10.27
Apple	7,748	58	-356	-70	-3	8,646	65	15,969	120	(N/A)	5.4	2.4	2.06
Red maple	16,175	121	-668	-72	-6	14,647	110	30,082	226	(N/A)	3.6	4.5	5.79
Swamp white oak	8,064	60	-287	-43	-2	7,406	56	15,140	114	(N/A)	3.6	2.3	2.99
Spruce	3,133	24	-143	-56	-1	5,715	43	8,649	65	(N/A)	3.2	1.3	1.91
Northern hackberry	3,774	28	-151	-41	-1	8,187	61	11,769	88	(N/A)	2.7	1.8	3.04
Norway spruce	3,026	23	-731	-99	-6	8,034	60	10,230	77	(N/A)	2.7	1.5	2.65
Northern red oak	7,903	59	-930	-66	-7	9,197	69	16,104	121	(N/A)	2.5	2.4	4.47
Broadleaf Deciduous Smal	1,032	8	-33	-13	0	1,047	8	2,033	15	(N/A)	2.4	0.3	0.59
Japanese tree lilac	1,632	12	-62	-17	-1	1,775	13	3,329	25	(N/A)	1.4	0.5	1.66
Lilac	183	1	-3	-3	0	156	1	333	2	(N/A)	1.0	0.1	0.23
Black walnut	8,675	65	-817	-37	-6	5,876	44	13,696	103	(N/A)	1.0	2.1	9.34
Honeylocust	6,729	50	-420	-26	-3	5,551	42	11,835	89	(N/A)	0.9	1.8	8.88
Birch	3,447	26	-239	-20	-2	3,352	25	6,540	49	(N/A)	0.9	1.0	4.91
White ash	4,834	36	-316	-23	-3	4,771	36	9,265	69	(N/A)	0.9	1.4	6.95
Littleleaf linden	3,742	28	-138	-15	-1	2,105	16	5,693	43	(N/A)	0.9	0.9	4.27
Amur maple	616	5	-23	-7	0	664	5	1,250	9	(N/A)	0.7	0.2	1.34
Cottonwood	4,194	31	-1,281	-33	-10	4,785	36	7,665	57	(N/A)	0.7	1.2	8.21
Black spruce	492	4	-28	-11	0	1,170	9	1,623	12	(N/A)	0.6	0.2	2.03
Bur oak	5,165	39	-870	-27	-7	3,931	29	8,199	61	(N/A)	0.6	1.2	10.25
Mountain ash	1,069	8	-53	-9	0	1,211	9	2,217	17	(N/A)	0.6	0.3	2.77
Eastern white pine	534	4	-69	-13	-1	1,207	9	1,659	12	(N/A)	0.5	0.2	2.49
Pin oak	4,160	31	-571	-20	-4	3,080	23	6,649	50	(N/A)	0.5	1.0	9.97
American basswood	5,075	38	-440	-16	-3	2,157	16	6,776	51	(N/A)	0.4	1.0	12.71
Tulip tree	566	4	-12	-4	0	415	3	966	7	(N/A)	0.4	0.1	1.81
Elm	863	6	-28	-4	0	710	5	1,541	12	(N/A)	0.3	0.2	3.85
Conifer Evergreen Small	40	0	-1	-2	0	79	1	117	1	(N/A)	0.3	0.0	0.29
Blue spruce	181	1	-11	-4	0	426	3	592	4	(N/A)	0.2	0.1	2.22
Dogwood	17	0	0	0	0	11	0	28	0	(N/A)	0.2	0.0	0.10
Green ash	1,319	10	-81	-5	-1	883	7	2,115	16	(N/A)	0.2	0.3	7.93
Conifer Evergreen Medium	51	0	-2	-2	0	155	1	202	2	(N/A)	0.2	0.0	0.76
Kentucky coffeetree	418	3	-10	-2	0	318	2	723	5	(N/A)	0.2	0.1	2.71
Eastern red cedar	0	0	-5	-2	0	187	1	180	1	(N/A)	0.1	0.0	1.35
Kwanzan cherry	38	0	-1	-1	0	37	0	74	-1	(N/A)	0.1	0.0	0.55
Mulberry	114	1	-4	-1	0	124	1	232	2	(N/A)	0.1	0.0	1.74
Ginkgo	2	0	0	0	0	4	0	6	0	(N/A)	0.1	0.0	0.04
American sycamore	209	2	-5	-1	0	159	1	361	3	(N/A)	0.1	0.1	2.71
Black cherry	114	1	-4	-1	0	124	1	232	2	(N/A)	0.1	0.0	1.74
Conifer Evergreen Large	187	1	-16	-3	0	246	2	415	3	(N/A)	0.1	0.1	3.11
Catalpa	857	6	-76	-4	-1	552	4	1,330	10	(N/A)	0.1	0.2	9.97
River birch	386	3	-17	-2	0	395	3	762	6	(N/A)	0.1	0.1	5.71
Willow	370	3	-69	-4	-1	539	4	837	6	(N/A)	0.1	0.1	6.27
Eastern hophornbeam	0	0	-32	-4	0	335	3	299	2	(N/A)	0.1	0.0	2.24
Siberian elm	640	5	-59	-4	0	561	4	1,139	9	(N/A)	0.1	0.2	8.54
White oak	479	4	-269	-6	-2	813	6	1,017	8	(N/A)	0.1	0.2	7.63
Broadleaf Deciduous Medi	224	2	-5	-1	0	176	1	393	3	(N/A)	0.1	0.1	2.95
Citywide total	379,799	2,848	-31,662	-2,171	-254	319,778	2,398	665,745	4,993	(N/A)	100.0	100.0	4.67

Table 6: Annual Social and Aesthetic Benefits

Postville					
Annual Aesthetic/Other Benefits of Public Trees					
5/30/2022					
Species	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Northern white cedar	1,639	(N/A)	16.1	4.2	9.53
Sugar maple	8,187	(N/A)	12.1	21.0	63.46
Norway maple	4,044	(N/A)	11.6	10.4	32.61
Ash	3,883	(N/A)	9.8	10.0	36.98
Silver maple	8,492	(N/A)	9.5	21.8	83.26
Apple	439	(N/A)	5.4	1.1	7.57
Red maple	2,213	(N/A)	3.6	5.7	56.75
Swamp white oak	897	(N/A)	3.6	2.3	23.61
Spruce	884	(N/A)	3.2	2.3	26.01
Northern hackberry	826	(N/A)	2.7	2.1	28.49
Norway spruce	593	(N/A)	2.7	1.5	20.45
Northern red oak	612	(N/A)	2.5	1.6	22.65
Broadleaf Deciduous Small	51	(N/A)	2.4	0.1	1.97
Japanese tree lilac	92	(N/A)	1.4	0.2	6.11
Lilac	6	(N/A)	1.0	0.0	0.59
Black walnut	679	(N/A)	1.0	1.7	61.70
Honeylocust	1,567	(N/A)	0.9	4.0	156.70
Birch	344	(N/A)	0.9	0.9	34.38
White ash	619	(N/A)	0.9	1.6	61.86
Littleleaf linden	432	(N/A)	0.9	1.1	43.19
Amur maple	34	(N/A)	0.7	0.1	4.87
Cottonwood	296	(N/A)	0.7	0.8	42.32
Black spruce	147	(N/A)	0.6	0.4	24.54
Bur oak	357	(N/A)	0.6	0.9	59.44
Mountain ash	61	(N/A)	0.6	0.2	10.22
Eastern white pine	144	(N/A)	0.5	0.4	28.81
Pin oak	321	(N/A)	0.5	0.8	64.19
American basswood	334	(N/A)	0.4	0.9	83.48
Tulip tree	87	(N/A)	0.4	0.2	21.64
Elm	103	(N/A)	0.3	0.3	34.32
Conifer Evergreen Small	40	(N/A)	0.3	0.1	13.37
Blue spruce	50	(N/A)	0.2	0.1	25.23
Dogwood	0	(N/A)	0.2	0.0	0.03
Green ash	115	(N/A)	0.2	0.3	57.69
Conifer Evergreen Medium	33	(N/A)	0.2	0.1	16.70
Kentucky coffeetree	57	(N/A)	0.2	0.1	28.56
Eastern red cedar	0	(N/A)	0.1	0.0	0.00
Kwanzan cherry	2	(N/A)	0.1	0.0	2.06
Mulberry	6	(N/A)	0.1	0.0	6.40
Ginkgo	0	(N/A)	0.1	0.0	0.37
American sycamore	29	(N/A)	0.1	0.1	28.56
Black cherry	6	(N/A)	0.1	0.0	6.40
Conifer Evergreen Large	47	(N/A)	0.1	0.1	47.08
Catalpa	66	(N/A)	0.1	0.2	65.59
River birch	39	(N/A)	0.1	0.1	39.16
Willow	31	(N/A)	0.1	0.1	31.46
Eastern hophornbeam	0	(N/A)	0.1	0.0	0.00
Siberian elm	46	(N/A)	0.1	0.1	46.00
White oak	29	(N/A)	0.1	0.1	28.57
Broadleaf Deciduous Medium			26 (N/A)	0.1	0.1
Citywide total			39,008 (N/A)	100.0	100.0
				36.49	

Table 7: Summary of Benefits in Dollars

Postville

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 \$
Northern white cedar	1,395	107	146	1,552	1,639	4,839	(N/A)	3.4
Sugar maple	7,301	980	1,178	10,565	8,187	28,211	(N/A)	19.7
Norway maple	6,162	642	1,079	6,754	4,044	18,681	(N/A)	13.0
Ash	6,184	640	1,113	7,335	3,883	19,155	(N/A)	13.3
Silver maple	5,260	1,048	943	9,253	8,492	24,996	(N/A)	17.4
Apple	1,161	120	180	500	439	2,400	(N/A)	1.7
Red maple	1,725	226	306	1,611	2,213	6,080	(N/A)	4.2
Swamp white oak	933	114	147	689	897	2,780	(N/A)	1.9
Spruce	677	65	76	1,109	884	2,811	(N/A)	2.0
Northern hackberry	1,028	88	160	741	826	2,843	(N/A)	2.0
Norway spruce	970	77	0	2,816	593	4,456	(N/A)	3.1
Northern red oak	1,142	121	164	1,297	612	3,335	(N/A)	2.3
Broadleaf Deciduous Su	154	15	21	57	51	298	(N/A)	0.2
Japanese tree lilac	260	25	36	102	92	515	(N/A)	0.4
Lilac	23	2	3	7	6	42	(N/A)	0.0
Black walnut	746	103	132	1,124	679	2,784	(N/A)	1.9
Honeylocust	673	89	114	955	1,567	3,398	(N/A)	2.4
Birch	438	49	74	443	344	1,348	(N/A)	0.9
White ash	541	69	101	675	619	2,005	(N/A)	1.4
Littleleaf linden	270	43	42	259	432	1,046	(N/A)	0.7
Amur maple	97	9	14	38	34	192	(N/A)	0.1
Cottonwood	591	57	125	1,074	296	2,143	(N/A)	1.5
Black spruce	137	12	16	230	147	542	(N/A)	0.4
Bur oak	492	61	98	962	357	1,970	(N/A)	1.4
Mountain ash	156	17	25	70	61	330	(N/A)	0.2
Eastern white pine	141	12	8	330	144	636	(N/A)	0.4
Pin oak	373	50	48	616	321	1,408	(N/A)	1.0
American basswood	280	51	44	446	334	1,155	(N/A)	0.8
Tulip tree	53	7	8	42	87	197	(N/A)	0.1
Elm	86	12	13	73	103	286	(N/A)	0.2
Conifer Evergreen Smal	11	1	1	15	40	67	(N/A)	0.0
Blue spruce	49	4	6	84	50	193	(N/A)	0.1
Dogwood	2	0	0	0	0	3	(N/A)	0.0
Green ash	115	16	19	140	115	405	(N/A)	0.3
Conifer Evergreen Medi	22	2	2	27	33	86	(N/A)	0.1
Kentucky coffeetree	41	5	6	33	57	143	(N/A)	0.1
Eastern red cedar	25	1	2	44	0	72	(N/A)	0.1
Kwanzan cherry	5	1	1	2	2	11	(N/A)	0.0
Mulberry	18	2	3	7	6	36	(N/A)	0.0
Ginkgo	1	0	0	0	0	1	(N/A)	0.0
American sycamore	21	3	3	16	29	71	(N/A)	0.0
Black cherry	18	2	3	7	6	36	(N/A)	0.0
Conifer Evergreen Large	30	3	1	80	47	163	(N/A)	0.1
Catalpa	71	10	12	107	66	266	(N/A)	0.2
River birch	47	6	8	38	39	138	(N/A)	0.1
Willow	71	6	14	102	31	224	(N/A)	0.2
Eastern hophornbeam	46	2	8	32	0	89	(N/A)	0.1
Siberian elm	71	9	13	91	46	229	(N/A)	0.2
White oak	99	8	23	196	29	354	(N/A)	0.2
Broadleaf Deciduous M	24	3	3	16	26	73	(N/A)	0.1
Citywide Total	40,237	4,993	6,541	52,766	39,008	143,545	(N/A)	100.0

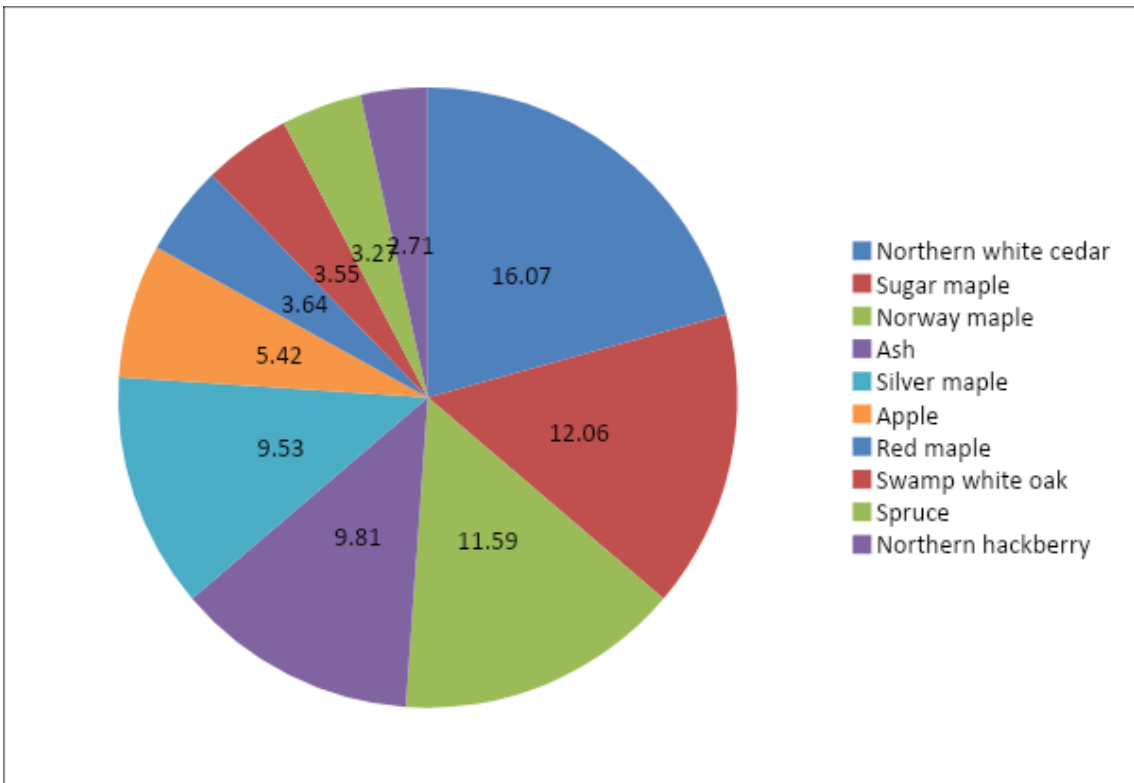


Figure 1: Species Distribution

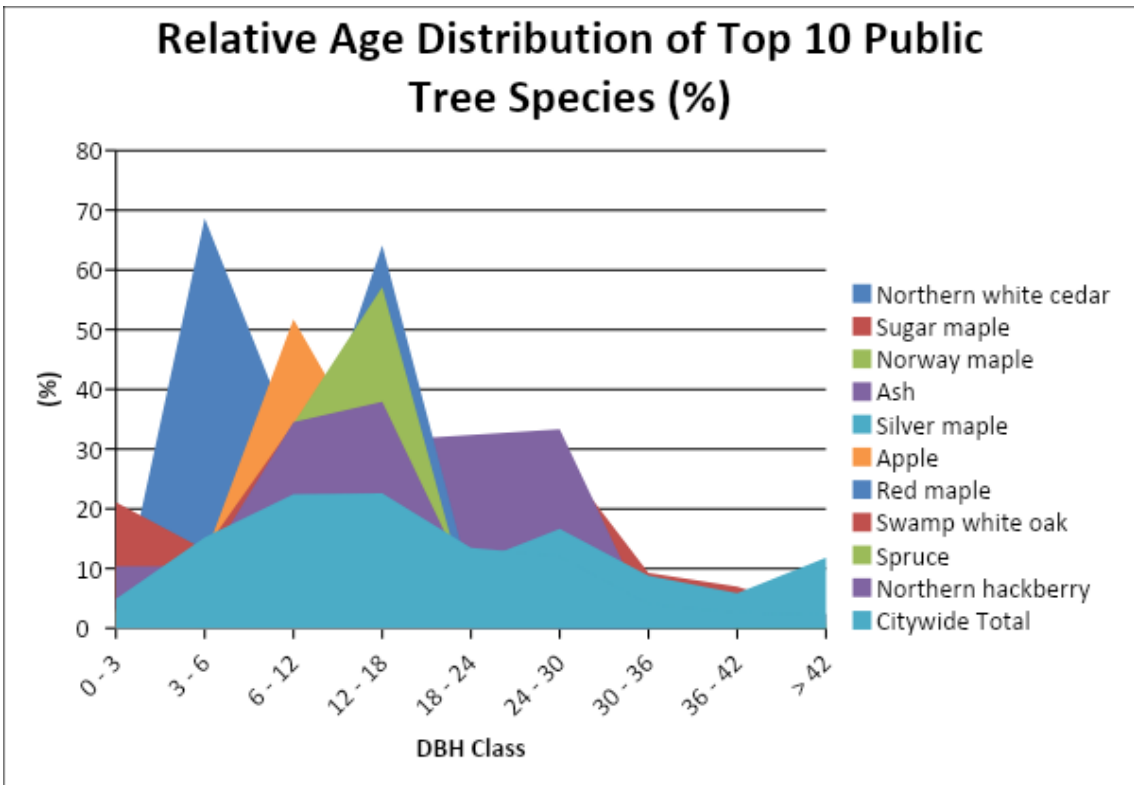


Figure 2: Relative Age Class



Figure 3: Foliage Condition

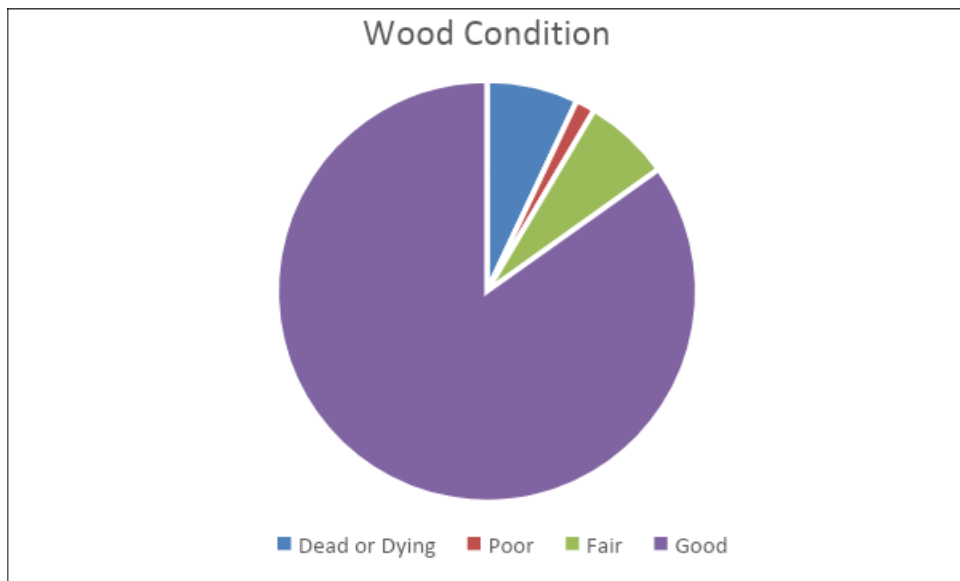


Figure 4: Wood Condition

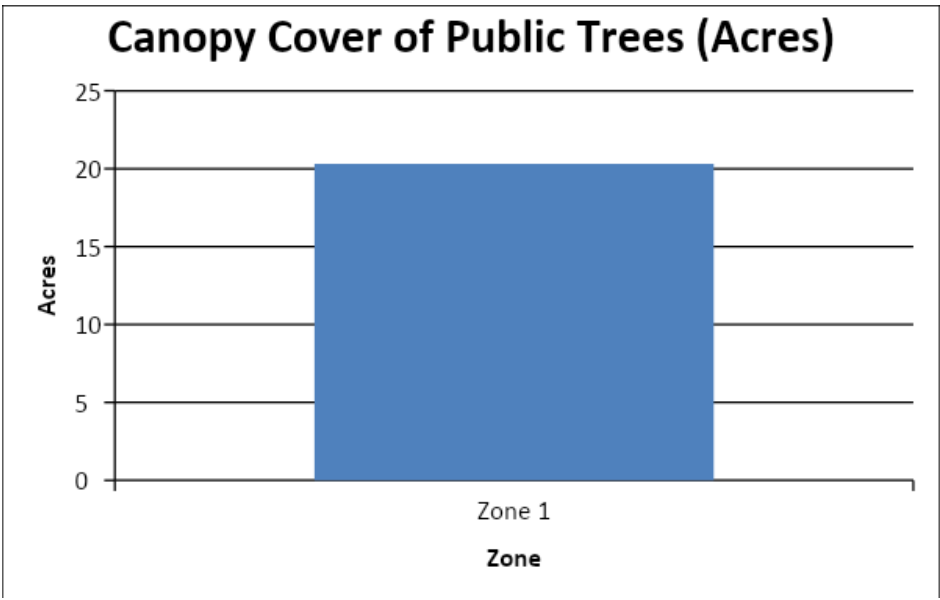


Figure 5: Canopy Cover in Acres

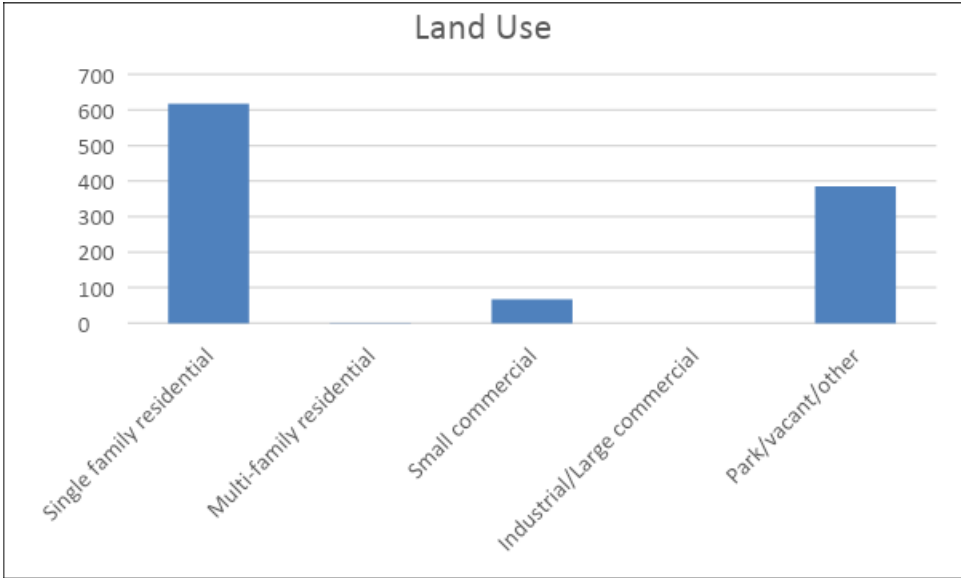


Figure 6: Land Use of city/park trees

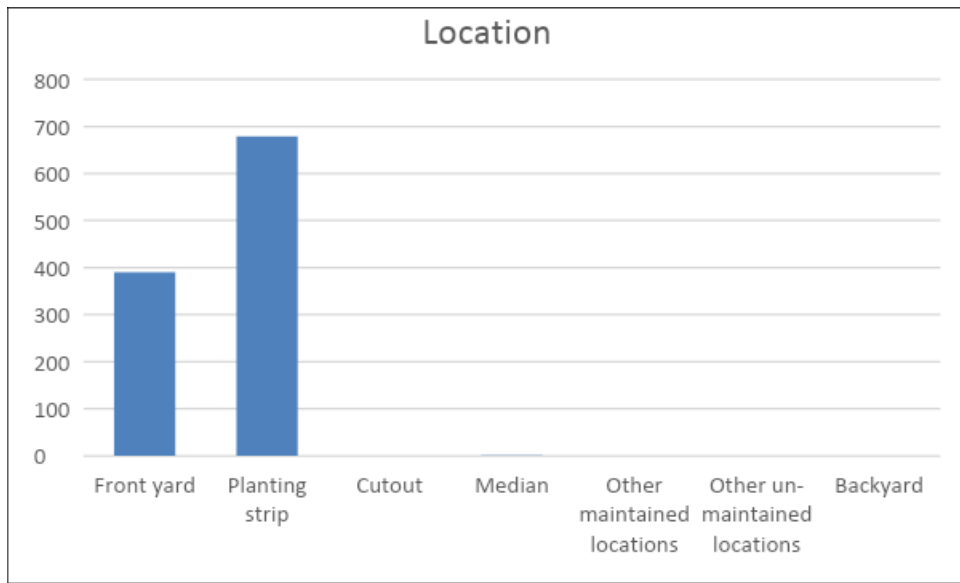


Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

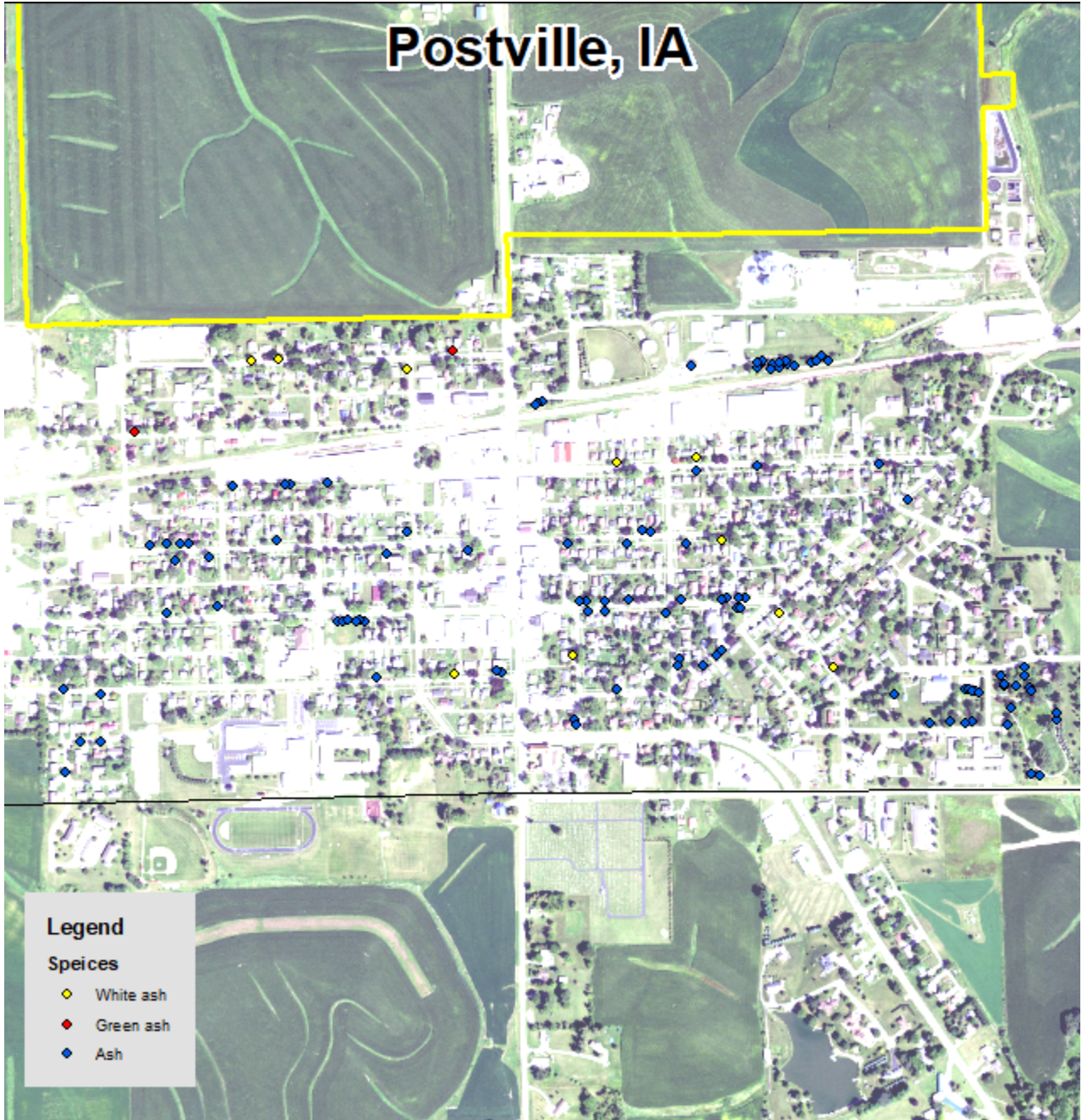


Figure 1: Location of Ash Trees

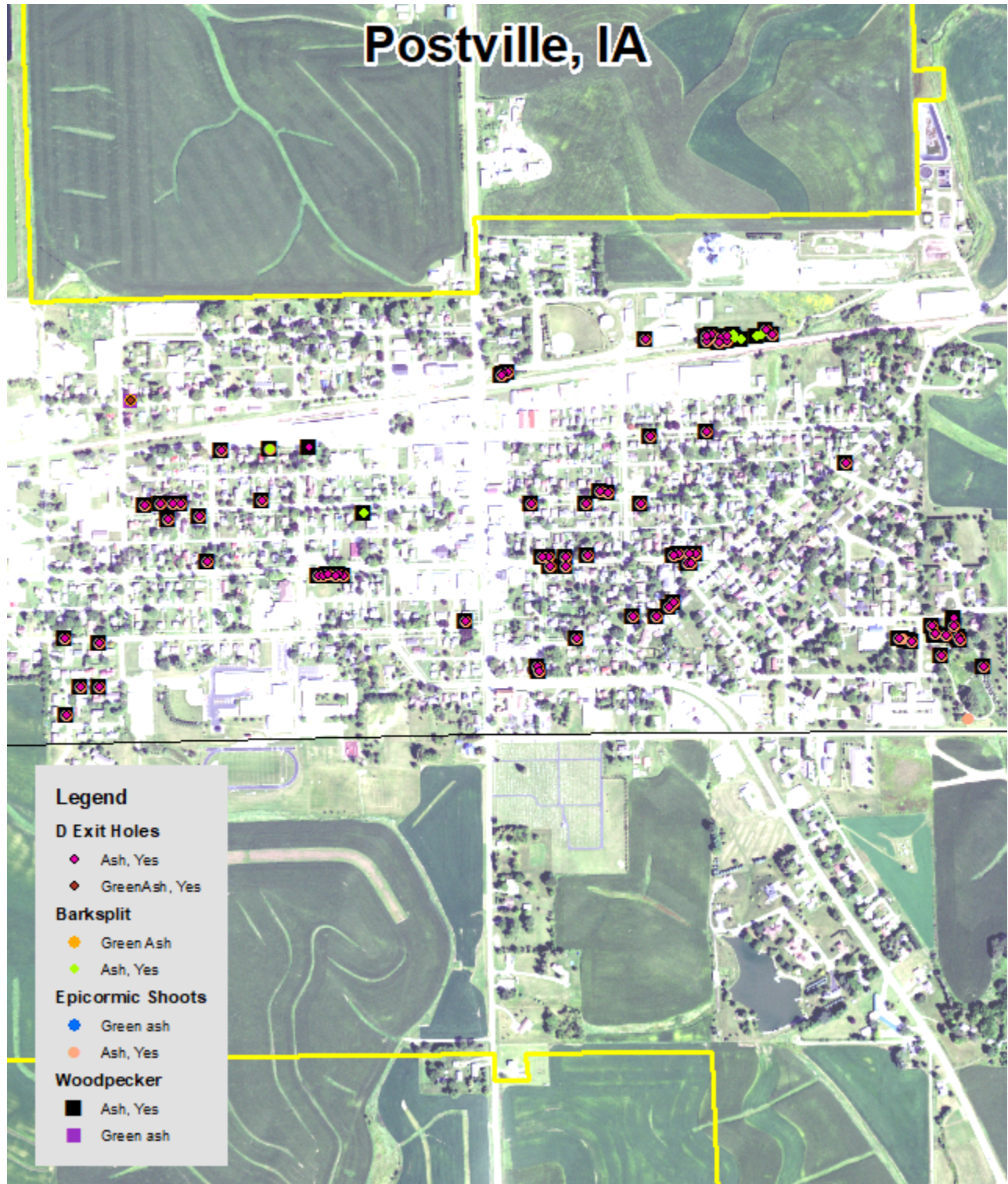


Figure 2: Location of EAB symptoms

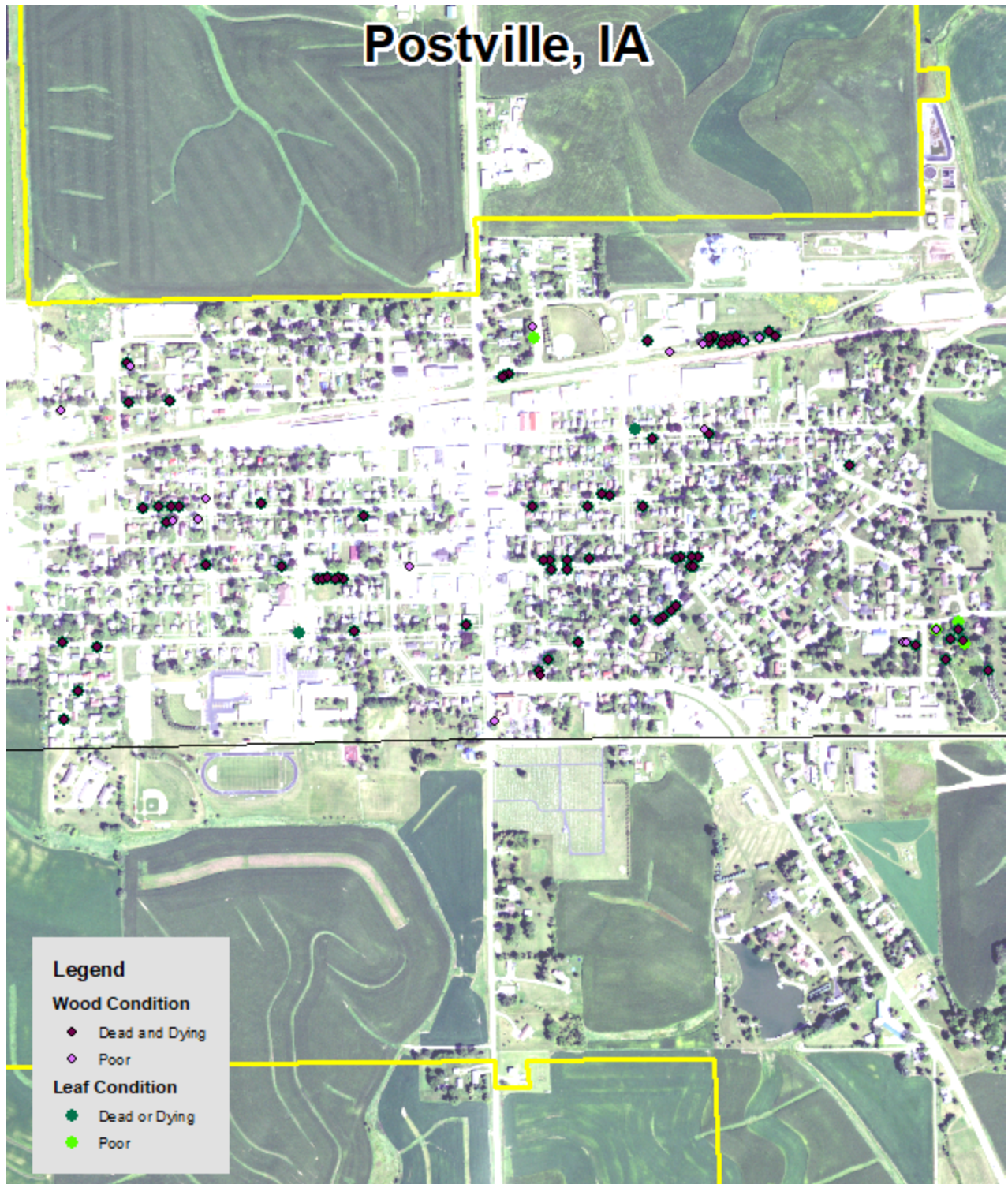


Figure 3: Location of Poor Condition Trees

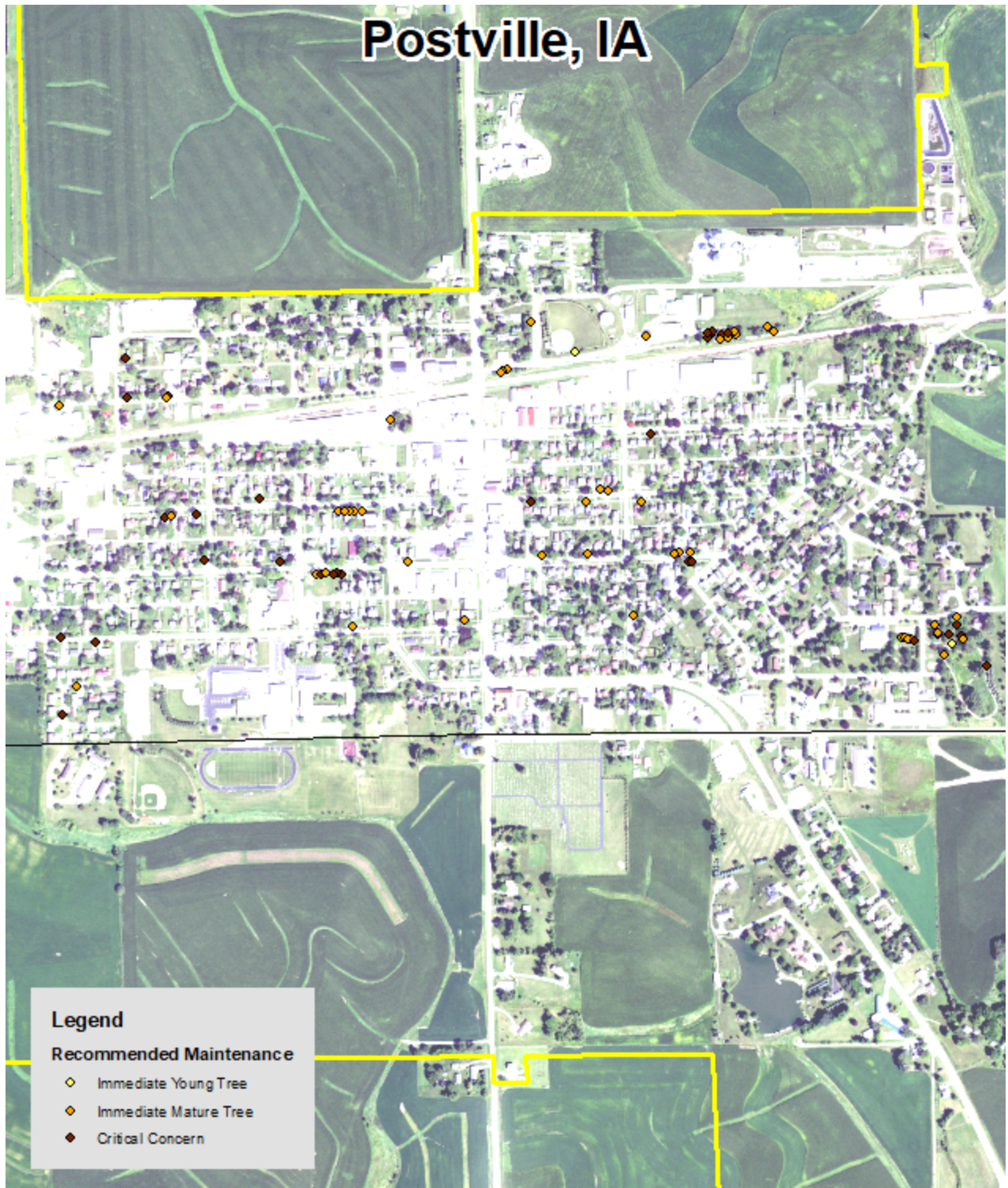


Figure 4: Location of Trees with Recommended Maintenance

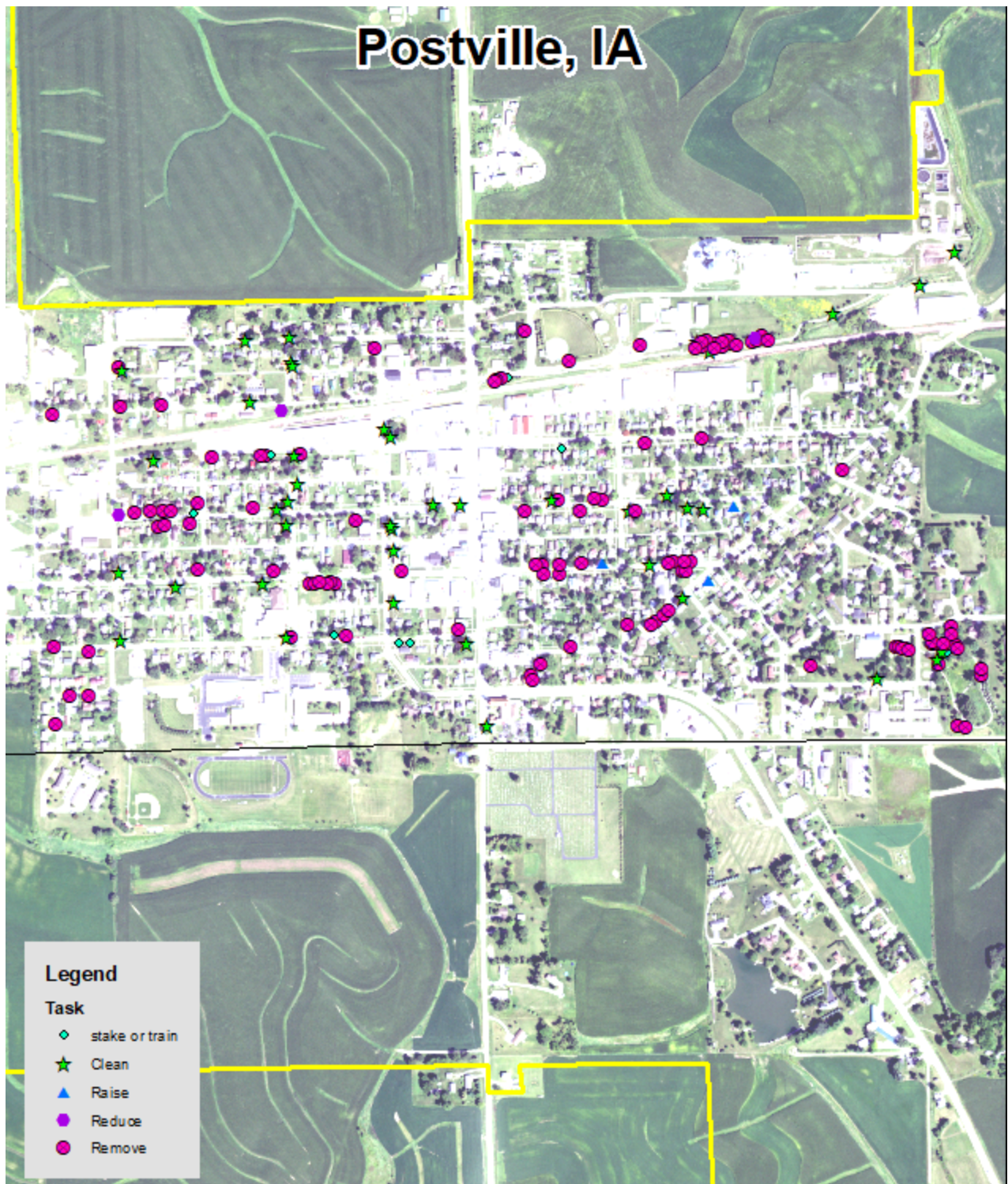


Figure 5: Maintenance Tasks *City ownership of the trees recommended for removal should be verified prior to any removal*

Appendix C: Postville Tree Ordinances

CHAPTER 151 TREES AND GRASS 151.01 Definition 151.09 Authority for Enforcement 151.02 Planting Restrictions 151.10 Interference with Public Official 151.03 Duty to Trim Trees 151.11 Nuisances 151.04 Trimming Trees to be Supervised 151.12 Enforcement 151.05 Disease Control 151.13 Emergency Control Measures 151.06 Inspection and Removal 151.14 Control of Weeds or Other Vegetation 151.07 Rules for Removal 151.15 Habitual Violators 151.08 Definitions 151.01 DEFINITION. For use in this chapter, “boulevard” 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 boulevard or street except in accordance with the following: 1. Alignment. All trees planted in any street shall be planted in the boulevard 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 boulevard 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 street any fruit-bearing tree or any tree of the kinds commonly known as cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut. 151.03 DUTY TO TRIM TREES. The owner or agent of the abutting property shall keep the trees on, or overhanging the street, trimmed so that all branches will be at least eighteen (18) feet above the surface of a street, twenty (20) feet above the surface of a primary highway, and eight (8) 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 TRIMMING TREES TO BE SUPERVISED. Except as allowed in Section 151.03, it is unlawful for any person to trim or cut any tree in a street or public place unless the work is done under the supervision of the City. 151.05 DISEASE CONTROL. Any dead, diseased or damaged tree or shrub 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 infected with or damaged by any disease or insect or disease pests, and such trees and shrubs shall be subject to removal as follows: 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 the 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 RULES FOR REMOVAL. All weeds, vines, brush or other growth which constitute a health, safety or fire hazard shall be cut or destroyed by the property owners when and as needed (as determined by the City Council or its authorized representative, if the property owner fails to do so), but in any event at least once by May 1 of each year and thereafter by no later than the first day of each succeeding month through and including October 1 of each year. 151.08 DEFINITIONS. For the purpose of this chapter, the following items, phrases, words, and their derivations have the meanings given herein. 1. "Noxious weeds" means primary and secondary classes of weeds as defined by the Code of Iowa, and all additions to this list as so declared by the State Secretary of Agriculture. 2. "Boulevard" means that part of the street, avenue or highway in the City not covered by sidewalk and lying between the lot line and curb line; on unpaved streets, the boulevard is the part of the street, avenue, or highway lying between the lot lines and that portion of the street usually traveled by vehicular traffic. 3. "Right-of-way" means the entire width of a platted street or alley in use or undeveloped. 4. "Public Official" means the person designated by the Mayor or City Clerk to enforce this chapter. 5. "Weed(s)" means any plants growing uncultivated and out of context with the surrounding plant life when such plant has a seed head formed or forming and with a height of four (4) inches or more, except as otherwise provided in this chapter. 151.09 AUTHORITY FOR ENFORCEMENT. The Mayor or City Clerk or any person designated by the Mayor or City Clerk is responsible for enforcement of this chapter and shall have all the necessary authority to carry out the enforcement of this chapter. 151.10 INTERFERENCE WITH PUBLIC OFFICIAL. No person shall interfere with the Mayor, City Clerk or designee or any appointed assistant while engaged in the enforcement of this chapter. 151.11 NUISANCES. Except as provided elsewhere in this chapter, the following provisions shall apply: 1. Each owner and each person in the possession or control of any land shall cut or otherwise destroy, in whatever manner prescribed by the Public Official, all noxious weeds, weeds, vines, brush or other growth constituting a health, fire or safety hazard thereon and shall keep said lands free of such growth. 2. Each owner and each person in possession or control of any property shall be responsible to keep said lot, including along with boulevard adjacent thereto, alleys, public ways or areas up to the centerline of said ways free of any noxious weeds and to keep grasses and weeds on said lot mowed so that grass and weeds are less than four (4) inches in height. However, grass and weeds located on undeveloped and unplatted property located more than 100 feet from developed or platted property shall be mowed so that grass and weeds are less than 12 inches in height. 3. Each owner and each person in the possession or control of any lands shall not allow any plant growth of any sort to remain in such a manner as to render the streets, alleys or public ways adjoining said land unsafe for public travel or in any manner so as to impede pedestrian or vehicular traffic upon any public place or way. 4. Where waterways or watercourses are found upon any developed or undeveloped lot, the owner or person in possession or control shall keep the flat or level part of the bank of said waterway free of any weeds or grasses more than 18 inches in height. Should any such waterways or watercourses be found within the right-of-way of a street or alley, the adjacent property owner or person in possession or control shall be responsible to keep the flat or accessible portion of creek bank free of any weeds or grasses more than 18 inches in height. 5. No owner or person in possession or control of any developed or undeveloped lot shall allow plant growth or the accumulation of plant materials on such lot to remain in such a state so as to constitute a fire hazard. In no instance shall cut plant material accumulations be located within 150 feet of a building, structure, recreation area (not including the width of any intervening street) or within 125 feet of a street right-of-way. 151.12 ENFORCEMENT. The Mayor, City Clerk or designee may inspect all areas alleged to be in violation and in the case of a founded violation notify the last known owner or person in possession (or control) of the area of violation of this chapter. Said notice shall be by posting notice upon the entrance to the structure on

the property or by certified mail and allow forty-eight hours (48) for posted notice, or seventy-two hours (72) for mailed notice after mailing said notice as a period of time to eliminate said violators. Return receipt with signature is not required for said mailed notice. The Mayor, City Clerk or designee shall charge an administrative fee in the amount of fifty dollars (\$50.00) for each founded violation. Upon failure of the owner or person in possession or control to act within the prescribed time period, the City may perform the required action and assess costs against the property for collection in the same manner as a property tax. In the event such action is taken, the Mayor, City Clerk or designee may obtain competitive quotes to have the required action performed. If no quotes are obtained, the City may have the City personnel perform the required action at rates which shall be established by resolution of the Council from time to time, which rates shall constitute costs to be assessed against the property as provided herein. In addition to the foregoing remedy and other remedies by law, the Mayor, City Clerk or designee may file misdemeanor charges against such individuals or municipal infractions.

151.13 EMERGENCY CONTROL MEASURES. Notwithstanding any other provisions of this chapter, whenever in the judgement of the Mayor, City Clerk or designee an emergency exists creating a health, safety or fire hazard which may require weed or grass control without prior notice, control measures shall be taken and costs assessed against the property for collection in the same manner as property tax. However, prior to such assessment, the City shall give the property owner notice by certified mail and an opportunity for a hearing before the Council.

151.14 CONTROL OF WEEDS OR OTHER VEGETATION. The Clerk shall annually on or before May 1 through August 1 of each year publish a Notice to Property Owners generally setting forth the duty to control weeds and other vegetation which might be a nuisance in violation of this Code of Ordinances. The Mayor, City Clerk or designee may cause a Notice to Abate Nuisance to be served upon any property owner who fails to comply with the published notice or any person who at any other time has weeds or other vegetation in violation of this Code of Ordinances and shall submit the cost to the Council for assessment as provided in Section 364.12 of the Code of Iowa. In the event of an emergency as set forth in 364.12, the notice requirement may be dispensed with. In abating a nuisance under this Code of Ordinances, the Mayor, City Clerk or designee are hereby authorized and directed to employ such persons and rent any and all equipment necessary for the abatement of the nuisance and the cost thereof shall be assessed.

151.15 HABITUAL VIOLATORS. If the owner or person in control of any land has previously received a notice to abate nuisance relating to weeds or grass within the preceding 24months, then the notice to abate nuisance may include notice that such owner or person in control of said property will be considered to be an habitual violator of this chapter and that if the nuisance is not abated within the allowed time, the City will consider the property to be subject to having a contract let by the City for mowing property as needed up to a weekly basis for the next following 24-month period of time and that the full cost of said contract together with an administrative fee of two hundred fifty dollars (\$250.00) will be assessed against the property. (Sections 151.07-151.15-Ord. 682-17-Jan.18 Supp.

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.