Rockwell, IA

Urban Forestry Management Plan

SUMMER 2021

JEO CONSULTING GROUP

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Executive Summary

EXECUTIVE SUMMARY

Overview

This plan was developed to assist the City of Rockwell 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 27% of Rockwell'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 2021, 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 409 trees inventoried.

- Rockwell trees provide $85,418 of benefits annually, an average of $208.85 per tree
- There are over 29 species of trees
- The top three genera are: Maple 33%, Ash 27%, and Walnut 11%
- 47.5% of trees need some type of management
- 79 trees should be removed

Recommendations

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

- Out of the 79 trees needing removal, 58 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*
- 79 of the 112 ash trees should be carefully examined, as they have one or more symptoms that could be related to an EAB infestation.
- All trees should be pruned on a routine schedule: one third of the city every other year.
- Plant a diverse mix of trees that do not include: ash, maple, cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut.
- Check ash trees yearly with a visual survey.
- With the current budget it could take 37 years to remove ash. We suggest that city officials request a budget increase to $4,000 annually and apply for grants to plant replacement trees

Introduction

INTRODUCTION

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

Assist Rockwell 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

Findings

INVENTORY

In 2021, JEO conducted a tree inventory that included 100% of the city-owned trees on both streets and parks. The team collected tree data using a handheld Global Positioning System (GPS) receiver. The data collector gives Geographic Information Systems (GIS) coordinates with an accuracy of 3 meters, which can be used in Arc GIS as an active GIS data layer. Because the inventory is a digital document the data can be updated with new information and become a working document.

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

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

INVENTORY RESULTS

JEO entered the data collected for the 409 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. Rockwell's trees reduce energy-related costs by approximately $22,503 annually (Appendix A, Table 1). These savings are both in electricity (106.3 MWh) and in natural gas (14,729.7 Therms).

Annual Stormwater Benefits

Rockwell's trees intercept about 1,240,749 gallons of rainfall or snow melt per year (Appendix A, Table 2). This interception provides $33,624 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 Rockwell, it is estimated that trees remove 1,412.6 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 $4,011 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Rockwell, trees sequester about 247,588 lbs of carbon per year with an associated value of $3,010 (Appendix A, Table 5). In addition, the trees store 4,866,558 lbs of carbon, with a yearly benefit of $36,499 (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. Rockwell receives $22,270 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, Rockwell's trees provide $85,418 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 409 trees in Rockwell provide approximately $208.85 annually (Appendix A, Table 7).

ENERGY	STORMWATER	AIR QUALITY	CARBON	AESTHETICS	SUMMARY
• Reduce energy cost by **$22,503**	• Intercept **1,240,749 gallons** • Provides **$33,624** benefit	• Remove **1,412.6 lbs** of pollution • Net value of **$4,011**	• Sequester **247,588 lbs** • Value of **$3,010** • Store **4,866,558 lbs** • Value of **$36,499**	• **$22,270** in social benefits	• **$85,418** annual benefits • Each tree provides **$208.85** annually

FOREST STRUCTURE

Species Distribution

Rockwell has over 29 different tree species along city streets and parks (Appendix A, Figure 1).

The distribution of trees by genera is as follows:

Maple	136	33%
Ash	112	27%
Walnut	45	11%
Spruce	23	5.5%
Apple (Crab)	23	5.5%
Basswood/Linden	21	5%
Hackberry	21	5%
Oak	10	2.5%
Honey locust	6	1.5%

Pear	4	<1%
Cedar	2	<1%
Mountain ash	1	<1%
Cherry	1	<1%
Boxelder	1	<1%
Buckeye	1	<1%
Pine	1	<1%
Other Conifer	1	<1%

Age Class

Most of Rockwell's trees (42%) are between 18 and 30 inches in diameter at 4.5 ft (Appendix A, Figure 2).

To prepare for natural mortality and to maintain canopy cover, most trees should be in the smallest size category (a downward slope), indicating youth. Rockwell'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 urban forest's overall health. The foliage condition results for Rockwell indicate that 90% of the trees are in good or fair health, with only 10% of the foliage in poor health, dead, or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 82% of Rockwell's trees are in good or fair health for wood condition (Appendix A, Figure 4 & Appendix B, Figure 3). Eighteen percent of the tree population's wood condition is in poor health, dead, or dying. This 18% 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	119	29%
Crown Reduction	23	5.5%
Tree Removal	79	19%
Crown Raising	55	13%
Tree Staking	0	0%

Canopy Cover

The total canopy with both private and public trees is 150 acres or 8% cover. The canopy cover included in the Rockwell inventory includes approximately 12 acres (Appendix A, Figure 4). The city's canopy goal is to increase canopy by 3% in 30 years. To achieve this goal it is estimated that 5 trees need to be planted annually on public and private lands.

Land Use and Location

The majority of Rockwell'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	100%
Industrial/Large Commercial	0%
Park/Vacant/Other	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

Rockwell has 79 trees that need immediate removal. These trees can be seen on the Location of Trees with Recommended Maintenance Map (Appendix B, Figure 4). We recommend starting with the large-diameter, critical concern trees first. There are 58 trees over 24 inches in diameter at 4.5 ft that should be addressed immediately. Please refer to the Proposed Schedule and Budget 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 197 trees with maintenance needs.

POOR TREE SPECIES

After removing the critical concern trees, ash trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, Figure 4). Of the 79 removals, 63 are ash trees. There are a total of 112 ash trees, and 79 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 Proposed Schedule and Budget for further information.

Planting

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

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 (33%) (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: any fruit bearing tree, black walnut, willows, poplars, cottonwood, boxelder, and evergreens. All trees planted must meet the restrictions in city ordinance 6-8-3 (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 6-8-3 (Appendix C). We recommend species such as Kentucky coffeetree, swamp white oak, ginkgo, bald cypress, and eastern redbud.

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.

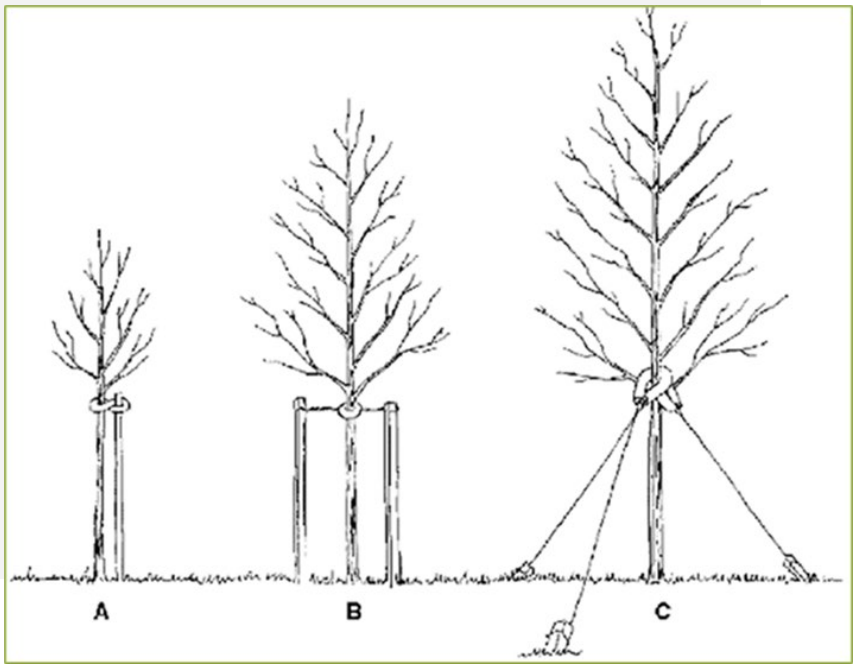
Monitoring

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 6-8-8 states “If a tree is removed by the property owner, either by his/her request or on his/her own action after receiving approval, the owner shall be responsible for and given the option of replacing the removed tree with an approved species according to 6-8-3(3) within a period not to exceed six (6) months, or by paying a replacement fee to the City as determined by the City Council. The time frame to replace the tree may be extended by the City Council until the next appropriate planting season if the Council, after examining all existing circumstances, deems that replacement of the tree by the property owner during the established time frame is either not appropriate or would not serve the public good.”

Schedule & Budget



PROPOSED WORK SCHEDULE & BUDGET

Budget Allowance of $2,150/Year – (Based off $2/Resident Estimation)

YEAR 1	Est. Cost
Remove 1 tree recommended for immediate removal	$700
Plant 2 trees in open locations	$300
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$2,025**

YEAR 2	Est. Cost
Remove 1 tree recommended for immediate removal	$700
Plant 2 trees in open locations	$300
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$2,025**

YEAR 3	Est. Cost
Remove 1 tree recommended for immediate removal	$700
Plant 2 trees in open locations	$300
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$2,025**

YEAR 4	Est. Cost
Remove 1 tree recommended for immediate removal	$700
Plant 2 trees in open locations	$300
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$2,025**

YEAR 5	Est. Cost
Remove 1 tree recommended for immediate removal	$700
Plant 2 trees in open locations	$300
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$2,025**

YEAR 6	Est. Cost
Remove 1 tree recommended for immediate removal	$700
Plant 2 trees in open locations	$300
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$2,025**

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

***To remove all ash trees within 6 years alone, the budget would need to be $13,000 a year. If the budget were increased to $4,000 a year all ash could be removed in 20 years.*

PROPOSED WORK SCHEDULE WITH INCREASED BUDGET

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

YEAR 1	Est. Cost
Remove 4 trees recommended for immediate removal	$2,800
Plant 1 tree in open locations	$150
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$3,975**

YEAR 4	Est. Cost
Remove 4 trees recommended for immediate removal	$2,800
Plant 1 tree in open locations	$150
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$3,975**

YEAR 2	Est. Cost
Remove 4 trees recommended for immediate removal	$2,800
Plant 1 tree in open locations	$150
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$3,975**

YEAR 5	Est. Cost
Remove 4 trees recommended for immediate removal	$2,800
Plant 1 tree in open locations	$150
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$3,975**

YEAR 3	Est. Cost
Remove 4 trees recommended for immediate removal	$2,800
Plant 1 tree in open locations	$150
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$3,975**

YEAR 6	Est. Cost
Remove 4 trees recommended for immediate removal	$2,800
Plant 1 tree in open locations	$150
Prune 1/6 of city owned trees	$1,025
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$3,975**

Proposed Budget Increase

EAB could potentially kill all ash trees in Rockwell within four years of its arrival. To remove all ash trees within six years, the budget would need to be increased to $13,000 a year. If the

budget were increased to $4,000 per year all ash could be removed within 20 years. Additionally, we recommend that Rockwell apply for grants to fund replacement trees. Utility Company grants are usually between $500 and $10,000 for community-based, tree-planting projects that include parks, gateways, cemeteries, nature trails, libraries, nursing homes, and schools.

Another option considered by many communities is treating selected trees, either to maintain those trees in the landscape or to delay their removal – to spread out the costs and number of trees needing removal all at once. Trunk injection is administered every two years for the life of the tree. If treatment is discontinued, the tree dies. For instance, in this treatment scenario, the average ash diameter is 20 inches and at $15 per inch, about 4 trees could be treated per year (every other year treatment). Four trees would be selected for treatment, and Rockwell would still need to find $78,400 for removal of ash. Alternatively, if there are 8 treatable trees, it would cost approximately $2,400 a year for treatment and leave $72,800 for removal of ash. 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 Rockwell. We suggest considering an increased budget to plan for this.

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Appendices

APPENDIX A: i-TREE DATA

Table 1: Annual Energy Benefits

Rockwell

Annual Energy Benefits of Public Trees

2/9/2022

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	31.7	2,407	4,363.4	4,276	6,683	(N/A)	21.8	29.7	75.09
Norway maple	13.2	999	1,872.7	1,835	2,834	(N/A)	13.4	12.6	51.54
Black walnut	14.6	1,105	2,055.4	2,014	3,119	(N/A)	11.0	13.9	69.31
Silver maple	13.1	997	1,721.8	1,687	2,684	(N/A)	9.8	11.9	67.11
Apple	1.4	106	234.2	230	335	(N/A)	5.6	1.5	14.58
Northern hackberry	7.9	602	1,138.1	1,115	1,718	(N/A)	5.1	7.6	81.80
Red maple	1.9	143	271.5	266	409	(N/A)	4.9	1.8	20.44
Littleleaf linden	1.8	136	241.1	236	372	(N/A)	3.4	1.7	26.59
Maple	3.2	240	403.0	395	635	(N/A)	3.2	2.8	48.81
Blue spruce	1.2	93	165.9	163	256	(N/A)	2.9	1.1	21.32
Ash	3.6	277	535.4	525	802	(N/A)	2.9	3.6	66.81
White ash	1.9	147	244.9	240	387	(N/A)	2.7	1.7	35.17
Spruce	1.2	93	165.2	162	255	(N/A)	2.7	1.1	23.15
Sugar maple	2.5	194	343.2	336	530	(N/A)	2.0	2.4	66.23
Basswood	1.8	140	257.5	252	392	(N/A)	1.7	1.7	56.03
Honeylocust	1.9	144	246.2	241	386	(N/A)	1.5	1.7	64.28
Northern red oak	0.8	59	111.8	110	169	(N/A)	1.0	0.8	42.22
Pear	0.1	7	15.2	15	22	(N/A)	1.0	0.1	5.40
Northern pin oak	0.9	67	124.3	122	188	(N/A)	0.7	0.8	62.82
Bur oak	0.3	25	47.3	46	72	(N/A)	0.5	0.3	35.78
Swamp white oak	0.0	3	6.2	6	9	(N/A)	0.2	0.0	8.99
Black cherry	0.2	15	31.6	31	46	(N/A)	0.2	0.2	46.14
Conifer Evergreen Small	0.0	0	0.7	1	1	(N/A)	0.2	0.0	0.93
Eastern white pine	0.1	4	9.5	9	14	(N/A)	0.2	0.1	13.58
Mountain ash	0.0	2	3.8	4	5	(N/A)	0.2	0.0	5.40
Ohio buckeye	0.3	24	47.4	46	71	(N/A)	0.2	0.3	70.84
Northern white cedar	0.1	11	19.7	19	30	(N/A)	0.2	0.1	30.47
Boxelder	0.3	20	36.3	36	55	(N/A)	0.2	0.2	55.14
Eastern red cedar	0.1	8	16.4	16	25	(N/A)	0.2	0.1	24.57
Total	106.3	8,068	14,729.7	14,435	22,503	(N/A)	100.0	100.0	55.02

Table 2: Annual Stormwater Benefits

Rockwell

Annual Stormwater Benefits of Public Trees

2/9/2022

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	427,208	11,577	(N/A)	21.8	34.4	130.08
Norway maple	115,089	3,119	(N/A)	13.4	9.3	56.71
Black walnut	176,148	4,774	(N/A)	11.0	14.2	106.08
Silver maple	187,565	5,083	(N/A)	9.8	15.1	127.08
Apple	4,931	134	(N/A)	5.6	0.4	5.81
Northern hackberry	81,741	2,215	(N/A)	5.1	6.6	105.48
Red maple	10,431	283	(N/A)	4.9	0.8	14.13
Littleleaf linden	11,895	322	(N/A)	3.4	1.0	23.03
Maple	23,946	649	(N/A)	3.2	1.9	49.92
Blue spruce	16,123	437	(N/A)	2.9	1.3	36.41
Ash	40,247	1,091	(N/A)	2.9	3.2	90.89
White ash	20,564	557	(N/A)	2.7	1.7	50.66
Spruce	21,558	584	(N/A)	2.7	1.7	53.11
Sugar maple	31,634	857	(N/A)	2.0	2.5	107.16
Basswood	19,084	517	(N/A)	1.7	1.5	73.88
Honeylocust	18,294	496	(N/A)	1.5	1.5	82.63
Northern red oak	7,637	207	(N/A)	1.0	0.6	51.74
Pear	275	7	(N/A)	1.0	0.0	1.86
Northern pin oak	8,938	242	(N/A)	0.7	0.7	80.74
Bur oak	3,961	107	(N/A)	0.5	0.3	53.67
Swamp white oak	163	4	(N/A)	0.2	0.0	4.41
Black cherry	1,174	32	(N/A)	0.2	0.1	31.82
Conifer Evergreen Small	24	1	(N/A)	0.2	0.0	0.66
Eastern white pine	596	16	(N/A)	0.2	0.0	16.14
Mountain ash	69	2	(N/A)	0.2	0.0	1.86
Ohio buckeye	3,764	102	(N/A)	0.2	0.3	102.01
Northern white cedar	2,969	80	(N/A)	0.2	0.2	80.46
Boxelder	3,090	84	(N/A)	0.2	0.2	83.73
Eastern red cedar	1,635	44	(N/A)	0.2	0.1	44.30
Citywide total	1,240,749	33,624	(N/A)	100.0	100.0	82.21

Table 3: Annual Air Quality Benefits

Rockwell

Annual Air Quality Benefits of Public Trees

2/9/2022

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	61.3	9.8	27.9	2.7	322	151.6	22.1	21.0	143.7	944	0.0	0	440.2	1,266	(N/A)	21.8	14.23
Norway maple	22.6	3.9	11.2	1.0	123	63.6	9.2	8.8	59.7	395	-5.4	-20	174.7	497	(N/A)	13.4	9.03
Black walnut	22.5	3.6	10.6	1.0	120	70.1	10.2	9.7	66.0	435	0.0	0	193.6	555	(N/A)	11.0	12.32
Silver maple	33.3	5.6	16.3	1.5	179	61.9	9.1	8.7	59.4	387	-17.8	-67	177.9	500	(N/A)	9.8	12.50
Apple	0.9	0.1	0.5	0.0	5	7.0	1.0	0.9	6.3	43	0.0	0	16.9	48	(N/A)	5.6	2.08
Northern hackberry	13.6	2.4	6.8	0.6	74	38.4	5.6	5.3	36.0	238	0.0	0	108.7	312	(N/A)	5.1	14.86
Red maple	1.4	0.2	0.8	0.1	8	9.1	1.3	1.3	8.5	56	-0.6	-2	22.0	62	(N/A)	4.9	3.09
Littleleaf linden	1.4	0.2	0.8	0.1	8	8.5	1.2	1.2	8.1	53	-0.8	-3	20.8	58	(N/A)	3.4	4.16
Maple	5.4	0.9	2.5	0.2	29	14.8	2.2	2.1	14.3	93	-1.9	-7	40.6	115	(N/A)	3.2	8.82
Blue spruce	2.0	0.4	1.7	0.2	13	5.8	0.9	0.8	5.6	36	-5.7	-21	11.7	28	(N/A)	2.9	2.36
Ash	9.0	1.5	4.3	0.4	48	17.8	2.6	2.4	16.6	110	-2.0	-8	52.5	150	(N/A)	2.9	12.54
White ash	3.4	0.5	1.6	0.2	18	9.0	1.3	1.3	8.8	57	0.0	0	26.1	75	(N/A)	2.7	6.80
Spruce	2.4	0.5	2.0	0.3	16	5.8	0.8	0.8	5.5	36	-10.0	-38	8.2	15	(N/A)	2.7	1.35
Sugar maple	4.4	0.7	2.1	0.2	24	12.1	1.8	1.7	11.5	76	-3.4	-13	31.2	86	(N/A)	2.0	10.80
Basswood	2.1	0.3	1.1	0.1	12	8.8	1.3	1.2	8.4	55	0.0	0	23.4	67	(N/A)	1.7	9.50
Honeylocust	3.5	0.6	1.6	0.2	18	8.9	1.3	1.3	8.6	56	-2.6	-10	23.4	65	(N/A)	1.5	10.79
Northern red oak	1.6	0.3	0.8	0.1	9	3.8	0.5	0.5	3.5	23	-2.2	-8	8.8	24	(N/A)	1.0	5.89
Pear	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.4	3	0.0	0	1.0	3	(N/A)	1.0	0.71
Northern pin oak	1.9	0.3	0.9	0.1	10	4.2	0.6	0.6	4.0	26	-0.4	-2	12.3	35	(N/A)	0.7	11.69
Bur oak	0.5	0.1	0.2	0.0	3	1.6	0.2	0.2	1.5	10	0.0	0	4.4	13	(N/A)	0.5	6.28
Swamp white oak	0.0	0.0	0.0	0.0	0	0.2	0.0	0.0	0.2	1	0.0	0	0.4	1	(N/A)	0.2	1.21
Black cherry	0.4	0.1	0.2	0.0	2	1.0	0.1	0.1	0.9	6	0.0	0	2.9	8	(N/A)	0.2	8.35
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
Eastern white pine	0.1	0.0	0.1	0.0	0	0.3	0.0	0.0	0.3	2	-0.2	-1	0.6	1	(N/A)	0.2	1.48
Mountain ash	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)	0.2	0.71
Ohio buckeye	0.9	0.1	0.4	0.0	5	1.6	0.2	0.2	1.5	10	-0.2	-1	4.7	14	(N/A)	0.2	13.58
Northern white cedar	0.3	0.1	0.3	0.0	2	0.7	0.1	0.1	0.7	4	-1.4	-5	0.9	1	(N/A)	0.2	1.45
Boxelder	0.4	0.1	0.2	0.0	2	1.2	0.2	0.2	1.2	8	-0.2	-1	3.3	9	(N/A)	0.2	9.31
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
Citywide total	195.9	32.6	95.4	9.1	1,053	509.1	74.0	70.5	481.7	3,167	-55.7	-209	1,412.6	4,011	(N/A)	100.0	9.81

Table 4: Annual Carbon Stored

Rockwell

Stored CO2 Benefits of Public Trees

2/9/2022

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	2,028,656	15,215	(N/A)	21.8	41.7	170.95
Norway maple	372,171	2,791	(N/A)	13.4	7.6	50.75
Black walnut	727,767	5,458	(N/A)	11.0	15.0	121.29
Silver maple	795,276	5,965	(N/A)	9.8	16.3	149.11
Apple	17,408	131	(N/A)	5.6	0.4	5.68
Northern hackberry	209,303	1,570	(N/A)	5.1	4.3	74.75
Red maple	19,042	143	(N/A)	4.9	0.4	7.14
Littleleaf linden	33,378	250	(N/A)	3.4	0.7	17.88
Maple	59,352	445	(N/A)	3.2	1.2	34.24
Blue spruce	12,335	93	(N/A)	2.9	0.3	7.71
Ash	148,036	1,110	(N/A)	2.9	3.0	92.52
White ash	57,691	433	(N/A)	2.7	1.2	39.33
Spruce	24,010	180	(N/A)	2.7	0.5	16.37
Sugar maple	127,361	955	(N/A)	2.0	2.6	119.40
Basswood	68,940	517	(N/A)	1.7	1.4	73.86
Honeylocust	44,049	330	(N/A)	1.5	0.9	55.06
Northern red oak	32,700	245	(N/A)	1.0	0.7	61.31
Pear	711	5	(N/A)	1.0	0.0	1.33
Northern pin oak	32,184	241	(N/A)	0.7	0.7	80.46
Bur oak	15,785	118	(N/A)	0.5	0.3	59.19
Swamp white oak	218	2	(N/A)	0.2	0.0	1.64
Black cherry	6,743	51	(N/A)	0.2	0.1	50.57
Conifer Evergreen Sn	3	0	(N/A)	0.2	0.0	0.02
Eastern white pine	257	2	(N/A)	0.2	0.0	1.93
Mountain ash	178	1	(N/A)	0.2	0.0	1.33
Ohio buckeye	14,280	107	(N/A)	0.2	0.3	107.10
Northern white cedar	3,343	25	(N/A)	0.2	0.1	25.07
Boxelder	14,280	107	(N/A)	0.2	0.3	107.10
Eastern red cedar	1,102	8	(N/A)	0.2	0.0	8.27
Citywide total	4,866,558	36,499	(N/A)	100.0	100.0	89.24

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.

Table 5: Annual Carbon Sequestered

Rockwell

Annual CO $_2$ Benefits of Public Trees

2/9/2022

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	73,679	553	-9,738	-347	-76	53,201	399	116,795	876 (N/A)	21.8	29.1	9.84
Norway maple	20,921	157	-1,787	-131	-14	22,082	166	41,085	308 (N/A)	13.4	10.2	5.60
Black walnut	36,667	275	-3,493	-156	-27	24,411	183	57,429	431 (N/A)	11.0	14.3	9.57
Silver maple	56,707	425	-3,818	-147	-30	22,034	165	74,776	561 (N/A)	9.8	18.6	14.02
Apple	2,154	16	-84	-22	-1	2,336	18	4,384	33 (N/A)	5.6	1.1	1.43
Northern hackberry	10,607	80	-1,005	-77	-8	13,315	100	22,840	171 (N/A)	5.1	5.7	8.16
Red maple	2,828	21	-91	-20	-1	3,152	24	5,868	44 (N/A)	4.9	1.5	2.20
Littleleaf linden	4,942	37	-160	-21	-1	3,003	23	7,764	58 (N/A)	3.4	1.9	4.16
Maple	6,483	49	-285	-27	-2	5,295	40	11,466	86 (N/A)	3.2	2.9	6.62
Blue spruce	941	7	-59	-21	-1	2,060	15	2,921	22 (N/A)	2.9	0.7	1.83
Ash	3,176	24	-711	-42	-6	6,122	46	8,546	64 (N/A)	2.9	2.1	5.34
White ash	5,384	40	-279	-18	-2	3,245	24	8,331	62 (N/A)	2.7	2.1	5.68
Spruce	1,413	11	-115	-22	-1	2,051	15	3,325	25 (N/A)	2.7	0.8	2.27
Sugar maple	6,151	46	-611	-28	-5	4,276	32	9,788	73 (N/A)	2.0	2.4	9.18
Basswood	4,544	34	-331	-19	-3	3,091	23	7,285	55 (N/A)	1.7	1.8	7.81
Honeylocust	5,793	43	-211	-15	-2	3,192	24	8,758	66 (N/A)	1.5	2.2	10.95
Northern red oak	1,281	10	-157	-10	-1	1,312	10	2,426	18 (N/A)	1.0	0.6	4.55
Pear	152	1	-3	-2	0	149	1	295	2 (N/A)	1.0	0.1	0.55
Northern pin oak	1,126	8	-154	-9	-1	1,472	11	2,435	18 (N/A)	0.7	0.6	6.09
Bur oak	859	6	-76	-4	-1	557	4	1,337	10 (N/A)	0.5	0.3	5.01
Swamp white oak	96	1	-2	-1	0	65	0	158	1 (N/A)	0.2	0.0	1.18
Black cherry	0	0	-32	-4	0	335	3	299	2 (N/A)	0.2	0.1	2.24
Conifer Evergreen Small	1	0	0	0	0	6	0	6	0 (N/A)	0.2	0.0	0.05
Eastern white pine	53	0	-1	-1	0	94	1	145	1 (N/A)	0.2	0.0	1.08
Mountain ash	38	0	-1	-1	0	37	0	74	1 (N/A)	0.2	0.0	0.55
Ohio buckeye	370	3	-69	-4	-1	539	4	837	6 (N/A)	0.2	0.2	6.27
Northern white cedar	187	1	-16	-3	0	246	2	415	3 (N/A)	0.2	0.1	3.11
Boxelder	1,038	8	-69	-4	-1	433	3	1,399	10 (N/A)	0.2	0.3	10.49
Eastern red cedar	0	0	-5	-2	0	187	1	180	1 (N/A)	0.2	0.0	1.35
Citywide total	247,588	1,857	-23,364	-1,156	-184	178,297	1,337	401,365	3,010 (N/A)	100.0	100.0	7.36

Table 6: Annual Social and Aesthetic Benefits

Rockwell

Annual Aesthetic/Other Benefits of Public Trees

2/9/2022

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Green ash	5,400	(N/A)	21.8	24.3	60.68
Norway maple	1,999	(N/A)	13.4	9.0	36.34
Black walnut	2,832	(N/A)	11.0	12.7	62.93
Silver maple	4,317	(N/A)	9.8	19.4	107.91
Apple	120	(N/A)	5.6	0.5	5.21
Northern hackberry	1,338	(N/A)	5.1	6.0	63.73
Red maple	490	(N/A)	4.9	2.2	24.51
Littleleaf linden	578	(N/A)	3.4	2.6	41.29
Maple	848	(N/A)	3.2	3.8	65.24
Blue spruce	271	(N/A)	2.9	1.2	22.62
Ash	283	(N/A)	2.9	1.3	23.55
White ash	627	(N/A)	2.7	2.8	57.03
Spruce	332	(N/A)	2.7	1.5	30.21
Sugar maple	620	(N/A)	2.0	2.8	77.49
Basswood	387	(N/A)	1.7	1.7	55.22
Honeylocust	1,372	(N/A)	1.5	6.2	228.74
Northern red oak	95	(N/A)	1.0	0.4	23.75
Pear	8	(N/A)	1.0	0.0	2.06
Northern pin oak	102	(N/A)	0.7	0.5	34.03
Bur oak	71	(N/A)	0.5	0.3	35.43
Swamp white oak	13	(N/A)	0.2	0.1	12.89
Black cherry	0	(N/A)	0.2	0.0	0.00
Conifer Evergreen Small	4	(N/A)	0.2	0.0	4.27
Eastern white pine	15	(N/A)	0.2	0.1	15.42
Mountain ash	2	(N/A)	0.2	0.0	2.06
Ohio buckeye	31	(N/A)	0.2	0.1	31.46
Northern white cedar	47	(N/A)	0.2	0.2	47.08
Boxelder	65	(N/A)	0.2	0.3	65.43
Eastern red cedar	0	(N/A)	0.2	0.0	0.00
Citywide total	22,270	(N/A)	100.0	100.0	54.45

Table 7: Summary of Benefits in Dollars

Rockwell

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

2/18/2022

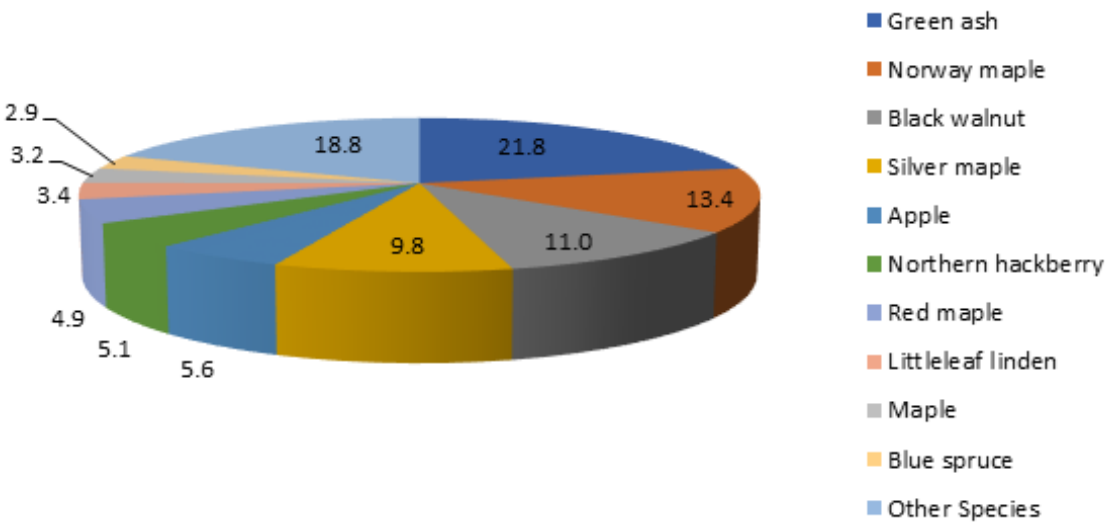
Benefits	Total ($)	Standard Error	$/tree	Standard Error	$/capita	Standard Error
Energy	22,503	(N/A)	55.02	(N/A)	0.00	(N/A)
CO2	3,010	(N/A)	7.36	(N/A)	0.00	(N/A)
Air Quality	4,011	(N/A)	9.81	(N/A)	0.00	(N/A)
Stormwater	33,624	(N/A)	82.21	(N/A)	0.00	(N/A)
Aesthetic/Other	22,270	(N/A)	54.45	(N/A)	0.00	(N/A)
Total Benefits	85,418	(N/A)	208.85	(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	85,418	(N/A)	208.85	(N/A)	0.00	(N/A)
Benefit-cost ratio	0.00	(N/A)				

Figure 1: Species Distribution

Rockwell

Species Distribution of Public Trees

2/9/2022



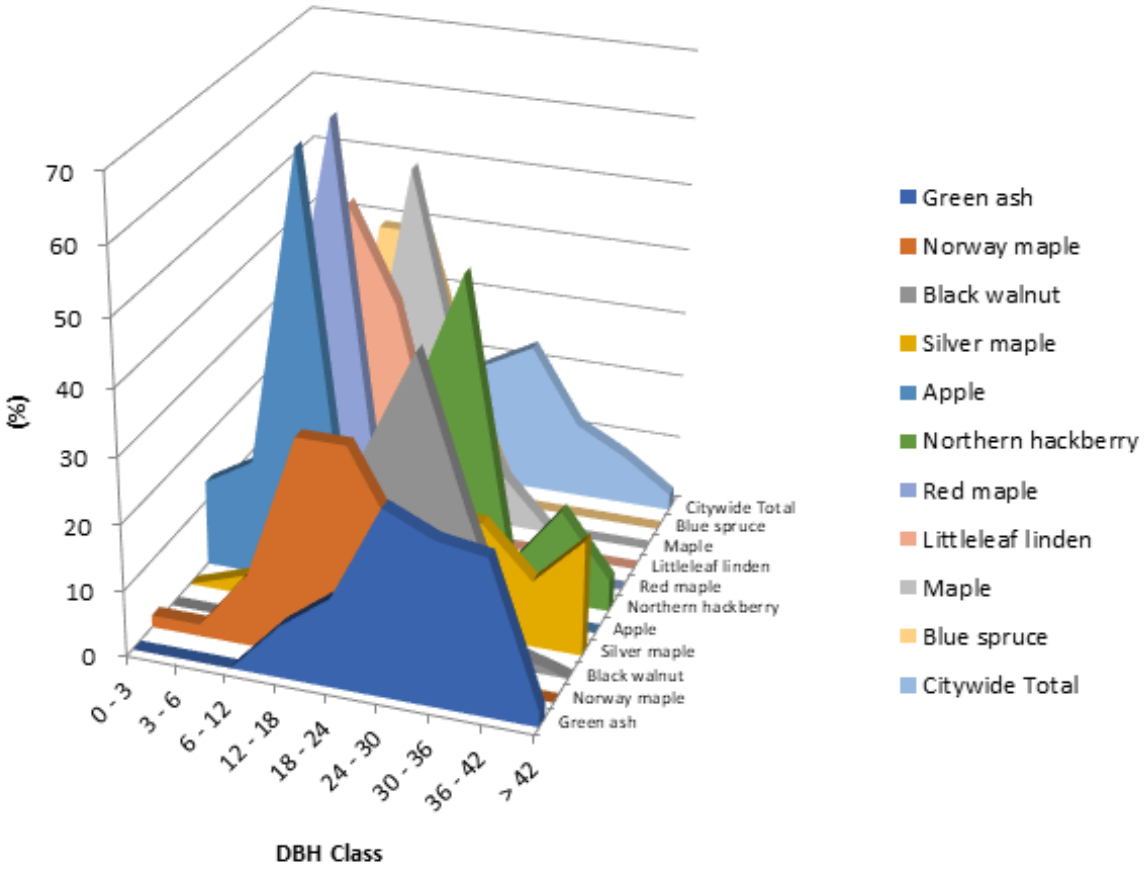
Species	Percent
Green ash	21.8
Norway maple	13.4
Black walnut	11.0
Silver maple	9.8
Apple	5.6
Northern hackberry	5.1
Red maple	4.9
Littleleaf linden	3.4
Maple	3.2
Blue spruce	2.9
Other Species	18.8
Total	100.0

Figure 2: Relative Age Class

Rockwell

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

2/9/2022



	DBH class (in)								
Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	> 42
Green ash	0.00	0.00	0.00	7.87	13.48	28.09	24.72	23.60	2.25
Norway maple	1.82	1.82	10.91	32.73	32.73	20.00	0.00	0.00	0.00
Black walnut	0.00	0.00	0.00	2.22	28.89	44.44	22.22	2.22	0.00
Silver maple	0.00	2.50	5.00	15.00	15.00	17.50	17.50	10.00	17.50
Apple	13.04	17.39	65.22	4.35	0.00	0.00	0.00	0.00	0.00
Northern hackberry	0.00	0.00	0.00	0.00	28.57	47.62	4.76	14.29	4.76
Red maple	5.00	25.00	65.00	5.00	0.00	0.00	0.00	0.00	0.00
Littleleaf linden	7.14	0.00	50.00	35.71	7.14	0.00	0.00	0.00	0.00
Maple	0.00	0.00	15.38	53.85	23.08	7.69	0.00	0.00	0.00
Blue spruce	0.00	0.00	41.67	41.67	16.67	0.00	0.00	0.00	0.00
Citywide Total	1.96	5.38	14.43	14.67	19.07	22.98	11.49	7.58	2.44

Figure 3: Foliage Condition

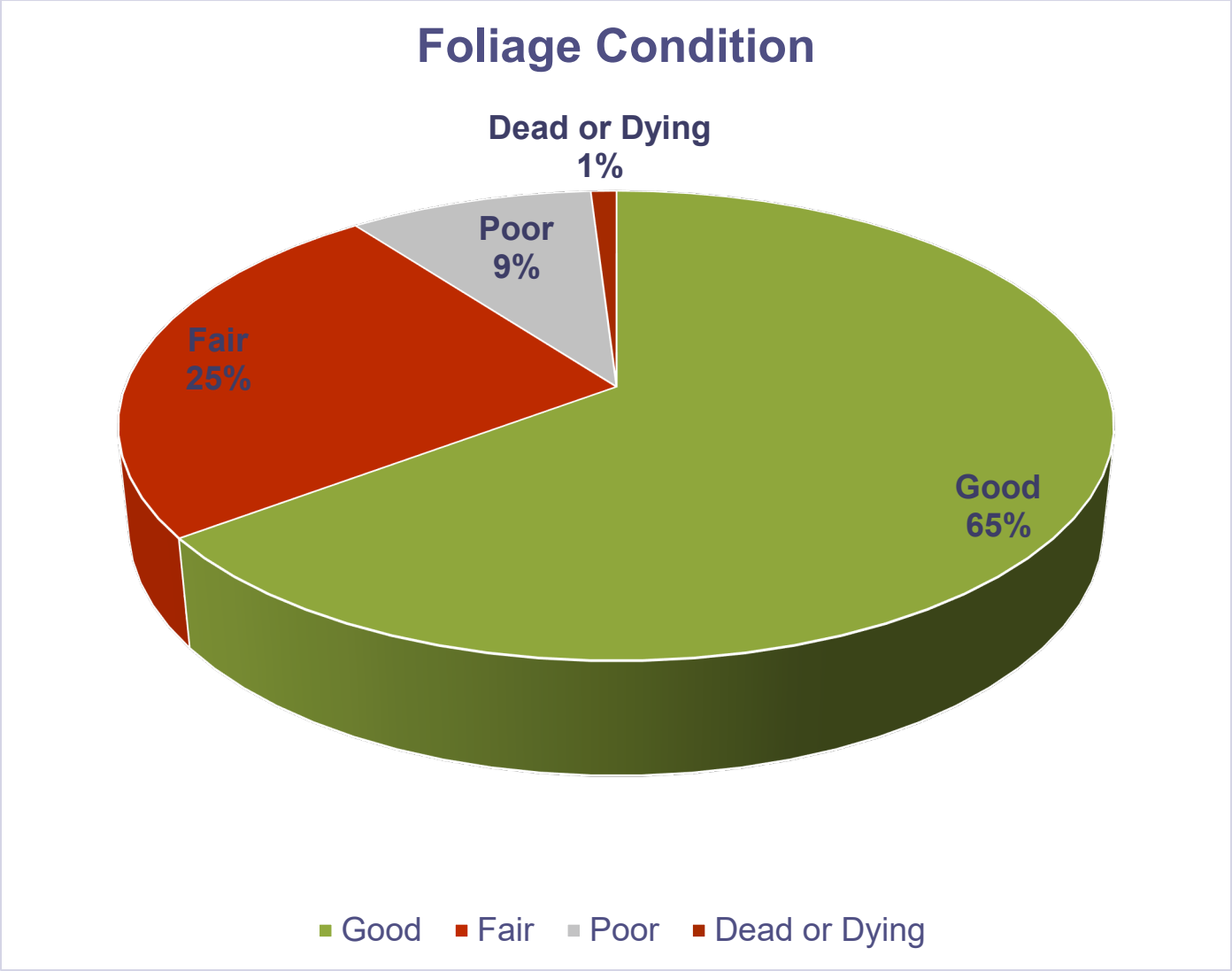


Figure 4: Wood Condition

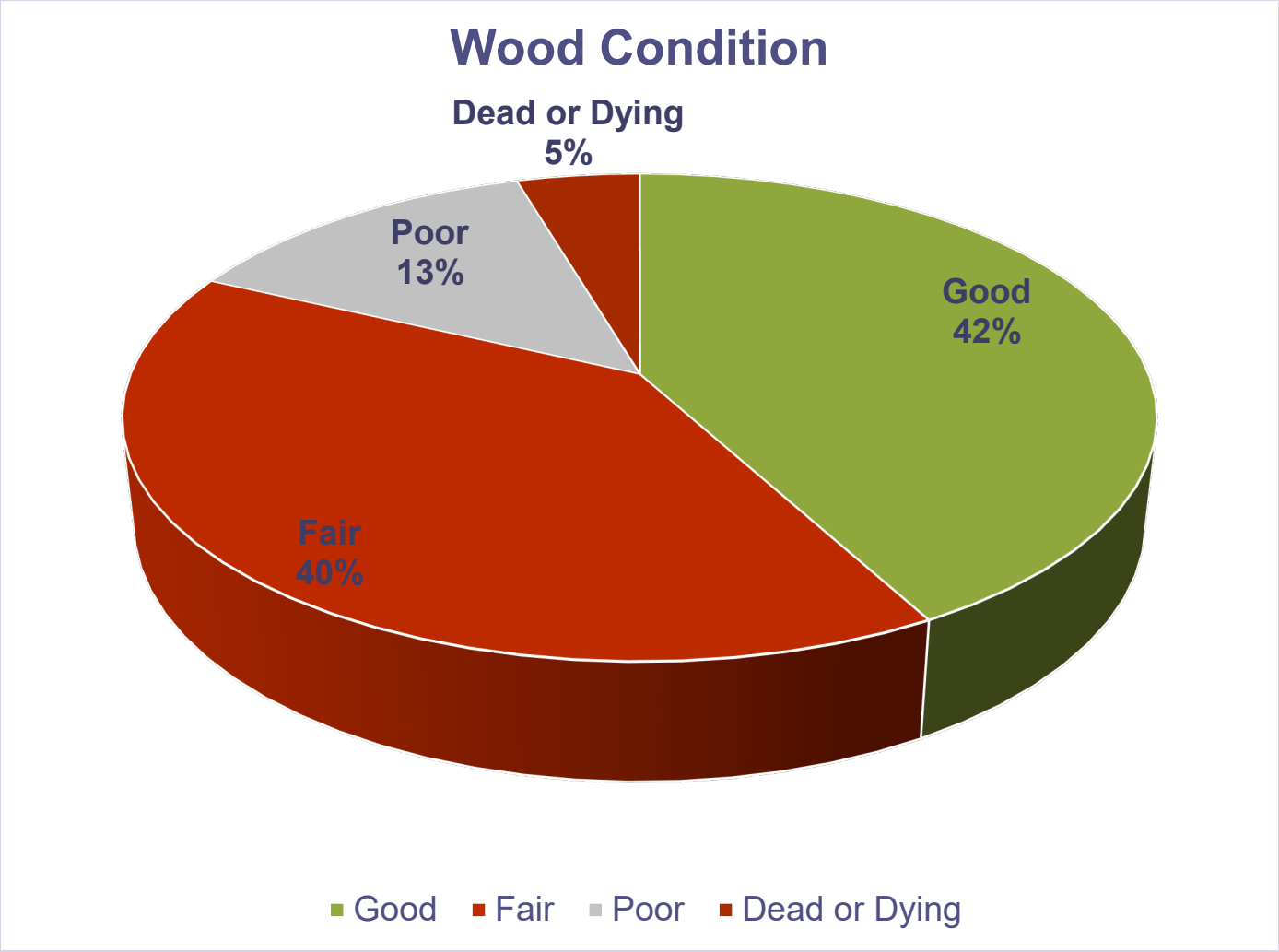
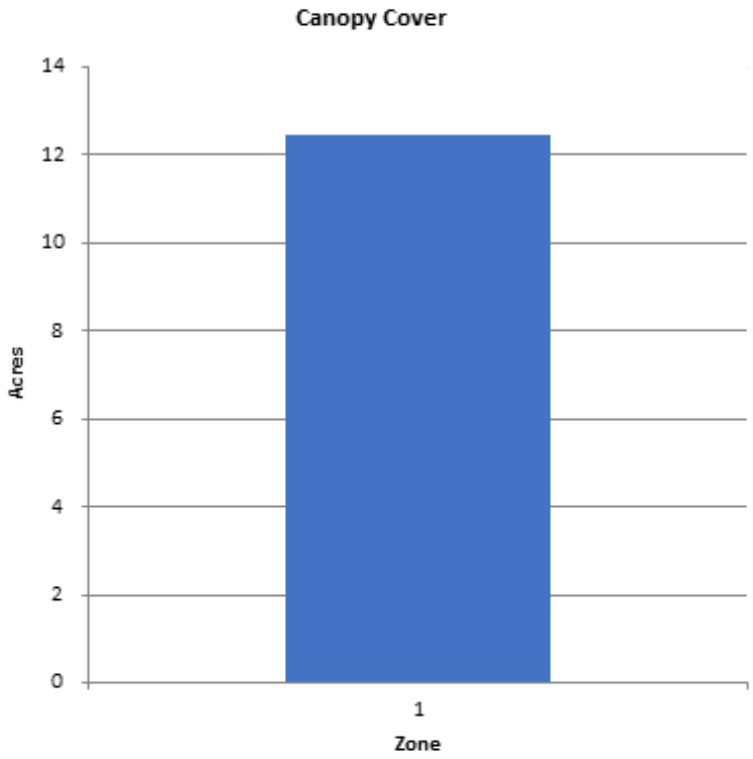


Figure 5: Canopy Cover in Acres

Rockwell

Canopy Cover of Public Trees (Acres)

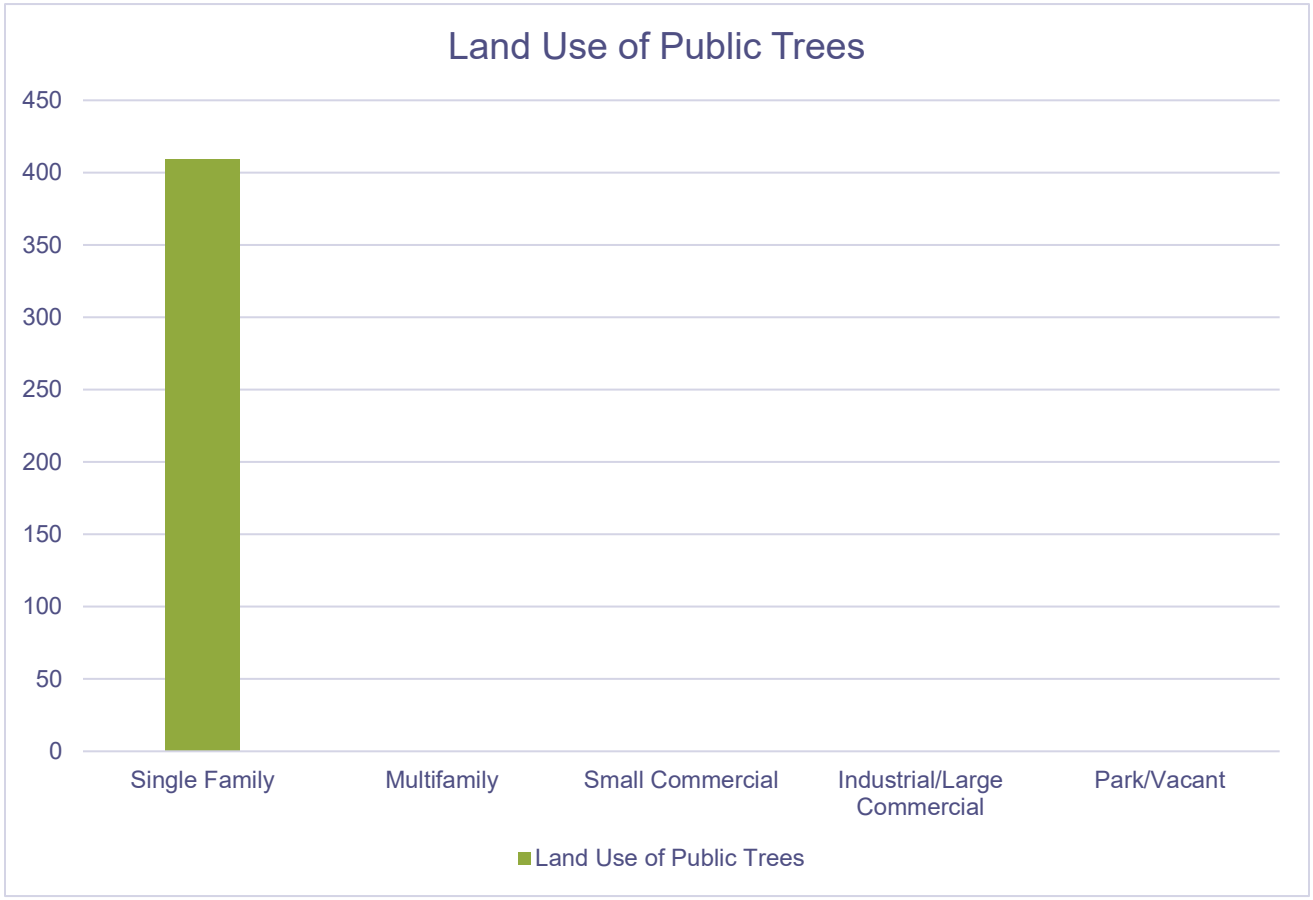
2/9/2022



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

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

Figure 6: Land Use of City/Park Trees



APPENDIX B: ArcGIS MAPPING

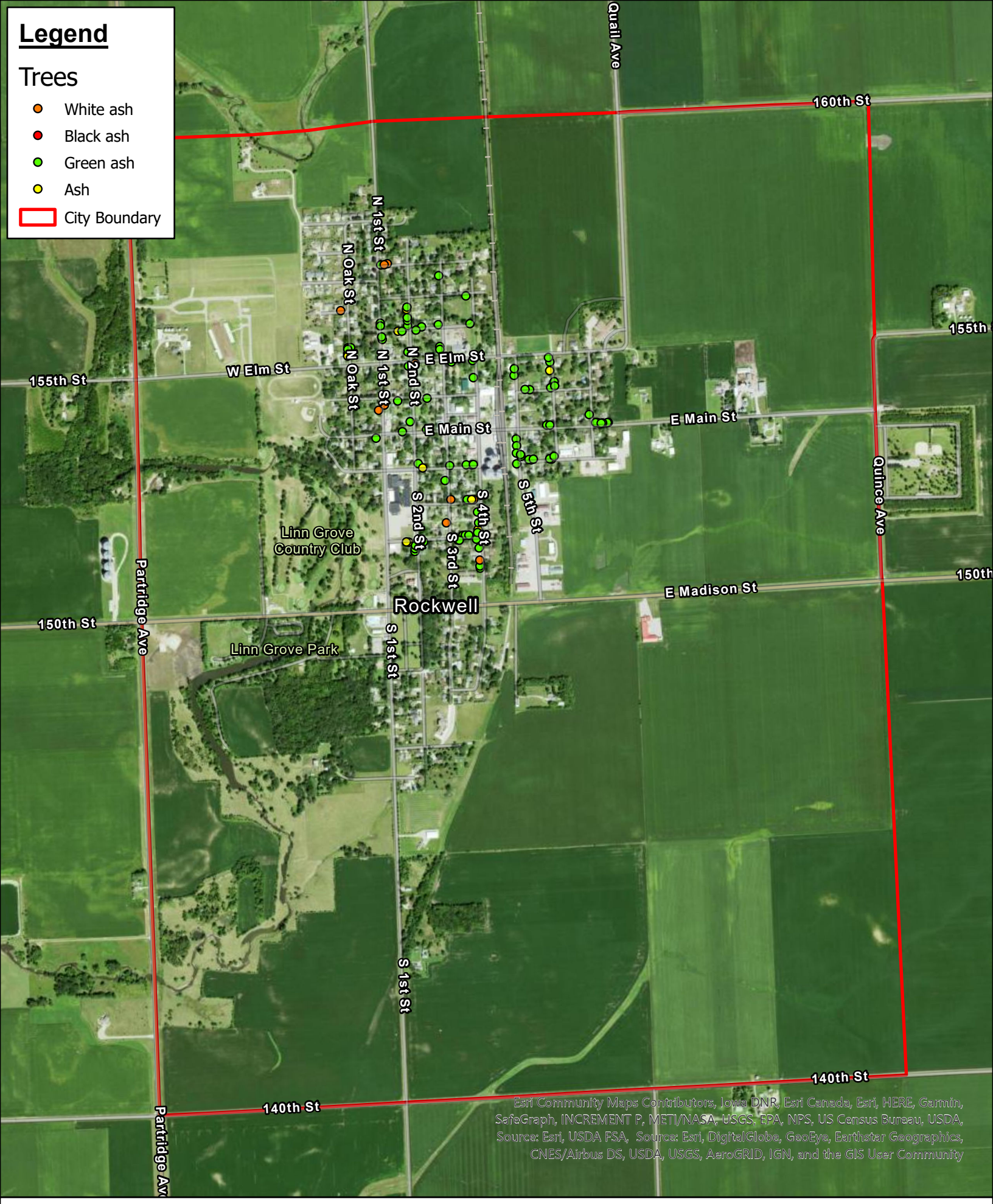
Figure 1: Location of Ash Trees

Figure 2: Location of EAB Symptoms

Figure 3: Location of Poor Condition Trees

Figure 4: Location of Trees with Recommended Maintenance

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



Ash Tree Location

0 500 1,000 2,000 Feet

N

EAB Signs/Symptoms

0 500 1,000 2,000 Feet

N

Poor Condition Trees

0 500 1,000 2,000 Feet

N

Priority Task

0 500 1,000 2,000 Feet

N

APPENDIX C: ROCKWELL TREE ORDINANCES

6-8-1 PURPOSE.

The purpose of this chapter is to beautify and preserve the appearance of the City by regulating and providing for the planting, care and removal of trees.

6-8-2 DEFINITIONS.

For use in this chapter, the following terms are defined:

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

2. "Superintendent" means Superintendent of Public Works or such other person as may be designated by the Council.

6-8-3 PLANTING RESTRICTIONS.

No tree shall be planted in any street or parking except in accordance with the following:

1. Alignment. All trees hereafter planted in any street shall be planted in the parking 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 the parking if it 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 to street intersections (property lines extended) and ten (10) feet to the driveways. If it is at all possible trees should be planted inside the property lines and not between the sidewalk and the curb.

3. Planting. No person shall hereinafter plant in any street, any fruit-bearing tree or any tree of the kinds commonly known as cottonwood, poplar, box elder, Chinese elm, or evergreens. All trees must be free of insects, disease, mechanical injury, and objectionable features at the time of planting. Trees shall be of the following accepted species and size: Maple Schweidler, Common Norway, Crimson King, Columar Sugar, Red Ash Marshall Seedless, Summit Locust, Imperial, Sunburst, Skyline, Shademaster, Linden, Redman, Little Leaf, Green Spire

6-8-4 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 ten (10) feet above the surface of the street and ten (10) feet above the sidewalks.

6-8-5 ASSESSMENT.

If the abutting property owner fails to trim the trees as required in this chapter, the City may serve notice on the abutting property owner requiring him to do so within five (5) days. If he fails to trim the trees 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.

6-8-6 TRIMMING TREES TO BE SUPERVISED.

It shall be 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.

6-8-7 REMOVAL OF TREES.

The superintendent shall remove, on the order of the Council, any tree on the streets of the City which interferes with the making of improvements or with travel thereon. He shall additionally remove any trees on the street, not on private property, which have become diseased, or which constitute a danger to the public, or which may otherwise be declared a nuisance.

1. All trees within the public right-of-way are the property of the City of Rockwell. Removal of any city tree without written approval of the City Council is strictly forbidden and is a violation of this ordinance. In addition to penalties as specified in Title I, Chapter 3, of this Code, violators shall be responsible for damages and the cost of replacing the removed tree.

2. Authorization to remove City trees may be obtained by first submitting a completed application to the City Council. Applications may be obtained from the City Clerk. Upon inspection by the Council or its representatives, authorization may be granted for the following:
a. The tree created a safety hazard.

b. The tree is dead or diseased.

c. The tree is designated a nuisance or undesirable species that provides fruit, sap or pods etc.

6-8-8 REPLACEMENT OF TREES.

When a tree is removed from the parking area or other public land, and it is not deemed by the City Council as undesirable or in conflict with approved plans for impending improvements in the location of the tree, the tree when removed shall be replaced in accordance with the following:

1. Removal by property owner. If a tree is removed by the property owner, either by his/her request or on his/her own action after receiving approval, the owner shall be responsible for and given the option of replacing the removed tree with an approved species according to 6-8-3(3) within a period not to exceed six (6) months, or by paying a replacement fee to the City as determined by the City Council. The time frame to replace the tree may be extended by the City Council until the next appropriate planting season if the Council, after examining all existing circumstances, deems that replacement of the tree by the property owner during the established time frame is either not appropriate or would not serve the public good.

2. Removal by City. If the City removes a tree from the parking area or other public land it shall abide by the provisions established in section 6-8-8 (1) for the replacement of the tree removed.

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.