Neola, IA:

2020 Urban Forest Management Plan

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Table of Contents

Table of Contents

Executive Summary

EXECUTIVE SUMMARY

Overview

This plan was developed to assist the City of Neola 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 15 percent of Neola'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 2020, 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 205 trees inventoried.

- Neola's trees provide $51,695 of benefits annually, an average of $252.17 per tree
- There are over 21 species of trees
- The top three genera are: maple 40%, ash 15%, and oak 14%
- 64 percent of trees need some type of management
- 27 trees should be removed

Recommendations

Below are some key recommendations, for further details see the Recommendation and Emerald Ash Borer Plan Sections:

- Out of the 27 trees needing removal, 17 trees are over 24 inches in diameter at 4.5 feet and must be addressed immediately. *City ownership of the trees recommended for removal should be verified prior to any removal*
- None of the 32 ash trees are believed to 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 a budget of $2 per capita it could take 10 years to remove ash. We suggest that city officials request a budget increase to $5,000 annually and apply for grants to plant replacement trees

Introduction

INTRODUCTION

This plan was developed to assist Neola 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 Neola, 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 Neola'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 Neola 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 Neola's urban forestry goals.

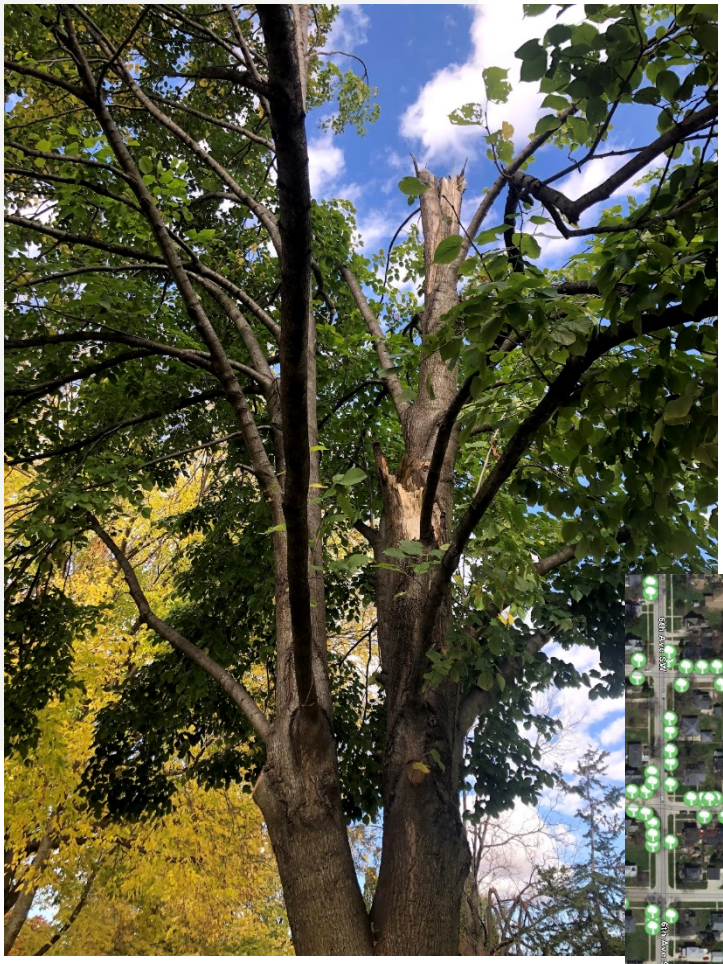
Assist Neola with Managing its Urban Forest

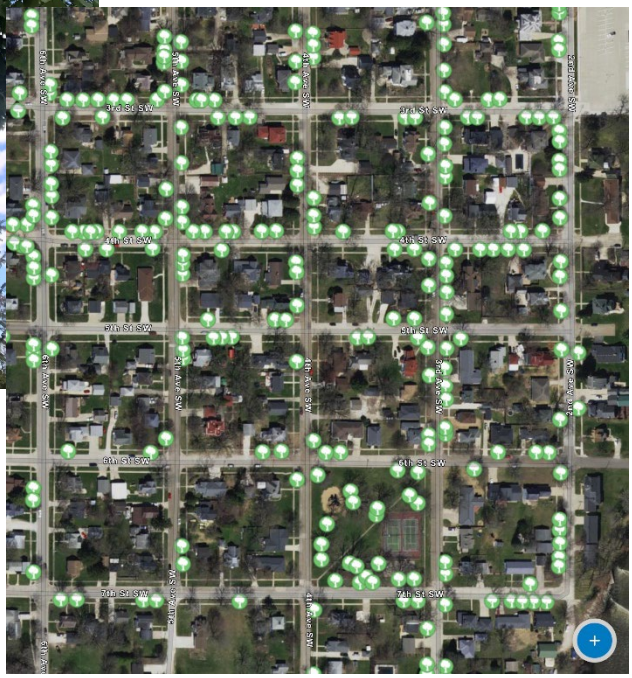
Inform on the Benefits of a Healthy Urban Forest

Establish Preventative Treatment for Emerald Ash Borer

Develop Efficient City Tree Management Techniques

Mitigate Public Safety Issues





Inventory Results

INVENTORY

In 2020, JEO conducted a tree inventory that included 100 percent 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 ArcGIS 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 feet, 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 205 city trees into the USDA Forest Service Program Street Tree Resource Analysis Tool for Urban forestry Management as part of the i-Tree suite. Following are results from the i-Tree STREETS analysis.

ANNUAL BENEFITS

Annual Energy Benefits

Trees conserve energy by shading buildings and blocking winds. Neola's trees reduce energy-related costs by approximately $12,926 annually (Appendix A, Table 1). These savings are both in electricity (61.6 MWh) and in natural gas (8,419.5 Therms).

Annual Stormwater Benefits

Neola's trees intercept about 841,693 gallons of rainfall or snow melt per year (Appendix A, Table 2). This interception provides $22,810 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 Neola, it is estimated that trees remove 842 pounds 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 $2,359 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Neola, trees sequester about 150,513 pounds of carbon per year with an associated value of $1,129 (Appendix A, Table 5). In addition, the trees store 4,422,692 pounds of carbon, with a yearly benefit of $33,170 (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. Neola receives $11,860 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, Neola's trees provide $51,695 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 205 trees in Neola provide approximately $252.17 annually (Appendix A, Table 7).

ENERGY	STORMWATER	AIR QUALITY	CARBON	AESTHETICS	SUMMARY
• Reduce energy cost by **$12,926**	• Intercept **841,693 gallons** • Provides **$22,810** benefit	• Remove **842 lbs** of pollution • Net value of **$2,359**	• Sequester **150,513 lbs** • Value of **$1,129** • Store **4,422,692 lbs** • Value of **$33,170**	• **$11,860** in social benefits	• **$51,695** annual benefits • Each tree provides **$252.17** annually

FOREST STRUCTURE

Species Distribution

Neola has over 21 different tree species along city streets and parks (Appendix A, Figure 1).

The distribution of trees by genera is as follows:

Maple	81	40%
Ash	32	15%
Oak	29	14%
Spruce	14	7%
Apple	9	4%
Walnut	7	3%
Basswood/Linden	4	2%
Honey locust	3	1.5%
Eastern redbud	3	1.5%
Amur maple	3	1.5%
Cedar	3	1.5%

Aspen	2	1%
Pear	2	1%
Magnolia	2	1%
Sycamore	1	<1%
Elm	1	<1%
Hackberry	1	<1%
Willow	1	<1%
Japanese maple	1	<1%
Other Deciduous	2	1%
Other Conifers	4	2%

Age Class

Most of Neola's trees (35 percent) are 36 inches or greater in diameter at 4.5 feet (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. Neola's size curve is on the large side, indicating an older than 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 Neola indicate that 46 percent of the trees are in good health, with only 10 percent of the foliage in poor health, dead, or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 36 percent of Neola's trees are in good health for wood condition (Appendix A, Figure 4 & Appendix B, Figure 3). Seventeen percent of the tree population's wood condition is in poor health, dead, or dying. This 17 percent 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).

Action	Number of Trees	Percentage
Crown Cleaning	62	30%
Crown Raising	38	18%
Crown Reduction	28	13.5%
Tree Removal	27	13%
Tree Staking	4	2%

Canopy Cover

The total canopy with both private and public trees is 56.39 acres or around 19 percent. The canopy cover included in the Neola inventory includes approximately 8 acres (Appendix A, Figure 4). The city's canopy goal is to increase canopy by 11 percent in 30 years. To achieve this goal it is estimated that 4 trees need to be planted annually on public and private lands.

Land Use and Location

The majority of Neola'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	Percentage
Single Family Residential	82.5%
Park/Vacant/Other	17.5%
Industrial/Large Commercial	0%
Small Commercial	0%
Multifamily Residential	0%

Recommendations

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

Neola has 27 trees in need of 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 17 trees over 24 inches in diameter at 4.5 feet that should be addressed immediately. Please refer to the Schedule and Budget at the end of this section. After all trees of immediate concern are addressed, there should be follow up on the trees marked as needing maintenance. There are a total of 132 trees with maintenance needs.

POOR TREE SPECIES

After removing all trees of immediate concern, ash trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, Figure 4). Of the 27 removals, 5 are ash trees. There are a total of 32 ash trees, and fortunately none of those have signs and symptoms that have been associated with EAB. *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 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 percent. 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 Neola.

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 percent of the urban forest and a single species (i.e. silver maple, sugar maple, white oak, bur oak) not make up more than 10 percent of the total urban forest. Presently, the forest is heavily planted with maple (40 percent) (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. 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 in city ordinance 151.02 (Appendix C). The new plantings will be a diverse mix and will not include 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 (2) section D states “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.”

Schedule & Budget

PROPOSED WORK SCHEDULE & BUDGET

Budget Allowance of $1,900/Year – (Based off estimated budget of $2 per capita)

YEAR 1	Est. Cost
Remove 2 trees recommended for immediate removal	$1,400
Plant 3 trees in open locations	$450
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$1,850**

YEAR 2	Est. Cost
Remove 1 tree recommended for immediate removal	$700
Plant 1 tree in an open location	$150
Prune 1/3 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$1,875**

YEAR 3	Est. Cost
Remove 2 trees recommended for immediate removal	$1,400
Plant 3 trees in open locations	$450
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$1,850**

YEAR 4	Est. Cost
Remove 1 tree recommended for immediate removal	$700
Plant 1 tree in an open location	$150
Prune 1/3 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$1,875**

YEAR 5	Est. Cost
Remove 2 trees recommended for immediate removal	$1,400
Plant 3 trees in open locations	$450
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$1,850**

YEAR 6	Est. Cost
Remove 1 tree recommended for immediate removal	$700
Plant 1 tree in an open location	$150
Prune 1/3 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$1,875**

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

***To remove only ash trees within 6 years alone, the budget would need to be $3,733 a year. If the budget were increased to $3,200 a year all ash could be removed in 7 years.*

PROPOSED WORK SCHEDULE WITH INCREASED BUDGET

Budget Allowance of $5,000/Year – (Budget Increase Suggested to Best Manage City Trees)

YEAR 1	Est. Cost
Remove 6 trees recommended for immediate removal	$4,200
Plant 5 trees in open locations	$750
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$4,950**

YEAR 2	Est. Cost
Remove 5 trees recommended for immediate removal	$3,500
Plant 3 trees in open locations	$450
Prune 1/3 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$4,975**

YEAR 3	Est. Cost
Remove 6 trees recommended for immediate removal	$4,200
Plant 5 trees in open locations	$750
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$4,950**

YEAR 4	Est. Cost
Remove 5 trees recommended for immediate removal	$3,500
Plant 3 trees in open locations	$450
Prune 1/3 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$4,975**

YEAR 5	Est. Cost
Remove 6 ash in poor health	$4,200
Plant 5 trees in open locations	$750
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$4,950**

YEAR 6	Est. Cost
Remove 5 ash trees	$3,500
Plant 3 trees in open locations	$450
Prune 1/3 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$4,950**

Proposed Budget Increase

EAB could potentially kill all ash trees in Neola within four years of its arrival. To remove only ash trees within six years, the budget would need to be increased to $3,733 a year. Additionally, we recommend that Neola 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 6 trees could be treated per year (every other year treatment). Eight trees would be selected for treatment, and Neola would still need to find $18,200 for removal. Alternatively, if there are 18 treatable trees, it would cost approximately $5,400 a year for treatment and leave $9,100 for removal. These are alternatives to straight removal of ash trees. However, whether or not the treatment option is selected, there will be an increased cost of dealing with ash trees if EAB is found in Neola. We suggest considering an increased budget to plan for this.

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Appendices

APPENDIX A: i-TREE DATA

Neola

Annual Energy Benefits of Public Trees

2/1/2021

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	14.5	1,101	1,938.2	1,899	3,000	(N/A)	16.6	23.2	88.25
Green ash	12.8	969	1,722.9	1,688	2,657	(N/A)	15.1	20.6	85.72
Norway maple	7.0	529	1,026.4	1,006	1,535	(N/A)	11.2	11.9	66.72
Northern red oak	3.7	282	511.8	502	783	(N/A)	8.3	6.1	46.08
Pin oak	4.8	362	617.8	605	968	(N/A)	5.4	7.5	87.97
Maple	1.9	147	274.6	269	416	(N/A)	5.4	3.2	37.85
Sugar maple	3.7	282	490.9	481	763	(N/A)	5.4	5.9	69.36
Blue spruce	0.5	38	80.6	79	117	(N/A)	4.9	0.9	11.66
Apple	1.2	92	186.5	183	275	(N/A)	4.4	2.1	30.52
Black walnut	2.7	204	349.1	342	546	(N/A)	3.4	4.2	78.04
Spruce	0.5	37	68.2	67	104	(N/A)	2.0	0.8	25.88
Honeylocust	1.1	83	142.2	139	223	(N/A)	1.5	1.7	74.28
Northern white cedar	0.0	1	2.0	2	3	(N/A)	1.5	0.0	0.93
American basswood	0.9	70	133.9	131	201	(N/A)	1.5	1.6	67.15
Amur maple	0.5	35	69.1	68	102	(N/A)	1.5	0.8	34.15
Eastern redbud	0.5	35	69.1	68	102	(N/A)	1.5	0.8	34.15
Red maple	0.5	41	70.0	69	110	(N/A)	1.0	0.8	54.82
Southern magnolia	0.2	13	25.4	25	38	(N/A)	1.0	0.3	18.82
Conifer Evergreen Large	0.4	28	49.2	48	76	(N/A)	1.0	0.6	38.17
Pear	0.3	20	37.5	37	56	(N/A)	1.0	0.4	28.16
Conifer Evergreen Medium	0.3	25	46.5	46	71	(N/A)	1.0	0.5	35.47
Quaking aspen	0.7	57	101.2	99	156	(N/A)	1.0	1.2	77.98
American sycamore	0.5	37	63.1	62	99	(N/A)	0.5	0.8	98.63
Japanese maple	0.0	0	0.6	1	1	(N/A)	0.5	0.0	0.87
Littleleaf linden	0.2	17	33.8	33	50	(N/A)	0.5	0.4	50.34
Bur oak	0.0	2	3.7	4	6	(N/A)	0.5	0.0	5.82
Willow	0.3	20	39.6	39	59	(N/A)	0.5	0.5	58.69
Broadleaf Deciduous Mediu	0.3	24	47.4	46	71	(N/A)	0.5	0.5	70.84
Northern hackberry	0.5	40	69.7	68	108	(N/A)	0.5	0.8	108.50
Siberian elm	0.5	38	62.2	61	98	(N/A)	0.5	0.8	98.48
Broadleaf Deciduous Small	0.2	15	31.6	31	46	(N/A)	0.5	0.4	46.14
White ash	0.4	32	54.5	53	85	(N/A)	0.5	0.7	85.27
Total	61.6	4,675	8,419.5	8,251	12,926	(N/A)	100.0	100.0	63.05

Annual Stormwater Benefits of Public Trees

2/1/2021

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	249,969	6,774	(N/A)	16.6	29.7	199.24
Green ash	179,805	4,873	(N/A)	15.1	21.4	157.18
Norway maple	78,476	2,127	(N/A)	11.2	9.3	92.47
Northern red oak	39,287	1,065	(N/A)	8.3	4.7	62.63
Pin oak	70,530	1,911	(N/A)	5.4	8.4	173.76
Maple	18,487	501	(N/A)	5.4	2.2	45.55
Sugar maple	49,210	1,334	(N/A)	5.4	5.8	121.23
Blue spruce	5,558	151	(N/A)	4.9	0.7	15.06
Apple	5,717	155	(N/A)	4.4	0.7	17.22
Black walnut	35,830	971	(N/A)	3.4	4.3	138.71
Spruce	10,400	282	(N/A)	2.0	1.2	70.46
Honeylocust	14,054	381	(N/A)	1.5	1.7	126.96
Northern white cedar	146	4	(N/A)	1.5	0.0	1.32
American basswood	12,023	326	(N/A)	1.5	1.4	108.60
Amur maple	2,105	57	(N/A)	1.5	0.3	19.02
Eastern redbud	2,105	57	(N/A)	1.5	0.3	19.02
Red maple	4,471	121	(N/A)	1.0	0.5	60.58
Southern magnolia	1,354	37	(N/A)	1.0	0.2	18.34
Conifer Evergreen Large	9,209	250	(N/A)	1.0	1.1	124.79
Pear	931	25	(N/A)	1.0	0.1	12.62
Conifer Evergreen Medium	5,849	159	(N/A)	1.0	0.7	79.26
Quaking aspen	9,830	266	(N/A)	1.0	1.2	133.19
American sycamore	7,239	196	(N/A)	0.5	0.9	196.17
Japanese maple	7	0	(N/A)	0.5	0.0	0.20
Littleleaf linden	2,366	64	(N/A)	0.5	0.3	64.13
Bur oak	172	5	(N/A)	0.5	0.0	4.65
Willow	2,479	67	(N/A)	0.5	0.3	67.19
Broadleaf Deciduous Medium	3,764	102	(N/A)	0.5	0.4	102.01
Northern hackberry	6,493	176	(N/A)	0.5	0.8	175.96
Siberian elm	7,351	199	(N/A)	0.5	0.9	199.22
Broadleaf Deciduous Small	1,174	32	(N/A)	0.5	0.1	31.82
White ash	5,299	144	(N/A)	0.5	0.6	143.62
Citywide total	841,693	22,810	(N/A)	100.0	100.0	111.27

Annual Air Quality Benefits of Public Trees

2/1/2021

Table 3: Annual Air Quality Benefits

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								
Silver maple	52.6	8.9	25.0	2.3	281	68.7	10.0	9.6	65.6	429	-28.5	-107	214.3	603	(N/A)	16.6	17.75
Green ash	32.9	5.3	14.5	1.5	172	60.7	8.9	8.4	57.8	379	0.0	0	190.1	551	(N/A)	15.1	17.76
Norway maple	17.7	3.0	8.5	0.8	95	34.0	4.9	4.7	31.6	210	-4.0	-15	101.1	290	(N/A)	11.2	12.60
Northern red oak	8.5	1.5	4.1	0.4	46	17.7	2.6	2.5	16.8	110	-12.2	-46	41.8	110	(N/A)	8.3	6.49
Pin oak	14.6	2.6	7.2	0.7	79	22.4	3.3	3.1	21.6	141	-26.4	-99	49.0	121	(N/A)	5.4	10.96
Maple	4.7	0.8	2.2	0.2	25	9.3	1.4	1.3	8.8	58	-1.5	-6	27.0	77	(N/A)	5.4	6.99
Sugar maple	8.3	1.4	3.9	0.4	44	17.6	2.6	2.5	16.8	110	-6.4	-24	47.0	130	(N/A)	5.4	11.82
Blue spruce	0.5	0.1	0.5	0.1	3	2.5	0.4	0.3	2.2	15	-1.7	-6	4.8	12	(N/A)	4.9	1.22
Apple	1.9	0.3	0.9	0.1	10	6.0	0.9	0.8	5.5	37	0.0	0	16.2	46	(N/A)	4.4	5.17
Black walnut	6.6	1.1	2.9	0.3	35	12.7	1.9	1.8	12.2	79	0.0	0	39.4	114	(N/A)	3.4	16.29
Spruce	1.2	0.2	1.0	0.2	8	2.3	0.3	0.3	2.2	14	-6.1	-23	1.7	0	(N/A)	2.0	-0.05
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)	1.5	12.87
Northern white cedar	0.0	0.0	0.0	0.0	0	0.1	0.0	0.0	0.0	0	-0.1	0	0.1	0	(N/A)	1.5	0.05
American basswood	1.8	0.3	0.9	0.1	10	4.5	0.6	0.6	4.2	28	-1.5	-6	11.5	32	(N/A)	1.5	10.61
Amur maple	0.7	0.1	0.3	0.0	4	2.2	0.3	0.3	2.1	14	0.0	0	6.1	17	(N/A)	1.5	5.82
Eastern redbud	0.7	0.1	0.3	0.0	4	2.2	0.3	0.3	2.1	14	0.0	0	6.1	17	(N/A)	1.5	5.82
Red maple	1.1	0.2	0.5	0.0	6	2.5	0.4	0.4	2.5	16	-0.4	-1	7.2	20	(N/A)	1.0	10.15
Southern magnolia	0.0	0.0	0.1	0.0	0	0.8	0.1	0.1	0.8	5	-0.3	-1	1.6	4	(N/A)	1.0	2.10
Conifer Evergreen Large	1.1	0.2	0.9	0.1	7	1.8	0.3	0.2	1.7	11	-5.7	-21	0.6	-3	(N/A)	1.0	-1.58
Pear	0.3	0.0	0.1	0.0	1	1.3	0.2	0.2	1.2	8	0.0	0	3.2	9	(N/A)	1.0	4.55
Conifer Evergreen Medium	1.1	0.2	0.8	0.1	7	1.6	0.2	0.2	1.5	10	-2.3	-9	3.5	8	(N/A)	1.0	4.16
Quaking aspen	1.9	0.3	0.8	0.1	10	3.6	0.5	0.5	3.4	22	0.0	0	11.0	32	(N/A)	1.0	15.94
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)	0.5	22.55
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)	0.5	0.11
Littleleaf linden	0.4	0.1	0.2	0.0	2	1.1	0.2	0.2	1.0	7	-0.2	-1	2.9	8	(N/A)	0.5	8.23
Bur oak	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)	0.5	0.87
Willow	0.5	0.1	0.2	0.0	3	1.3	0.2	0.2	1.2	8	-0.1	0	3.6	10	(N/A)	0.5	10.16
Broadleaf Deciduous Medium	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)	0.5	13.58
Northern hackberry	1.7	0.3	0.8	0.1	9	2.5	0.4	0.3	2.4	16	0.0	0	8.4	25	(N/A)	0.5	24.53
Siberian elm	1.7	0.3	0.8	0.1	9	2.3	0.3	0.3	2.2	15	0.0	0	8.0	23	(N/A)	0.5	23.37
Broadleaf Deciduous Small	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)	0.5	8.35
White ash	0.9	0.1	0.4	0.0	5	2.0	0.3	0.3	1.9	12	0.0	0	6.0	17	(N/A)	0.5	17.19
Citywide total	168.8	28.4	80.4	7.8	903	293.8	42.8	40.8	279.0	1,830	-99.8	-374	842.0	2,359	(N/A)	100.0	11.51

Neola

Stored CO_2 Benefits of Public Trees

2/1/2021

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	1,407,178	10,554	(N/A)	16.6	31.8	310.41
Green ash	1,132,223	8,492	(N/A)	15.1	25.6	273.92
Norway maple	291,938	2,190	(N/A)	11.2	6.6	95.20
Northern red oak	187,005	1,403	(N/A)	8.3	4.2	82.50
Pin oak	413,775	3,103	(N/A)	5.4	9.4	282.12
Maple	49,924	374	(N/A)	5.4	1.1	34.04
Sugar maple	250,708	1,880	(N/A)	5.4	5.7	170.94
Blue spruce	1,877	14	(N/A)	4.9	0.0	1.41
Apple	29,204	219	(N/A)	4.4	0.7	24.34
Black walnut	230,321	1,727	(N/A)	3.4	5.2	246.77
Spruce	15,494	116	(N/A)	2.0	0.4	29.05
Honeylocust	36,735	276	(N/A)	1.5	0.8	91.84
Northern white cedar	7	0	(N/A)	1.5	0.0	0.02
American basswood	69,902	524	(N/A)	1.5	1.6	174.76
Amur maple	10,688	80	(N/A)	1.5	0.2	26.72
Eastern redbud	10,688	80	(N/A)	1.5	0.2	26.72
Red maple	11,569	87	(N/A)	1.0	0.3	43.39
Southern magnolia	968	7	(N/A)	1.0	0.0	3.63
Conifer Evergreen La	14,981	112	(N/A)	1.0	0.3	56.18
Pear	3,945	30	(N/A)	1.0	0.1	14.79
Conifer Evergreen M	9,787	73	(N/A)	1.0	0.2	36.70
Quaking aspen	64,440	483	(N/A)	1.0	1.5	241.65
American sycamore	55,982	420	(N/A)	0.5	1.3	419.86
Japanese maple	14	0	(N/A)	0.5	0.0	0.10
Littleleaf linden	8,218	62	(N/A)	0.5	0.2	61.63
Bur oak	185	1	(N/A)	0.5	0.0	1.39
Willow	7,945	60	(N/A)	0.5	0.2	59.59
Broadleaf Deciduous	14,280	107	(N/A)	0.5	0.3	107.10
Northern hackberry	28,932	217	(N/A)	0.5	0.7	216.99
Siberian elm	41,265	309	(N/A)	0.5	0.9	309.48
Broadleaf Deciduous	6,743	51	(N/A)	0.5	0.2	50.57
White ash	15,773	118	(N/A)	0.5	0.4	118.30
Citywide total	4,422,692	33,170	(N/A)	100.0	100.0	161.81

The value of stored carbon dioxide is calculated as the total amount of carbon dioxide sequestered annually over the life of each tree, summed for the population. This value should not be added to the Replacement Value or double-counting of the carbon dioxide storage benefit will occur.

Neola

Annual CO_2 Benefits of Public Trees

2/1/2021

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
Silver maple	83,363	625	-6,754	-186	-52	24,329	182	100,752	756 (N/A)	16.6	43.5	22.22
Green ash	21,595	162	-5,435	-147	-42	21,414	161	37,427	281 (N/A)	15.1	16.1	9.05
Norway maple	5,620	42	-1,401	-82	-11	11,684	88	15,822	119 (N/A)	11.2	6.8	5.16
Northern red oak	5,035	38	-898	-48	-7	6,229	47	10,317	77 (N/A)	8.3	4.5	4.55
Pin oak	0	0	-1,986	-56	-15	8,004	60	5,962	45 (N/A)	5.4	2.6	4.07
Maple	1,262	9	-240	-19	-2	3,253	24	4,257	32 (N/A)	5.4	1.8	2.90
Sugar maple	10,194	76	-1,203	-43	-9	6,231	47	15,178	114 (N/A)	5.4	6.5	10.35
Blue spruce	280	2	-9	-9	0	831	6	1,092	8 (N/A)	4.9	0.5	0.82
Apple	1,393	10	-140	-18	-1	2,031	15	3,266	24 (N/A)	4.4	1.4	2.72
Black walnut	4,096	31	-1,106	-30	-9	4,511	34	7,472	56 (N/A)	3.4	3.2	8.01
Spruce	361	3	-74	-10	-1	811	6	1,088	8 (N/A)	2.0	0.5	2.04
Honeylocust	4,457	33	-176	-8	-1	1,844	14	6,117	46 (N/A)	1.5	2.6	15.29
Northern white cedar	11	0	0	-1	0	18	0	28	0 (N/A)	1.5	0.0	0.07
American basswood	3,768	28	-336	-11	-3	1,551	12	4,972	37 (N/A)	1.5	2.1	12.43
Amur maple	860	6	-51	-6	0	767	6	1,570	12 (N/A)	1.5	0.7	3.93
Eastern redbud	860	6	-51	-6	0	767	6	1,570	12 (N/A)	1.5	0.7	3.93
Red maple	483	4	-56	-5	0	908	7	1,331	10 (N/A)	1.0	0.6	4.99
Southern magnolia	113	1	-5	-2	0	282	2	387	3 (N/A)	1.0	0.2	1.45
Conifer Evergreen Large	0	0	-72	-9	-1	622	5	541	4 (N/A)	1.0	0.2	2.03
Pear	382	3	-19	-3	0	433	3	792	6 (N/A)	1.0	0.3	2.97
Conifer Evergreen Mediun	377	3	-47	-7	0	560	4	883	7 (N/A)	1.0	0.4	3.31
Quaking aspen	1,139	9	-309	-9	-2	1,254	9	2,075	16 (N/A)	1.0	0.9	7.78
American sycamore	479	4	-269	-6	-2	813	6	1,017	8 (N/A)	0.5	0.4	7.63
Japanese maple	9	0	0	0	0	6	0	14	0 (N/A)	0.5	0.0	0.10
Littleleaf linden	789	6	-39	-3	0	380	3	1,127	8 (N/A)	0.5	0.5	8.45
Bur oak	74	1	-1	-1	0	49	0	121	1 (N/A)	0.5	0.1	0.91
Willow	470	4	-38	-3	0	440	3	869	7 (N/A)	0.5	0.4	6.52
Broadleaf Deciduous Medi	0	0	-69	-4	-1	539	4	466	3 (N/A)	0.5	0.2	3.49
Northern hackberry	745	6	-139	-6	-1	887	7	1,488	11 (N/A)	0.5	0.6	11.16
Siberian elm	983	7	-198	-6	-2	829	6	1,608	12 (N/A)	0.5	0.7	12.06
Broadleaf Deciduous Smal	0	0	-32	-4	0	335	3	299	2 (N/A)	0.5	0.1	2.24
White ash	1,315	10	-76	-4	-1	704	5	1,940	15 (N/A)	0.5	0.8	14.55

Annual CO_2 Benefits of Public Trees

Table 5 Continued

2/1/2021

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
Citywide total	150,513	1,129	-21,229	-751	-165	103,316	775	231,849	1,739 (N/A)	100.0	100.0	8.48

Annual Aesthetic/Other Benefits of Public Trees

2/1/2021

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	5,551	(N/A)	16.6	46.8	163.25
Green ash	1,497	(N/A)	15.1	12.6	48.28
Norway maple	498	(N/A)	11.2	4.2	21.63
Northern red oak	353	(N/A)	8.3	3.0	20.74
Pin oak	0	(N/A)	5.4	0.0	0.00
Maple	169	(N/A)	5.4	1.4	15.35
Sugar maple	972	(N/A)	5.4	8.2	88.39
Blue spruce	176	(N/A)	4.9	1.5	17.58
Apple	81	(N/A)	4.4	0.7	9.00
Black walnut	301	(N/A)	3.4	2.5	43.05
Spruce	57	(N/A)	2.0	0.5	14.27
Honeylocust	1,167	(N/A)	1.5	9.8	388.90
Northern white cedar	17	(N/A)	1.5	0.1	5.76
American basswood	248	(N/A)	1.5	2.1	82.77
Amur maple	51	(N/A)	1.5	0.4	16.89
Eastern redbud	51	(N/A)	1.5	0.4	16.89
Red maple	66	(N/A)	1.0	0.6	32.95
Southern magnolia	44	(N/A)	1.0	0.4	21.93
Conifer Evergreen Large	0	(N/A)	1.0	0.0	0.00
Pear	22	(N/A)	1.0	0.2	10.94
Conifer Evergreen Medium	26	(N/A)	1.0	0.2	12.81
Quaking aspen	86	(N/A)	1.0	0.7	43.13
American sycamore	29	(N/A)	0.5	0.2	28.57
Japanese maple	0	(N/A)	0.5	0.0	0.03
Littleleaf linden	81	(N/A)	0.5	0.7	81.48
Bur oak	15	(N/A)	0.5	0.1	14.73
Willow	43	(N/A)	0.5	0.4	43.05
Broadleaf Deciduous Medium	0	(N/A)	0.5	0.0	0.00
Northern hackberry	81	(N/A)	0.5	0.7	81.25
Siberian elm	54	(N/A)	0.5	0.5	54.03
Broadleaf Deciduous Small	0	(N/A)	0.5	0.0	0.00
White ash	126	(N/A)	0.5	1.1	126.36
Citywide total	11,860	(N/A)	100.0	100.0	57.86

Neola

Total Annual Benefits, Net Benefits, and Costs for Public Trees

2/1/2021

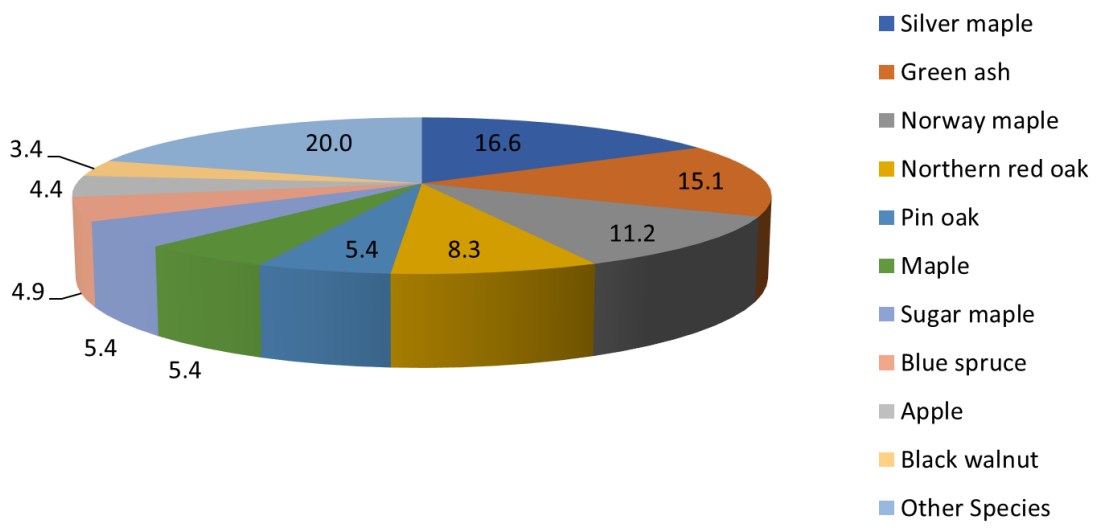
Benefits	Total ($)	Standard Error	$/tree	Standard Error	$/capita	Standard Error
Energy	12,926	(N/A)	63.05	(N/A)	0.00	(N/A)
CO2	1,739	(N/A)	8.48	(N/A)	0.00	(N/A)
Air Quality	2,359	(N/A)	11.51	(N/A)	0.00	(N/A)
Stormwater	22,810	(N/A)	111.27	(N/A)	0.00	(N/A)
Aesthetic/Other	11,860	(N/A)	57.86	(N/A)	0.00	(N/A)
Total Benefits	51,695	(N/A)	252.17	(N/A)	0.00	(N/A)
Costs						
Planting	0		0.00		0.00	
Contract Pruning	0		0.00		0.00	
Pest Management	0		0.00		0.00	
Irrigation	0		0.00		0.00	
Removal	0		0.00		0.00	
Administration	0		0.00		0.00	
Inspection/Service	0		0.00		0.00	
Infrastructure Repairs	0		0.00		0.00	
Litter Clean-up	0		0.00		0.00	
Liability/Claims	0		0.00		0.00	
Other Costs	0		0.00		0.00	
Total Costs	0		0.00		0.00	
Net Benefits	51,695	(N/A)	252.17	(N/A)	0.00	(N/A)
Benefit-cost ratio	0.00	(N/A)				

Neola

Species Distribution of Public Trees

2/1/2021

Figure 1: Species Distribution



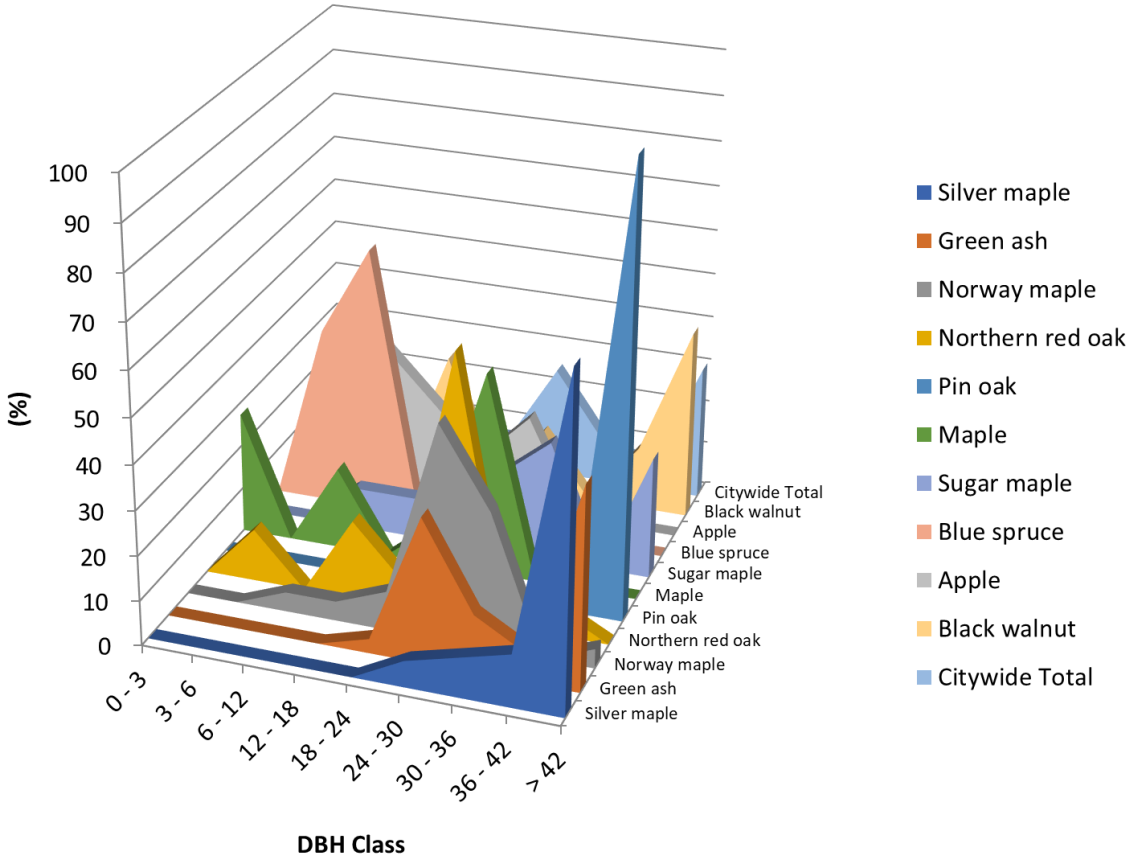
Species	Percent
Silver maple	16.6
Green ash	15.1
Norway maple	11.2
Northern red oak	8.3
Pin oak	5.4
Maple	5.4
Sugar maple	5.4
Blue spruce	4.9
Apple	4.4
Black walnut	3.4
Other Species	20.0
Total	100.0

Neola

Figure 2: Relative Age Class

Relative Age Distribution of Top 10 Public Tree Species for All Zones (%)

2/1/2021



	DBH class (in)								
Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	> 42
Silver maple	0.00	0.00	0.00	0.00	0.00	5.88	8.82	11.76	73.53
Green ash	0.00	0.00	0.00	0.00	3.23	32.26	12.90	6.45	45.16
Norway maple	0.00	0.00	4.35	4.35	8.70	47.83	30.43	0.00	4.35
Northern red oak	0.00	11.76	0.00	17.65	5.88	58.82	0.00	5.88	0.00
Pin oak	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Maple	27.27	0.00	18.18	0.00	9.09	45.45	0.00	0.00	0.00
Sugar maple	0.00	0.00	9.09	9.09	9.09	18.18	27.27	0.00	27.27
Blue spruce	0.00	40.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00
Apple	0.00	11.11	33.33	22.22	11.11	22.22	0.00	0.00	0.00
Black walnut	0.00	0.00	0.00	28.57	0.00	14.29	0.00	14.29	42.86
Citywide Total	3.41	3.90	9.76	6.34	6.83	24.88	9.76	4.88	30.24

Figure 3: Foliage Condition

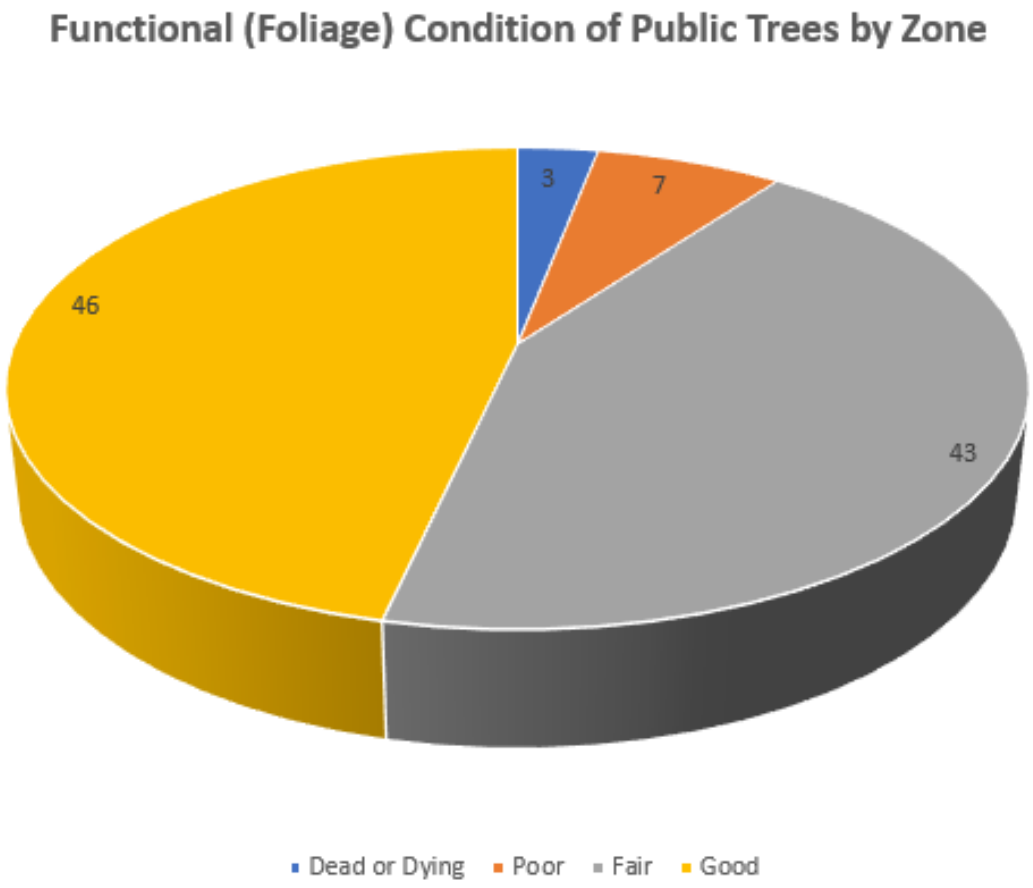


Figure 4: Wood Condition

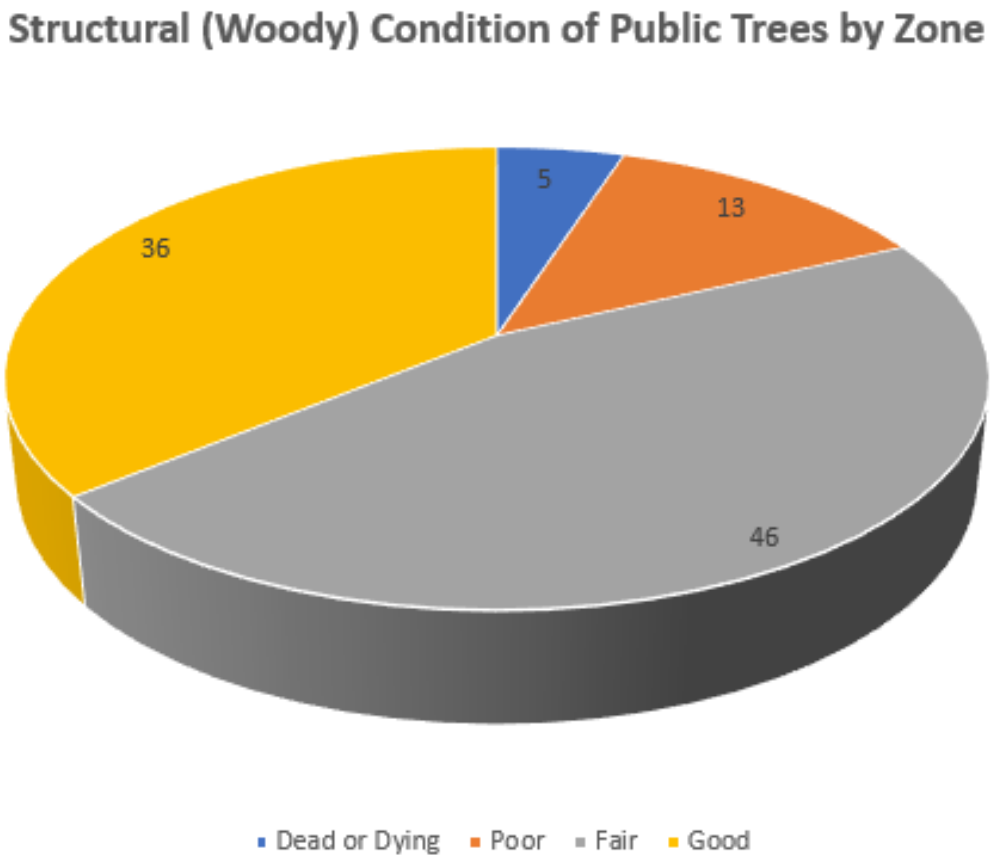
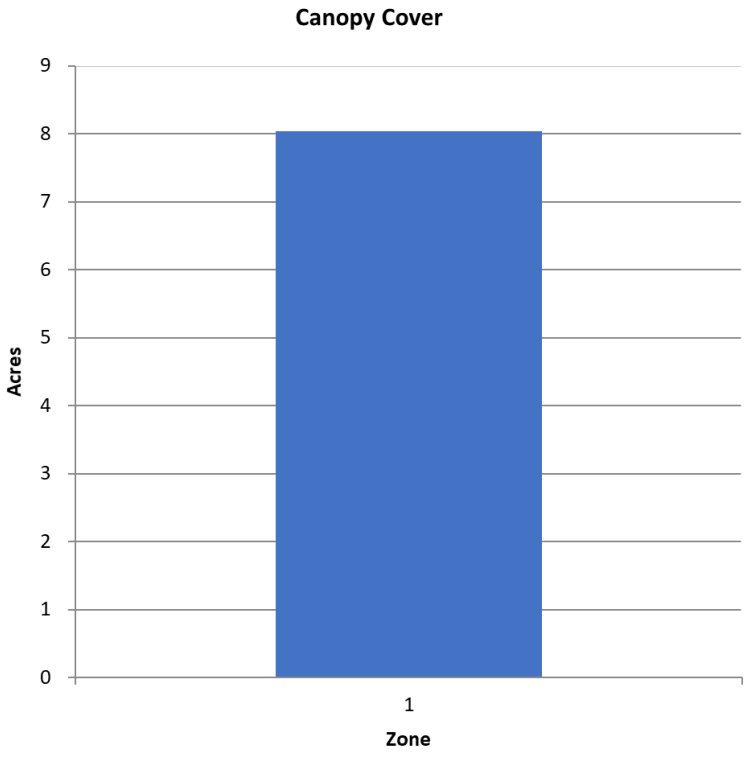


Figure 5: Canopy Cover in Acres

Neola

Canopy Cover of Public Trees (Acres)

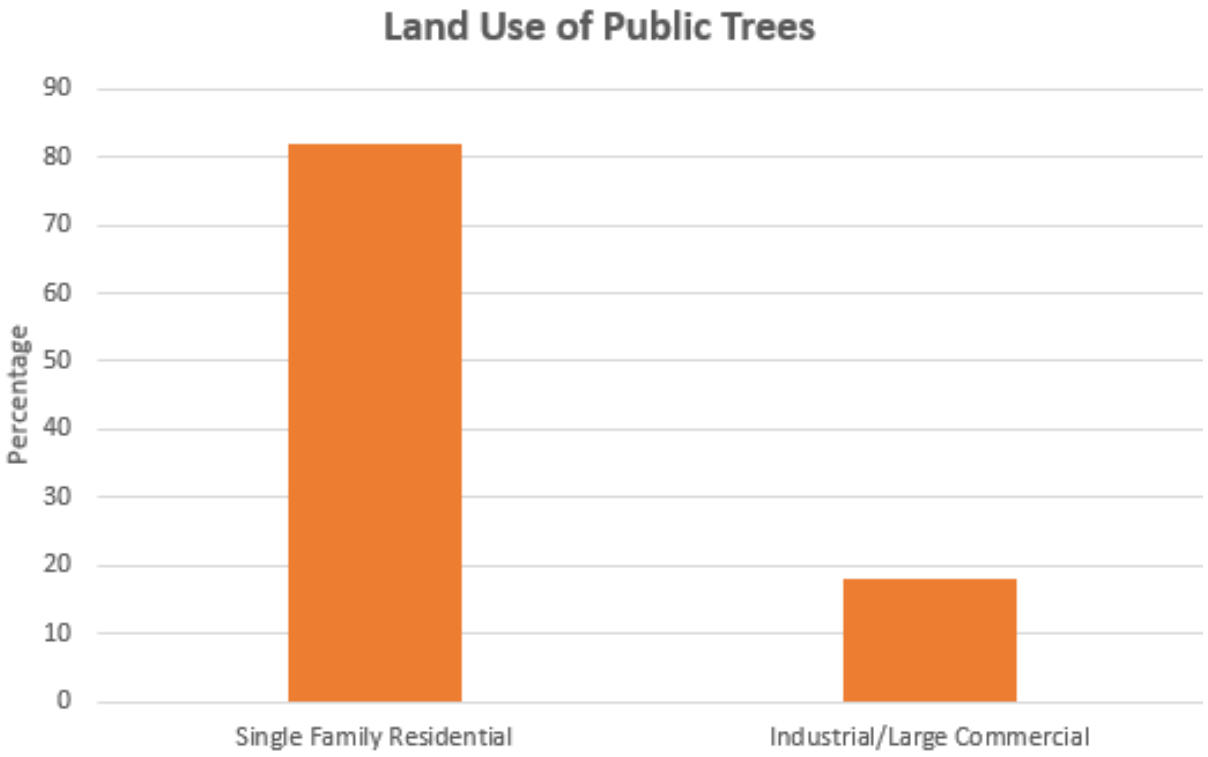
2/1/2021



Zone	Acres	% of Total Canopy Cover
1	8	100.0
Citywide total	8	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	8	0.00	0.00

Figure 6: Land Use of City/Park Trees



APPENDIX B: ArcGIS MAPPING

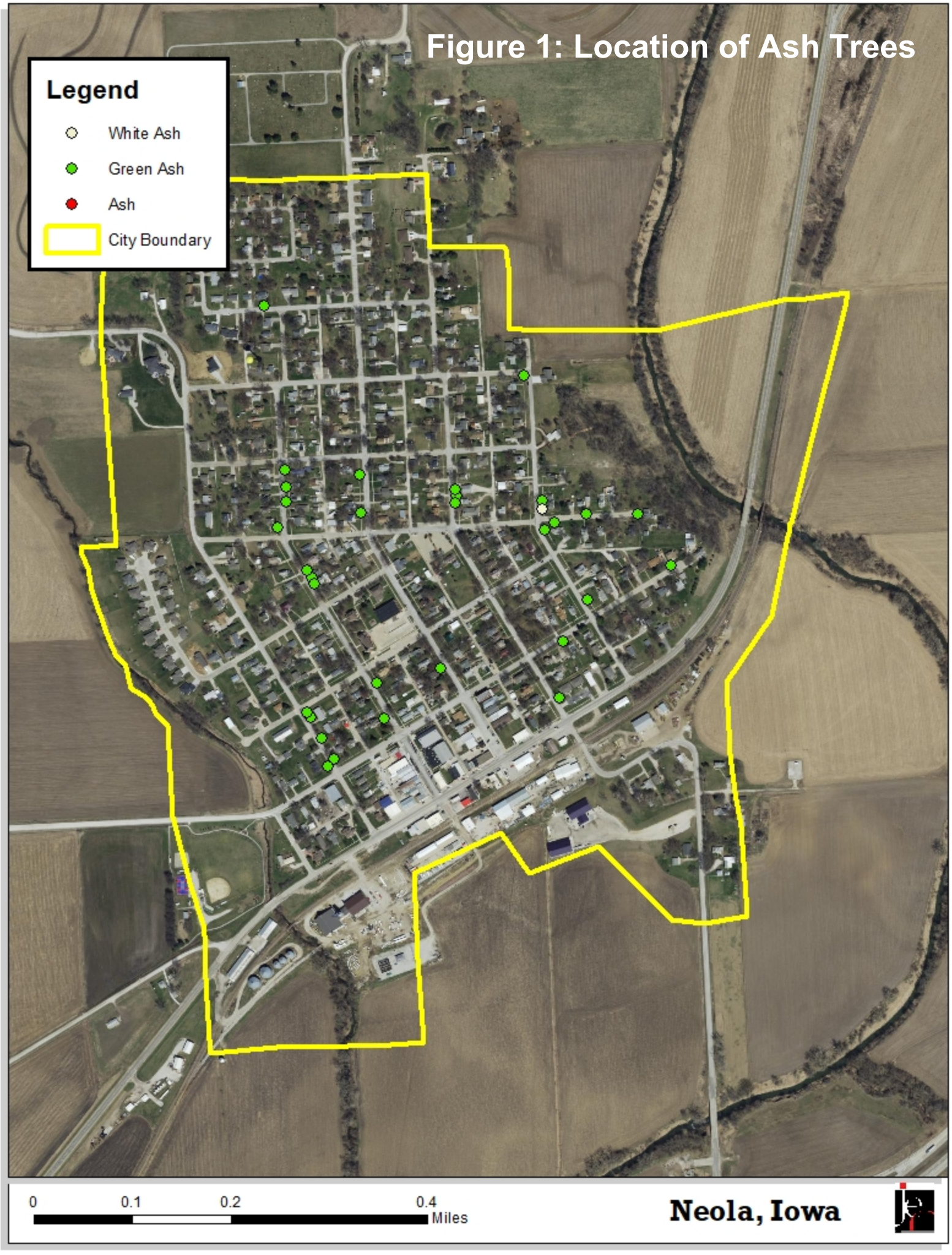
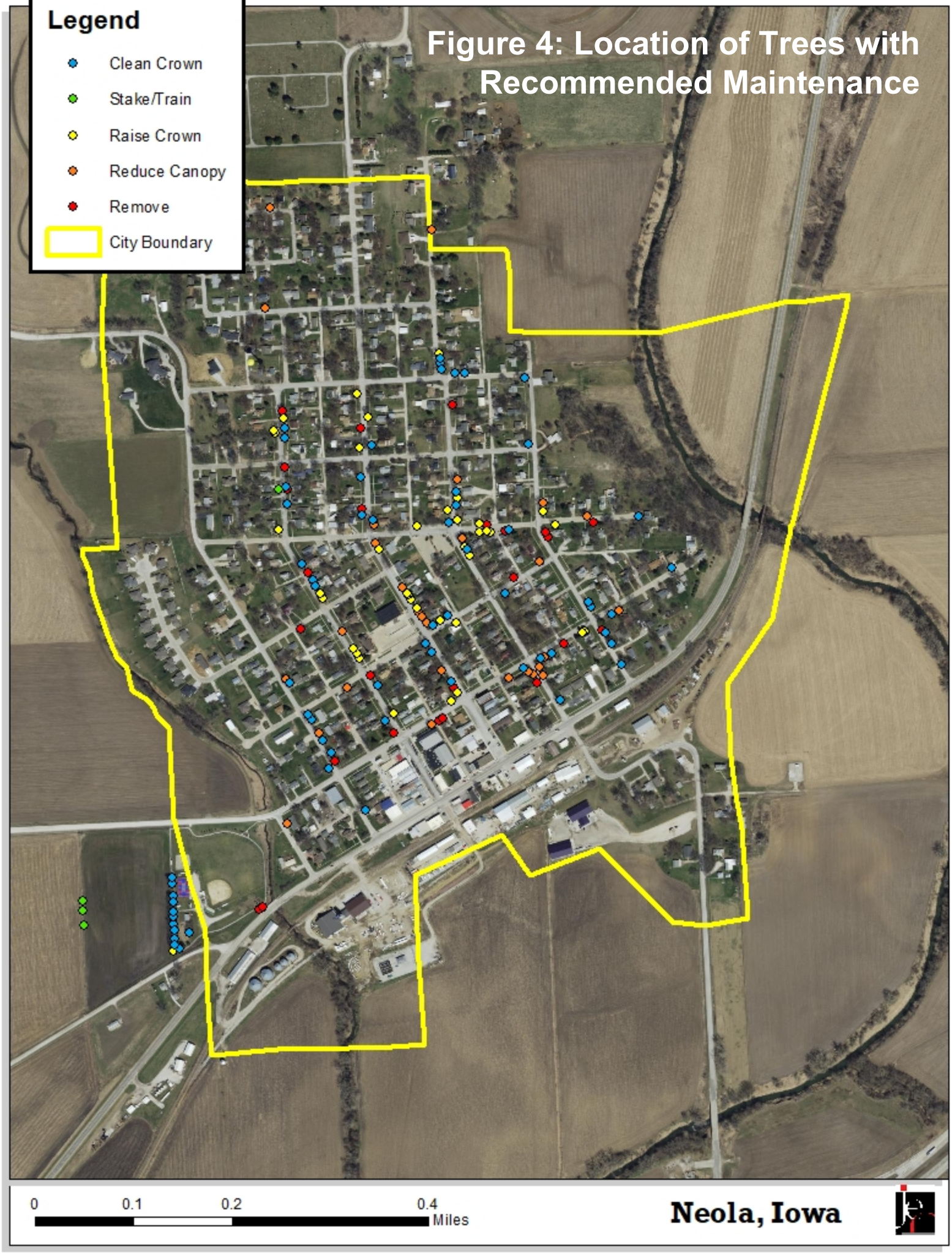


Figure 1: Location of Ash Trees
Legend
White Ash
Green Ash
Ash
City Boundary
0
0.1
0.2
0.4
Miles
Neola, Iowa


Figure 2: Location of EAB Symptoms
Legend
D-Shaped Exit Holes
Epicormic Shoots
City Boundary
0
0.1
0.2
0.4
Miles
Neola, Iowa


Figure 3: Location of Poor Condition Trees
Legend
Dead or Dying
Poor Condition
City Boundary
0
0.1
0.2
0.4
Miles
Neola, Iowa


Legend
Clean Crown
Stake/Train
Raise Crown
Reduce Canopy
Remove
City Boundary
Figure 4: Location of Trees with Recommended Maintenance
0
0.1
0.2
0.4
Miles
Neola, Iowa

APPENDIX C: NEOLA TREE ORDINANCES

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 tress 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.

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.

151.07 CUTTING OR MOWING OF GRASS.

1. Duty to Cut and Mow Lawns and Lots. The owner of any property shall cut and mow all lawns and lots so that such growth shall be less than four (4) inches at all times.
2. Cutting and Mowing by City. If a property owner refuses or fails to cut and mow lawns and lots within forty-eight (48) hours after being delivered a notice from the City to perform such action, the Council may require said work to be done and the cost and expenses thereof shall be assessed to the property owner after due notice is given. The amount of such assessment shall be certified to the County Auditor as provided by law and the same shall be collected with and in the same manner as general property taxes.