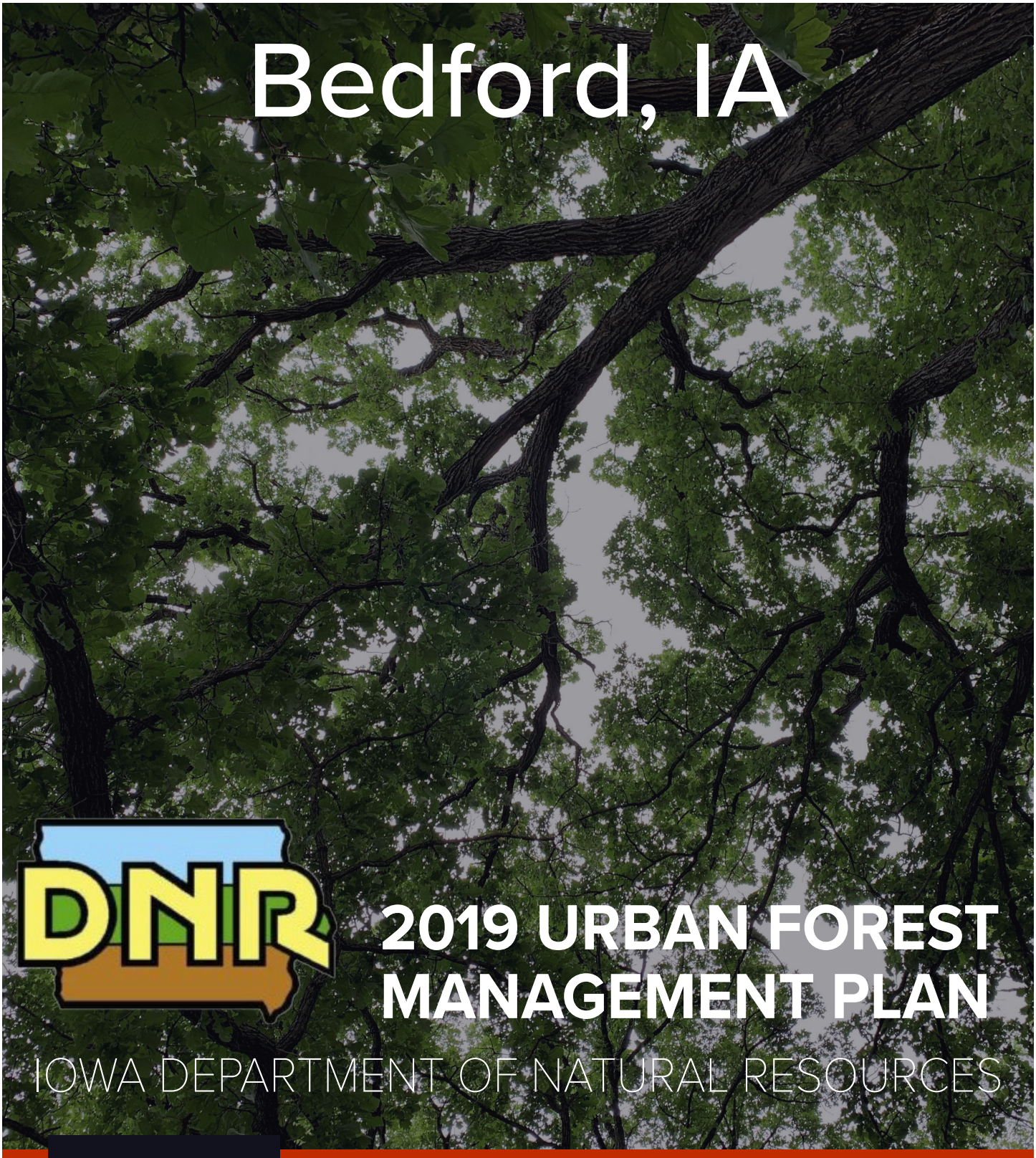

Bedford, IA

2019 URBAN FOREST MANAGEMENT PLAN

IOWA DEPARTMENT OF NATURAL RESOURCES

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Executive Summary

Overview

This plan was developed to assist the City of Bedford in managing its urban forest, including budgeting and future planning. Trees bring numerous benefits to a community, and sound management helps leaders take advantage of these benefits. Management is especially important now considering the serious threats posed by forest pests like 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 except mountain ash. There is a strong possibility that 5% of Bedford's city-owned trees will die once EAB becomes established in the community, unless local leaders begin preventative treatment. 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 2019, JEO conducted a tree inventory 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 300 trees inventoried.

- Bedford's trees provide $74,905 of benefits annually, an average of $249.68 per tree
- There are over 35 species of trees
- The top three genera are: Maple 38%, Oak 29%, and Elm 7%
- 8% of trees need some type of management
- 16 Critical Concern trees should be removed

Recommendations

We detail our core recommendations in the Recommendations Section. In the Emerald Ash Borer Plan, we include management recommendations. Below are some key recommendations.

- Out of the 16 trees needing removal, 6 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*
- 13 of the 14 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 yearly with a visual survey.
- With the current budget it could take 3 years to remove ash. We suggest that city officials request a budget increase to $4,000 annually and apply for grants to plant replacement trees.

Introduction

This plan was developed to assist Bedford with managing, budgeting, and future planning of their urban forest. Across the state, forestry budgets continue to decrease as a higher percentage of the budgets are devoted to 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, treatment, and replacement planting. With proper planning and management of the current canopy in Bedford, these costs can be spread out over the years and public safety issues from dead and dying ash trees can be mitigated.

Trees are an important part of Bedford's infrastructure and one of the city's greatest assets. The benefits of trees are immense. Trees improve air quality, intercept stormwater runoff, conserve energy, lower traffic speeds, increase property values, reduce crime, improve mental health, and create a desirable place to live, to name just a few. Good urban forestry management will maintain these important benefits for the people of Bedford and future generations.

Urban forestry management sets goals and develops management strategies to achieve them. To develop management strategies, a comprehensive public tree inventory must be conducted. The inventory informs maintenance, removal schedules, tree planting, and budgeting. Aligning management actions with the tree inventory results will help meet Bedford's urban forestry goals.

Inventory

In 2019, JEO conducted a tree inventory that included 100% of the city-owned trees on both streets and parks. The team collected tree data 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 data collectors' programming 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, for all ash trees, the team notes signs and symptoms associated with EAB including canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage.

Inventory Results

JEO entered the data collected for the 300 city trees into the USDA Forest service program Street Tree Resource Analysis Tool for Urban forestry Management as part of the i-Tree suite. Below are results from the i-Tree STREETS analysis.

Annual Benefits

Annual Energy Benefits

Trees conserve energy by shading buildings and blocking winds. Bedford's trees reduce energy-related costs by approximately $20,235 annually (Appendix A, Table 1). These savings are both in electricity (95.7 MWh) and in natural gas (13,233.4 Therms).

Annual Stormwater Benefits

Bedford's trees intercept about 1,207,562 gallons of rainfall or snow melt per year (Appendix A, Table 2). This interception provides $32,725 in benefit 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 lessens emissions of volatile organic matter (ozone). In Bedford, it is estimated that trees remove 1,328.3 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 $3,787 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Bedford, trees sequester about 186,089 lbs of carbon per year with an associated value of $1,396 (Appendix A, Table 5). In addition, the trees store 5,432,089 lbs of carbon, with a yearly benefit of $40,741 (Appendix A, Table 4).

Annual Aesthetics Benefits

The social benefits of trees are hard to capture. The i-Tree 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. Bedford receives $15,762 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, Bedford's trees provide $74,905 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 300 trees in Bedford provide approximately $249.68 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Bedford has over 35 different tree species along city streets and parks (Appendix A, Figure 1).
The distribution of trees by genera is as follows:

Maple	115	38%
Oak	87	29%
Elm	22	7%
Pear	16	5%
Ash	14	5%
Hickory	9	3%
Linden/Basswood	6	2%
Other Conifer Evergreen	6	2%
Broadleaf Deciduous Misc.	4	1%
Eastern redbud	3	1%
Locust	3	1%
Spruce	2	<1%
Hackberry	2	<1%
Walnut	2	<1%
Catalpa	2	<1%
Cottonwood	2	<1%
Southern Magnolia	2	<1%
Apple (Crab)	1	<1%
Birch	1	<1%
Juniper	1	<1%

Age Class

Most of Bedford's trees (48%) are between 24 and 36 inches in diameter at 4.5 ft (Appendix A, Figure 2).
To prepare for natural mortality and to maintain canopy cover, most trees should be in the smallest size category (a downward slope), indicating youth. Bedford's size curve indicates a mature and aging stand which may be larger than an average stand.

Condition: Wood and Foliage

Both wood condition and leaf condition are good indicators of the urban forest's overall health. The foliage condition results for Bedford indicate that 77% of the trees are in good health, with only 3% of the foliage in poor health, dead, or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 66% of Bedford's trees are in good health for wood condition (Appendix A, Figure 4 & Appendix B, Figure 3). Five percent of the tree population's wood condition is in poor health, dead, or dying. This 5% 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 Raising	0	0%
Tree Staking	0	0%
Crown Cleaning	1	<1%
Crown Reduction	3	1%
Tree Removal	7	2%

Land Use and Location

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

Land Use	
Single family residential	100%
Park/vacant/other	0%
Industrial/Large commercial	0%
Small commercial	0%
Multifamily residential	0%

Recommendations

Risk Management

Hazardous trees can be a significant threat to both people and property. Trees that are dead, dying, or have large issues such as trunk cracks longer than 18 inches should be removed. Broken branches and branches that interfere with motorists' vision of pedestrians, vehicles, traffic signs and signals should be removed.

Hazardous trees

Bedford has 16 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). We recommend starting with the large-diameter, critical concern trees first. There are 6 trees over 24 inches in diameter at 4.5 ft that should be addressed immediately. Please refer to the Six-Year Maintenance Plan at the end of this section. After all the critical concern trees are addressed, there should be follow up on the trees marked as needing maintenance. There are a total of 3 additional trees with immediate maintenance needs.

Poor tree species

After removing the critical concern trees, ash trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, Figure 4). Of the 16 removals, 13 are ash trees. There are a total of 14 ash trees, and 13 of those have signs and symptoms that have been associated with EAB. In addition, there is 1 tree 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 removes lower branches that are two inches in diameter or larger to provide clearance for pedestrians or vehicles. Crown reduction removes individual limbs from structures or utility wires. We recommend that all trees be pruned on a routine schedule every five to seven years. Please refer to the Proposed Work Schedule and Budget for further information.

Planting

Most of the planting over the next five years will replace the trees that are removed. We recommend planting 1.2 trees for every tree removed, since survival rates will not be 100%. It is not essential that the new trees be planted in the same location of the trees being removed. However, maintaining the same number of trees helps ensure continuation of the benefits of the existing forest in Bedford.

It is important to plant a diverse mix of species in the urban forest to maintain canopy health, since most insects and diseases target a genus (ash) or species (green ash) of trees. Current diversity recommendations advise that a genus (i.e. maple, oak) not make up more than 20% of the urban forest and a single species (i.e. silver maple, sugar maple, white oak, bur oak) not make up more than 10% of the total urban forest. Presently, the forest is heavily planted with maple (38%) and oak (29%) (Appendix A, Figure 1). It is advised that maples and oaks 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. While the city currently has no existing City Code in reference to tree species planting restrictions, we encourage the city to work with the Iowa Department of Natural Resources to develop a plan moving forward.

Continual Monitoring

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

Emerald Ash Borer Plan

Ash Tree Removal

Tree removal will be prioritized by first removing dead, dying, hazardous trees (Appendix B, Figure 4). Next will be all ash in poor condition that display EAB signs and symptoms (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 providing 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 normally disposed of 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 outlined by the Iowa Department of Natural Resources. While the city currently has no existing City Code in reference to tree species restrictions, we encourage the city to work with the Iowa Department of Natural Resources to develop a plan moving forward. We encourage the new plantings to be a diverse mix and 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 EAB signs and symptoms including canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage.

Private Ash Trees
It is strongly recommended that private property owners start removing ash trees on their property upon arrival of EAB if preventative treatments are not being used. City Code 151.06 states "The Council shall inspect or cause to be inspected any trees or shrubs in the City reported or suspected to be dead, diseased or damaged, and such trees and shrubs shall be subject to the following: If it is determined with reasonable certainty that any such condition exists on private property and that danger to other trees or to adjoining property or passing motorists or pedestrians is imminent, the Council shall notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within 14 days of said notification. If such owner, occupant, or person in charge of said property fails to comply within 14 days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property."

Proposed Work Schedule and Budget

Budget Allowance of $2,880/Year – (Calculated at $2/Capita, No Budget Provided)

YEAR 1	**ESTIMATED COSTS**
Remove 3 Critical Concern Trees	$2,100
Plant 5 trees in open locations	$750
Visual Survey of EAB Signs/Symptoms	
YEAR 2	
Remove 3 Critical Concern Trees	$2,100
Plant 5 trees in open locations	$750
Visual Survey of EAB Signs/Symptoms	
YEAR 3	
Remove 3 Critical Concern Trees	$2,100
Plant 5 trees in open locations	$750
Visual Survey of EAB Signs/Symptoms	

YEAR 4

Remove 3 Critical Concern Trees	$2,100
Plant 5 trees in open locations	$750
Visual Survey of EAB Signs/Symptoms	

YEAR 5

Remove 3 Critical Concern Trees	$2,100
Plant 5 trees in open locations	$750
Visual Survey of EAB Signs/Symptoms	

YEAR 6

Remove 1 Critical Concern Trees	$700
Remove 1 Remaining ash tree	$700
Plant 9 trees in open locations	$1,350
Visual Survey of EAB Signs/Symptoms	

Estimated costs based on average costs of $700/tree for removal, $150/tree for planting and maintenance, and $15/tree for pruning.

**To remove all ash trees within 6 years alone, the budget would need to be $1,700 a year. If the budget were increased to $4,000 a year all ash could be removed in 2.5 years.

Proposed Work Schedule with Increased Budget

Budget Allowance of $4,000/Year – (Budget Increase Suggested to Best Manage City Trees)

YEAR 1	**ESTIMATED COSTS**
Remove 3 critical concern trees	$2,100
Plant 12 trees in open locations	$1,800
Visual Survey of EAB Signs/Symptoms	

YEAR 2

Remove 3 critical concern trees	$2,100
Plant 2 trees in open locations	$300
Prune 1/3 of City Owned Trees	$1,500
Visual Survey of EAB Signs/Symptoms	

YEAR 3

Remove 3 critical concern trees	$2,100
Plant 12 trees in open locations	$1,800
Visual Survey of EAB Signs/Symptoms	

YEAR 4

Remove 3 critical concern trees	$2,100
Plant 2 trees in open locations	$300
Prune 1/3 of City Owned Trees	$1,500
Visual Survey of EAB Signs/Symptoms	

YEAR 5

Remove 3 critical concern trees	$2,100
Plant 12 trees in open locations	$1,800
Visual Survey of EAB Signs/Symptoms	

YEAR 6

Remove 1 critical concern tree	$700
Remove 1 Remaining ash tree	$700
Plant 7 trees in open locations	$1,050
Prune 1/3 of City Owned Trees	$1,500
Visual Survey of EAB Signs/Symptoms	

Proposed Budget Increase

EAB could potentially kill all ash trees in Bedford within four years of its arrival. To remove all ash trees within six years, the budget would need to be $1,700 a year. If the budget were increased to $4,000 per year all ash could be removed within 2.5 years. Additionally, we recommend that Bedford apply for grants to fund replacement trees. Utility Company grants are usually between $500 and $10,000 for community-based, tree-planting projects that include parks, gateways, cemeteries, nature trails, libraries, nursing homes, and schools.

Another option considered by many communities is treating selected trees, either to maintain those trees in the landscape or to delay their removal – to spread out the costs and number of trees needing removal all at once. Trunk injection is administered every two years for the life of the tree. If treatment is discontinued, the tree dies. For instance, in this treatment scenario, the average ash diameter is 20 inches and at $15 per inch, about 4 trees could be treated per year (every other year treatment). Eight trees would be selected for treatment, and Bedford would still need to find $4,200 for removal. Alternatively, if there are 14 treatable trees, it would cost approximately $2,100 a year for treatment and leave $780 for removal. These are alternatives to straight removal of ash trees. However, whether the treatment option is selected, there will be an increased cost of dealing with ash trees if EAB is found in Bedford. We suggest considering an increased budget to plan for this.

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Annual Energy Benefits of Public Trees

4/1/2020

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Bur oak	24.1	1,830	3,315.4	3,249	5,079	(N/A)	21.7	25.1	78.13
Norway maple	15.5	1,178	2,289.0	2,243	3,421	(N/A)	17.0	16.9	67.08
Sugar maple	9.5	723	1,261.9	1,237	1,959	(N/A)	8.3	9.7	78.37
Silver maple	6.8	520	894.3	876	1,396	(N/A)	6.3	6.9	73.48
Pear	2.3	173	323.7	317	490	(N/A)	5.3	2.4	30.65
Chinese elm	6.1	467	827.6	811	1,278	(N/A)	5.0	6.3	85.18
Northern pin oak	4.8	366	711.2	697	1,063	(N/A)	5.0	5.3	70.84
Red maple	2.9	219	404.2	396	615	(N/A)	3.7	3.0	55.88
Hickory	2.7	207	382.4	375	582	(N/A)	3.0	2.9	64.65
Green ash	2.5	193	334.9	328	521	(N/A)	2.7	2.6	65.19
American elm	3.5	263	433.5	425	688	(N/A)	2.3	3.4	98.32
Northern red oak	1.5	117	218.4	214	331	(N/A)	2.0	1.6	55.22
American basswood	2.1	159	300.6	295	453	(N/A)	2.0	2.2	75.52
White ash	1.4	105	173.5	170	275	(N/A)	2.0	1.4	45.84
Conifer Evergreen Large	0.5	38	62.9	62	100	(N/A)	1.7	0.5	19.91
American sycamore	2.2	166	294.9	289	455	(N/A)	1.7	2.2	91.02
Black maple	1.1	86	159.6	156	243	(N/A)	1.3	1.2	60.68
Honeylocust	1.1	83	142.2	139	223	(N/A)	1.0	1.1	74.28
Eastern redbud	0.2	14	25.9	25	40	(N/A)	1.0	0.2	13.29
Northern hackberry	0.8	60	110.9	109	168	(N/A)	0.7	0.8	84.12
Northern catalpa	0.8	62	110.0	108	170	(N/A)	0.7	0.8	84.77
Black walnut	0.7	54	100.5	99	153	(N/A)	0.7	0.8	76.46
Southern magnolia	0.4	27	49.0	48	75	(N/A)	0.7	0.4	37.40
Eastern cottonwood	0.7	49	91.8	90	139	(N/A)	0.7	0.7	69.67
Norway spruce	0.1	4	9.5	9	14	(N/A)	0.3	0.1	13.58
Conifer Evergreen Mediun	0.0	2	4.9	5	7	(N/A)	0.3	0.0	6.94
Broadleaf Deciduous Med:	0.1	8	16.9	17	24	(N/A)	0.3	0.1	24.47
Apple	0.2	15	31.6	31	46	(N/A)	0.3	0.2	46.14
Juniper	0.1	8	16.4	16	25	(N/A)	0.3	0.1	24.57
White oak	0.1	7	13.7	13	21	(N/A)	0.3	0.1	20.64
Sweetgum	0.4	29	53.7	53	82	(N/A)	0.3	0.4	82.02
Blue spruce	0.1	5	10.2	10	15	(N/A)	0.3	0.1	14.80
Common chokecherry	0.1	6	12.8	13	18	(N/A)	0.3	0.1	18.19
Paper birch	0.1	7	13.7	13	21	(N/A)	0.3	0.1	20.64
Black cherry	0.2	15	31.6	31	46	(N/A)	0.3	0.2	46.14
Total	95.7	7,266	13,233.4	12,969	20,235	(N/A)	100.0	100.0	67.45

Table 2: Annual Stormwater Benefits

Annual Stormwater Benefits of Public Trees

4/1/2020

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Bur oak	330,227	8,949	(N/A)	21.7	27.3	137.68
Norway maple	173,812	4,710	(N/A)	17.0	14.4	92.36
Sugar maple	140,241	3,801	(N/A)	8.3	11.6	152.02
Silver maple	104,407	2,829	(N/A)	6.3	8.6	148.92
Pear	8,252	224	(N/A)	5.3	0.7	13.98
Chinese elm	92,521	2,507	(N/A)	5.0	7.7	167.15
Northern pin oak	56,465	1,530	(N/A)	5.0	4.7	102.01
Red maple	28,807	781	(N/A)	3.7	2.4	70.97
Hickory	30,500	827	(N/A)	3.0	2.5	91.84
Green ash	29,351	795	(N/A)	2.7	2.4	99.43
American elm	28,697	778	(N/A)	2.3	2.4	111.10
Northern red oak	18,182	493	(N/A)	2.0	1.5	82.12
American basswood	28,652	776	(N/A)	2.0	2.4	129.41
White ash	14,611	396	(N/A)	2.0	1.2	65.99
Conifer Evergreen Large	5,807	157	(N/A)	1.7	0.5	31.47
American sycamore	36,195	981	(N/A)	1.7	3.0	196.17
Black maple	11,468	311	(N/A)	1.3	0.9	77.70
Honeylocust	14,054	381	(N/A)	1.0	1.2	126.96
Eastern redbud	681	18	(N/A)	1.0	0.1	6.16
Northern hackberry	8,924	242	(N/A)	0.7	0.7	120.93
Northern catalpa	11,182	303	(N/A)	0.7	0.9	151.51
Black walnut	9,433	256	(N/A)	0.7	0.8	127.82
Southern magnolia	3,864	105	(N/A)	0.7	0.3	52.36
Eastern cottonwood	8,081	219	(N/A)	0.7	0.7	109.50
Norway spruce	596	16	(N/A)	0.3	0.0	16.14
Conifer Evergreen Medium	256	7	(N/A)	0.3	0.0	6.95
Broadleaf Deciduous Medi	586	16	(N/A)	0.3	0.0	15.88
Apple	1,174	32	(N/A)	0.3	0.1	31.82
Juniper	1,635	44	(N/A)	0.3	0.1	44.30
White oak	608	16	(N/A)	0.3	0.1	16.47
Sweetgum	5,491	149	(N/A)	0.3	0.5	148.79
Blue spruce	755	20	(N/A)	0.3	0.1	20.47
Common chokecherry	264	7	(N/A)	0.3	0.0	7.17
Paper birch	608	16	(N/A)	0.3	0.1	16.47
Black cherry	1,174	32	(N/A)	0.3	0.1	31.82
Citywide total	1,207,562	32,725	(N/A)	100.0	100.0	109.08

Table 3: Annual Air Quality Benefits

Annual Air Quality Benefits of Public Trees

4/1/2020

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
Bur oak	49.4	7.9	22.3	2.2	259	115.2	16.8	16.0	109.2	718	0.0	0	339.1	977	(N/A)	21.7	15.03
Norway maple	39.0	6.7	18.7	1.7	209	75.7	10.9	10.4	70.4	468	-8.8	-33	224.6	644	(N/A)	17.0	12.62
Sugar maple	22.2	3.8	10.4	1.0	118	45.0	6.6	6.3	43.1	282	-17.0	-64	121.4	336	(N/A)	8.3	13.44
Silver maple	18.2	3.1	8.9	0.8	98	32.2	4.7	4.5	31.0	202	-9.1	-34	94.4	266	(N/A)	6.3	13.99
Pear	2.3	0.4	1.1	0.1	13	11.0	1.6	1.5	10.4	68	0.0	0	28.4	81	(N/A)	5.3	5.05
Chinese elm	15.1	2.4	6.7	0.7	79	29.2	4.3	4.1	27.9	182	0.0	0	90.2	261	(N/A)	5.0	17.41
Northern pin oak	13.0	2.2	6.2	0.6	69	23.5	3.4	3.2	21.8	145	-2.9	-11	71.0	204	(N/A)	5.0	13.58
Red maple	7.5	1.3	3.4	0.3	40	13.8	2.0	1.9	13.0	86	-2.4	-9	40.9	117	(N/A)	3.7	10.59
Hickory	3.7	0.6	1.8	0.2	20	13.1	1.9	1.8	12.4	81	0.0	0	35.4	101	(N/A)	3.0	11.23
Green ash	4.3	0.7	2.0	0.2	23	12.0	1.8	1.7	11.5	75	0.0	0	34.2	98	(N/A)	2.7	12.27
American elm	9.8	1.7	4.6	0.4	52	16.2	2.4	2.3	15.7	102	0.0	0	53.0	154	(N/A)	2.3	21.99
Northern red oak	4.0	0.7	1.9	0.2	22	7.4	1.1	1.0	7.0	46	-5.8	-22	17.5	46	(N/A)	2.0	7.65
American basswood	4.4	0.7	2.1	0.2	23	10.1	1.5	1.4	9.5	63	-3.6	-13	26.3	73	(N/A)	2.0	12.11
White ash	2.5	0.4	1.2	0.1	13	6.5	0.9	0.9	6.3	41	0.0	0	18.7	54	(N/A)	2.0	8.93
Conifer Evergreen Large	0.6	0.1	0.5	0.1	4	2.3	0.3	0.3	2.3	15	-2.0	-7	4.6	11	(N/A)	1.7	2.28
American sycamore	5.8	0.9	2.6	0.3	30	10.4	1.5	1.4	9.9	65	0.0	0	32.8	95	(N/A)	1.7	19.04
Black maple	3.0	0.5	1.4	0.1	16	5.5	0.8	0.8	5.2	34	-1.0	-4	16.2	46	(N/A)	1.3	11.54
Honeylocust	2.8	0.5	1.3	0.1	15	5.2	0.8	0.7	5.0	32	-2.3	-9	14.0	39	(N/A)	1.0	12.87
Eastern redbud	0.2	0.0	0.1	0.0	1	0.9	0.1	0.1	0.9	6	0.0	0	2.4	7	(N/A)	1.0	2.26
Northern hackberry	1.5	0.3	0.8	0.1	8	3.8	0.5	0.5	3.6	23	0.0	0	11.1	32	(N/A)	0.7	15.91
Northern catalpa	2.1	0.3	0.9	0.1	11	3.9	0.6	0.5	3.7	24	0.0	0	12.1	35	(N/A)	0.7	17.51
Black walnut	1.3	0.2	0.6	0.1	7	3.4	0.5	0.5	3.2	21	0.0	0	9.8	28	(N/A)	0.7	14.09
Southern magnolia	0.3	0.1	0.4	0.0	2	1.7	0.2	0.2	1.6	10	-1.1	-4	3.4	9	(N/A)	0.7	4.37
Eastern cottonwood	1.1	0.2	0.5	0.0	6	3.1	0.5	0.4	2.9	19	0.0	0	8.7	25	(N/A)	0.7	12.53
Norway spruce	0.1	0.0	0.1	0.0	0	0.3	0.0	0.0	0.3	2	-0.2	-1	0.6	1	(N/A)	0.3	1.48
Conifer Evergreen Medium	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	1	-0.1	0	0.3	1	(N/A)	0.3	0.75
Broadleaf Deciduous Medit	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)	0.3	3.47
Apple	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)	0.3	8.35
Juniper	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)	0.3	2.19
White oak	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)	0.3	2.99
Sweetgum	0.8	0.1	0.4	0.0	4	1.9	0.3	0.3	1.8	12	0.0	0	5.5	16	(N/A)	0.3	15.71
Blue spruce	0.1	0.0	0.1	0.0	0	0.3	0.0	0.0	0.3	2	-0.2	-1	0.6	2	(N/A)	0.3	1.53
Common chokecherry	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)	0.3	2.55
Paper birch	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)	0.3	2.99
Black cherry	0.4	0.1	0.2	0.0	2	1.0	0.1	0.1	0.9	6	0.0	0	2.9	8	(N/A)	0.3	8.35
Citywide total	216.3	36.1	101.5	9.7	1,151	458.2	66.6	63.5	433.8	2,851	-57.4	-215	1,328.3	3,787	(N/A)	100.0	12.62

Table 4: Annual Carbon Stored

Stored CO2 Benefits of Public Trees

4/1/2020

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Bur oak	1,642,515	12,319	(N/A)	21.7	30.2	189.52
Norway maple	643,117	4,823	(N/A)	17.0	11.8	94.58
Sugar maple	660,898	4,957	(N/A)	8.3	12.2	198.27
Silver maple	395,970	2,970	(N/A)	6.3	7.3	156.30
Pear	35,819	269	(N/A)	5.3	0.7	16.79
Chinese elm	509,991	3,825	(N/A)	5.0	9.4	255.00
Northern pin oak	214,202	1,607	(N/A)	5.0	3.9	107.10
Red maple	79,671	598	(N/A)	3.7	1.5	54.32
Hickory	118,079	886	(N/A)	3.0	2.2	98.40
Green ash	146,259	1,097	(N/A)	2.7	2.7	137.12
American elm	191,068	1,433	(N/A)	2.3	3.5	204.72
Northern red oak	91,434	686	(N/A)	2.0	1.7	114.29
American basswood	167,394	1,255	(N/A)	2.0	3.1	209.24
White ash	41,176	309	(N/A)	2.0	0.8	51.47
Conifer Evergreen I	4,024	30	(N/A)	1.7	0.1	6.04
American sycamore	196,293	1,472	(N/A)	1.7	3.6	294.44
Black maple	31,781	238	(N/A)	1.3	0.6	59.59
Honeylocust	36,735	276	(N/A)	1.0	0.7	91.84
Eastern redbud	3,065	23	(N/A)	1.0	0.1	7.66
Northern hackberry	24,655	185	(N/A)	0.7	0.5	92.46
Northern catalpa	71,755	538	(N/A)	0.7	1.3	269.08
Black walnut	41,716	313	(N/A)	0.7	0.8	156.43
Southern magnolia	4,881	37	(N/A)	0.7	0.1	18.30
Eastern cottonwood	34,401	258	(N/A)	0.7	0.6	129.00
Norway spruce	257	2	(N/A)	0.3	0.0	1.93
Conifer Evergreen N	43	0	(N/A)	0.3	0.0	0.32
Broadleaf Deciduou	1,101	8	(N/A)	0.3	0.0	8.26
Apple	6,743	51	(N/A)	0.3	0.1	50.57
Juniper	1,102	8	(N/A)	0.3	0.0	8.27
White oak	1,035	8	(N/A)	0.3	0.0	7.76
Sweetgum	25,943	195	(N/A)	0.3	0.5	194.57
Blue spruce	284	2	(N/A)	0.3	0.0	2.13
Common chokecher	908	7	(N/A)	0.3	0.0	6.81
Paper birch	1,035	8	(N/A)	0.3	0.0	7.76
Black cherry	6,743	51	(N/A)	0.3	0.1	50.57
Citywide total	5,432,089	40,741	(N/A)	100.0	100.0	135.80

Table 5: Annual Carbon Sequestered

Annual CO_2 Benefits of Public Trees

4/1/2020

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
Bur oak	54,707	410	-7,884	-266	-61	40,455	303	86,989	652	(N/A)	21.7	27.2	10.04
Norway maple	10,676	80	-3,087	-186	-25	26,030	195	33,432	251	(N/A)	17.0	10.5	4.92
Sugar maple	26,875	202	-3,172	-112	-25	15,972	120	39,562	297	(N/A)	8.3	12.4	11.87
Silver maple	29,202	219	-1,901	-76	-15	11,488	86	38,714	290	(N/A)	6.3	12.1	15.28
Pear	3,360	25	-172	-27	-1	3,830	29	6,991	52	(N/A)	5.3	2.2	3.28
Chinese elm	12,483	94	-2,448	-70	-19	10,311	77	20,277	152	(N/A)	5.0	6.3	10.14
Northern pin oak	0	0	-1,028	-64	-8	8,079	61	6,986	52	(N/A)	5.0	2.2	3.49
Red maple	962	7	-382	-28	-3	4,830	36	5,382	40	(N/A)	3.7	1.7	3.67
Hickory	6,811	51	-567	-28	-4	4,576	34	10,792	81	(N/A)	3.0	3.4	8.99
Green ash	5,100	38	-702	-27	-5	4,272	32	8,644	65	(N/A)	2.7	2.7	8.10
American elm	4,220	32	-917	-33	-7	5,821	44	9,091	68	(N/A)	2.3	2.8	9.74
Northern red oak	740	6	-439	-21	-3	2,593	19	2,872	22	(N/A)	2.0	0.9	3.59
American basswood	8,900	67	-803	-26	-6	3,504	26	11,575	87	(N/A)	2.0	3.6	14.47
White ash	3,807	29	-198	-12	-2	2,320	17	5,917	44	(N/A)	2.0	1.9	7.40
Conifer Evergreen Large	452	3	-19	-8	0	838	6	1,263	9	(N/A)	1.7	0.4	1.89
American sycamore	4,561	34	-942	-25	-7	3,672	28	7,265	54	(N/A)	1.7	2.3	10.90
Black maple	0	0	-153	-11	-1	1,908	14	1,744	13	(N/A)	1.3	0.5	3.27
Honeylocust	4,457	33	-176	-8	-1	1,844	14	6,117	46	(N/A)	1.0	1.9	15.29
Eastern redbud	285	2	-15	-2	0	320	2	588	4	(N/A)	1.0	0.2	1.47
Northern hackberry	1,064	8	-118	-8	-1	1,315	10	2,253	17	(N/A)	0.7	0.7	8.45
Northern catalpa	1,336	10	-344	-9	-3	1,365	10	2,347	18	(N/A)	0.7	0.7	8.80
Black walnut	1,816	14	-200	-8	-2	1,202	9	2,811	21	(N/A)	0.7	0.9	10.54
Southern magnolia	316	2	-23	-4	0	592	4	880	7	(N/A)	0.7	0.3	3.30
Eastern cottonwood	1,619	12	-165	-7	-1	1,091	8	2,539	19	(N/A)	0.7	0.8	9.52
Norway spruce	53	0	-1	-1	0	94	1	145	1	(N/A)	0.3	0.0	1.08
Conifer Evergreen Medi	12	0	0	-1	0	48	0	60	0	(N/A)	0.3	0.0	0.45
Broadleaf Deciduous M	224	2	-5	-1	0	176	1	393	3	(N/A)	0.3	0.1	2.95
Apple	478	4	-32	-3	0	335	3	778	6	(N/A)	0.3	0.2	5.84
Juniper	43	0	-5	-2	0	187	1	222	2	(N/A)	0.3	0.1	1.67
White oak	209	2	-5	-1	0	159	1	361	3	(N/A)	0.3	0.1	2.71
Sweetgum	960	7	-125	-4	-1	650	5	1,481	11	(N/A)	0.3	0.5	11.11
Blue spruce	39	0	-1	-1	0	106	1	142	1	(N/A)	0.3	0.0	1.07
Common chokecherry	114	1	-4	-1	0	124	1	232	2	(N/A)	0.3	0.1	1.74
Paper birch	209	2	-5	-1	0	159	1	361	3	(N/A)	0.3	0.1	2.71
Black cherry	0	0	-32	-4	0	335	3	299	2	(N/A)	0.3	0.1	2.24
Citywide total	186,089	1,396	-26,074	-1,087	-204	160,578	1,204	319,506	2,396	(N/A)	100.0	100.0	7.99

Table 6: Annual Social and Aesthetic Benefits

Annual Aesthetic/Other Benefits of Public Trees

4/1/2020

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Bur oak	3,932	(N/A)	21.7	24.9	60.50
Norway maple	952	(N/A)	17.0	6.0	18.67
Sugar maple	2,541	(N/A)	8.3	16.1	101.65
Silver maple	2,216	(N/A)	6.3	14.1	116.64
Pear	193	(N/A)	5.3	1.2	12.08
Chinese elm	843	(N/A)	5.0	5.4	56.22
Northern pin oak	0	(N/A)	5.0	0.0	0.00
Red maple	116	(N/A)	3.7	0.7	10.58
Hickory	548	(N/A)	3.0	3.5	60.88
Green ash	413	(N/A)	2.7	2.6	51.67
American elm	535	(N/A)	2.3	3.4	76.44
Northern red oak	48	(N/A)	2.0	0.3	7.95
American basswood	579	(N/A)	2.0	3.7	96.51
White ash	450	(N/A)	2.0	2.9	74.99
Conifer Evergreen Large	128	(N/A)	1.7	0.8	25.56
American sycamore	292	(N/A)	1.7	1.9	58.34
Black maple	0	(N/A)	1.3	0.0	0.00
Honeylocust	1,167	(N/A)	1.0	7.4	388.90
Eastern redbud	16	(N/A)	1.0	0.1	5.18
Northern hackberry	131	(N/A)	0.7	0.8	65.33
Northern catalpa	94	(N/A)	0.7	0.6	47.08
Black walnut	132	(N/A)	0.7	0.8	66.10
Southern magnolia	63	(N/A)	0.7	0.4	31.58
Eastern cottonwood	124	(N/A)	0.7	0.8	62.14
Norway spruce	15	(N/A)	0.3	0.1	15.42
Conifer Evergreen Medium	12	(N/A)	0.3	0.1	12.31
Broadleaf Deciduous Medi	26	(N/A)	0.3	0.2	26.22
Apple	29	(N/A)	0.3	0.2	28.80
Juniper	14	(N/A)	0.3	0.1	13.68
White oak	29	(N/A)	0.3	0.2	28.56
Sweetgum	67	(N/A)	0.3	0.4	66.60
Blue spruce	21	(N/A)	0.3	0.1	21.08
Common chokecherry	6	(N/A)	0.3	0.0	6.40
Paper birch	29	(N/A)	0.3	0.2	28.56
Black cherry	0	(N/A)	0.3	0.0	0.00
Citywide total	15,762	(N/A)	100.0	100.0	52.54

Table 7: Summary of Benefits in Dollars

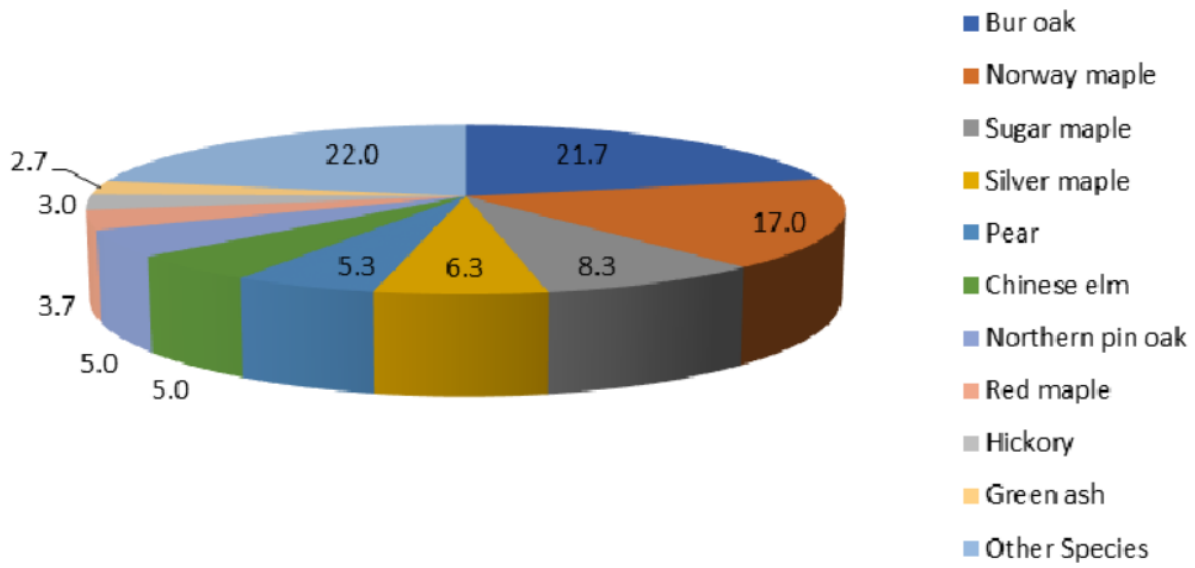
Total Annual Benefits of Public Trees by Species ($)

4/1/2020

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Bur oak	5,079	652	977	8,949	3,932	19,589	(N/A)	26.2
Norway maple	3,421	251	644	4,710	952	9,978	(N/A)	13.3
Sugar maple	1,959	297	336	3,801	2,541	8,934	(N/A)	11.9
Silver maple	1,396	290	266	2,829	2,216	6,998	(N/A)	9.3
Pear	490	52	81	224	193	1,041	(N/A)	1.4
Chinese elm	1,278	152	261	2,507	843	5,041	(N/A)	6.7
Northern pin oak	1,063	52	204	1,530	0	2,849	(N/A)	3.8
Red maple	615	40	117	781	116	1,669	(N/A)	2.2
Hickory	582	81	101	827	548	2,138	(N/A)	2.9
Green ash	521	65	98	795	413	1,893	(N/A)	2.5
American elm	688	68	154	778	535	2,223	(N/A)	3.0
Northern red oak	331	22	46	493	48	939	(N/A)	1.3
American basswood	453	87	73	776	579	1,968	(N/A)	2.6
White ash	275	44	54	396	450	1,219	(N/A)	1.6
Conifer Evergreen La	100	9	11	157	128	406	(N/A)	0.5
American sycamore	455	54	95	981	292	1,877	(N/A)	2.5
Black maple	243	13	46	311	0	613	(N/A)	0.8
Honeylocust	223	46	39	381	1,167	1,855	(N/A)	2.5
Eastern redbud	40	4	7	18	16	85	(N/A)	0.1
Northern hackberry	168	17	32	242	131	589	(N/A)	0.8
Northern catalpa	170	18	35	303	94	619	(N/A)	0.8
Black walnut	153	21	28	256	132	590	(N/A)	0.8
Southern magnolia	75	7	9	105	63	258	(N/A)	0.3
Eastern cottonwood	139	19	25	219	124	527	(N/A)	0.7
Norway spruce	14	1	1	16	15	48	(N/A)	0.1
Conifer Evergreen Mi	7	0	1	7	12	27	(N/A)	0.0
Broadleaf Deciduous	24	3	3	16	26	73	(N/A)	0.1
Apple	46	6	8	32	29	121	(N/A)	0.2
Juniper	25	2	2	44	14	86	(N/A)	0.1
White oak	21	3	3	16	29	71	(N/A)	0.1
Sweetgum	82	11	16	149	67	324	(N/A)	0.4
Blue spruce	15	1	2	20	21	59	(N/A)	0.1
Common chokecherry	18	2	3	7	6	36	(N/A)	0.0
Paper birch	21	3	3	16	29	71	(N/A)	0.1
Black cherry	46	2	8	32	0	89	(N/A)	0.1
Citywide Total	20,235	2,396	3,787	32,725	15,762	74,905	(N/A)	100.0

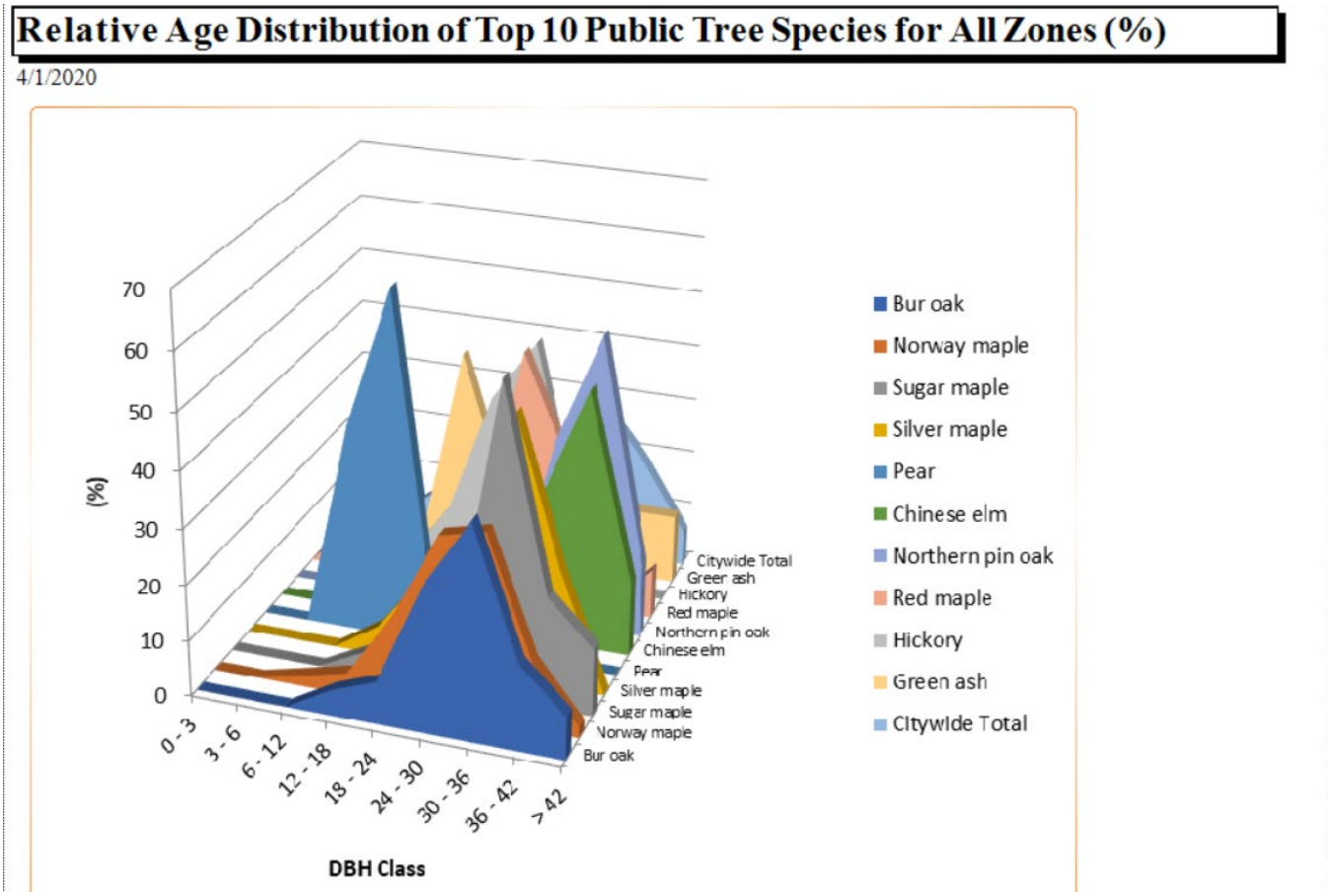
Species Distribution of Public Trees

4/1/2020



Species	Percent
Bur oak	21.7
Norway maple	17.0
Sugar maple	8.3
Silver maple	6.3
Pear	5.3
Chinese elm	5.0
Northern pin oak	5.0
Red maple	3.7
Hickory	3.0
Green ash	2.7
Other Species	22.0
Total	100.0

Figure 1: Species Distribution



	DBH class (in)								
Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	> 42
Bur oak	0.00	0.00	0.00	4.62	7.69	26.15	38.46	15.38	7.69
Norway maple	0.00	0.00	1.96	3.92	15.69	31.37	33.33	11.76	1.96
Sugar maple	0.00	0.00	0.00	4.00	0.00	8.00	56.00	20.00	12.00
Silver maple	0.00	0.00	0.00	5.26	15.79	10.53	47.37	21.05	0.00
Pear	0.00	0.00	37.50	62.50	0.00	0.00	0.00	0.00	0.00
Chinese elm	0.00	0.00	0.00	6.67	0.00	6.67	26.67	46.67	13.33
Northern pin oak	0.00	0.00	0.00	0.00	0.00	0.00	33.33	53.33	13.33
Red maple	0.00	9.09	0.00	0.00	9.09	45.45	27.27	0.00	9.09
Hickory	0.00	0.00	0.00	11.11	33.33	44.44	11.11	0.00	0.00
Green ash	0.00	0.00	0.00	37.50	12.50	25.00	0.00	12.50	12.50
Citywide Total	0.67	0.67	6.33	9.67	9.00	19.67	28.67	19.00	6.33

Figure 2: Relative Age Class

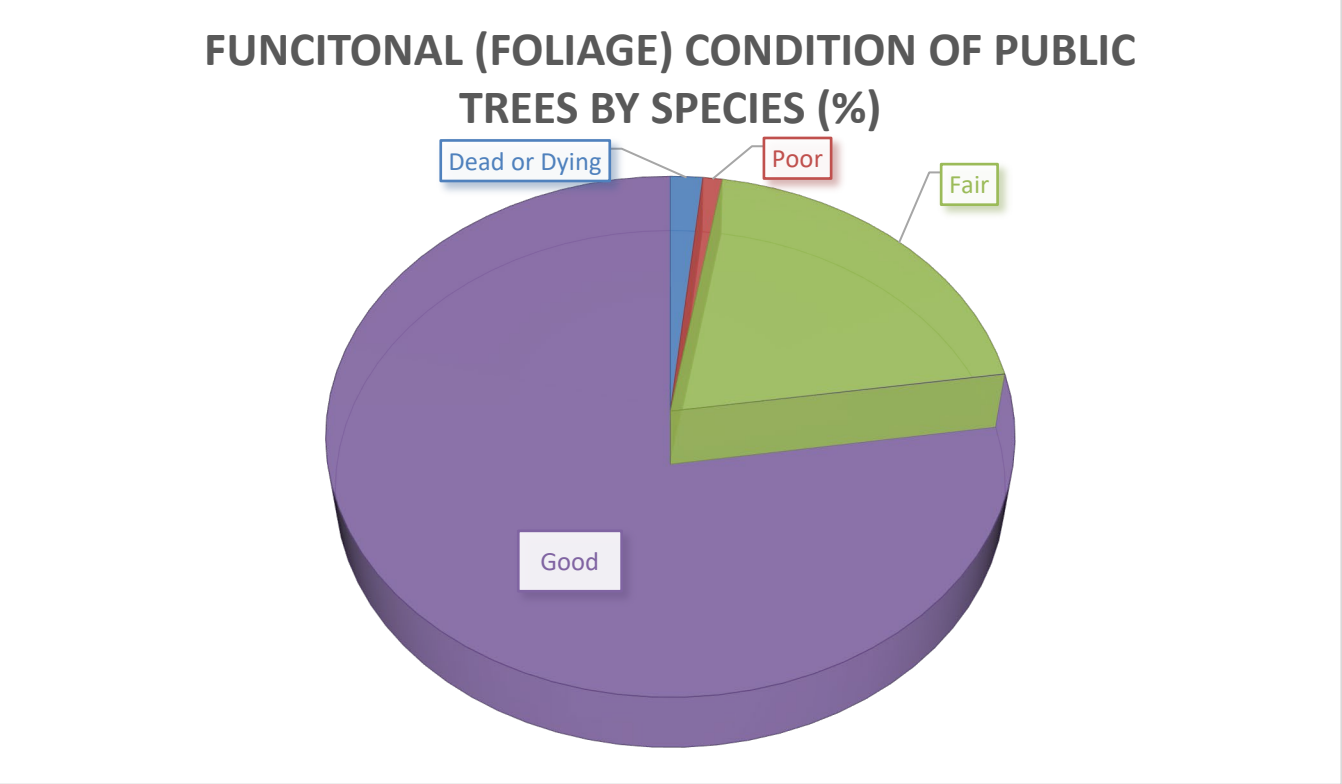


Figure 3: Foliage Condition

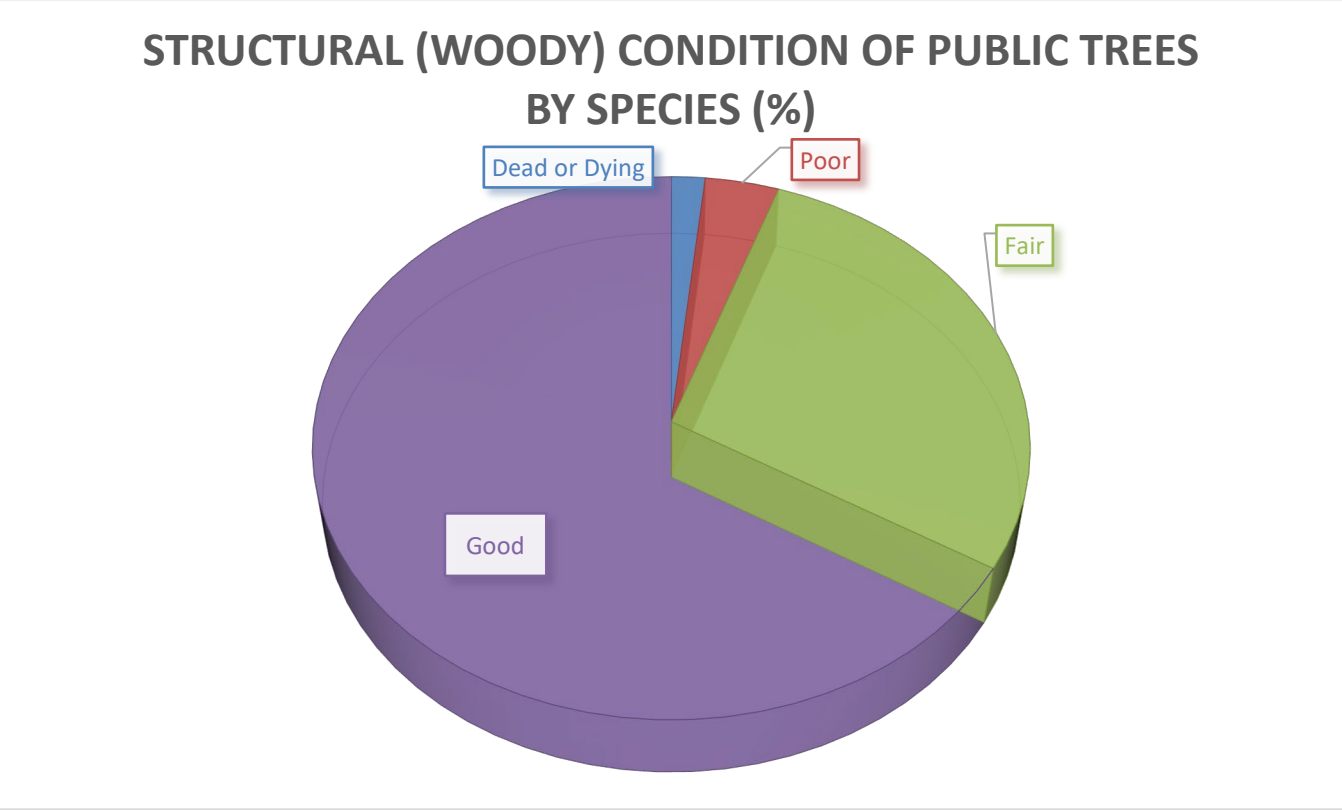
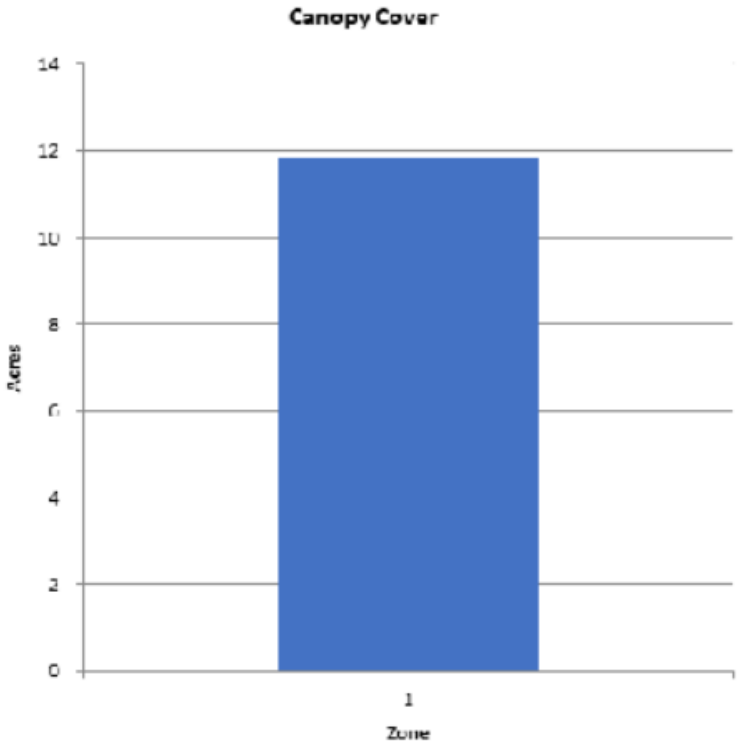


Figure 4: Wood Condition

Canopy Cover of Public Trees (Acres)

4/1/2020



Zone	Acres	% of Total Canopy Cover
1	12	100.0
Citywide total	12	100.0

	Total Land Area	Total Street and Sidewalk Area	Total Canopy Cover	Canopy Cover as % of Total Land Area	Canopy Cover as % of Total Streets and Sidewalks
Citywide Total	0	0	12	0.00	0.00

Figure 5: Canopy Cover in Acres

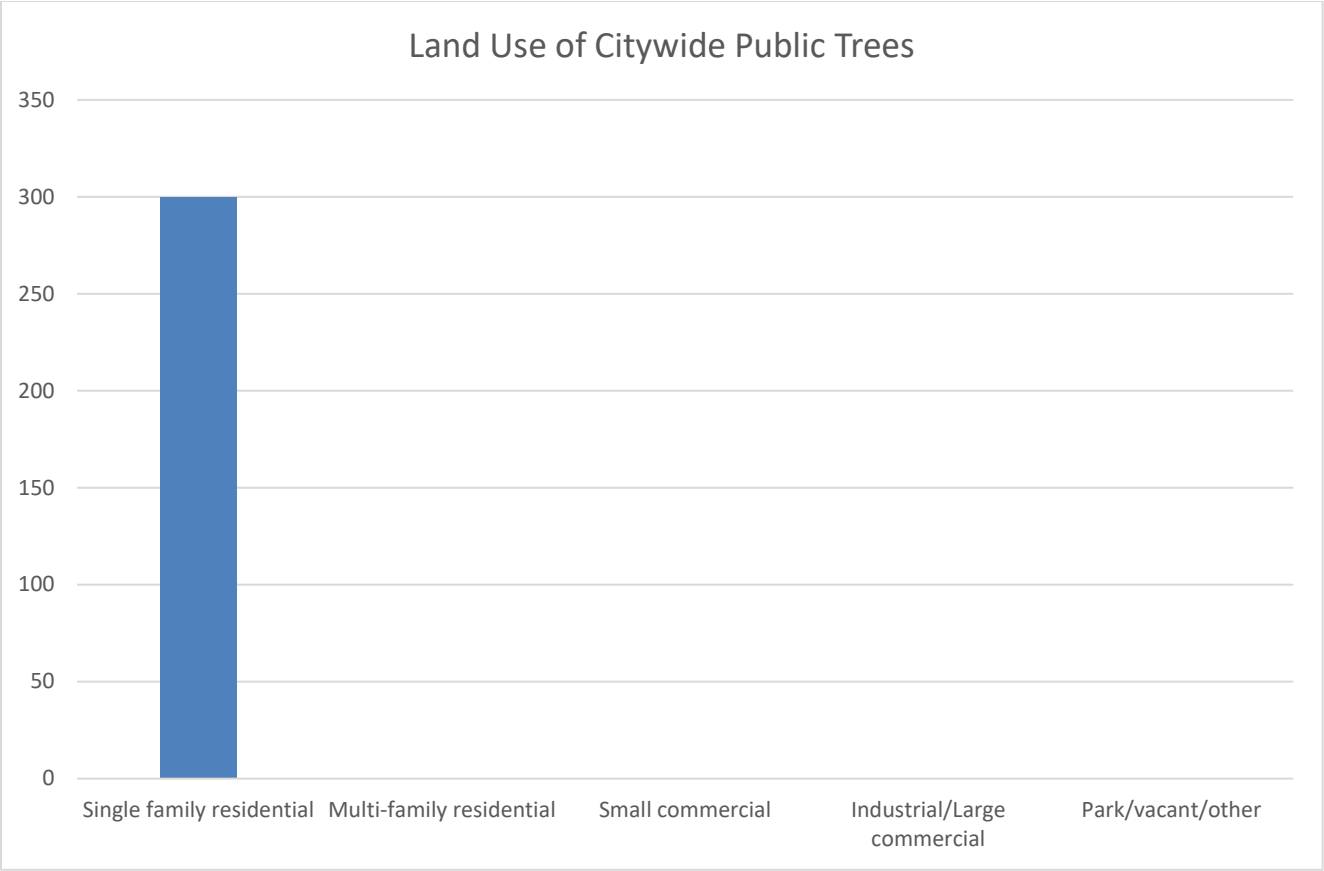


Figure 6: Land Use of city/park trees

Appendix B: ArcGIS Mapping

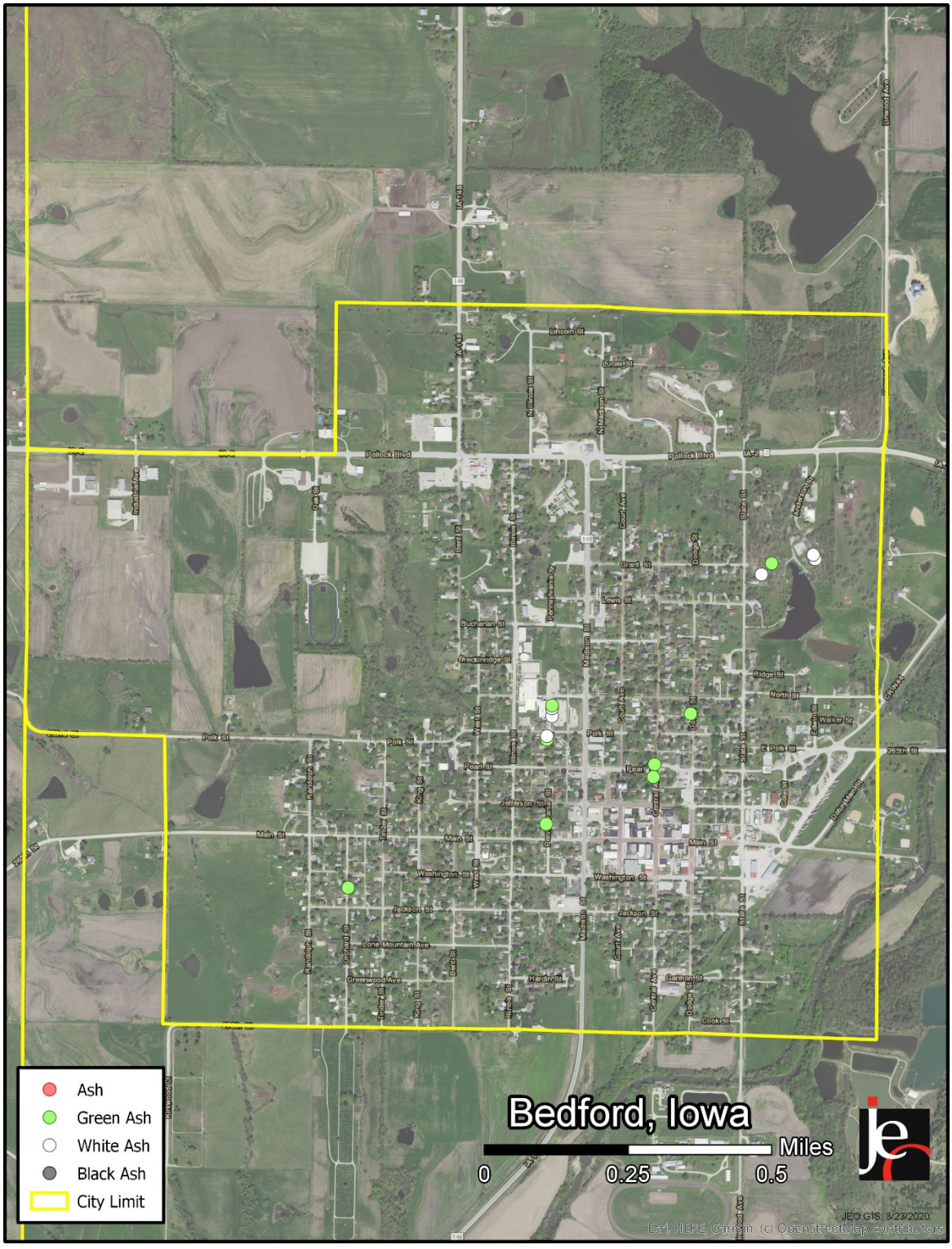


Figure 1: Location of Ash Trees

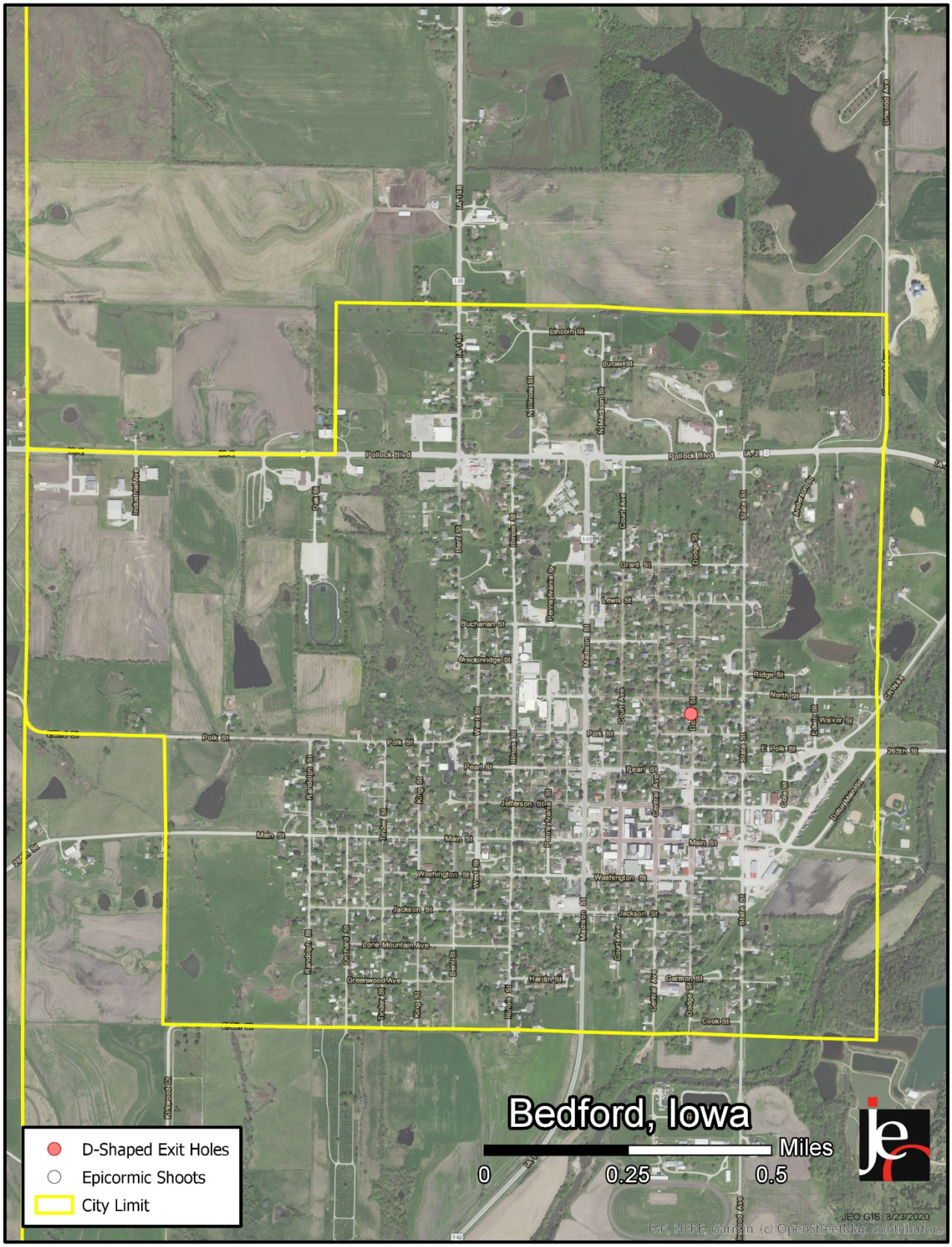


Figure 2: Location of EAB symptoms

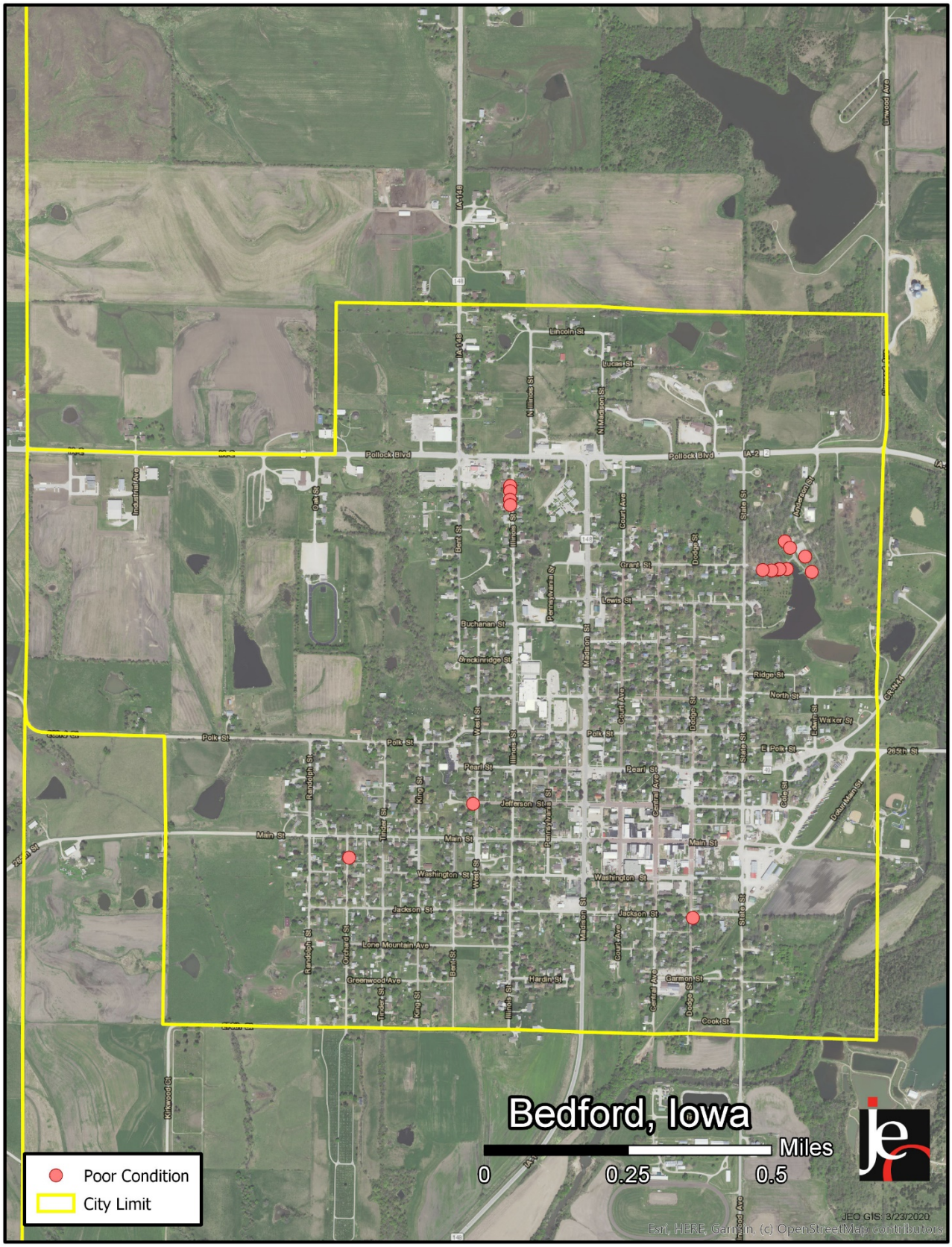


Figure 3: Location of Poor Condition Trees

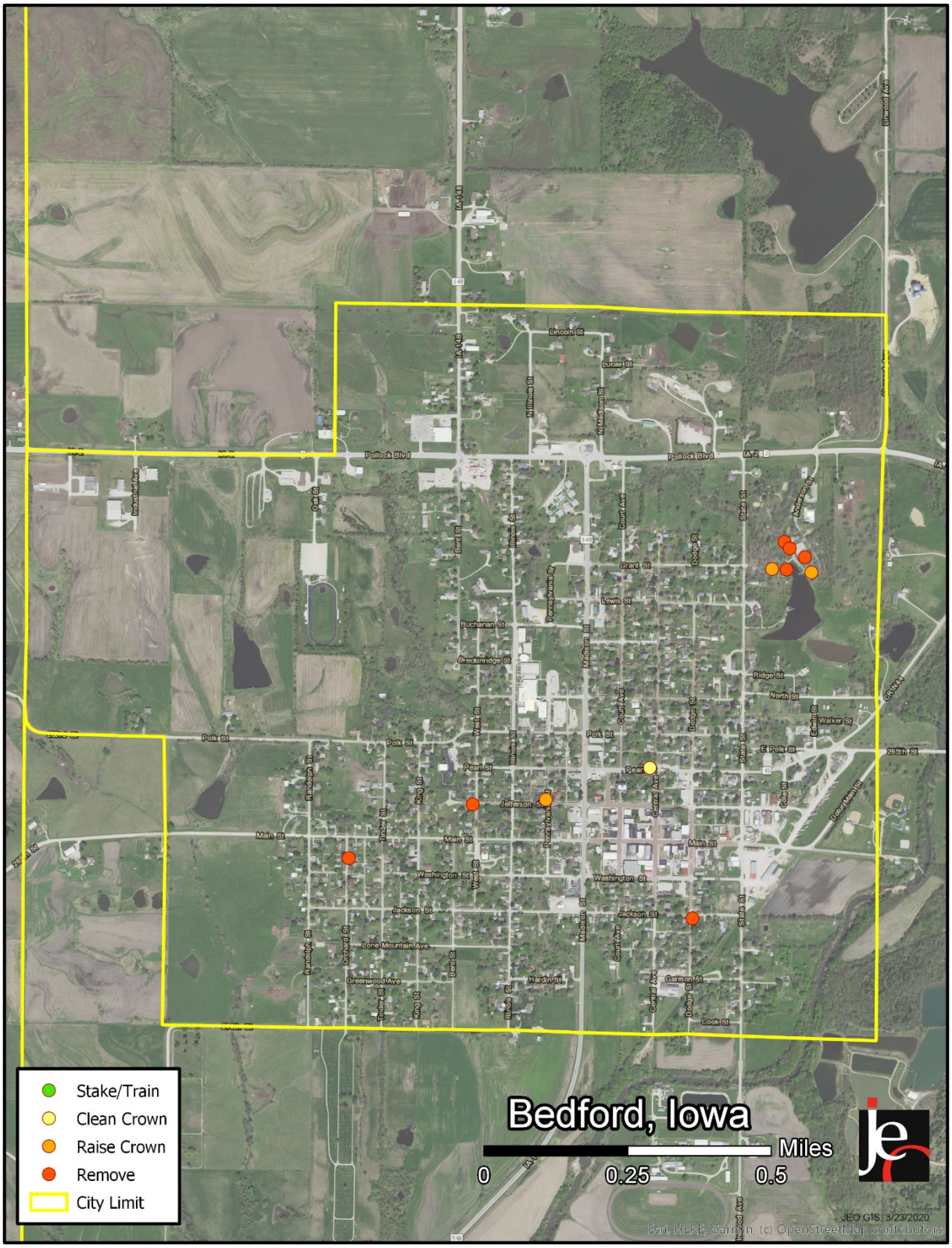


Figure 4: Location of Trees with Recommended Maintenance

City ownership of the trees recommended for removal should be verified prior to any removal

Appendix C: Bedford Tree Ordinances

CHAPTER 151
TREES

151.01 DEFINITION.

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

151.02 PLANTING RESTRICTIONS.

No tree shall be planted in any parking or street.

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 12 feet above the surface of the street and eight feet above the sidewalks, except young trees less than three inches in diameter. If the abutting property owner fails to trim the trees, the City may serve notice on the abutting property owner requiring that such action be taken within five days. If such action is not taken within that time, the City may perform the required action and assess the costs against the abutting property for collection in the same manner as a property tax.

151.04 TRIMMING TREES TO BE SUPERVISED.

Except as allowed in Section 151.03, it is unlawful for any person to trim or cut any tree in a street or public place unless the work is done under the supervision of the City.

151.05 DISEASE CONTROL.

Any dead, diseased, or damaged tree or shrub that may harbor serious insect or disease pests or disease injurious to other trees is hereby declared to be a nuisance.

151.06 INSPECTION AND REMOVAL.

The Council shall inspect or cause to be inspected any trees or shrubs in the City reported or suspected to be dead, diseased or damaged, and such trees and shrubs shall be subject to the following:

1. City Property. If it is determined that any such condition exists on any public property, including the strip between the curb and the lot line of private property, the Council may cause such condition to be corrected by treatment or removal. The Council may also order the removal of any trees on the streets of the City which interfere with the making of improvements or with travel thereon.
2. Private Property. If it is determined with reasonable certainty that any such condition exists on private property and that danger to other trees or to adjoining property or passing motorists or pedestrians is imminent, the Council shall notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within 14 days of said notification. If such owner, occupant, or person in charge of said property fails to comply within 14 days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property.

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

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

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