Shellsburg, IA

2015 Urban Forest Management Plan
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Executive Summary

Overview

This plan was developed to assist the City of Shellsburg 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 5% (9 trees) of Shellsburg'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 2014, 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 176 trees inventoried.

- Shellsburg's trees provide $32,154 of benefits annually, an average of $183 a tree
- There are 38 species of trees
- The top three genera are: Maple 40%, Oak 9%, and Hackberry 8%
- Only 9 (8%) public ash trees, but the 70 (40%) public maple trees could be a future concern
- 18% of trees are in need of some type of management & 7 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 7 trees needing removal, 4 trees are over 24 inches in diameter at 4.5 ft. *City ownership of the trees recommended for removal should be verified prior to any removal*
- 3 of the 9 ash trees should be carefully examined, as they have one or more symptoms that could be related to an EAB infestation. Check all 9 ash trees yearly for symptoms.
- 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, Siberian elm, evergreens (street trees only), willow (street trees only) or black walnut
- There are 9 ash trees present on public property and with an estimated tree removal cost between $600 to $1,000 per tree the cost to remove these trees could be between $5,400 and $9,000 total

Introduction

This plan was developed to assist Shellsburg 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 anticipated arrival 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 and replacement planting. With proper planning and management of the current canopy in Shellsburg, these costs can be extended over years and public safety issues from dead and dying ash trees mitigated.

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

Inventory

In 2014, a tree inventory was conducted that included 100% of the city owned trees on both streets and in the 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 176 city trees was entered into the USDA Forest service program Street Tree Resource Analysis Tool for Urban forestry Management (STRATUM), part of the i-Tree suite. The following are results from the i-Tree STRATUM analysis.

Annual Benefits

Annual Energy Benefits

Trees conserve energy by shading buildings and blocking winds. Shellsburg's trees reduce energy related costs by approximately $8,358 annually (Appendix A, Table 1). These savings are both in Electricity (39.8 MWh) and in Natural Gas (5,443.0 Therms).

Annual Stormwater Benefits

Shellsburg's trees intercept about 482,635 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $13,079 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 Shellsburg, it is estimated that trees remove 528.7 lbs of air pollution (ozone (O_3), particulate matter less than 10 microns (PM10), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) per year with a net value of $1,497 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Shellsburg, trees sequester about 94,673 lbs of carbon a year with an associated value of $634 (Appendix A, Table 5). In addition, the trees store 2,017,032 lbs of carbon, with a yearly benefit of $15,128 (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. Shellsburg receives $8,586 in annual social benefits from trees (Appendix A, Table 6).

Financial Summary of all Benefits

According to the USDA Forest Service i-Tree STRATUM analysis, Shellsburg's trees provide $32,154 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 176 trees in Shellsburg provide approximately $183 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Shellsburg has 38 different tree species along city streets and parks (Appendix A, Figure 1). The top three genera are: Maple 40%, Oak 9%, and Hackberry 8%

The distribution of the top ten tree species is as follows:

Sugar Maple	36	20%
Silver Maple	20	11%
Hackberry	14	8%
Bur Oak	13	7%
Small Deciduous Broadleaf	9	5%
Green ash	8	5%
Norway Maple	7	4%
Spruce	7	4%
Northern White Cedar	7	4%
Black Walnut	6	3%

Age Class

In Shellsburg 44% of the public trees are less than 18 inches in diameter at 4.5 ft., and 56% are greater than 18 inches in diameter (Appendix A, Figure 2). At this point there is a good balance between young and mature trees. There have been a significant number of new trees planted in the parks.

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 Shellsburg indicate that 83% of the trees are in good health, with only 5% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Additionally, 58% of Shellsburg'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 11% of the population. This 11% 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 5).

Crown Cleaning	11	6%
Crown Raising	11	6%
Tree Removal	7	4%
Crown Reduction	2	1%

Canopy Cover

The total canopy with both private and public trees is 19%. The canopy cover included in the Shellsburg inventory includes approximately 4.8 acres (Appendix A, Figure 5).

Land Use and Location

The public trees in Shellsburg are split between planting strips in single family residential neighborhoods and in the parks (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	52%
Park/vacant/other	48%

Location	
Planting strip	97%
Front yard	3%

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

Shellsburg has 7 trees that need to be considered for removal. These trees can be seen on the Maintenance Tasks Map (Appendix B, Figure 5). It is recommended to start with the large diameter trees first. There are 4 trees over 24 inches in diameter at 4.5 ft that should be addressed. After all 7 trees are addressed; there should be follow up on the trees marked as needing maintenance. There are a total of 31 trees with these needs (Appendix B, Figure 4).

Poor tree species

After the removal of identified trees, trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, and Figure 4). Of the 7 removals none are ash trees. *City ownership of the trees recommended for removal should be verified prior to any removal.* There are a total of 9 ash trees, and 3 of those have signs and symptoms that have been associated with EAB. In addition, there are 20 trees of a variety of species that are in poor health or dead or dying. On 10/9/2014 the city was sent a letter listing a number of trees of concern in different parts of the community that need to be evaluated.

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. **Since you have planted a number of new trees in some of the parks it will be critical that these trees are trained and maintained with pruning as they develop in the first 5 to 20 years.**

Planting

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 Shellsburg.

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 (40%) (Appendix A, Figure 1). Maples should not be planted until this percentage falls below 20%. Also, ash trees have not been recommended since 2002, due to the threat of EAB. City Code Chapter 151-151.02 currently does not allow the planting of trees within the parking. In the future Shellsburg should consider re-evaluating allowing tree planting within the parking. In the meantime, the community has begun to plant new trees in a number of the parks and this will help increase tree cover within the community. Any new plantings within the parks should be a diverse mix of species and should not and include ash, maple, cottonwood, poplar, box elder, Siberian elm, or any potentially non-native invasive tree species. Organizations like the Iowa DNR Forestry Bureau, ISU Extension Horticulture, and Trees Forever can provide a variety of information on tree selection.

Continual Monitoring

Due to the threat of EAB, it is important to continuously check the health of ash trees. **There is an ash at 409 Grove with significant EAB related symptoms that needs to be evaluated. Please contact the Iowa DNR District Forester at 319-351-8886 for assistance in evaluating this tree in the summer of 2015.** 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. **Once EAB arrives in Shellsburg it could potentially kill all ash within 4 to 10 years of its arrival.**

EAB infested tree in Muscatine with top thinning and many new green epicormic sprouts

EAB infested tree in Muscatine with sprouting, wood pecker activity, and D-shaped exit holes

Potential EAB Tree 409 Grove in Shellsburg

Six Year Maintenance Plan with <u>No Additional Funding</u>

Year 1 – Year 6

According to information obtained from the community at this point there is no specific budget for forestry activities such as removal, tree planting, and pruning. Below are activities that the community should consider when developing annual budgets:

Removal: 7 trees have been identified to be evaluated for removal now. Cost of tree removal is between $600 to $1,000 per tree and for 7 trees that will be $4,200 to $7,000.

Planting and Replacement: Attempt to add new trees to public spaces such as parks and along streets where desirable when budget allows. The cost of new trees can be between $100 to $300 a tree.

Visual Survey for signs and symptoms of EAB on annual basis

Routine Pruning: Do routine pruning of park trees on 4 to 7 year rotation and evaluate newly planted trees annually for pruning

***EAB could potentially kill all ash within 4 to 10 years of its arrival to Shellsburg. Once ash trees begin to actually die they can decline quickly which will require immediate removal. If all 9 ash need to be removed at some point it will cost an estimated $600 to $1,000 per tree to remove them which is a total of $5,400 to $9,000.** *City ownership of any tree (s) recommended for removal should be verified prior to any removal*

Emerald Ash Borer Plan

Ash Tree Removal

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

Treatment of Ash Trees

Chemical treatment can be effective tool for communities to spread removal costs out over several years while allowing trees to continue to provide benefits. 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. ***At this point the entire state of Iowa is under Federal Quarantine, which does not allow the movement of regulated items outside of the state.**

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? Wood waste can be disposed of as you normally would if your county is not part of a separate quarantine which **Benton County** is not.

Canopy Replacement

City Code Chapter 151-151.02 currently does not allow the planting of trees within the parking. Street or Parking trees are a vital part of the green infrastructure of a community and they can provide a variety of benefits to a community. In the future Shellsburg should consider re-evaluating allowing tree planting within the parking. In the meantime, the community has begun to plant new trees in a number of the parks and this will help increase tree cover within the community. Any new plantings within the parks should be a diverse mix of species and should not and include ash, maple, cottonwood, poplar, box elder, Siberian elm, or any potentially non-native invasive tree species. Organizations like the Iowa DNR Forestry Bureau, ISU Extension Horticulture, and Trees Forever can provide a variety of information on tree selection.

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. **Once EAB arrives in Shellsburg it could potentially kill all ash within 4 to 10 years of its arrival.**

Private Ash Trees

It is strongly recommended that private property owners start removing ash trees on their property upon arrival of EAB and as ash trees decline in health and become a concern. City Code 151.06 #2 does outline this procedure (See Appendix C: Shellsburg Tree Ordinance).

Budget

*EAB could potentially kill all ash within 4 to 10 years of its arrival to Shellsburg. Once ash trees begin to actually die they can decline quickly which will require immediate removal. If all 9 ash need to be removed at some point it will cost an estimated $600 to $1,000 per tree to remove them which is a total of $5,400 to $9,000. *City ownership of any tree (s) recommended for removal should be verified prior to any removal*

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Shellsburg

Annual Energy Benefits of Public Trees

11/14/2014

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Sugar maple	11.5	874	1,540.4	1,510	2,384	(N/A)	20.5	28.5	66.21
Silver maple	6.7	508	884.8	867	1,375	(N/A)	11.4	16.4	68.73
Northern hackberry	5.5	418	779.9	764	1,182	(N/A)	8.0	14.1	84.46
Bur oak	4.2	318	579.1	568	885	(N/A)	7.4	10.6	68.11
Broadleaf Deciduous Small	0.0	2	5.6	6	8	(N/A)	5.1	0.1	0.87
Green ash	2.4	185	333.2	327	511	(N/A)	4.5	6.1	63.93
Northern white cedar	0.1	7	16.8	16	24	(N/A)	4.0	0.3	3.40
Spruce	0.0	2	4.7	5	6	(N/A)	4.0	0.1	0.93
Norway maple	1.9	142	274.7	269	411	(N/A)	4.0	4.9	58.72
Black walnut	1.9	146	269.2	264	410	(N/A)	3.4	4.9	68.32
Broadleaf Deciduous Large	0.2	17	31.6	31	48	(N/A)	2.3	0.6	11.94
River birch	0.0	1	3.2	3	4	(N/A)	2.3	0.1	1.10
Siberian elm	1.0	80	142.8	140	220	(N/A)	1.7	2.6	73.17
Eastern redbud	0.0	1	1.9	2	3	(N/A)	1.7	0.0	0.87
Blue spruce	0.4	29	45.6	45	74	(N/A)	1.7	0.9	24.51
Apple	0.4	28	50.0	49	77	(N/A)	1.7	0.9	25.71
Broadleaf Deciduous Mediu	0.4	34	63.2	62	96	(N/A)	1.7	1.1	31.91
Red maple	0.4	30	57.1	56	86	(N/A)	1.7	1.0	28.76
Callery pear	0.1	11	23.0	23	33	(N/A)	1.1	0.4	16.73
Maple	0.0	3	6.0	6	9	(N/A)	1.1	0.1	4.44
Japanese tree lilac	0.0	1	1.2	1	2	(N/A)	1.1	0.0	0.87
American sycamore	0.5	37	63.1	62	99	(N/A)	0.6	1.2	98.63
Kentucky coffeetree	0.0	0	0.5	0	1	(N/A)	0.6	0.0	0.66
Japanese maple	0.0	0	0.6	1	1	(N/A)	0.6	0.0	0.87
Mountain ash	0.0	0	0.6	1	1	(N/A)	0.6	0.0	0.87
Boxelder	0.1	8	14.9	15	22	(N/A)	0.6	0.3	22.45
Swamp white oak	0.0	0	0.8	1	1	(N/A)	0.6	0.0	1.10
Ohio buckeye	0.3	24	47.4	46	71	(N/A)	0.6	0.8	70.84
Catalpa	0.4	33	59.0	58	91	(N/A)	0.6	1.1	91.02
Honeylocust	0.0	0	1.2	1	2	(N/A)	0.6	0.0	1.67
White ash	0.5	40	62.1	61	101	(N/A)	0.6	1.2	100.98
Conifer Evergreen Large	0.0	0	0.7	1	1	(N/A)	0.6	0.0	0.93
Littleleaf linden	0.1	6	12.5	12	18	(N/A)	0.6	0.2	18.25
American elm	0.0	0	0.1	0	0	(N/A)	0.6	0.0	0.23
Eastern white pine	0.0	0	0.7	1	1	(N/A)	0.6	0.0	0.93
Eastern cottonwood	0.5	37	63.1	62	99	(N/A)	0.6	1.2	98.63
Tulip tree	0.0	0	0.5	0	1	(N/A)	0.6	0.0	0.66
Northern red oak	0.0	0	1.2	1	2	(N/A)	0.6	0.0	1.67
Total	39.8	3,024	5,443.0	5,334	8,358	(N/A)	100.0	100.0	47.49

Table 2: Annual Stormwater Benefits

Shellsburg

Annual Stormwater Benefits of Public Trees

11/14/2014

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Sugar maple	145,479	3,942	(N/A)	20.5	30.1	109.51
Silver maple	92,917	2,518	(N/A)	11.4	19.3	125.90
Northern hackberry	58,957	1,598	(N/A)	8.0	12.2	114.12
Bur oak	55,629	1,508	(N/A)	7.4	11.5	115.97
Broadleaf Deciduous Small	67	2	(N/A)	5.1	0.0	0.20
Green ash	26,784	726	(N/A)	4.5	5.5	90.73
Northern white cedar	1,052	29	(N/A)	4.0	0.2	4.07
Spruce	341	9	(N/A)	4.0	0.1	1.32
Norway maple	17,570	476	(N/A)	4.0	3.6	68.02
Black walnut	23,092	626	(N/A)	3.4	4.8	104.30
Broadleaf Deciduous Large	1,405	38	(N/A)	2.3	0.3	9.52
River birch	49	1	(N/A)	2.3	0.0	0.33
Siberian elm	11,553	313	(N/A)	1.7	2.4	104.36
Eastern redbud	22	1	(N/A)	1.7	0.0	0.20
Blue spruce	4,633	126	(N/A)	1.7	1.0	41.85
Apple	1,341	36	(N/A)	1.7	0.3	12.11
Broadleaf Deciduous Medium	2,581	70	(N/A)	1.7	0.5	23.32
Red maple	3,504	95	(N/A)	1.7	0.7	31.65
Callery pear	749	20	(N/A)	1.1	0.2	10.14
Maple	149	4	(N/A)	1.1	0.0	2.02
Japanese tree lilac	15	0	(N/A)	1.1	0.0	0.20
American sycamore	7,239	196	(N/A)	0.6	1.5	196.17
Kentucky coffeetree	18	0	(N/A)	0.6	0.0	0.48
Japanese maple	7	0	(N/A)	0.6	0.0	0.20
Mountain ash	7	0	(N/A)	0.6	0.0	0.20
Boxelder	720	20	(N/A)	0.6	0.1	19.51
Swamp white oak	12	0	(N/A)	0.6	0.0	0.33
Ohio buckeye	3,764	102	(N/A)	0.6	0.8	102.01
Catalpa	7,239	196	(N/A)	0.6	1.5	196.17
Honeylocust	19	1	(N/A)	0.6	0.0	0.53
White ash	7,883	214	(N/A)	0.6	1.6	213.62
Conifer Evergreen Large	49	1	(N/A)	0.6	0.0	1.32
Littleleaf linden	461	12	(N/A)	0.6	0.1	12.48
American elm	3	0	(N/A)	0.6	0.0	0.09
Eastern white pine	49	1	(N/A)	0.6	0.0	1.32
Eastern cottonwood	7,239	196	(N/A)	0.6	1.5	196.17
Tulip tree	18	0	(N/A)	0.6	0.0	0.48
Northern red oak	19	1	(N/A)	0.6	0.0	0.51
Citywide total	482,635	13,079	(N/A)	100.0	100.0	74.31

Table 3: Annual Air Quality Benefits

Shellsburg

Annual Air Quality Benefits of Public Trees

11/14/2014

Species	Deposition (lb) O_3	NO_2	PM_{10}	SO_2	Total Depos. ($)	Avoided (lb) NO_2	PM_{10}	VOC	SO_2	Total Avoided ($)	BVOC Emissions (lb)	BVOC Emissions ($)	Total (lb)	Total ($)	Standard Error	% of Total Trees	Avg. $/tree
Sugar maple	20.9	3.6	10.1	0.9	112	54.6	8.0	7.6	52.2	341	-16.2	-61	141.6	392	(N/A)	20.5	10.90
Silver maple	16.3	2.8	8.0	0.7	88	31.6	4.6	4.4	30.3	197	-8.9	-33	89.7	252	(N/A)	11.4	12.59
Northern hackberry	10.7	1.9	5.3	0.5	58	26.6	3.9	3.7	25.0	165	0.0	0	77.4	223	(N/A)	8.0	15.93
Bur oak	8.7	1.4	3.9	0.4	46	20.1	2.9	2.8	19.0	125	0.0	0	59.1	170	(N/A)	7.4	13.10
Broadleaf Deciduous Small	0.0	0.0	0.0	0.0	0	0.2	0.0	0.0	0.1	1	0.0	0	0.3	1	(N/A)	5.1	0.11
Green ash	3.3	0.5	1.6	0.1	17	11.6	1.7	1.6	11.0	72	0.0	0	31.5	90	(N/A)	4.5	11.22
Northern white cedar	0.1	0.0	0.1	0.0	0	0.5	0.1	0.1	0.4	3	-0.3	-1	0.9	2	(N/A)	4.0	0.33
Spruce	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	1	-0.1	0	0.2	0	(N/A)	4.0	0.05
Norway maple	3.5	0.6	1.7	0.2	19	9.1	1.3	1.2	8.5	56	-0.8	-3	25.4	72	(N/A)	4.0	10.33
Black walnut	3.4	0.6	1.6	0.2	18	9.2	1.3	1.3	8.7	57	0.0	0	26.3	76	(N/A)	3.4	12.60
Broadleaf Deciduous Large	0.1	0.0	0.0	0.0	0	1.1	0.2	0.1	1.0	7	0.0	0	2.5	7	(N/A)	2.3	1.73
River birch	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	1	0.0	0	0.2	1	(N/A)	2.3	0.14
Siberian elm	2.0	0.3	1.0	0.1	11	5.0	0.7	0.7	4.7	31	0.0	0	14.5	42	(N/A)	1.7	13.95
Eastern redbud	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.0	0	0.0	0	0.1	0	(N/A)	1.7	0.11
Blue spruce	0.6	0.1	0.5	0.1	4	1.8	0.3	0.2	1.7	11	-1.7	-6	3.6	9	(N/A)	1.7	2.89
Apple	0.4	0.1	0.2	0.0	2	1.8	0.3	0.2	1.7	11	0.0	0	4.6	13	(N/A)	1.7	4.41
Broadleaf Deciduous Medium	0.3	0.1	0.2	0.0	2	2.2	0.3	0.3	2.0	13	-0.1	0	5.3	15	(N/A)	1.7	4.95
Red maple	0.8	0.1	0.4	0.0	4	1.9	0.3	0.3	1.8	12	-0.3	-1	5.4	15	(N/A)	1.7	5.10
Callery pear	0.1	0.0	0.0	0.0	0	0.7	0.1	0.1	0.7	4	0.0	0	1.7	5	(N/A)	1.1	2.34
Maple	0.0	0.0	0.0	0.0	0	0.2	0.0	0.0	0.2	1	0.0	0	0.4	1	(N/A)	1.1	0.62
Japanese tree lilac	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.1	0	(N/A)	1.1	0.11
American sycamore	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)	0.6	22.55
Kentucky coffeetree	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)	0.6	0.08
Japanese maple	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0	(N/A)	0.6	0.11
Mountain ash	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)	0.6	0.11
Boxelder	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)	0.6	3.26
Swamp white oak	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0	(N/A)	0.6	0.14
Ohio buckeye	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)	0.6	13.58
Catalpa	1.2	0.2	0.5	0.1	6	2.1	0.3	0.3	2.0	13	0.0	0	6.6	19	(N/A)	0.6	19.04
Honeylocust	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)	0.6	0.21
White ash	1.9	0.3	0.8	0.1	10	2.4	0.4	0.3	2.4	15	0.0	0	8.7	25	(N/A)	0.6	25.38
Conifer Evergreen Large	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)	0.6	0.05
Littleleaf linden	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.4	2	0.0	0	0.9	3	(N/A)	0.6	2.55
American elm	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)	0.6	0.03
Eastern white pine	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)	0.6	0.05

Species	Deposition (lb) O_3	NO_2	PM_{10}	SO_2	Total Depos. ($)	Avoided (lb) NO_2	PM_{10}	VOC	SO_2	Total Avoided ($)	BVOC Emissions (lb)	BVOC Emissions ($)	Total (lb)	Total ($)	Standard Error	% of Total Trees	Avg. $/tree
Eastern cottonwood	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)	0.6	22.55
Tulip tree	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)	0.6	0.08
Northern red oak	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)	0.6	0.21
Citywide total	78.3	13.1	37.8	3.5	420	190.0	27.7	26.4	180.5	1,184	-28.7	-108	528.7	1,497	(N/A)	100.0	8.50

Table 4: Annual Carbon Stored

Shellsburg

Stored CO2 Benefits of Public Trees

11/14/2014

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Sugar maple	609,724	4,573	(N/A)	20.5	30.2	127.03
Silver maple	396,090	2,971	(N/A)	11.4	19.6	148.53
Northern hackberry	170,756	1,281	(N/A)	8.0	8.5	91.48
Bur oak	291,477	2,186	(N/A)	7.4	14.5	168.16
Broadleaf Deciduous	124	1	(N/A)	5.1	0.0	0.10
Green ash	104,836	786	(N/A)	4.5	5.2	98.28
Northern white cedar	307	2	(N/A)	4.0	0.0	0.33
Spruce	17	0	(N/A)	4.0	0.0	0.02
Norway maple	57,631	432	(N/A)	4.0	2.9	61.75
Black walnut	115,756	868	(N/A)	3.4	5.7	144.69
Broadleaf Deciduous	2,267	17	(N/A)	2.3	0.1	4.25
River birch	67	1	(N/A)	2.3	0.0	0.13
Siberian elm	48,341	363	(N/A)	1.7	2.4	120.85
Eastern redbud	41	0	(N/A)	1.7	0.0	0.10
Blue spruce	3,355	25	(N/A)	1.7	0.2	8.39
Apple	6,088	46	(N/A)	1.7	0.3	15.22
Broadleaf Deciduous	5,825	44	(N/A)	1.7	0.3	14.56
Red maple	9,063	68	(N/A)	1.7	0.4	22.66
Callery pear	1,319	10	(N/A)	1.1	0.1	4.95
Maple	235	2	(N/A)	1.1	0.0	0.88
Japanese tree lilac	28	0	(N/A)	1.1	0.0	0.10
American sycamore	55,982	420	(N/A)	0.6	2.8	419.86
Kentucky coffeetree	12	0	(N/A)	0.6	0.0	0.09
Japanese maple	14	0	(N/A)	0.6	0.0	0.10
Mountain ash	14	0	(N/A)	0.6	0.0	0.10
Boxelder	1,101	8	(N/A)	0.6	0.1	8.26
Swamp white oak	17	0	(N/A)	0.6	0.0	0.13
Ohio buckeye	14,280	107	(N/A)	0.6	0.7	107.10
Catalpa	39,259	294	(N/A)	0.6	1.9	294.44
Honeylocust	14	0	(N/A)	0.6	0.0	0.10
White ash	25,943	195	(N/A)	0.6	1.3	194.57
Conifer Evergreen La	2	0	(N/A)	0.6	0.0	0.02
Littleleaf linden	1,025	8	(N/A)	0.6	0.1	7.68
American elm	14	0	(N/A)	0.6	0.0	0.10
Eastern white pine	2	0	(N/A)	0.6	0.0	0.02
Eastern cottonwood	55,982	420	(N/A)	0.6	2.8	419.86
Tulip tree	12	0	(N/A)	0.6	0.0	0.09
Northern red oak	13	0	(N/A)	0.6	0.0	0.09
Citywide total	2,017,032	15,128	(N/A)	100.0	100.0	85.95

Table 5: Annual Carbon Sequestered

Shellsburg

Annual CO Benefits of Public Trees

11/14/2014

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
Sugar maple	28,395	213	-2,927	-128	-1	0	0	25,341	190 (N/A)	20.5	30.0	5.28
Silver maple	28,583	214	-1,901	-74	-1	0	0	26,607	200 (N/A)	11.4	31.5	9.98
Northern hackberry	7,410	56	-820	-55	0	0	0	6,536	49 (N/A)	8.0	7.7	3.50
Bur oak	8,944	67	-1,399	-47	0	0	0	7,498	56 (N/A)	7.4	8.9	4.33
Broadleaf Deciduous Smal	78	1	-1	-2	0	0	0	75	1 (N/A)	5.1	0.1	0.06
Green ash	5,937	45	-503	-25	0	0	0	5,409	41 (N/A)	4.5	6.4	5.07
Northern white cedar	88	1	-2	-3	0	0	0	84	1 (N/A)	4.0	0.1	0.09
Spruce	25	0	0	-1	0	0	0	23	0 (N/A)	4.0	0.0	0.02
Norway maple	2,736	21	-277	-20	0	0	0	2,439	18 (N/A)	4.0	2.9	2.61
Black walnut	4,077	31	-556	-21	0	0	0	3,501	26 (N/A)	3.4	4.1	4.38
Broadleaf Deciduous Larg	494	4	-11	-3	0	0	0	480	4 (N/A)	2.3	0.6	0.90
River birch	22	0	-1	-1	0	0	0	20	0 (N/A)	2.3	0.0	0.04
Siberian elm	2,035	15	-232	-11	0	0	0	1,792	13 (N/A)	1.7	2.1	4.48
Eastern redbud	26	0	0	-1	0	0	0	25	0 (N/A)	1.7	0.0	0.06
Blue spruce	272	2	-16	-6	0	0	0	250	2 (N/A)	1.7	0.3	0.63
Apple	544	4	-29	-4	0	0	0	511	4 (N/A)	1.7	0.6	1.28
Broadleaf Deciduous Medi	834	6	-28	-4	0	0	0	802	6 (N/A)	1.7	0.9	2.00
Red maple	1,091	8	-44	-4	0	0	0	1,044	8 (N/A)	1.7	1.2	2.61
Callery pear	320	2	-7	-2	0	0	0	311	2 (N/A)	1.1	0.4	1.17
Maple	42	0	-1	-1	0	0	0	40	0 (N/A)	1.1	0.0	0.15
Japanese tree lilac	17	0	0	0	0	0	0	17	0 (N/A)	1.1	0.0	0.06
American sycamore	479	4	-269	-6	0	0	0	204	2 (N/A)	0.6	0.2	1.53
Kentucky coffeetree	3	0	0	0	0	0	0	2	0 (N/A)	0.6	0.0	0.02
Japanese maple	9	0	0	0	0	0	0	8	0 (N/A)	0.6	0.0	0.06
Mountain ash	9	0	0	0	0	0	0	8	0 (N/A)	0.6	0.0	0.06
Boxelder	181	1	-5	-1	0	0	0	174	1 (N/A)	0.6	0.2	1.31
Swamp white oak	5	0	0	0	0	0	0	5	0 (N/A)	0.6	0.0	0.04
Ohio buckeye	370	3	-69	-4	0	0	0	298	2 (N/A)	0.6	0.4	2.23
Catalpa	912	7	-188	-5	0	0	0	719	5 (N/A)	0.6	0.8	5.39
Honeylocust	11	0	0	0	0	0	0	10	0 (N/A)	0.6	0.0	0.08
White ash	0	0	-125	-5	0	0	0	-130	-1 (N/A)	0.6	-0.2	-0.97
Conifer Evergreen Large	4	0	0	0	0	0	0	3	0 (N/A)	0.6	0.0	0.02
Littleleaf linden	223	2	-5	-1	0	0	0	217	2 (N/A)	0.6	0.3	1.63
American elm	7	0	0	0	0	0	0	7	0 (N/A)	0.6	0.0	0.05
Eastern white pine	4	0	0	0	0	0	0	3	0 (N/A)	0.6	0.0	0.02
Eastern cottonwood	479	4	-269	-6	0	0	0	204	2 (N/A)	0.6	0.2	1.53
Tulip tree	3	0	0	0	0	0	0	2	0 (N/A)	0.6	0.0	0.02
Northern red oak	5	0	0	0	0	0	0	5	0 (N/A)	0.6	0.0	0.03
Citywide total	94,673	710	-9,684	-442	-3	0	0	84,547	634 (N/A)	100.0	100.0	3.60

Table 6: Annual Social and Aesthetic Benefits

Shellsburg

Annual Aesthetic/Other Benefits of Public Trees

11/14/2014

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Sugar maple	2,832	(N/A)	20.5	33.0	78.66
Silver maple	2,174	(N/A)	11.4	25.3	108.69
Northern hackberry	917	(N/A)	8.0	10.7	65.47
Bur oak	668	(N/A)	7.4	7.8	51.40
Broadleaf Deciduous Small	0	(N/A)	5.1	0.0	0.03
Green ash	478	(N/A)	4.5	5.6	59.80
Northern white cedar	51	(N/A)	4.0	0.6	7.29
Spruce	40	(N/A)	4.0	0.5	5.76
Norway maple	254	(N/A)	4.0	3.0	36.35
Black walnut	326	(N/A)	3.4	3.8	54.32
Broadleaf Deciduous Large	77	(N/A)	2.3	0.9	19.28
River birch	11	(N/A)	2.3	0.1	2.74
Siberian elm	139	(N/A)	1.7	1.6	46.48
Eastern redbud	0	(N/A)	1.7	0.0	0.03
Blue spruce	76	(N/A)	1.7	0.9	25.23
Apple	31	(N/A)	1.7	0.4	10.33
Broadleaf Deciduous Medium	92	(N/A)	1.7	1.1	30.53
Red maple	139	(N/A)	1.7	1.6	46.32
Callery pear	39	(N/A)	1.1	0.5	19.55
Maple	7	(N/A)	1.1	0.1	3.66
Japanese tree lilac	0	(N/A)	1.1	0.0	0.03
American sycamore	29	(N/A)	0.6	0.3	28.57
Kentucky coffeetree	5	(N/A)	0.6	0.1	5.26
Japanese maple	0	(N/A)	0.6	0.0	0.03
Mountain ash	0	(N/A)	0.6	0.0	0.03
Boxelder	27	(N/A)	0.6	0.3	27.10
Swamp white oak	3	(N/A)	0.6	0.0	2.74
Ohio buckeye	31	(N/A)	0.6	0.4	31.46
Catalpa	58	(N/A)	0.6	0.7	58.34
Honeylocust	0	(N/A)	0.6	0.0	0.38
White ash	0	(N/A)	0.6	0.0	0.00
Conifer Evergreen Large	6	(N/A)	0.6	0.1	5.76
Littleleaf linden	31	(N/A)	0.6	0.4	31.20
American elm	2	(N/A)	0.6	0.0	1.91
Eastern white pine	6	(N/A)	0.6	0.1	5.76
Eastern cottonwood	29	(N/A)	0.6	0.3	28.57
Tulip tree	5	(N/A)	0.6	0.1	5.26
Northern red oak	2	(N/A)	0.6	0.0	1.54
Citywide total	8,586	(N/A)	100.0	100.0	48.78

Table 7: Summary of Benefits in Dollars

Shellsburg

Total Annual Benefits of Public Trees by Species ($)

11/14/201

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Sugar maple	2,384	190	392	3,942	2,832	9,740	(N/A)	30.3
Silver maple	1,375	200	252	2,518	2,174	6,518	(N/A)	20.3
Northern hackberry	1,182	49	223	1,598	917	3,969	(N/A)	12.3
Bur oak	885	56	170	1,508	668	3,288	(N/A)	10.2
Broadleaf Deciduous Sn	8	1	1	2	0	11	(N/A)	0.0
Green ash	511	41	90	726	478	1,846	(N/A)	5.7
Northern white cedar	24	1	2	29	51	106	(N/A)	0.3
Spruce	6	0	0	9	40	57	(N/A)	0.2
Norway maple	411	18	72	476	254	1,232	(N/A)	3.8
Black walnut	410	26	76	626	326	1,464	(N/A)	4.6
Broadleaf Deciduous La	48	4	7	38	77	173	(N/A)	0.5
River birch	4	0	1	1	11	17	(N/A)	0.1
Siberian elm	220	13	42	313	139	727	(N/A)	2.3
Eastern redbud	3	0	0	1	0	4	(N/A)	0.0
Blue spruce	74	2	9	126	76	285	(N/A)	0.9
Apple	77	4	13	36	31	162	(N/A)	0.5
Broadleaf Deciduous M	96	6	15	70	92	278	(N/A)	0.9
Red maple	86	8	15	95	139	343	(N/A)	1.1
Callery pear	33	2	5	20	39	100	(N/A)	0.3
Maple	9	0	1	4	7	22	(N/A)	0.1
Japanese tree lilac	2	0	0	0	0	3	(N/A)	0.0
American sycamore	99	2	23	196	29	347	(N/A)	1.1
Kentucky coffeetree	1	0	0	0	5	7	(N/A)	0.0
Japanese maple	1	0	0	0	0	1	(N/A)	0.0
Mountain ash	1	0	0	0	0	1	(N/A)	0.0
Boxelder	22	1	3	20	27	74	(N/A)	0.2
Swamp white oak	1	0	0	0	3	4	(N/A)	0.0
Ohio buckeye	71	2	14	102	31	220	(N/A)	0.7
Catalpa	91	5	19	196	58	370	(N/A)	1.2
Honeylocust	2	0	0	1	0	3	(N/A)	0.0
White ash	101	-1	25	214	0	339	(N/A)	1.1
Conifer Evergreen Large	1	0	0	1	6	8	(N/A)	0.0
Littleleaf linden	18	2	3	12	31	66	(N/A)	0.2
American elm	0	0	0	0	2	2	(N/A)	0.0
Eastern white pine	1	0	0	1	6	8	(N/A)	0.0
Eastern cottonwood	99	2	23	196	29	347	(N/A)	1.1
Tulip tree	1	0	0	0	5	7	(N/A)	0.0
Northern red oak	2	0	0	1	2	4	(N/A)	0.0
Citywide Total	8,358	634	1,497	13,079	8,586	32,154	(N/A)	100.0

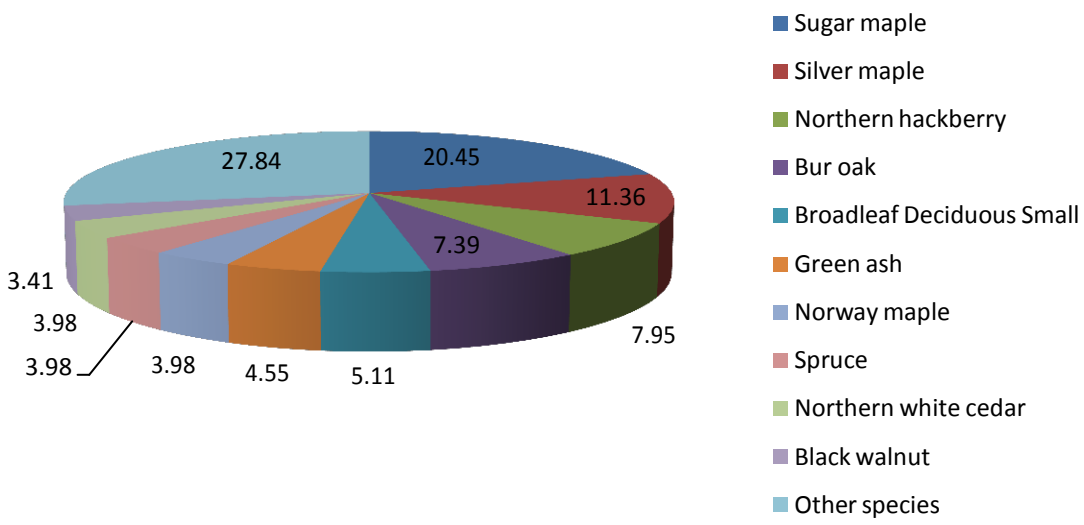


Figure 1: Species Distribution

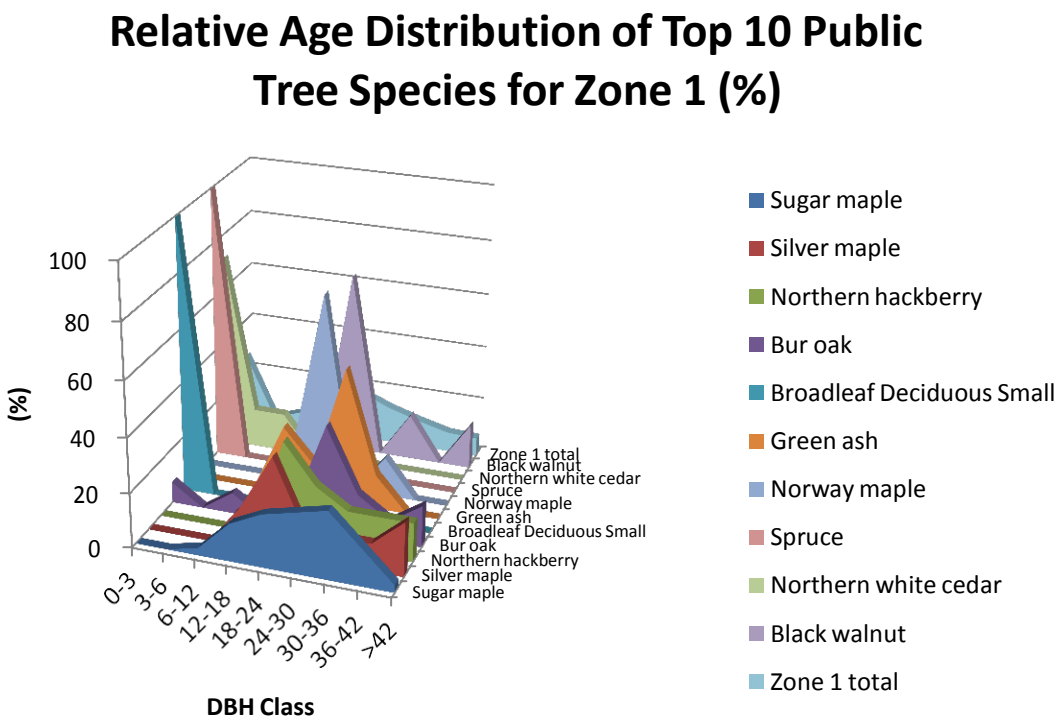


Figure 2: Relative Age Class

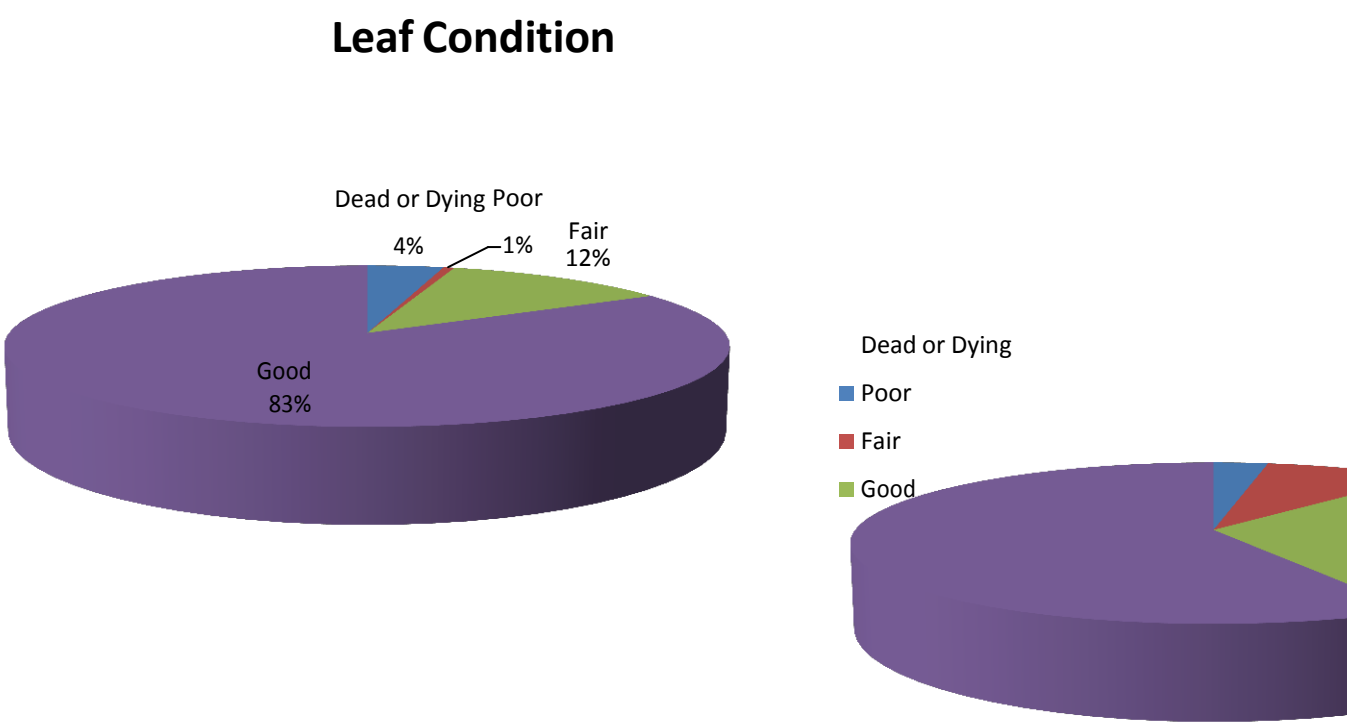


Figure 3: Foliage Condition

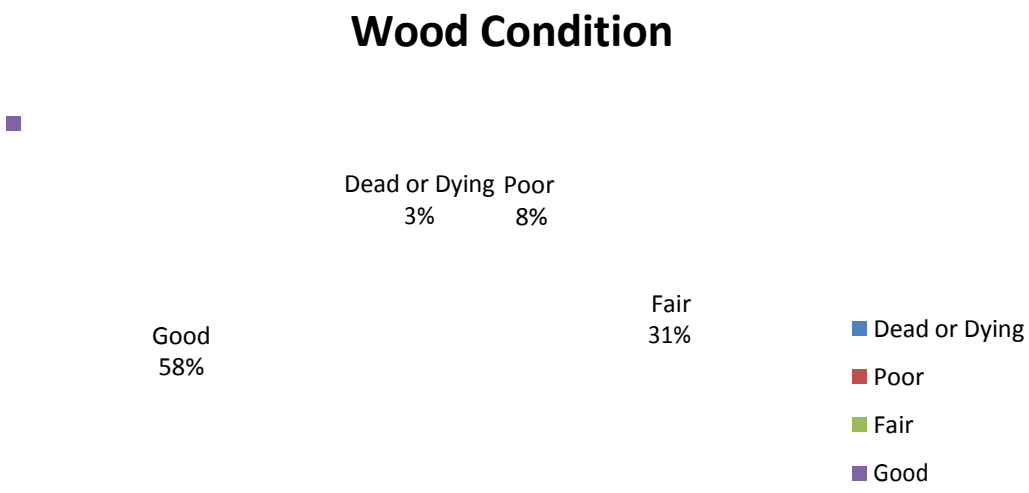


Figure 4: Wood Condition

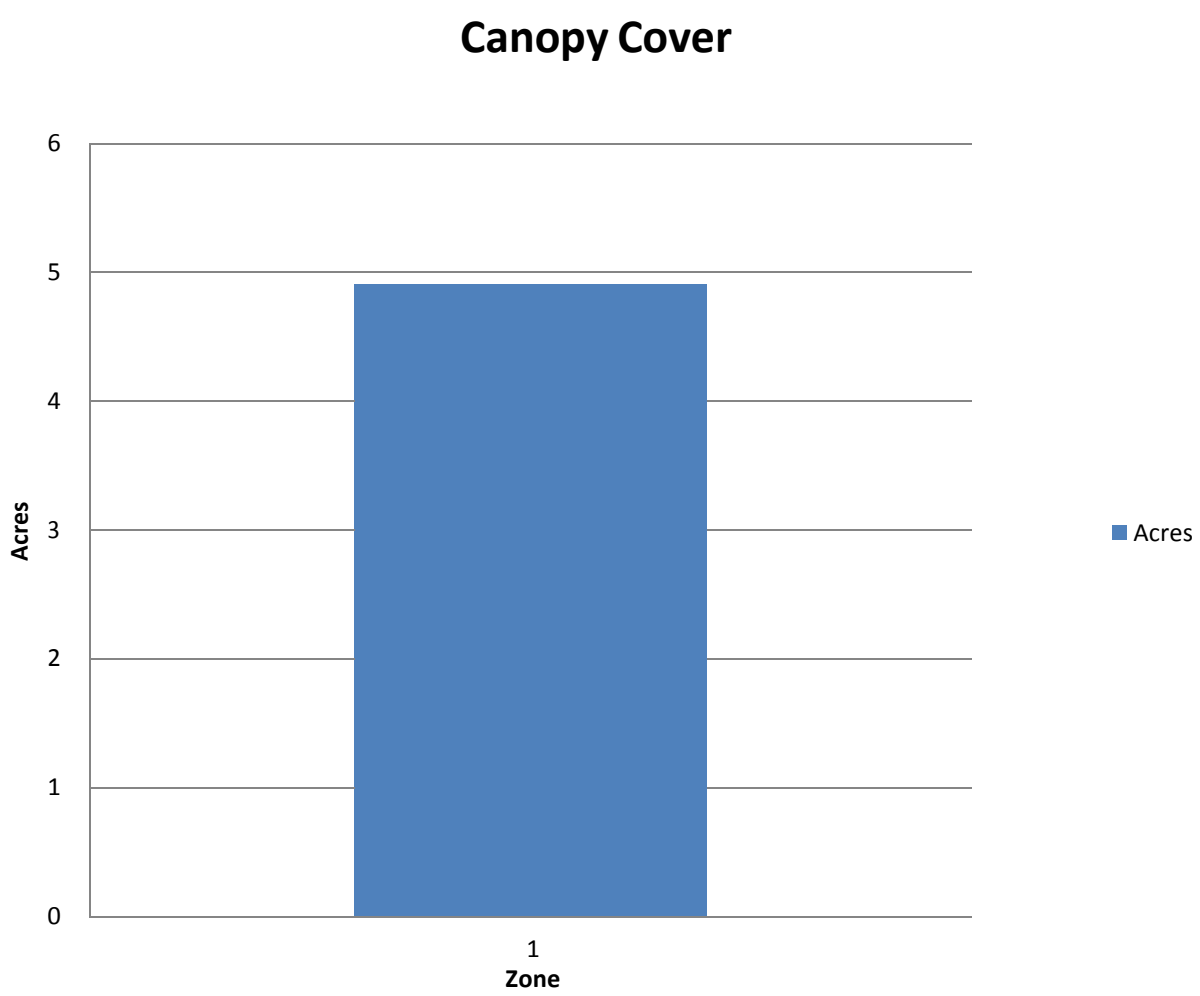


Figure 5: Canopy Cover in Acres

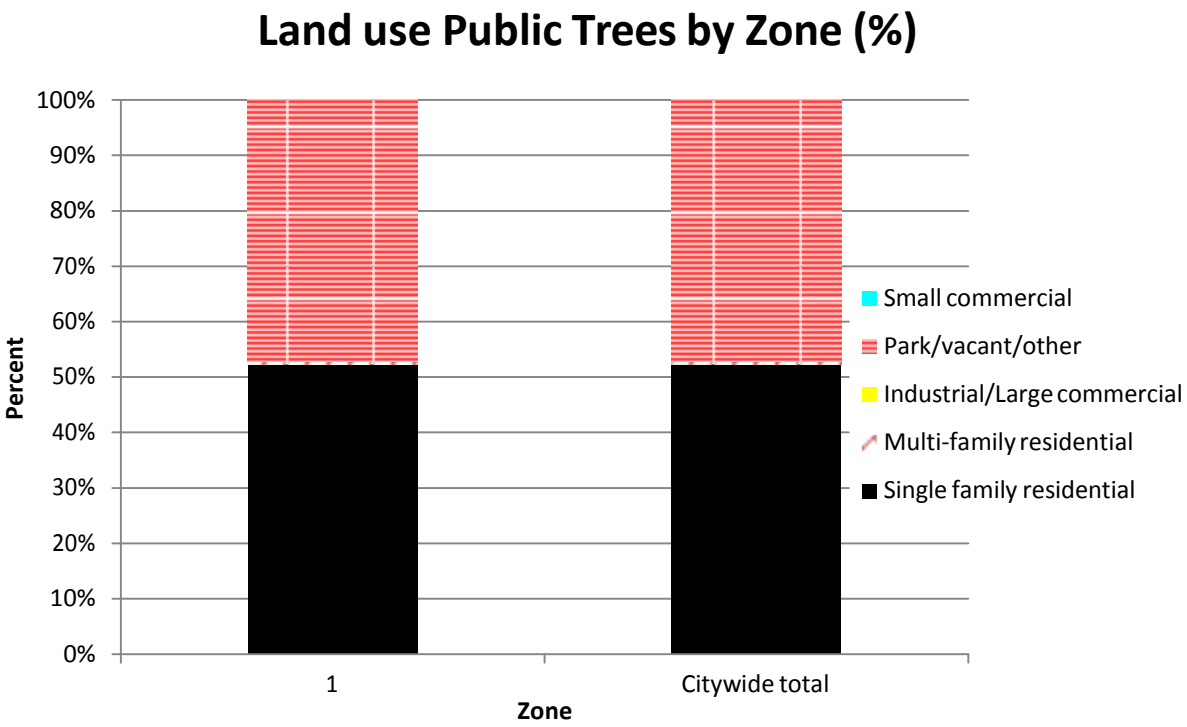


Figure 6: Land Use of city/park trees

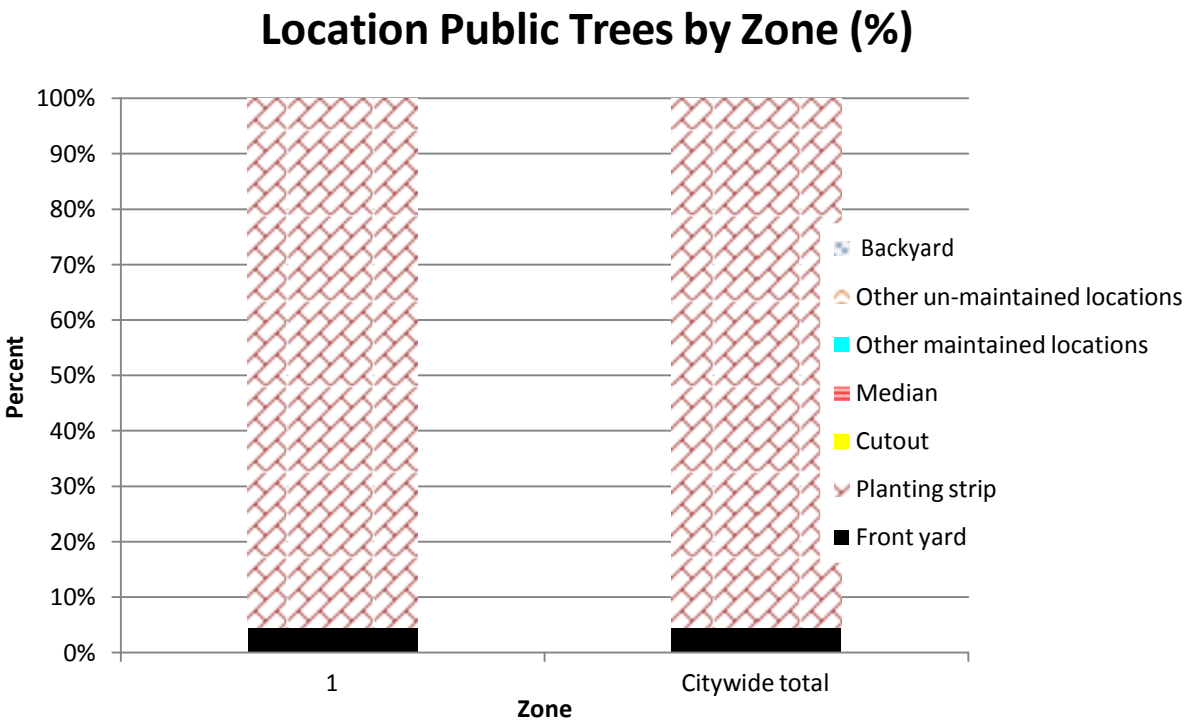
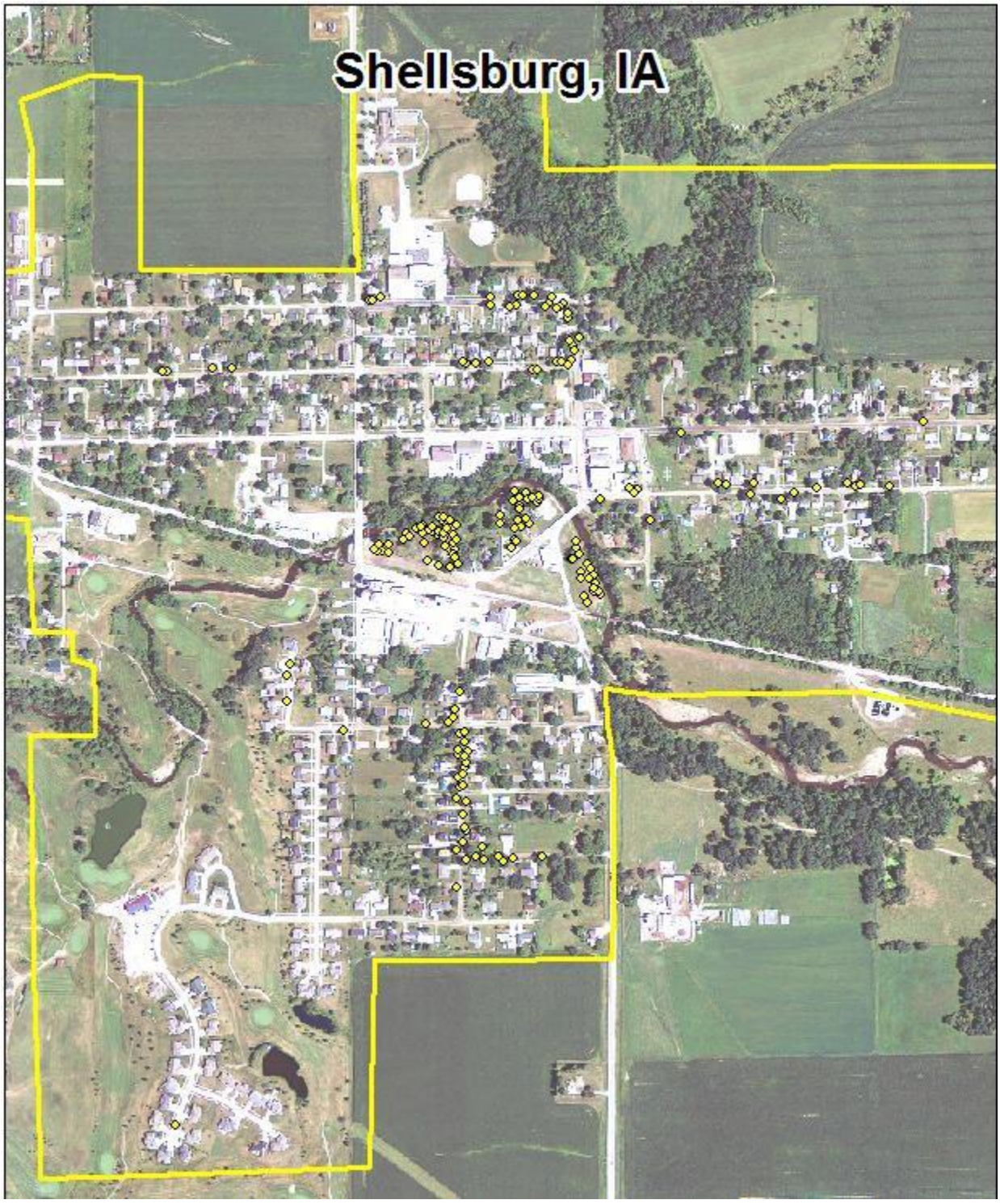


Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping



Location of all Public Trees

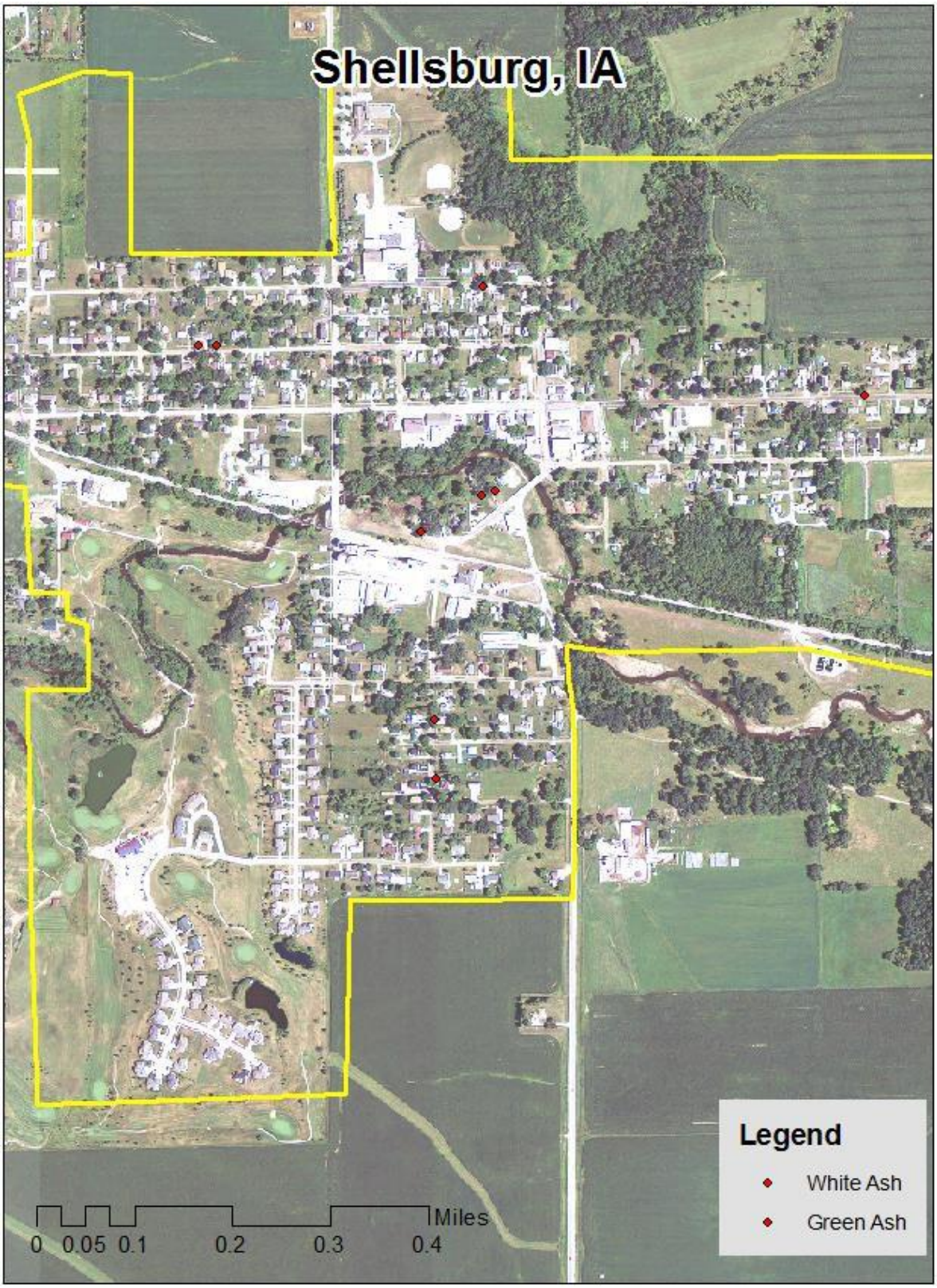


Figure 1: Location of Ash Trees

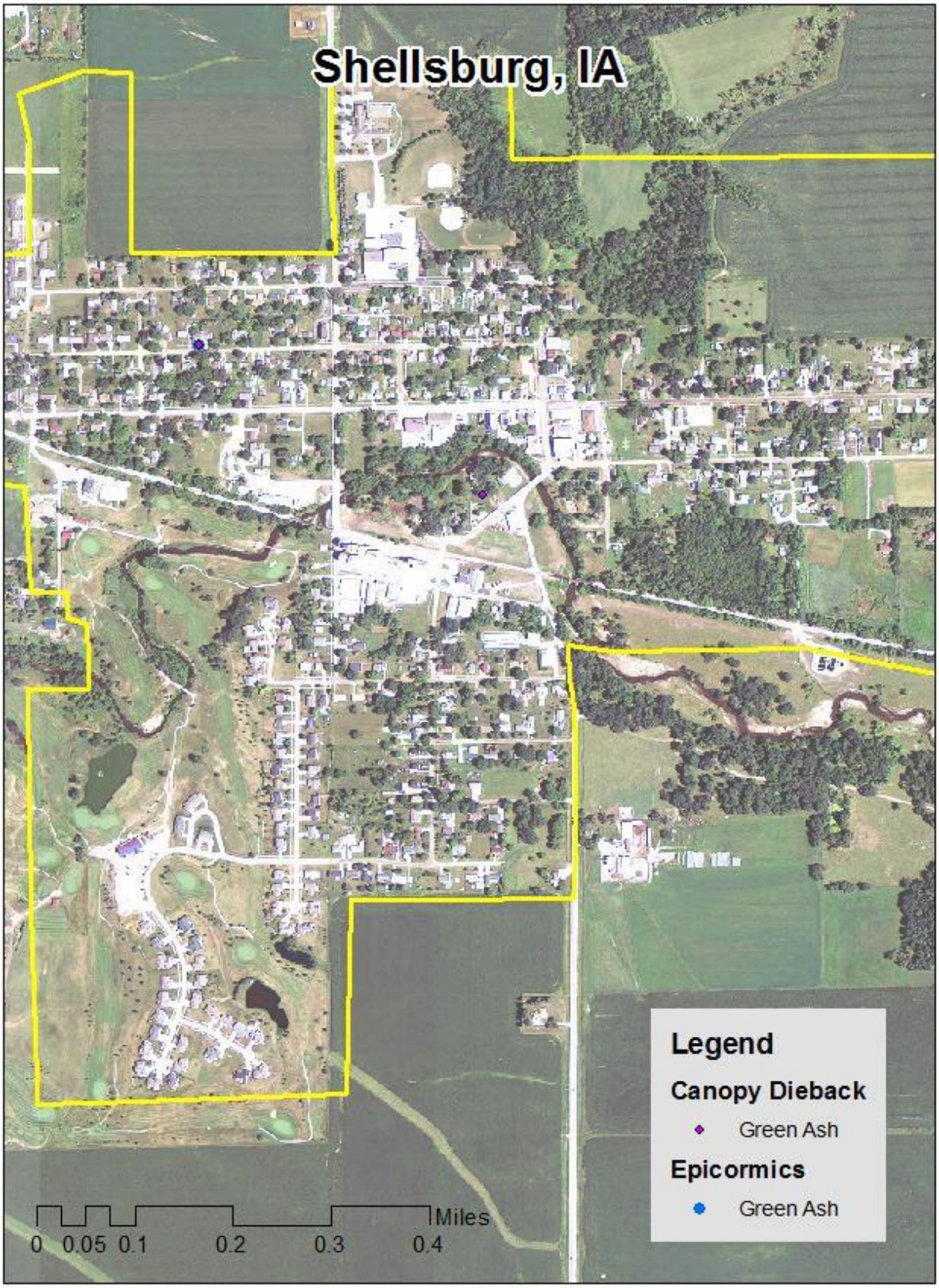


Figure 2: Location of EAB symptoms

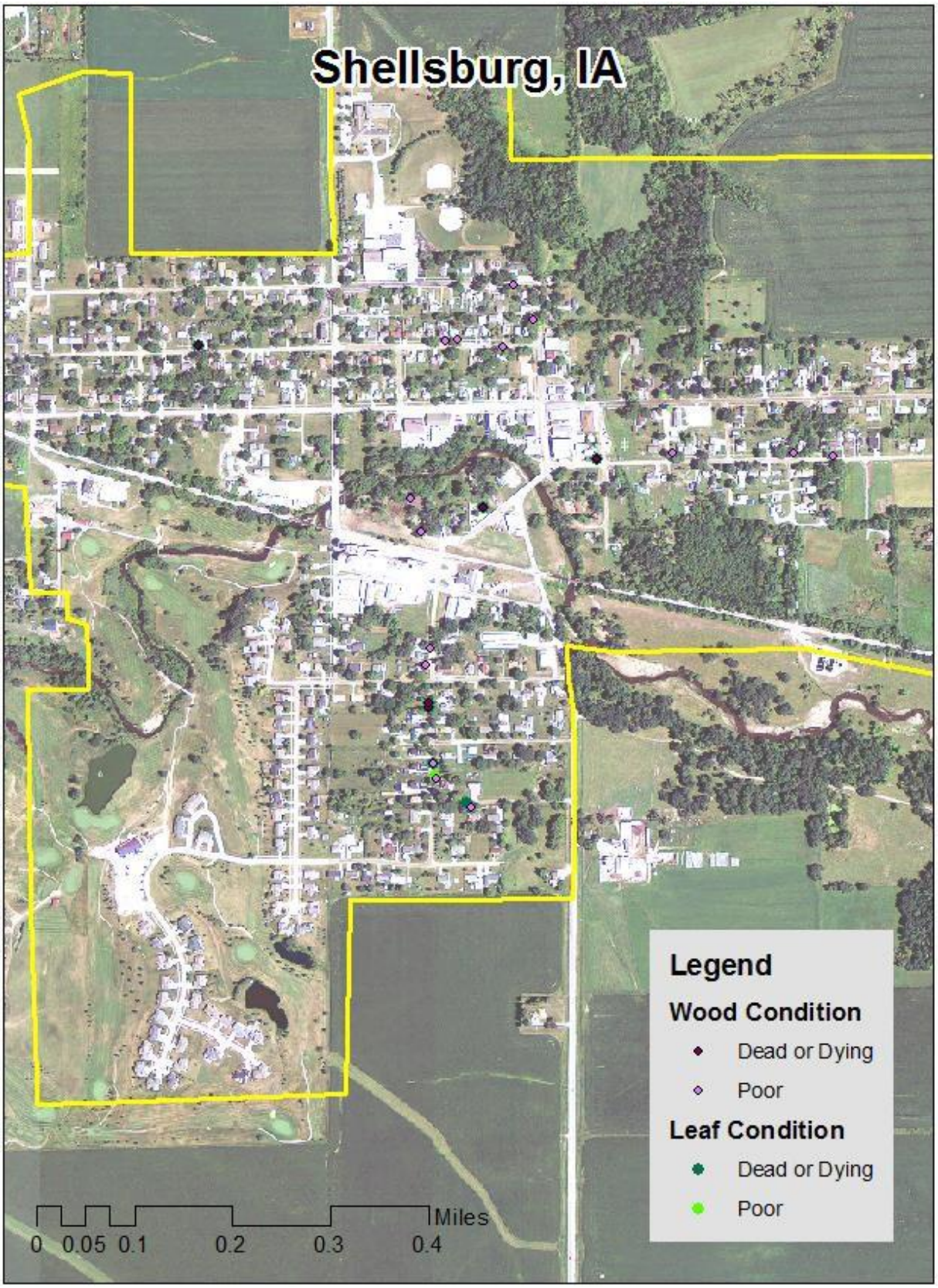


Figure 3: Location of Poor Condition Trees

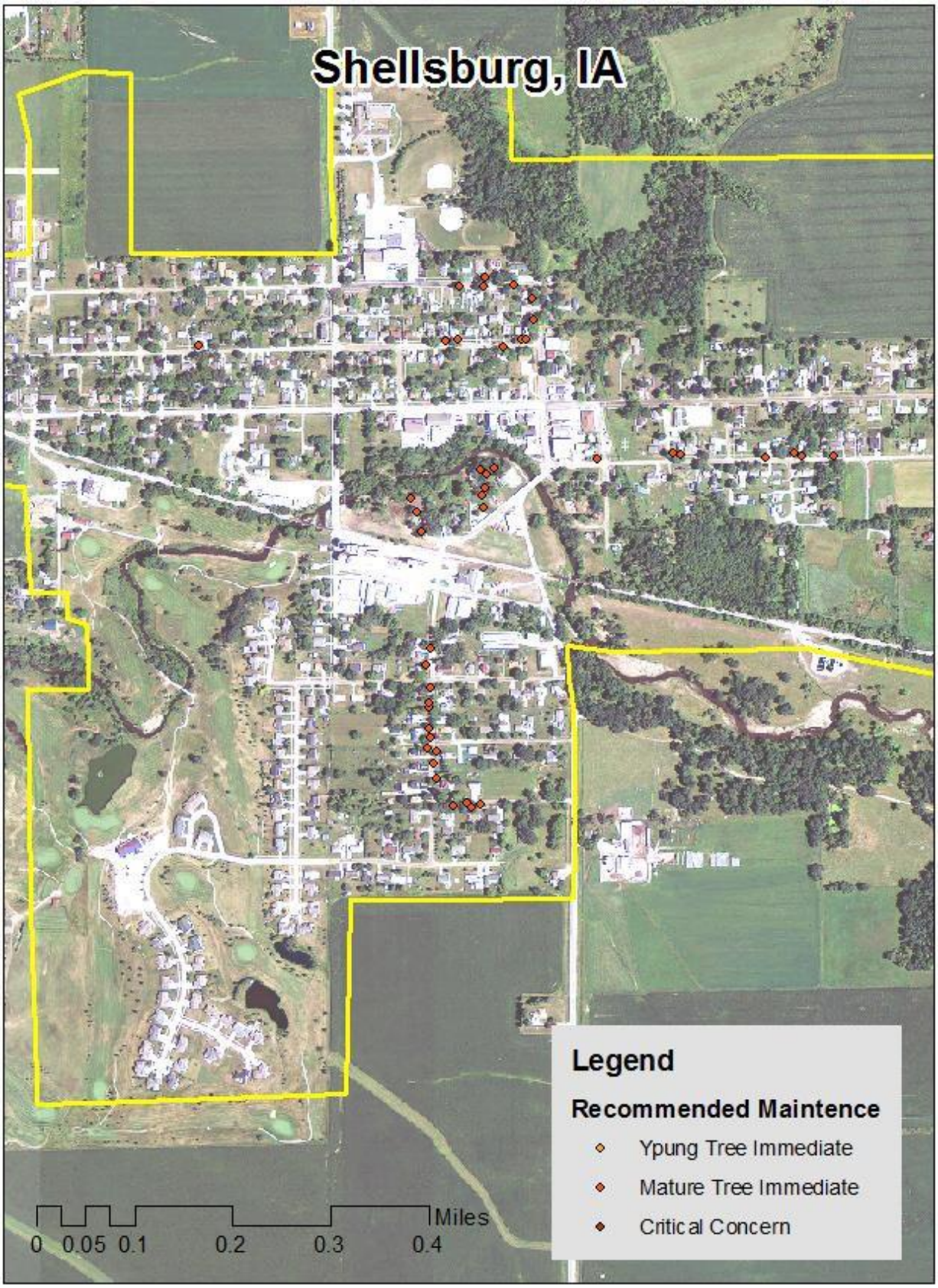


Figure 4: Location of Trees with Recommended Maintenance

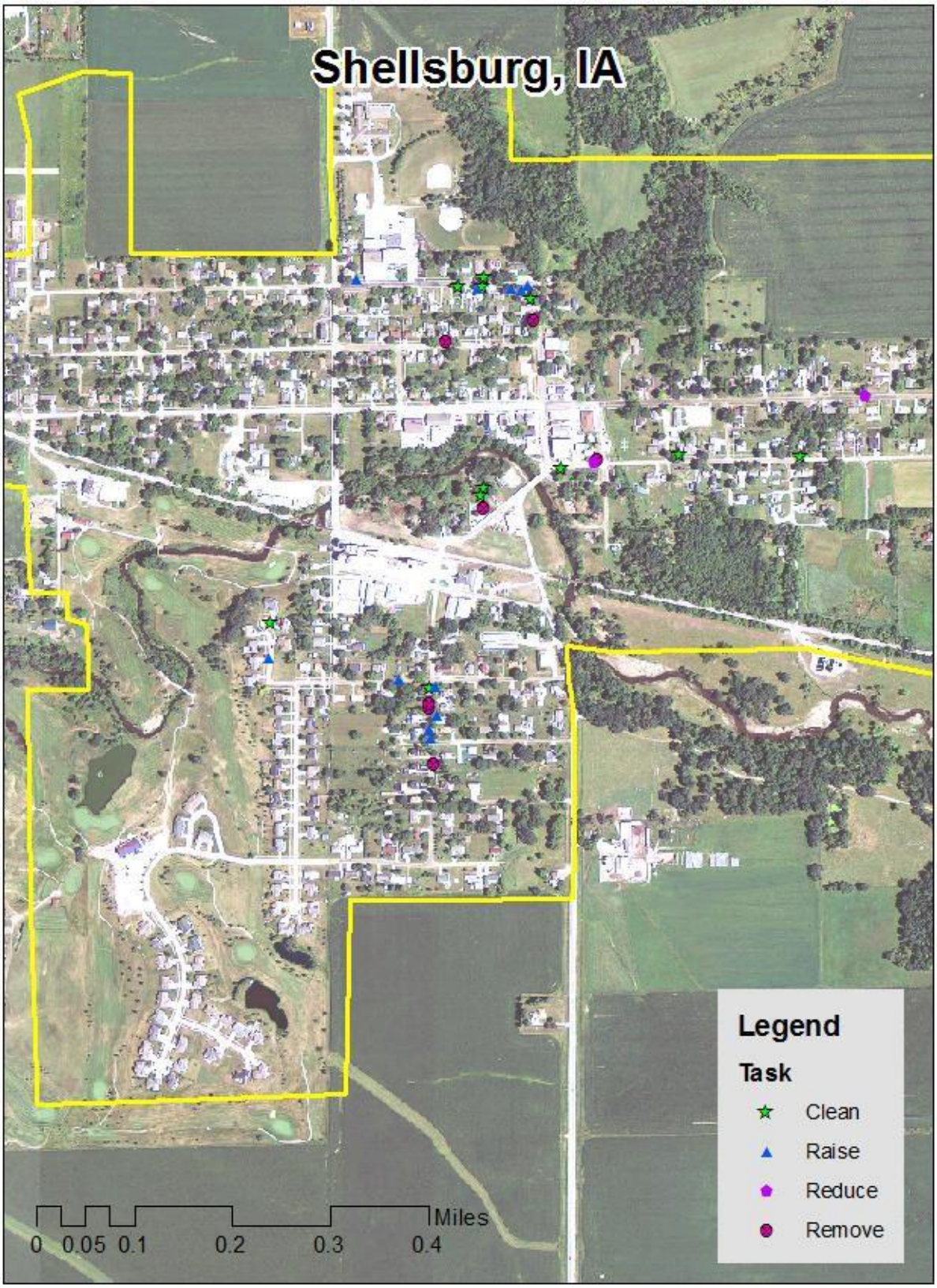


Figure 5: Maintenance Tasks ***City ownership of the trees recommended for removal should be verified prior to any removal***

Appendix C: Shellsburg Tree Ordinance

CHAPTER 151

TREES

151.01 DEFINITION. For use in this chapter, "parking" means that part of the street, avenue or highway in the City not covered by sidewalk and lying between the lot line and the curb line; or, on unpaved streets, that part of the street, avenue or highway lying between the lot line and that portion of the street usually traveled by vehicular traffic.

151.02 PLANTING RESTRICTIONS. No tree shall be planted in any parking or street.

151.03 DUTY TO TRIM TREES AND SHRUBBERY.

1. Trees. The owner or agent of the abutting property shall keep the trees on any street, alley or parking and trees overhanging any sidewalk, street, alley or parking trimmed so that the space from the surface to the lower branches of such trees is not less than ten (10) feet over any sidewalk, twelve (12) feet over any street and sixteen (16) feet over streets which are primary extensions of State highways. All trees on or near any street shall be trimmed so as not to unduly obstruct or obscure street lights.

2. Shrubbery. All shrubbery, bushes, vines or plants maintained in the public streets beyond the lot lines, where such vegetation interferes with the vision of drivers of vehicles, shall be trimmed and cut and kept trimmed and cut by the owner of the lot or parcel of land in front of or at the side of which such shrubbery, bushes, vines or plants are maintained so that the top thereof is not over two feet above the street level and so as not to interfere with public travel and safety.

If the abutting property owner fails to trim the trees and shrubbery, 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. Removal from 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, and that danger to other trees within the City is imminent, the Council shall immediately cause such condition to be corrected by treatment or removal so as to destroy or prevent as fully as possible the spread of the disease or the insect or disease pests. 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. Removal from Private Property. If it is determined with reasonable certainty that any such condition exists on private property and that the danger to other trees within the City is imminent, the Council shall immediately 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 fourteen (14) days of receipt of notice, the Council may cause the nuisance to be removed and the cost assessed against the property.

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

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 515-281-5918.