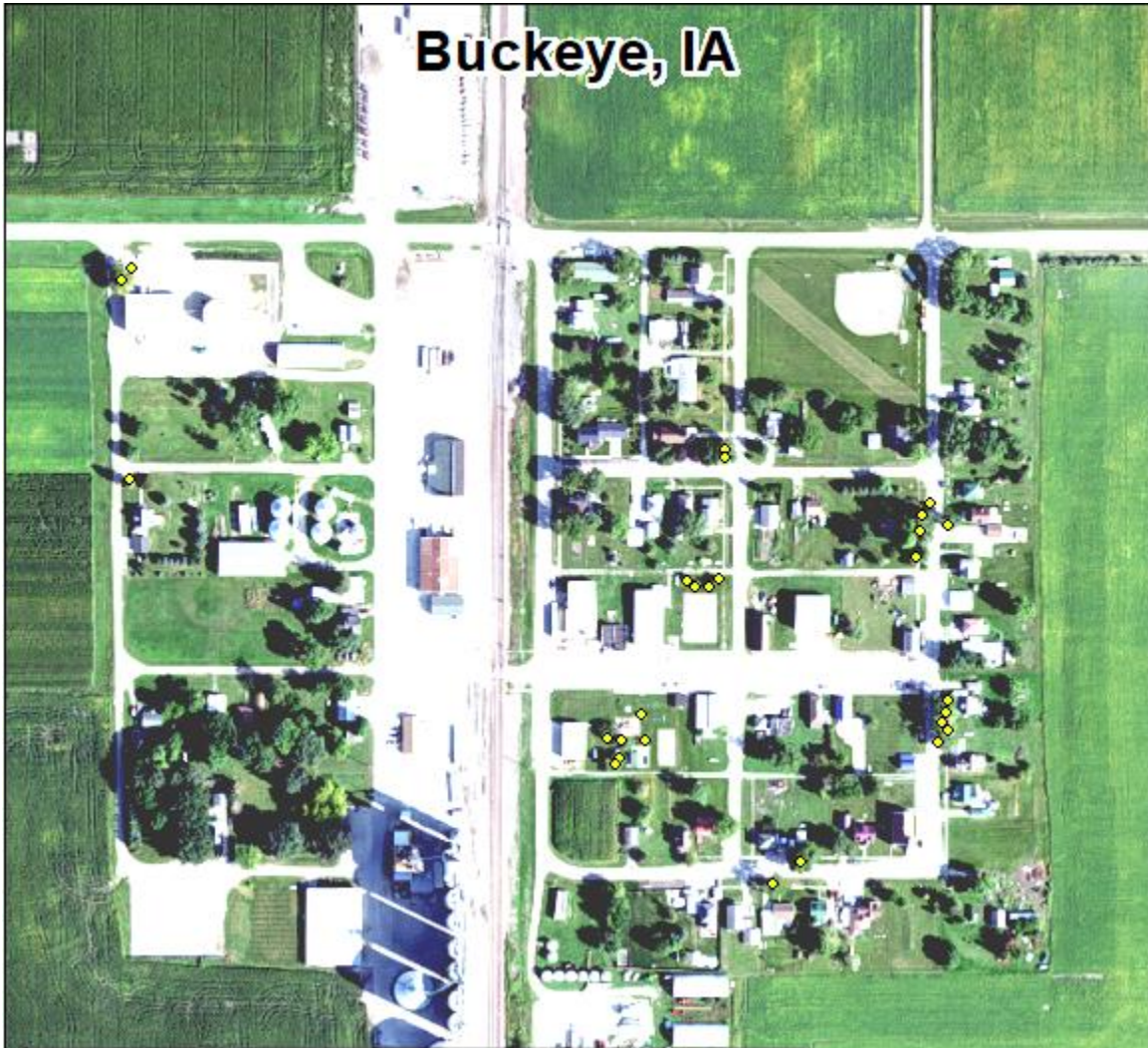


# Buckeye, IA



2020 Urban Forest Management Plan  
Prepared by Iowa Department of Natural Resources



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# Executive Summary

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## Overview

This plan was developed to assist the City of Buckeye 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 44% of Buckeye'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 2019, 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 27 trees inventoried.

- Buckeye's trees provide \$5,667 of benefits annually, an average of \$210 a tree
- There are over 9 species of trees
- The top three genera are: Ash 44%, Maple 19%, and Spruce 19%
- 67% of trees are in need of some type of management
- 4 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 4 trees needing removal, 3 trees are in need of immediate attention \*City ownership of the trees recommended for removal should be verified prior to any removal\*
- All ash trees should be scheduled for either pre-emptive EAB treatment or else assume they'll die and need removed within the next 15 years
- 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

# Introduction

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

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

## Inventory

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In 2019, 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

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The data collected for the 27 city trees was entered into the USDA Forest service program Street Tree Resource Analysis Tool for Urban forestry Management as part of the i-Tree suite. The following are results from the i-Tree STREETS analysis. Fin

## Annual Benefits

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### Annual Energy Benefits

Trees conserve energy by shading buildings and blocking winds. Buckeye’s trees reduce energy related costs by approximately \$1,497 annually (Appendix A, Table 1). These savings are both in Electricity (7.2 MWh) and in Natural Gas (973 Therms).

### Annual Stormwater Benefits

Buckeye’s trees intercept about 86,031 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides \$2,331 of benefits to the city.

### Annual Air Quality Benefits

Air quality is a persistent public health issue in Iowa. The urban forest improves air quality by removing pollutants, lowering air temperature, and reducing energy consumption, which in turn reduces emissions from power plants, and emitting volatile organic matter (ozone). In Buckeye, it is estimated that trees remove 92.5 lbs of air pollution (ozone (O<sub>3</sub>), particulate matter less than 10 microns (PM10), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>)) per year with a net value of \$261 (Appendix A, Table 3).

### Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Buckeye, trees sequester about 26,066 lbs of carbon a year with an associated value of \$195 (Appendix A, Table 5). In addition, the trees store 333,576 lbs of carbon, with a yearly benefit of \$2,502 (Appendix A, Table 4).

### Annual Aesthetics Benefits

Social benefits of trees are hard to capture. The analysis does have a calculation for this area that includes: aesthetic value, property values, lowered rates of mental illness and crime, city livability and much more. Buckeye receives \$1,382 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, Buckeye’s trees provide \$5,667 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 27 trees in Buckeye provide approximately \$210 annually (Appendix A, Table 7).

## Forest Structure

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### Species Distribution

Buckeye has over 9 different tree species along city streets and parks (Appendix A, Figure 1). The distribution of top trees by genera is as follows:

Ash	12	44%
Maple	5	19%

Spruce	5	19%
Walnut	3	11%

### Age Class

Most of Buckeye’s trees (63%) are greater than 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. Buckeye’s size curve is on the larger side, indicating an older 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 Buckeye indicate that 78% of the trees are in good or fair health, with 22% of the foliage in poor health or dead/dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 89% of Buckeye’s trees are in good or fair health for wood condition (appendix A, Figure 4 & Appendix B, Figure 3). Wood condition that is in poor health, dead or dying is about 11% of the population.

### 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	8	30%
Crown Raising	1	4%
Tree Staking	0	0%
Tree Removal	4	15%
Crown Reduction	4	15%

### Canopy Cover

The total canopy with both private and public trees is 9 acres, or 1% of the city (Appendix A, Figure 4). A reasonable goal set forth by this plan would be to increase the city’s tree canopy by adding 35 trees over the next 6 years, increasing the percentage by approximately 30% over time.

### Land Use and Location

The majority of Buckeye’s city and park trees are in planting strips in single family residential neighborhoods (Appendix A, Figure 6 & Appendix A, Figure7).

## 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

Buckeye has 1 critical concern tree that needs 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. 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 17 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). There are a total of 12 ash trees, and 6 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 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 should 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 Buckeye.

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 ash (44%) (Appendix A, Figure 1). Other species to avoid because they are public nuisances include: cottonwood, poplar, box elder, Chinese elm, or willow.

### **Six Year Maintenance Plan**

#### Year 1

Removal: 4 trees flagged for removal in inventory

Tree Pruning & Maintenance: Address 8 trees flagged for “immediate” cleaning, raising, and reduction

#### Year 2

Removal: Begin removing ash trees with poor health



\*Or saving for ash tree treatment and/or future ash removal  
Tree Pruning & Maintenance: Address 4 trees flagged for “routine” cleaning and reduction  
Planting and Replacement: Add 7 trees in open locations

#### Year 3

Removal: Continue removing ash trees with poor health  
\*Or saving for ash tree treatment and/or future ash removal  
Planting and Replacement: Add 7 trees in open locations

#### Year 4

Removal: Continue removing ash trees with poor health  
\*Or saving for ash tree treatment and/or future ash removal  
Planting and Replacement: Add 7 trees in open locations

#### Year 5

Removal: Continue removing ash trees with poor health  
\*Or saving for ash tree treatment and/or future ash removal  
Planting and Replacement: Add 7 trees in open locations

#### Year 6

Removal: Continue removing ash trees with poor health  
\*Or saving for ash tree treatment and/or future ash removal  
Planting and Replacement: Add 7 trees in open locations  
Initiate routine tree monitoring and trimming of approximately 1/3 of the city’s trees every year.

## Emerald Ash Borer Plan

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### **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](http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/regulatory.shtml). Wood waste can be disposed of as you normally would if your county is not part of a quarantine.

### **Canopy Replacement**

As budget permits, all removed trees will be replaced. All trees will meet the restrictions in city ordinance 151.02 (Appendix C). The new plantings will be a diverse mix and will not include ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut.

### **Postponed Work**

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

### **Monitoring**

It is recommended that ash trees be checked with a visual survey every year for tree death and for the following signs and symptoms: canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and 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 "If it is determined with reasonable certainty that any such condition exists (trees or shrubs in the City reported or suspected to be infected with or damaged by any disease or insect or disease pests) on private property and that the danger to other trees or to adjoining property or passing motorists or pedestrians is imminent, the Council shall notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14

days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property.”

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# Appendix A: i-Tree Data

**Table 1: Annual Energy Benefits**

Buckeye

## Annual Energy Benefits of Public Trees

4/7/2020

Species	Total Electricity (MWh)	Electricity (\$)	Total Natural Gas (Therms)	Natural Gas (\$)	Total Standard (\$)	Error	% of Total Trees	% of Total \$	Avg. \$/tree
Green ash	4.1	308	562.8	552	860	(N/A)	44.4	57.4	71.63
Blue spruce	0.5	39	60.7	60	98	(N/A)	14.8	6.6	24.51
Black walnut	0.9	65	107.7	106	170	(N/A)	11.1	11.4	56.82
Red maple	0.1	5	10.4	10	16	(N/A)	7.4	1.0	7.85
Silver maple	0.5	42	76.5	75	117	(N/A)	7.4	7.8	58.27
Apple	0.2	15	31.6	31	46	(N/A)	3.7	3.1	46.14
Northern hackberry	0.4	28	54.0	53	81	(N/A)	3.7	5.4	81.12
Sugar maple	0.4	32	54.5	53	85	(N/A)	3.7	5.7	84.99
Spruce	0.1	10	14.6	14	24	(N/A)	3.7	1.6	24.14
<b>Total</b>	<b>7.2</b>	<b>543</b>	<b>972.9</b>	<b>953</b>	<b>1,497</b>	<b>(N/A)</b>	<b>100.0</b>	<b>100.0</b>	<b>55.43</b>

**Table 2: Annual Stormwater Benefits**

Buckeye

## Annual Stormwater Benefits of Public Trees

4/7/2020

Species	Total rainfall interception (Gal)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Green ash	51,821	1,404	(N/A)	44.4	60.2	117.03
Blue spruce	6,177	167	(N/A)	14.8	7.2	41.85
Black walnut	8,422	228	(N/A)	11.1	9.8	76.08
Red maple	275	7	(N/A)	7.4	0.3	3.72
Silver maple	5,922	160	(N/A)	7.4	6.9	80.24
Apple	1,174	32	(N/A)	3.7	1.4	31.82
Northern hackberry	3,620	98	(N/A)	3.7	4.2	98.09
Sugar maple	7,083	192	(N/A)	3.7	8.2	191.94
Spruce	1,539	42	(N/A)	3.7	1.8	41.70
<b>Citywide total</b>	<b>86,031</b>	<b>2,331</b>	<b>(N/A)</b>	<b>100.0</b>	<b>100.0</b>	<b>86.35</b>

**Table 3: Annual Air Quality Benefits**

Buckeye

**Annual Air Quality Benefits of Public Trees**

4/7/2020

Species	Deposition (lb)				Total Depos. (\$)	Avoided (lb)				Total Avoided (\$)	BVOC Emissions (lb)	BVOC Emissions (\$)	Total (lb)	Total Standard (\$ Error)
	O <sub>3</sub>	NO <sub>2</sub>	PM <sub>10</sub>	SO <sub>2</sub>		NO <sub>2</sub>	PM <sub>10</sub>	VOC	SO <sub>2</sub>					
Green ash	7.0	1.1	3.2	0.3	37	19.4	2.8	2.7	18.4	121	0.0	0	55.0	158 (N/A)
Blue spruce	0.8	0.2	0.6	0.1	5	2.3	0.3	0.3	2.3	15	-2.2	-8	4.8	12 (N/A)
Black walnut	1.0	0.2	0.5	0.0	5	4.0	0.6	0.6	3.9	25	0.0	0	10.7	31 (N/A)
Red maple	0.0	0.0	0.0	0.0	0	0.3	0.1	0.0	0.3	2	0.0	0	0.8	2 (N/A)
Silver maple	0.7	0.1	0.4	0.0	4	2.6	0.4	0.4	2.5	16	-0.5	-2	6.7	19 (N/A)
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)
Northern hackberry	0.6	0.1	0.3	0.0	3	1.8	0.3	0.2	1.7	11	0.0	0	5.0	14 (N/A)
Sugar maple	1.1	0.2	0.5	0.0	6	2.0	0.3	0.3	1.9	12	-0.9	-3	5.4	15 (N/A)
Spruce	0.2	0.0	0.1	0.0	1	0.6	0.1	0.1	0.6	4	-0.5	-2	1.2	3 (N/A)
Citywide total	11.8	2.0	5.9	0.6	64	34.1	5.0	4.7	32.4	213	-4.1	-15	92.5	261 (N/A)

**Table 4: Annual Carbon Stored**

Buckeye

**Stored CO2 Benefits of Public Trees**

4/7/2020

Species	Total Stored CO2 (lbs)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Green ash	229,854	1,724	(N/A)	44.4	68.9	143.66
Blue spruce	4,473	34	(N/A)	14.8	1.3	8.39
Black walnut	33,287	250	(N/A)	11.1	10.0	83.22
Red maple	437	3	(N/A)	7.4	0.1	1.64
Silver maple	15,891	119	(N/A)	7.4	4.8	59.59
Apple	6,743	51	(N/A)	3.7	2.0	50.57
Northern hackberry	8,047	60	(N/A)	3.7	2.4	60.35
Sugar maple	33,674	253	(N/A)	3.7	10.1	252.56
Spruce	1,170	9	(N/A)	3.7	0.4	8.78
Citywide total	333,576	2,502	(N/A)	100.0	100.0	92.66

**Table 5: Annual Carbon Sequestered**

Buckeye

**Annual CO<sub>2</sub> Benefits of Public Trees**

4/7/2020

Species	Sequestered (lb)	Sequestered (\$)	Decomposition Release (lb)	Maintenance Release (lb)	Total Released (\$)	Avoided (lb)	Avoided (\$)	Net Total (lb)	Total Standard (\$)	% of Total Trees
Green ash	9,793	73	-1,103	-44	-9	6,806	51	15,451	116 (N/A)	44.4
Blue spruce	363	3	-21	-8	0	851	6	1,185	9 (N/A)	14.8
Black walnut	1,850	14	-160	-8	-1	1,436	11	3,118	23 (N/A)	11.1
Red maple	77	1	-2	-1	0	121	1	195	1 (N/A)	7.4
Silver maple	1,761	13	-76	-5	-1	918	7	2,598	19 (N/A)	7.4
Apple	0	0	-32	-4	0	335	3	299	2 (N/A)	3.7
Northern hackberry	499	4	-39	-4	0	624	5	1,081	8 (N/A)	3.7
Sugar maple	1,284	10	-162	-5	-1	698	5	1,815	14 (N/A)	3.7
Spruce	116	1	-6	-2	0	216	2	324	2 (N/A)	3.7
Citywide total	15,743	118	-1,601	-80	-13	12,005	90	26,066	195 (N/A)	100.0

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

Buckeye

**Annual Aesthetic/Other Benefits of Public Trees**

4/7/2020

Species	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Green ash	739	(N/A)	44.4	53.5	61.59
Blue spruce	101	(N/A)	14.8	7.3	25.23
Black walnut	158	(N/A)	11.1	11.5	52.77
Red maple	15	(N/A)	7.4	1.1	7.28
Silver maple	157	(N/A)	7.4	11.4	78.67
Apple	0	(N/A)	3.7	0.0	0.00
Northern hackberry	64	(N/A)	3.7	4.6	63.56
Sugar maple	116	(N/A)	3.7	8.4	116.31
Spruce	32	(N/A)	3.7	2.3	32.32
Citywide total	1,382	(N/A)	100.0	100.0	51.20

**Table 7: Summary of Benefits in Dollars**

**Buckeye**

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

4/7/2020

Species	Energy	CO <sub>2</sub>	Air Quality	Stormwater	Aesthetic/Other	Total (\$)	Standard Error	% of Total \$
Green ash	860	116	158	1,404	739	3,277	(N/A)	57.8
Blue spruce	98	9	12	167	101	387	(N/A)	6.8
Black walnut	170	23	31	228	158	611	(N/A)	10.8
Red maple	16	1	2	7	15	41	(N/A)	0.7
Silver maple	117	19	19	160	157	473	(N/A)	8.3
Apple	46	2	8	32	0	89	(N/A)	1.6
Northern hackberry	81	8	14	98	64	265	(N/A)	4.7
Sugar maple	85	14	15	192	116	422	(N/A)	7.4
Spruce	24	2	3	42	32	103	(N/A)	1.8
<b>Citywide Total</b>	<b>1,497</b>	<b>195</b>	<b>261</b>	<b>2,331</b>	<b>1,382</b>	<b>5,667</b>	<b>(N/A)</b>	<b>100.0</b>

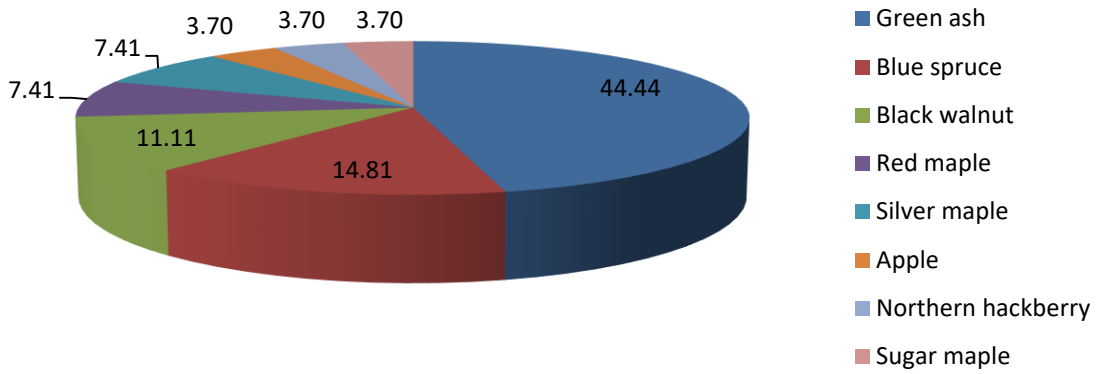


Figure 1: Species Distribution

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

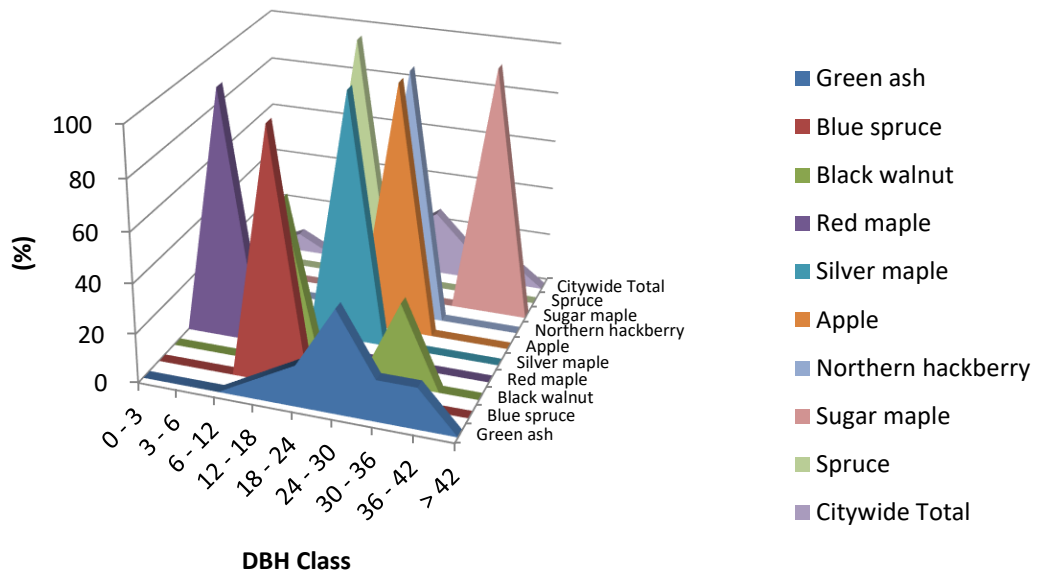
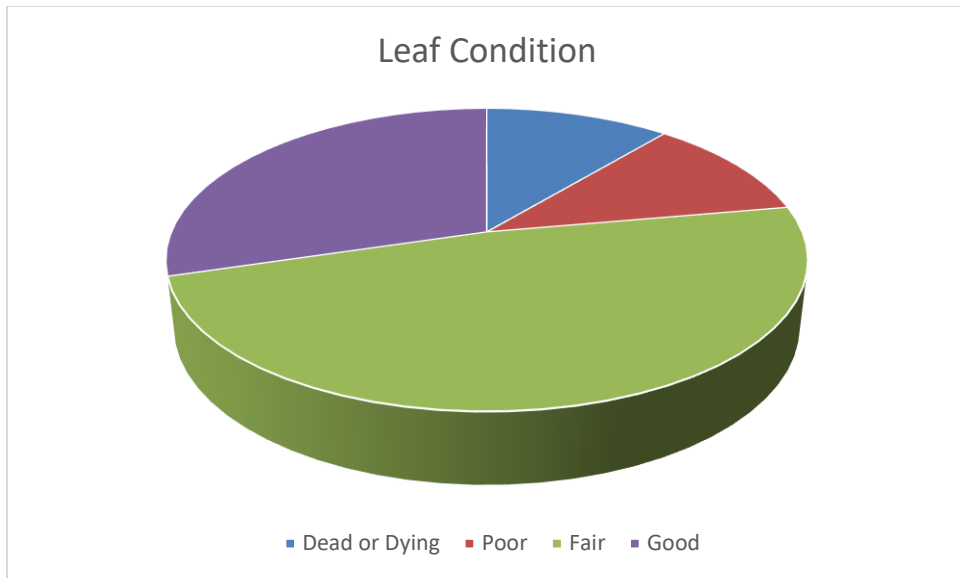
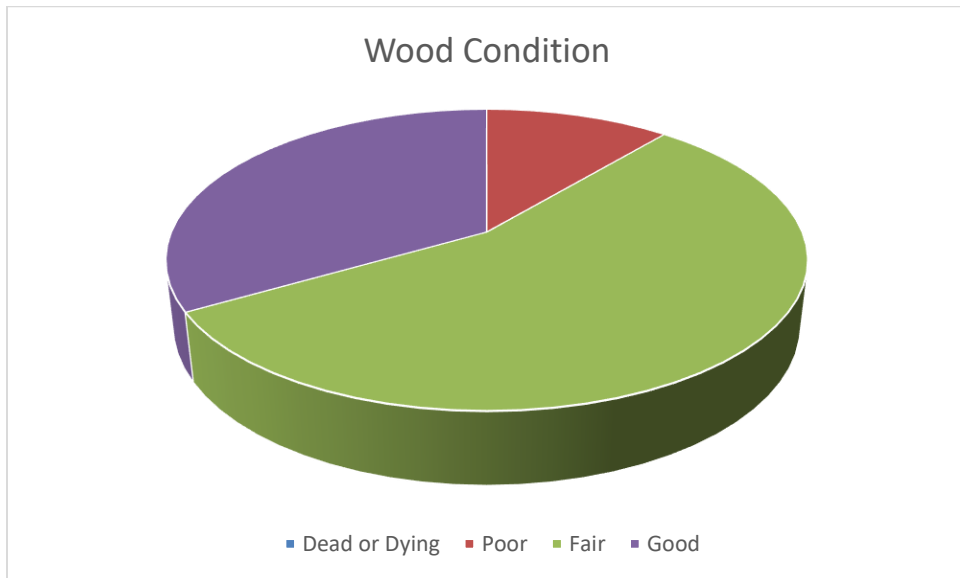


Figure 2: Relative Age Class





**Figure 3: Foliage Condition**



**Figure 4: Wood Condition**

## Canopy Cover of Public Trees (Acres)

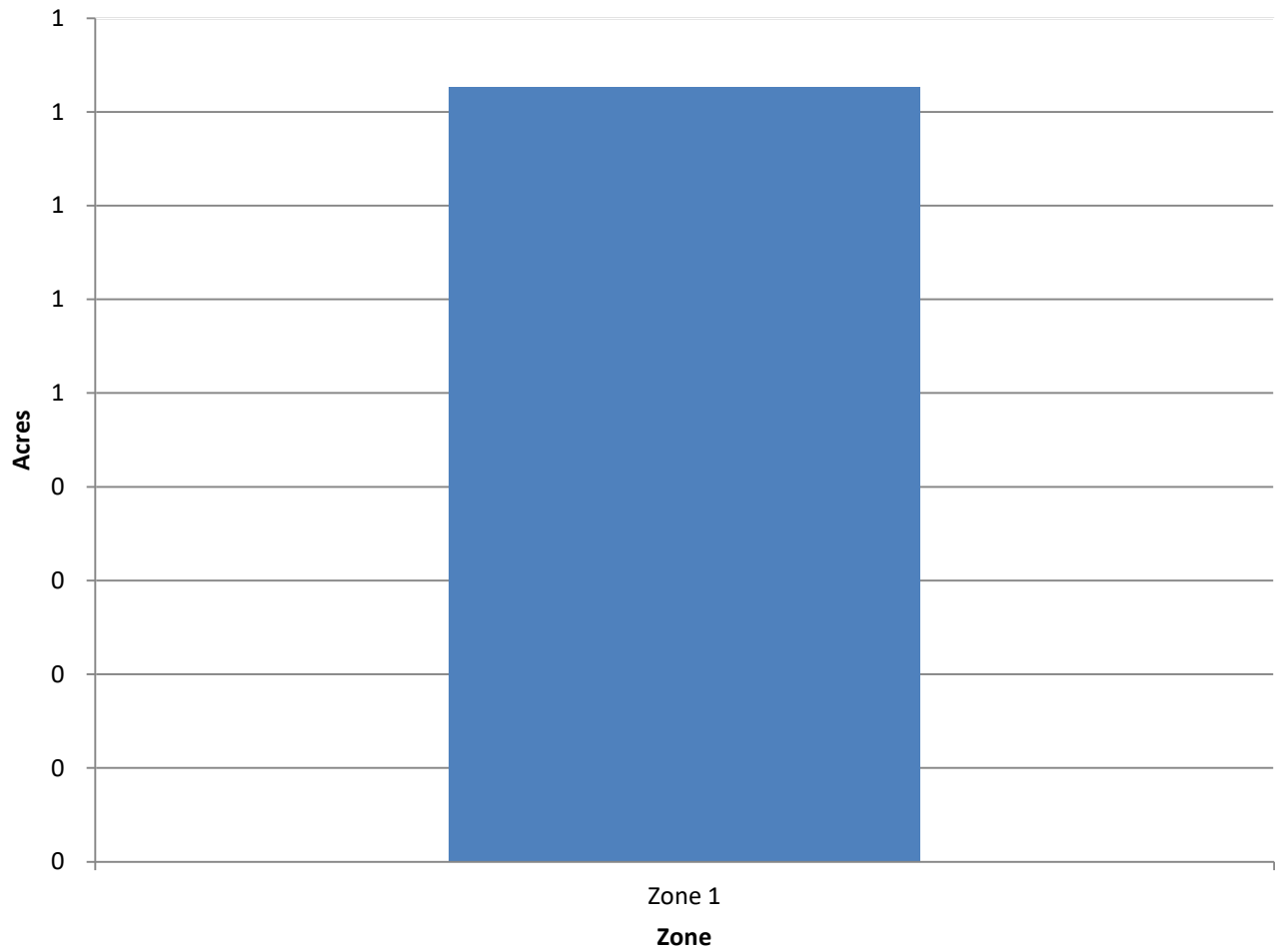
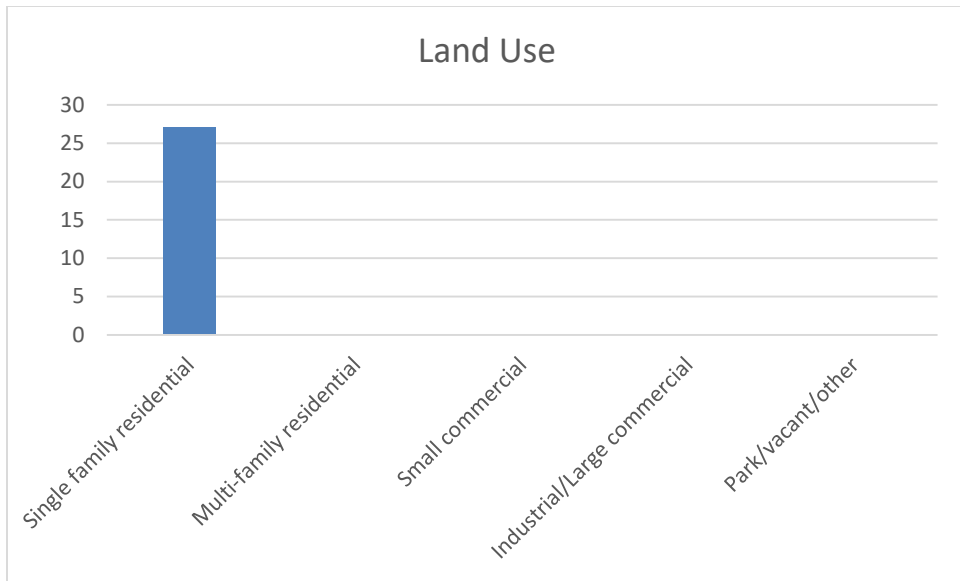
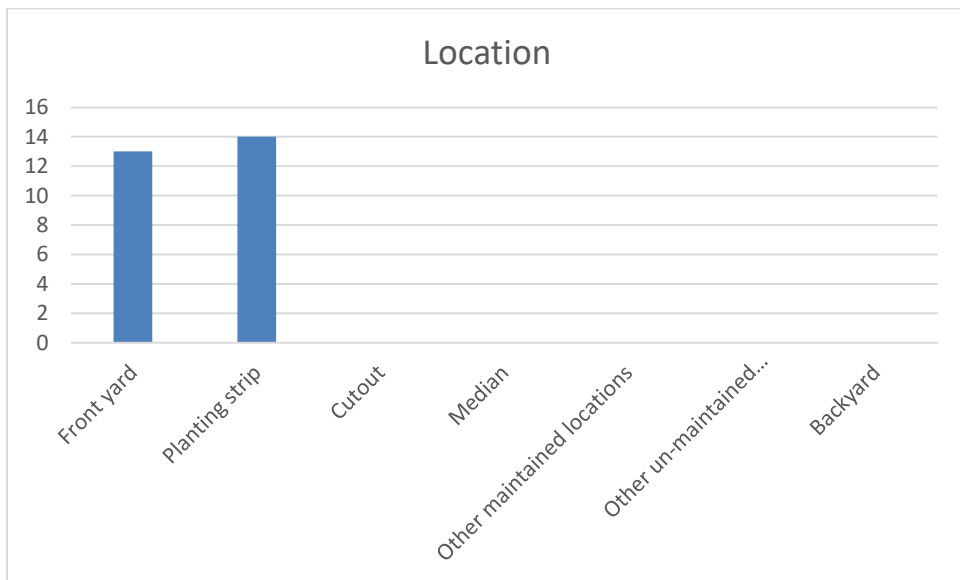


Figure 5: Canopy Cover in Acres



**Figure 6: Land Use of city/park trees**



**Figure 7: Location of city/park trees**

## Appendix B: ArcGIS Mapping

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**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: Buckeye Tree Ordinances

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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 9<sup>th</sup> 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.