

Scranton, IA



2016 Urban Forest Management Plan
Prepared by Emma Hanigan
Bureau of Forestry, Iowa DNR



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Executive Summary

Overview

This plan was developed to assist the City of Scranton with managing its urban forest, including budgeting and future planning. Trees can provide a multitude of benefits to the community, and sound management allows a community to best take advantage of these benefits. Management is especially important considering the serious threats posed by forest pests such as the emerald ash borer (EAB). EAB is an invasive insect imported from Eastern Asia on wood shipping crates that kills all species of ash trees (this does not include mountain ash). There is a strong possibility that 19% of Scranton's city owned trees (ash) will die once EAB becomes established in the community, unless preventative treatment is used. With proper planning and management, the costs of removing dead and dying trees can be extended over years, mitigating public safety issues.

Inventory and Results

In 2015, a tree inventory was conducted using Global Positioning System (GPS) data collectors. The inventory was a complete inventory of street and park trees. Below are some key findings of the 401 trees inventoried.

- Scranton's trees provide \$63,127 of benefits annually, an average of \$157 a tree
- There are over 38 species of trees
- The top three genera are: Maple 46%, Ash 19%, and Apple (crab) 5%
- 52% of trees are in need of some type of management
- 13 trees are recommended for removal

Recommendations

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

- Of the 13 trees needing removal, 5 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*](#)
- 22 of the 78 ash trees should be carefully examined, as they have one or more symptoms that could be related to an EAB infestation
- All trees should be pruned on a routine schedule- one third of the city every other year
- Plant a diverse mix of trees that do not include: ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut
- Check ash trees with a visual survey yearly
- With the current budget it could take 54 years to remove ash – Suggestion: request a budget increase annually and apply for grants to plant replacement trees

Introduction

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

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

Good urban forestry management involves setting goals and developing management strategies to achieve these goals. An essential part of developing management strategies is a comprehensive public tree inventory. The inventory supplies information that will be used for maintenance, removal schedules, tree planting and budgeting. Basing actions on this information will help meet Scranton's urban forestry goals.

Inventory

In 2015, a tree inventory was conducted that included 100% of the city owned trees on both streets and parks. The tree data was collected using a handheld Global Positioning System (GPS) receiver. The data collector gives Geographic Information Systems (GIS) coordinates with an accuracy of 3 meters, which can be used in Arc GIS as an active GIS data layer. Because the inventory is a digital document the data can be updated with new information and become a working document.

The programming used to collect tree information on the data collectors was written to be compatible with a state-of-the-art software suite called i-Tree. i-Tree was developed by the USDA Forest Service to quantify the structure of community trees and the environmental services that trees provide. The i-Tree suite is a public domain which can be accessed for free.

To quantify the urban forest structure and benefits, specific data is collected for each tree. This data includes: location, land use, species, diameter at 4.5 ft, recommended maintenance, priority of that maintenance, leaf health, and wood condition. Additionally, signs and symptoms associated with EAB were noted for all ash trees. The signs and symptoms noted were canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage.

Inventory Results

The data collected for the 401 city trees was entered into the USDA Forest service program i-Tree STREETS, part of the i-Tree suite. The following are results from the i-Tree STREETS analysis.

Annual Benefits

Annual Energy Benefits

Trees conserve energy by shading buildings and blocking winds. Scranton's trees reduce energy related costs by approximately \$17,507 annually (Appendix A, Table 1). These savings are both in Electricity (84 MWh) and in Natural Gas (6,378 Therms).

Annual Stormwater Benefits

Scranton's trees intercept about 835,536 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides \$22,643 of benefits to the city.

Annual Air Quality Benefits

Air quality is a persistent public health issue in Iowa. The urban forest improves air quality by removing pollutants, lowering air temperature, and reducing energy consumption, which in turn reduces emissions from power plants, and emitting volatile organic mater (ozone). In Scranton, it is estimated that trees remove 1,046 lbs of air pollution (ozone (O₃), particulate matter less than 10 microns (PM₁₀), carbon monoxide (CO), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂)) per year with a net value of \$2,941 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Scranton, trees sequester about 190,023 lbs of carbon a year with an associated value of \$1,318 (Appendix A, Table 4). In addition, the trees store 2,798,637 lbs of carbon, with a yearly benefit of \$20,990 (Appendix A, Table 5).

Annual Aesthetics Benefits

Social benefits of trees are hard to capture. The analysis does have a calculation for this area that includes: aesthetic value, property values, lowered rates of mental illness and crime, city livability and much more. Scranton receives \$18,718 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, Scranton's trees provide \$63,127 of benefits annually. Benefits of individual trees vary based on size, species, health and

location, but on average each of the 401 trees in Scranton provide approximately \$157 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Scranton has over 38 different tree species along city streets and parks (Appendix A, Figure 1). The distribution of trees by genera is as follows:

Maple	186	46%
Ash	78	19%
Apple (crab)	21	5%
Hackberry	18	4%
Spruce	17	4%
Oak	14	3%
Linden	12	3%
Honeylocust	9	2%
Cottonwood/poplar	8	2%
Other	7	2%
Elm	6	1%
Black Walnut	5	1%
Pear	4	1%
Pine	3	1%
Willow	3	1%
Arborvitae	3	1%
Birch	2	<1%
Mulberry	2	<1%
Redbud	1	<1%
Cedar	1	<1%
Tulip Tree	1	<1%

Age Class

Most of Scranton’s trees (50%) are between 6 and 18 inches in diameter at 4.5 ft (Appendix A, Figure 2). For age, it is preferred that the highest amounts of trees are in the smallest size category (a downward slope) to prepare for natural mortality and to maintain canopy cover. Scranton’s size curve is on the smaller side, indicating a younger than average stand.

Condition: Wood and Foliage

Both wood condition and leaf condition are good indicators of the overall health of the urban forest. The foliage condition results for Scranton indicate that 89% of the trees are in good health, with only 2% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 79% of Scranton’s trees are in good health for wood condition

(appendix A, Figure 4 & Appendix B, Figure 3). Wood condition that is in poor health, dead or dying is about 6% of the population. This 6% is an estimate of trees that need management follow up.

Management Needs

The following outlines the specific management needs of the street and park trees by number of trees and percent of canopy (Appendix B, Figure 3).

Crown Cleaning	160	40%
Crown Raising	37	9%
Tree Removal	13	3%
Tree Staking	1	0%

Canopy Cover

The total canopy with both private and public trees is 4%, 53 acres. The canopy cover included in the Scranton inventory includes approximately 9 acres (Appendix A, Figure 4).

Land Use and Location

The majority of Scranton’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	65%
Park/vacant/other	33%
Small commercial	<1%
Multifamily residential	<1%

Location

Planting strip	69%
Front yard	31%

Recommendations

Risk Management

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

Hazardous trees

Scranton has 9 critical concern trees that need immediate removal. These trees can be seen on the Location of Trees with Recommended Maintenance map (Appendix B, Figure 4). It is recommended to start with the large diameter critical concern trees first. There are 5 trees over 24 inches in diameter at 4.5 ft that should be addressed first. Please refer to the six year maintenance plan at the end of this section. After all of the critical concern trees are addressed, there should be follow up on the trees marked as needing maintenance. There are a total of 103 trees with these needs.

Poor tree species

After the removal of the critical concern trees, ash trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, Figure 4). Of the 15 removals, none are ash trees. There are a total of 78 ash trees, and 22 of those have signs and symptoms that have been associated with EAB. In addition, there is one ash 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 is the removal of lower branches that are 2 inches in diameter or larger in the case of providing clearance for pedestrians or vehicles. Crown reduction is removing individual limbs from structures or utility wires. It is recommended that all trees be pruned on a routine schedule every five to seven years. Please refer to the six year maintenance plan for further information.

Planting

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

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 (46%) (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.

Continual Monitoring

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

PROPOSED WORK SCHEDULE AND ESTIMATED COSTS

YEAR 1

ESTIMATED COSTS

Remove 9 critical concern recommended	\$6,300
Plant 11 trees in open locations	\$1,800
Inspect ash trees for signs of Emerald Ash Borer	

YEAR 2

Remove 4 other mark trees	\$2,800
Plant 5 trees in open locations	\$750
Prune 1/3 of city owned trees	\$1,000
Inspect ash trees for signs of Emerald Ash Borer	

YEAR 3

Removal: 2 trees - removal of any new critical concern trees or ash in poor health	\$1,400
*Or saving for ash tree treatment and/or future ash removal	
Planting and Replacement: 3 trees to be planted in open locations and locations from previous removals	\$450
Visual Survey for signs and symptoms of EAB	

YEAR 4

Removal: 1 tree - removal of any new critical concern tree or an ash in poor health	\$700
*Or saving for ash tree treatment and/or future ash removal	
Planting and Replacement: 3 trees in open locations from removals	\$300
Routine trimming: Contract to trim 1/3 of the city trees	\$1,000
Visual Survey for signs and symptoms of EAB	

YEAR 5

Removal: 2 trees - removal of any new critical concern trees or ash	\$1,400
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in poor health

*Or saving for ash tree treatment and/or future ash removal

Planting and Replacement: 3 trees to be planted in open locations \$450

and locations from previous removals

Visual Survey for signs and symptoms of EAB

YEAR 6

Removal: 1 tree - removal of any new critical concern tree or an ash \$700

in poor health

*Or saving for ash tree treatment and/or future ash removal

Planting and Replacement: 3 trees in open locations from removals \$300

Routine trimming: Contract to trim 1/3 of the city trees \$1,000

Visual Survey for signs and symptoms of EAB

*Reduction of ash over 6 years: Approximately 7 ash trees removed (approximately 9% of ash). It will take approximately 54 years to remove all ash with the current budget. EAB could potentially kill all ash within 4 to 15 years of its arrival.

** To remove all ash trees within 6 years, the budget would need to be increased to \$9,067 a year.

Emerald Ash Borer Plan

Ash Tree Removal

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

Treatment of Ash Trees

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

EAB Quarantines

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

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

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

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

Wood Disposal

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

Canopy Replacement

As budget permits, all removed trees will be replaced. The new plantings should be a diverse mix and will not include ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut.

Postponed Work

While finances, staffing and equipment are focused on the management of ash, usual services may be delayed. Tree removal requests on genera other than ash will be prioritized by hazardous or emergency situations only.

Monitoring

It is recommended that ash trees be checked with a visual survey every year for tree death and for the following signs and symptoms: canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage.

Private Ash Trees

It is strongly recommended that private property owners start removing ash trees on their property upon arrival of EAB. The city code reads "6-8-5 REMOVAL. The Council may order removal of any tree planted contrary to this ordinance, or of any tree that is dead or diseased,

and if not removed within ten (10) days by the adjoining property owner, the Council may have the same removed and assess the costs against the adjoining property.”

Purposed Budget Increase

EAB could potentially kill all ash trees in Scranton within 4 years of its arrival. To remove all ash trees within 6 years the budget would need to be increased to \$9,066 a year. Additionally, it is recommended that Scranton apply for grants to fund replacement trees. Utility Company grants are usually between \$500 and \$10,000 for community-based, tree-planting projects that include parks, gateways, cemeteries, nature trails, libraries, nursing homes, and schools.

Another option being considered by many communities is treating a number of selected trees, either to maintain those trees in the landscape or to delay their removal – to spread out the costs and number of trees needing removed all at once. Trunk injection is administered every two years for the life of the tree. If treatment is discontinued, the tree dies. For instance, in this treatment scenario, the average ash diameter is 20 inches and at \$15 per inch, about 4 trees could be treated per year (every other year treatment). This would be 8 trees selected for treatment, and Scranton would still need to find \$49,000 for removal. Alternatively, if there are 15 treatable trees, it would cost approximately \$2,250 a year for treatment and leave \$44,100 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 Scranton. It is suggested to consider increasing the budget to plan for this.

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Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Scranton

Annual Energy Benefits of Public Trees

2/1/2016

Species	Total Electricity (MWh)	Electricity (\$)	Total Natural Gas (Therms)	Natural Gas (\$)	Total Standard (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Green ash	18.0	1,367	2,407.6	2,359	3,726	(N/A)	18.7	21.3	49.68
Sugar maple	14.7	1,114	1,946.0	1,907	3,022	(N/A)	15.5	17.3	48.74
Silver maple	17.0	1,292	2,240.6	2,196	3,487	(N/A)	15.2	19.9	57.17
Norway maple	10.4	787	1,413.9	1,386	2,173	(N/A)	12.7	12.4	42.60
Apple	1.3	97	214.4	210	307	(N/A)	5.2	1.8	14.62
Northern hackberry	6.3	479	901.3	883	1,363	(N/A)	4.5	7.8	75.71
Blue spruce	0.7	52	103.8	102	154	(N/A)	3.2	0.9	11.84
Littleleaf linden	2.0	148	256.7	252	400	(N/A)	2.7	2.3	36.36
Honeylocust	2.8	214	370.3	363	577	(N/A)	2.2	3.3	64.10
Northern red oak	1.4	104	189.7	186	290	(N/A)	2.0	1.7	36.21
Red maple	0.9	65	118.6	116	181	(N/A)	2.0	1.0	22.59
Siberian elm	1.7	132	240.9	236	368	(N/A)	1.5	2.1	61.40
Black walnut	0.9	65	117.4	115	180	(N/A)	1.2	1.0	36.03
Eastern cottonwood	1.3	95	168.3	165	260	(N/A)	1.2	1.5	52.08
Conifer Evergreen Large	0.4	32	57.8	57	89	(N/A)	1.2	0.5	17.80
Pear	0.2	19	42.3	41	60	(N/A)	1.0	0.3	15.00
Eastern white pine	0.3	24	38.8	38	62	(N/A)	0.7	0.4	20.62
Willow	0.6	44	75.8	74	118	(N/A)	0.7	0.7	39.34
White ash	0.5	34	55.0	54	88	(N/A)	0.7	0.5	29.44
Bur oak	0.3	25	41.2	40	66	(N/A)	0.7	0.4	21.84
Northern white cedar	0.0	1	2.0	2	3	(N/A)	0.7	0.0	0.93
Mulberry	0.2	15	32.2	32	47	(N/A)	0.5	0.3	23.50
River birch	0.1	8	17.6	17	26	(N/A)	0.5	0.1	12.79
Maple	0.0	1	1.5	1	2	(N/A)	0.5	0.0	1.03
Norway spruce	0.1	9	19.0	19	27	(N/A)	0.5	0.2	13.58
Pin oak	0.2	19	29.2	29	48	(N/A)	0.5	0.3	23.78
Amur maple	0.1	11	25.7	25	36	(N/A)	0.5	0.2	18.19
Cottonwood	0.2	14	27.5	27	41	(N/A)	0.5	0.2	20.64
Black spruce	0.0	2	4.9	5	7	(N/A)	0.2	0.0	6.94
Broadleaf Deciduous Large	0.2	18	27.0	26	44	(N/A)	0.2	0.3	44.23
Eastern redbud	0.1	6	12.8	13	18	(N/A)	0.2	0.1	18.19
Conifer Evergreen Small	0.0	0	0.7	1	1	(N/A)	0.2	0.0	0.93
American basswood	0.2	18	36.4	36	54	(N/A)	0.2	0.3	53.99
Tulip tree	0.3	20	38.1	37	57	(N/A)	0.2	0.3	57.32
Eastern red cedar	0.1	8	16.4	16	25	(N/A)	0.2	0.1	24.57
Spruce	0.0	0	0.7	1	1	(N/A)	0.2	0.0	0.93
Swamp white oak	0.0	0	0.8	1	1	(N/A)	0.2	0.0	1.10
Black poplar	0.5	37	63.1	62	99	(N/A)	0.2	0.6	98.63
Total	84.0	6,378	11,356.0	11,129	17,507	(N/A)	100.0	100.0	43.66

Table 2: Annual Stormwater Benefits

Scranton

Annual Stormwater Benefits of Public Trees

2/1/2016

Species	Total rainfall interception (Gal)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Green ash	181,457	4,917	(N/A)	18.7	21.7	65.57
Sugar maple	143,628	3,892	(N/A)	15.5	17.2	62.78
Silver maple	220,331	5,971	(N/A)	15.2	26.4	97.88
Norway maple	72,395	1,962	(N/A)	12.7	8.7	38.47
Apple	4,536	123	(N/A)	5.2	0.5	5.85
Northern hackberry	61,247	1,660	(N/A)	4.5	7.3	92.21
Blue spruce	8,518	231	(N/A)	3.2	1.0	17.76
Littleleaf linden	15,050	408	(N/A)	2.7	1.8	37.08
Honeylocust	33,938	920	(N/A)	2.2	4.1	102.19
Northern red oak	14,030	380	(N/A)	2.0	1.7	47.53
Red maple	4,879	132	(N/A)	2.0	0.6	16.53
Siberian elm	17,823	483	(N/A)	1.5	2.1	80.50
Black walnut	7,273	197	(N/A)	1.2	0.9	39.42
Eastern cottonwood	10,703	290	(N/A)	1.2	1.3	58.01
Conifer Evergreen Large	4,864	132	(N/A)	1.2	0.6	26.36
Pear	862	23	(N/A)	1.0	0.1	5.84
Eastern white pine	3,673	100	(N/A)	0.7	0.4	33.18
Willow	3,404	92	(N/A)	0.7	0.4	30.75
White ash	2,890	78	(N/A)	0.7	0.3	26.11
Bur oak	2,091	57	(N/A)	0.7	0.3	18.89
Northern white cedar	146	4	(N/A)	0.7	0.0	1.32
Mulberry	1,181	32	(N/A)	0.5	0.1	16.01
River birch	598	16	(N/A)	0.5	0.1	8.11
Maple	23	1	(N/A)	0.5	0.0	0.32
Norway spruce	1,191	32	(N/A)	0.5	0.1	16.14
Pin oak	1,391	38	(N/A)	0.5	0.2	18.84
Amur maple	529	14	(N/A)	0.5	0.1	7.17
Cottonwood	1,216	33	(N/A)	0.5	0.1	16.47
Black spruce	256	7	(N/A)	0.2	0.0	6.95
Broadleaf Deciduous Large	1,466	40	(N/A)	0.2	0.2	39.72
Eastern redbud	264	7	(N/A)	0.2	0.0	7.17
Conifer Evergreen Small	24	1	(N/A)	0.2	0.0	0.66
American basswood	2,133	58	(N/A)	0.2	0.3	57.80
Tulip tree	2,591	70	(N/A)	0.2	0.3	70.21
Eastern red cedar	1,635	44	(N/A)	0.2	0.2	44.30
Spruce	49	1	(N/A)	0.2	0.0	1.32
Swamp white oak	12	0	(N/A)	0.2	0.0	0.33
Black poplar	7,239	196	(N/A)	0.2	0.9	196.17
Citywide total	835,536	22,643	(N/A)	100.0	100.0	56.47

Table 3: Annual Air Quality Benefits

Scranton

Annual Air Quality Benefits of Public Trees

2/1/2016

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							
Green ash	20.9	3.3	10.3	0.9	112	85.5	12.5	11.9	81.6	534	0.0	0	227.0	646 (N/A)	18.7	8.61
Sugar maple	17.9	3.1	9.2	0.8	98	69.5	10.2	9.7	66.5	434	-14.3	-54	172.5	478 (N/A)	15.5	7.72
Silver maple	35.2	6.0	17.6	1.6	191	80.2	11.7	11.2	77.0	502	-18.8	-70	221.8	622 (N/A)	15.2	10.20
Norway maple	12.2	2.1	6.4	0.5	67	49.6	7.2	6.9	47.1	309	-3.1	-12	128.9	364 (N/A)	12.7	7.14
Apple	0.9	0.1	0.5	0.0	5	6.5	0.9	0.9	5.8	39	0.0	0	15.5	44 (N/A)	5.2	2.10
Northern hackberry	9.5	1.6	4.9	0.4	52	30.5	4.4	4.2	28.7	189	0.0	0	84.3	241 (N/A)	4.5	13.41
Blue spruce	0.9	0.2	0.9	0.1	6	3.4	0.5	0.5	3.1	21	-2.8	-11	6.7	16 (N/A)	3.2	1.27
Littleleaf linden	2.2	0.4	1.1	0.1	12	9.3	1.4	1.3	8.9	58	-1.1	-4	23.4	66 (N/A)	2.7	5.97
Honeylocust	6.7	1.1	3.0	0.3	35	13.3	1.9	1.9	12.8	83	-5.3	-20	35.7	99 (N/A)	2.2	10.96
Northern red oak	3.0	0.5	1.4	0.1	16	6.5	1.0	0.9	6.2	41	-4.3	-16	15.4	41 (N/A)	2.0	5.08
Red maple	0.7	0.1	0.4	0.0	4	4.1	0.6	0.6	3.9	25	-0.3	-1	10.0	28 (N/A)	2.0	3.53
Siberian elm	2.8	0.5	1.4	0.1	15	8.3	1.2	1.2	7.9	52	0.0	0	23.4	67 (N/A)	1.5	11.17
Black walnut	0.7	0.1	0.4	0.0	4	4.1	0.6	0.6	3.9	26	0.0	0	10.3	29 (N/A)	1.2	5.84
Eastern cottonwood	1.0	0.2	0.5	0.0	6	6.0	0.9	0.8	5.7	37	0.0	0	15.1	43 (N/A)	1.2	8.57
Conifer Evergreen Large	0.5	0.1	0.5	0.1	3	2.0	0.3	0.3	1.9	13	-1.6	-6	4.1	10 (N/A)	1.2	2.01
Pear	0.1	0.0	0.1	0.0	1	1.2	0.2	0.2	1.1	8	0.0	0	2.9	8 (N/A)	1.0	2.09
Eastern white pine	0.4	0.1	0.3	0.0	3	1.5	0.2	0.2	1.4	9	-1.3	-5	2.9	7 (N/A)	0.7	2.37
Willow	0.5	0.1	0.3	0.0	3	2.7	0.4	0.4	2.6	17	-0.1	-1	6.9	19 (N/A)	0.7	6.43
White ash	0.1	0.0	0.1	0.0	1	2.1	0.3	0.3	2.1	13	0.0	0	5.0	14 (N/A)	0.7	4.71
Bur oak	0.1	0.0	0.1	0.0	1	1.5	0.2	0.2	1.5	10	0.0	0	3.7	10 (N/A)	0.7	3.50
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)	0.7	0.05
Mulberry	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	4.23
River birch	0.1	0.0	0.0	0.0	0	0.5	0.1	0.1	0.5	3	0.0	0	1.3	4 (N/A)	0.5	1.80
Maple	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.1	0 (N/A)	0.5	0.13
Norway spruce	0.1	0.0	0.1	0.0	1	0.6	0.1	0.1	0.5	3	-0.3	-1	1.1	3 (N/A)	0.5	1.48
Pin oak	0.2	0.0	0.1	0.0	1	1.1	0.2	0.2	1.1	7	-0.3	-1	2.6	7 (N/A)	0.5	3.44
Amur maple	0.1	0.0	0.1	0.0	1	0.8	0.1	0.1	0.7	5	0.0	0	1.8	5 (N/A)	0.5	2.55
Cottonwood	0.0	0.0	0.0	0.0	0	0.9	0.1	0.1	0.9	6	0.0	0	2.1	6 (N/A)	0.5	2.99
Black spruce	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)	0.2	0.75
Broadleaf Deciduous Large	0.1	0.0	0.1	0.0	1	1.1	0.2	0.2	1.1	7	0.0	0	2.6	7 (N/A)	0.2	7.42
Eastern redbud	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)	0.2	2.55
Conifer Evergreen Small	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)	0.2	0.09
American basswood	0.2	0.0	0.1	0.0	1	1.2	0.2	0.2	1.1	7	-0.2	-1	2.8	8 (N/A)	0.2	7.78
Tulip tree	0.3	0.0	0.1	0.0	1	1.3	0.2	0.2	1.2	8	0.0	0	3.3	9 (N/A)	0.2	9.34
Eastern red cedar	0.3	0.1	0.3	0.0	2	0.5	0.1	0.1	0.5	3	-0.9	-3	1.0	2 (N/A)	0.2	2.19
Spruce	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)	0.2	0.05
Swamp white oak	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0 (N/A)	0.2	0.14
Black poplar	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)	0.2	22.55
Citywide total	120.0	20.2	61.3	5.5	654	399.7	58.3	55.6	380.8	2,494	-55.0	-206	1,046.4	2,941 (N/A)	100.0	7.33

Table 4: Annual Carbon Stored

Scranton

Stored CO2 Benefits of Public Trees						
2/1/2016						
Species	Total Stored CO2 (lbs)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Green ash	686,224	5,147	(N/A)	18.7	24.5	68.62
Sugar maple	517,986	3,885	(N/A)	15.5	18.5	62.66
Silver maple	770,302	5,777	(N/A)	15.2	27.5	94.71
Norway maple	204,365	1,533	(N/A)	12.7	7.3	30.05
Apple	16,159	121	(N/A)	5.2	0.6	5.77
Northern hackberry	143,730	1,078	(N/A)	4.5	5.1	59.89
Blue spruce	5,336	40	(N/A)	3.2	0.2	3.08
Littleleaf linden	48,101	361	(N/A)	2.7	1.7	32.80
Honeylocust	86,968	652	(N/A)	2.2	3.1	72.47
Northern red oak	65,775	493	(N/A)	2.0	2.4	61.66
Red maple	9,363	70	(N/A)	2.0	0.3	8.78
Siberian elm	68,236	512	(N/A)	1.5	2.4	85.30
Black walnut	21,634	162	(N/A)	1.2	0.8	32.45
Eastern cottonwood	32,717	245	(N/A)	1.2	1.2	49.08
Conifer Evergreen La	3,111	23	(N/A)	1.2	0.1	4.67
Pear	2,902	22	(N/A)	1.0	0.1	5.44
Eastern white pine	2,597	19	(N/A)	0.7	0.1	6.49
Willow	8,349	63	(N/A)	0.7	0.3	20.87
White ash	5,741	43	(N/A)	0.7	0.2	14.35
Bur oak	4,719	35	(N/A)	0.7	0.2	11.80
Northern white cedar	7	0	(N/A)	0.7	0.0	0.02
Mulberry	6,756	51	(N/A)	0.5	0.2	25.34
River birch	1,118	8	(N/A)	0.5	0.0	4.19
Maple	34	0	(N/A)	0.5	0.0	0.13
Norway spruce	513	4	(N/A)	0.5	0.0	1.93
Pin oak	3,608	27	(N/A)	0.5	0.1	13.53
Amur maple	1,816	14	(N/A)	0.5	0.1	6.81
Cottonwood	2,069	16	(N/A)	0.5	0.1	7.76
Black spruce	43	0	(N/A)	0.2	0.0	0.32
Broadleaf Deciduous	3,672	28	(N/A)	0.2	0.1	27.54
Eastern redbud	908	7	(N/A)	0.2	0.0	6.81
Conifer Evergreen Spr	3	0	(N/A)	0.2	0.0	0.02
American basswood	8,218	62	(N/A)	0.2	0.3	61.63
Tulip tree	8,458	63	(N/A)	0.2	0.3	63.43
Eastern red cedar	1,102	8	(N/A)	0.2	0.0	8.27
Spruce	2	0	(N/A)	0.2	0.0	0.02
Swamp white oak	17	0	(N/A)	0.2	0.0	0.13
Black poplar	55,982	420	(N/A)	0.2	2.0	419.86
Citywide total	2,798,637	20,990	(N/A)	100.0	100.0	52.34

**Table 5: Annual Carbon Sequestered
Scranton**

Annual CO₂ Benefits of Public Trees

2/1/2016

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
Green ash	41,328	310	-3,294	-184	-1	0	0	37,851	284 (N/A)	18.7	21.5	3.79
Sugar maple	29,671	223	-2,486	-153	-1	0	0	27,031	203 (N/A)	15.5	15.4	3.27
Silver maple	63,313	475	-3,698	-180	-1	0	0	59,436	446 (N/A)	15.2	33.8	7.31
Norway maple	17,364	130	-981	-96	-1	0	0	16,286	122 (N/A)	12.7	9.3	2.40
Apple	1,972	15	-78	-20	0	0	0	1,874	14 (N/A)	5.2	1.1	0.67
Northern hackberry	7,974	60	-690	-59	0	0	0	7,225	54 (N/A)	4.5	4.1	3.01
Blue spruce	472	4	-26	-13	0	0	0	434	3 (N/A)	3.2	0.2	0.25
Littleleaf linden	5,663	42	-231	-21	0	0	0	5,410	41 (N/A)	2.7	3.1	3.69
Honeylocust	3,369	25	-417	-22	0	0	0	2,930	22 (N/A)	2.2	1.7	2.44
Northern red oak	1,968	15	-316	-18	0	0	0	1,635	12 (N/A)	2.0	0.9	1.53
Red maple	1,351	10	-45	-9	0	0	0	1,297	10 (N/A)	2.0	0.7	1.22
Siberian elm	3,321	25	-328	-19	0	0	0	2,975	22 (N/A)	1.5	1.7	3.72
Black walnut	1,976	15	-104	-9	0	0	0	1,863	14 (N/A)	1.2	1.1	2.80
Eastern cottonwood	2,870	22	-157	-12	0	0	0	2,701	20 (N/A)	1.2	1.5	4.05
Conifer Evergreen Large	389	3	-15	-7	0	0	0	367	3 (N/A)	1.2	0.2	0.55
Pear	380	3	-14	-4	0	0	0	362	3 (N/A)	1.0	0.2	0.68
Eastern white pine	284	2	-12	-5	0	0	0	266	2 (N/A)	0.7	0.2	0.67
Willow	996	7	-40	-5	0	0	0	951	7 (N/A)	0.7	0.5	2.38
White ash	858	6	-28	-4	0	0	0	826	6 (N/A)	0.7	0.5	2.06
Bur oak	657	5	-23	-3	0	0	0	631	5 (N/A)	0.7	0.4	1.58
Northern white cedar	11	0	0	-1	0	0	0	10	0 (N/A)	0.7	0.0	0.02
Mulberry	9	0	-32	-4	0	0	0	-27	0 (N/A)	0.5	0.0	-0.10
River birch	229	2	-5	-1	0	0	0	223	2 (N/A)	0.5	0.1	0.83
Maple	6	0	0	0	0	0	0	5	0 (N/A)	0.5	0.0	0.02
Norway spruce	105	1	-2	-2	0	0	0	100	1 (N/A)	0.5	0.1	0.38
Pin oak	484	4	-17	-2	0	0	0	464	3 (N/A)	0.5	0.3	1.74
Amur maple	228	2	-9	-2	0	0	0	217	2 (N/A)	0.5	0.1	0.81
Cottonwood	418	3	-10	-2	0	0	0	405	3 (N/A)	0.5	0.2	1.52
Black spruce	12	0	0	-1	0	0	0	11	0 (N/A)	0.2	0.0	0.08
Broadleaf Deciduous Large	445	3	-18	-2	0	0	0	426	3 (N/A)	0.2	0.2	3.19
Eastern redbud	114	1	-4	-1	0	0	0	108	1 (N/A)	0.2	0.1	0.81
Conifer Evergreen Small	1	0	0	0	0	0	0	0	0 (N/A)	0.2	0.0	0.00
American basswood	597	4	-39	-3	0	0	0	555	4 (N/A)	0.2	0.3	4.16
Tulip tree	660	5	-41	-3	0	0	0	616	5 (N/A)	0.2	0.4	4.62
Eastern red cedar	43	0	-5	-2	0	0	0	36	0 (N/A)	0.2	0.0	0.27
Spruce	4	0	0	0	0	0	0	3	0 (N/A)	0.2	0.0	0.02
Swamp white oak	5	0	0	0	0	0	0	5	0 (N/A)	0.2	0.0	0.04
Black poplar	479	4	-269	-6	0	0	0	204	2 (N/A)	0.2	0.1	1.53
Citywide total	190,023	1,425	-13,434	-877	-7	0	0	175,712	1,318 (N/A)	100.0	100.0	3.29

**Table 6: Annual Social and Aesthetic Benefits
Scranton**

Annual Aesthetic/Other Benefits of Public Trees

2/1/2016

Species	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Green ash	3,648	(N/A)	18.7	19.5	48.64
Sugar maple	3,242	(N/A)	15.5	17.3	52.30
Silver maple	5,270	(N/A)	15.2	28.2	86.39
Norway maple	1,775	(N/A)	12.7	9.5	34.80
Apple	109	(N/A)	5.2	0.6	5.21
Northern hackberry	1,059	(N/A)	4.5	5.7	58.85
Blue spruce	203	(N/A)	3.2	1.1	15.59
Littleleaf linden	612	(N/A)	2.7	3.3	55.61
Honeylocust	778	(N/A)	2.2	4.2	86.50
Northern red oak	144	(N/A)	2.0	0.8	18.06
Red maple	222	(N/A)	2.0	1.2	27.80
Siberian elm	247	(N/A)	1.5	1.3	41.24
Black walnut	195	(N/A)	1.2	1.0	39.01
Eastern cottonwood	265	(N/A)	1.2	1.4	52.95
Conifer Evergreen Large	111	(N/A)	1.2	0.6	22.18
Pear	21	(N/A)	1.0	0.1	5.32
Eastern white pine	80	(N/A)	0.7	0.4	26.69
Willow	105	(N/A)	0.7	0.6	34.85
White ash	131	(N/A)	0.7	0.7	43.53
Bur oak	80	(N/A)	0.7	0.4	26.56
Northern white cedar	17	(N/A)	0.7	0.1	5.76
Mulberry	0	(N/A)	0.5	0.0	0.02
River birch	29	(N/A)	0.5	0.2	14.48
Maple	0	(N/A)	0.5	0.0	0.04
Norway spruce	31	(N/A)	0.5	0.2	15.42
Pin oak	48	(N/A)	0.5	0.3	24.15
Amur maple	13	(N/A)	0.5	0.1	6.40
Cottonwood	57	(N/A)	0.5	0.3	28.56
Black spruce	12	(N/A)	0.2	0.1	12.31
Broadleaf Deciduous Large	46	(N/A)	0.2	0.2	45.86
Eastern redbud	6	(N/A)	0.2	0.0	6.40
Conifer Evergreen Small	4	(N/A)	0.2	0.0	4.27
American basswood	48	(N/A)	0.2	0.3	47.53
Tulip tree	58	(N/A)	0.2	0.3	57.69
Eastern red cedar	14	(N/A)	0.2	0.1	13.68
Spruce	6	(N/A)	0.2	0.0	5.76
Swamp white oak	3	(N/A)	0.2	0.0	2.74
Black poplar	29	(N/A)	0.2	0.2	28.57
Citywide total	18,718	(N/A)	100.0	100.0	46.68

Table 7: Summary of Benefits in Dollars

Scranton

Total Annual Benefits of Public Trees by Species (\$)

2/1/2016

Species	Energy	CO ₂	Air Quality	Stormwater	Aesthetic/Other	Total (\$)	Standard Error	% of Total \$
Green ash	3,726	284	646	4,917	3,648	13,222	(N/A)	20.9
Sugar maple	3,022	203	478	3,892	3,242	10,837	(N/A)	17.2
Silver maple	3,487	446	622	5,971	5,270	15,796	(N/A)	25.0
Norway maple	2,173	122	364	1,962	1,775	6,396	(N/A)	10.1
Apple	307	14	44	123	109	598	(N/A)	0.9
Northern hackberry	1,363	54	241	1,660	1,059	4,377	(N/A)	6.9
Blue spruce	154	3	16	231	203	607	(N/A)	1.0
Littleleaf linden	400	41	66	408	612	1,526	(N/A)	2.4
Honeylocust	577	22	99	920	778	2,396	(N/A)	3.8
Northern red oak	290	12	41	380	144	867	(N/A)	1.4
Red maple	181	10	28	132	222	573	(N/A)	0.9
Siberian elm	368	22	67	483	247	1,188	(N/A)	1.9
Black walnut	180	14	29	197	195	615	(N/A)	1.0
Eastern cottonwood	260	20	43	290	265	878	(N/A)	1.4
Conifer Evergreen Large	89	3	10	132	111	345	(N/A)	0.5
Pear	60	3	8	23	21	116	(N/A)	0.2
Eastern white pine	62	2	7	100	80	251	(N/A)	0.4
Willow	118	7	19	92	105	341	(N/A)	0.5
White ash	88	6	14	78	131	318	(N/A)	0.5
Bur oak	66	5	10	57	80	217	(N/A)	0.3
Northern white cedar	3	0	0	4	17	24	(N/A)	0.0
Mulberry	47	0	8	32	0	87	(N/A)	0.1
River birch	26	2	4	16	29	76	(N/A)	0.1
Maple	2	0	0	1	0	3	(N/A)	0.0
Norway spruce	27	1	3	32	31	94	(N/A)	0.1
Pin oak	48	3	7	38	48	144	(N/A)	0.2
Amur maple	36	2	5	14	13	70	(N/A)	0.1
Cottonwood	41	3	6	33	57	140	(N/A)	0.2
Black spruce	7	0	1	7	12	27	(N/A)	0.0
Broadleaf Deciduous La	44	3	7	40	46	140	(N/A)	0.2
Eastern redbud	18	1	3	7	6	35	(N/A)	0.1
Conifer Evergreen Small	1	0	0	1	4	6	(N/A)	0.0
American basswood	54	4	8	58	48	171	(N/A)	0.3
Tulip tree	57	5	9	70	58	199	(N/A)	0.3
Eastern red cedar	25	0	2	44	14	85	(N/A)	0.1
Spruce	1	0	0	1	6	8	(N/A)	0.0
Swamp white oak	1	0	0	0	3	4	(N/A)	0.0
Black poplar	99	2	23	196	29	347	(N/A)	0.6
Citywide Total	17,507	1,318	2,941	22,643	18,718	63,127	(N/A)	100.0

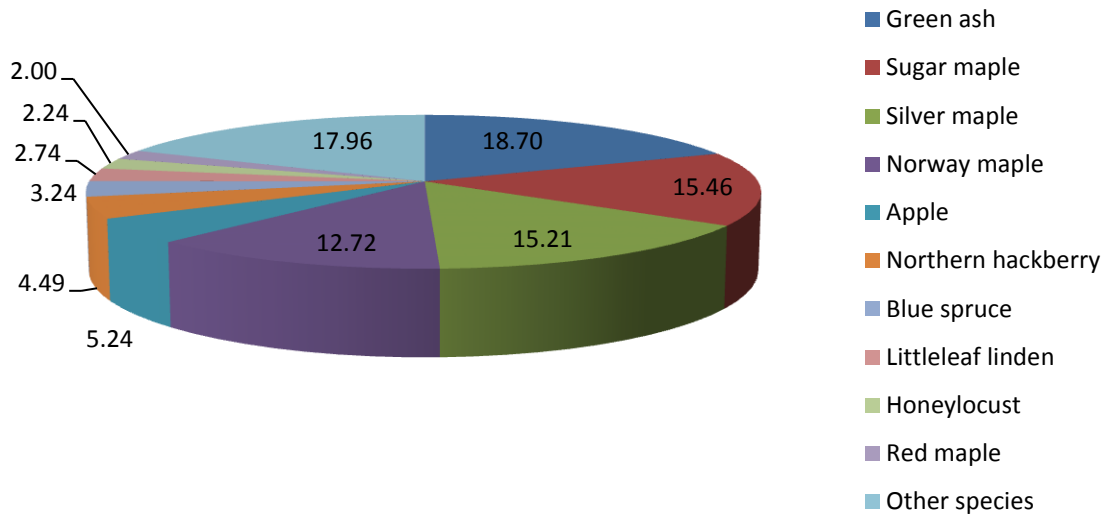


Figure 1: Species Distribution

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

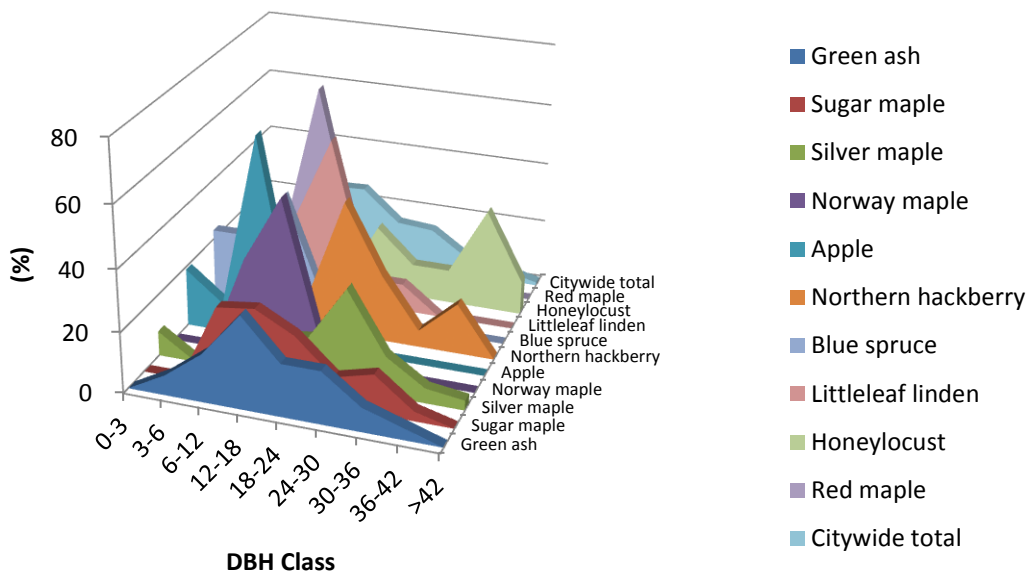


Figure 2: Relative Age Class

Leaf Condition

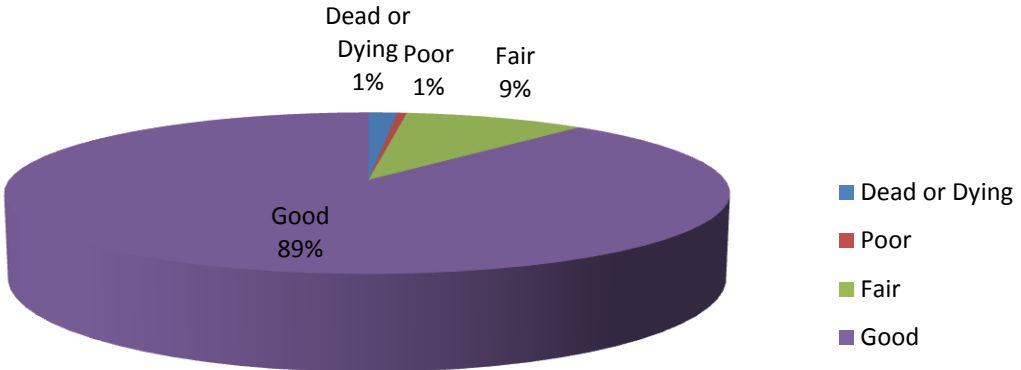


Figure 3: Foliage Condition

Wood Condition

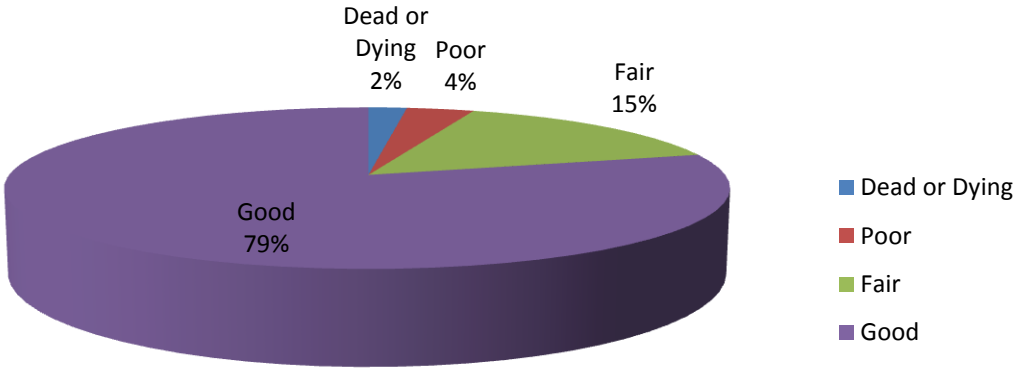


Figure 4: Wood Condition

Canopy Cover

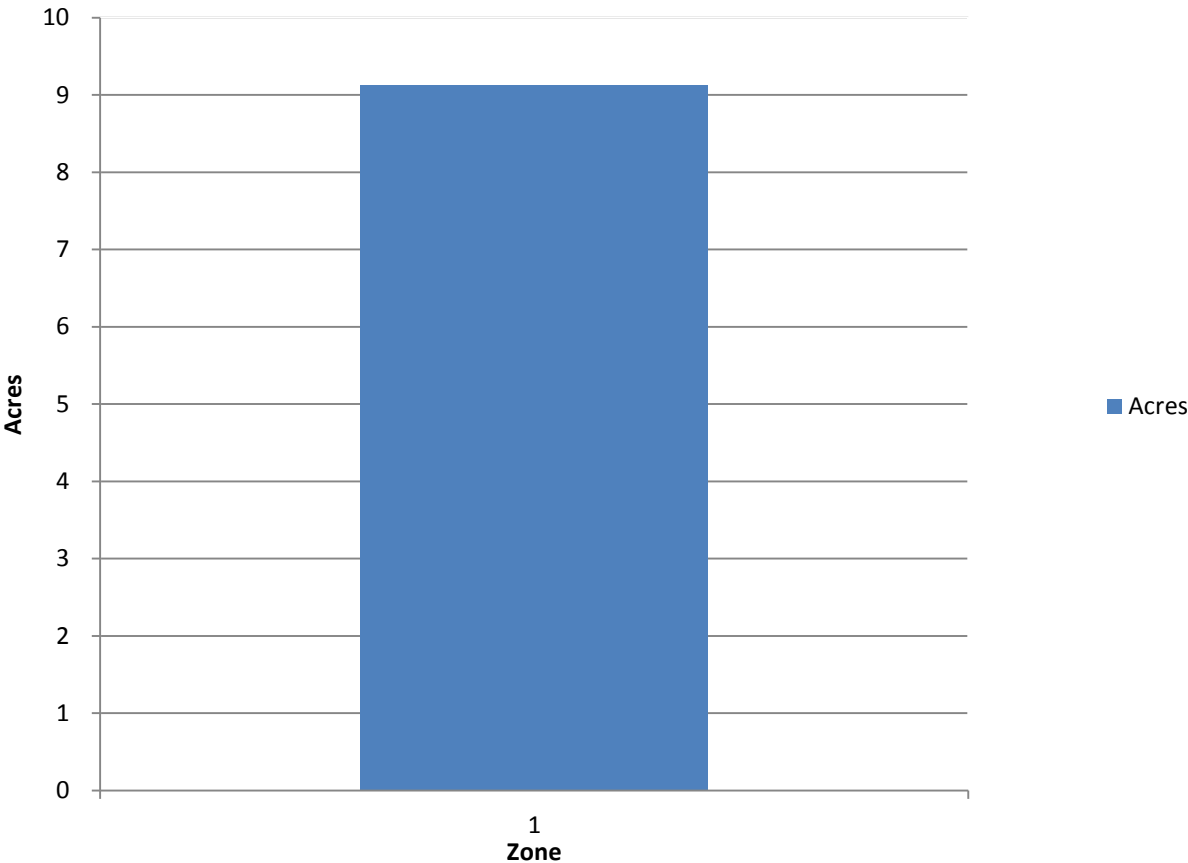


Figure 5: Canopy Cover in Acres

Land use Public Trees by Zone (%)

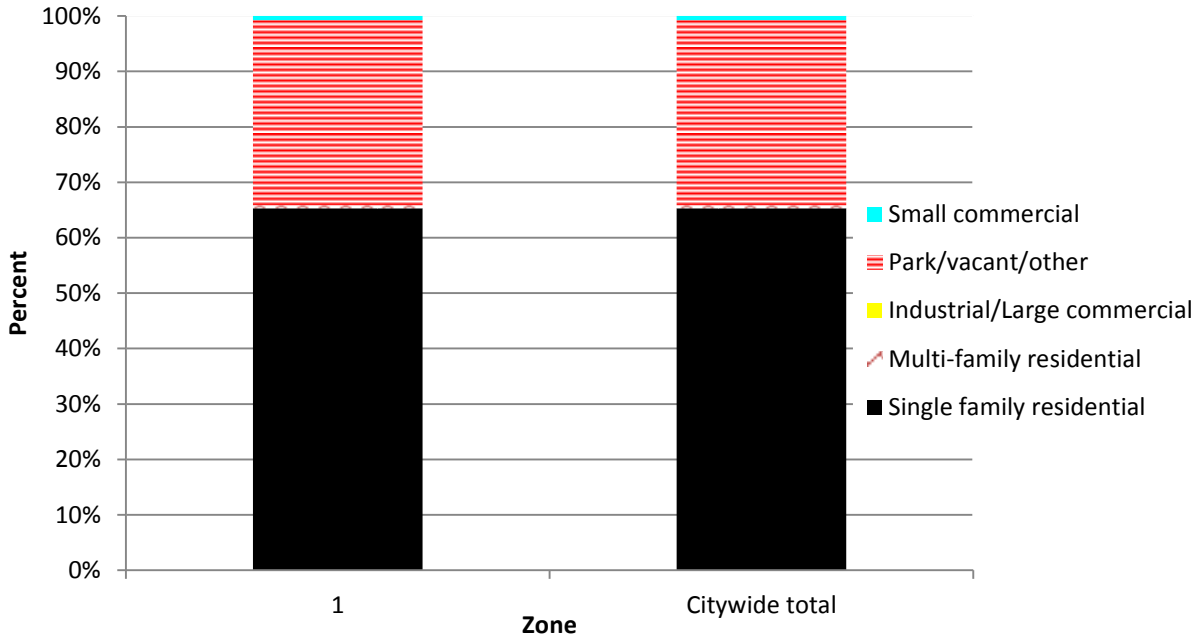


Figure 6: Land Use of city/park trees

Location Public Trees by Zone (%)

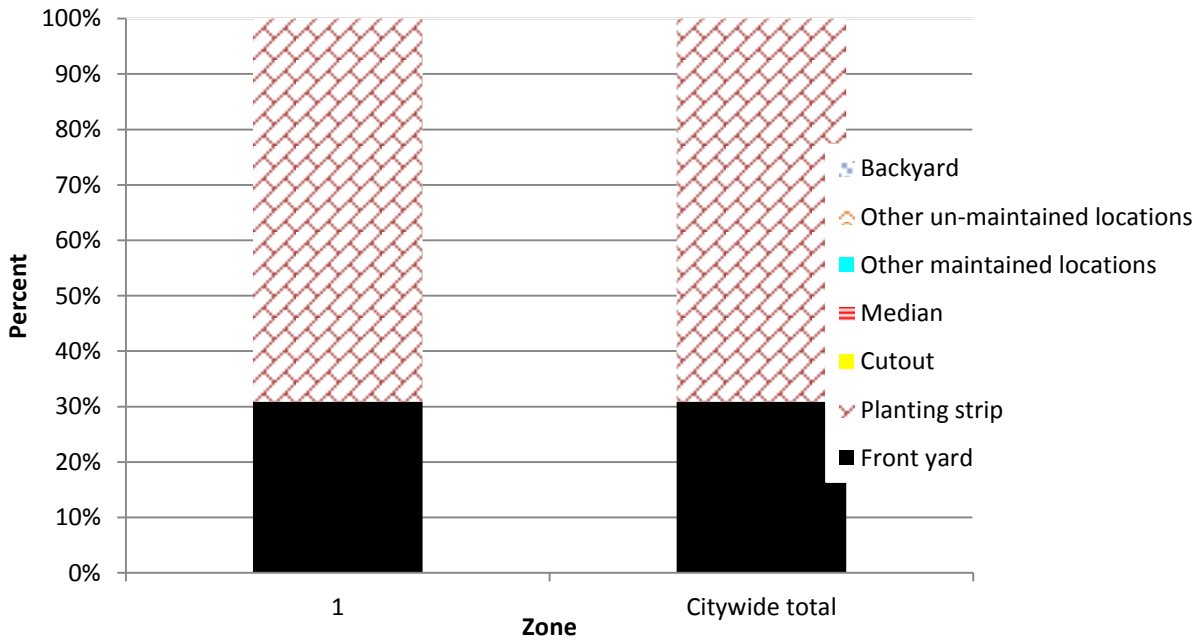


Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping



Figure 1: Location of Ash Trees



Figure 2: Location of EAB symptoms



Figure 3: Location of Poor Condition Trees



Figure 4: Location of Trees with Recommended Maintenance



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

Appendix C: Scranton Tree Ordinances

TITLE VI PHYSICAL ENVIRONMENT

CHAPTER 8 PLANTING, CARE AND TRIMMING OF TREES AND SHRUBBERY

6-8-1 Purpose

6-8-2 Planting Location

6-8-3 Trimming

6-8-4 Trimming at Street Intersections

6-8-5 Removal

6-8-6 Trimming by City

6-8-9 Vandalism if City Trees Prohibited

6-8-1 PURPOSE. The purpose of this ordinance is to beautify and preserve the appearance of the Town of Scranton, Iowa.

6-8-2 PLANTING LOCATION. All trees hereafter planted in the street shall be planted midway between the outer line of the sidewalk and the curb or normal edge of the traveled portion of the street if a curb has not been established.

6-8-3 TRIMMING. It shall be the duty of the owner or occupant of adjoining property to keep trees in the street trimmed so that all branches will be at least eight feet above the ground on untraveled portions of the street and at least twelve feet above the ground on the traveled portion of the street.

All shrubbery, bushes and other growth shall be kept trimmed by the owner or occupant of any premises or of the abutting premises in case of a street or alley, so as not to interfere with travel on the streets and sidewalks of the Town of Scranton, Iowa.

6-8-4 TRIMMING AT STREET INTERSECTIONS. At street intersections, the owner or occupant of the adjoining property shall keep all trees and shrubs trimmed so as not to interfere with vision.

6-8-5 REMOVAL. The Council may order removal of any tree planted contrary to this ordinance, or of any tree that is dead or diseased, and if not removed within ten (10) days by the adjoining property owner, the Council may have the same removed and assess the costs against the adjoining property.

6-8-6 TRIMMING BY CITY. If any trees, shrubbery, bushes or other growth are not kept trimmed as required by this ordinance, the Council may have the work done either with or without notice and assess the costs against the adjoining property.

6-8-7 VANDALISM OF CITY TREES PROHIBITED. Anyone intentionally damaging a tree or shrub located on the property of the Town of Scranton, Iowa, shall upon conviction be fined not to exceed \$100.00 or imprisoned not to exceed thirty (30) days.

City of Scranton 2014 Code of Ordinances 219

City of Scranton 2014 Code of Ordinances 220

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.