Raymond, IA

Urban Forestry Management Plan

SUMMER 2021

JEO CONSULTING GROUP

Table of Contents

Table of Contents

Table of Contents

Executive Summary

EXECUTIVE SUMMARY

Overview

This plan was developed to assist the City of Raymond 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 16% of Raymond'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 94 trees inventoried.

- Raymond's trees provide $10,005 of benefits annually, an average of $106.43 per tree
- There are over 22 species of trees
- The top three genera are: Spruce 36%, Maple 19%, and Ash 16%
- 23.5% of trees need some type of management
- 20 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 20 trees needing removal, 7 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*
- 12 of the 20 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 2 years to remove ash. We suggest that city officials apply for grants to plant replacement trees.

Introduction

INTRODUCTION

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

Assist Raymond 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 94 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. Raymond's trees reduce energy-related costs by approximately $2,501 annually (Appendix A, Table 1). These savings are both in electricity (12.0 MWh) and in natural gas (1,622.3 Therms).

Annual Stormwater Benefits

Raymond's trees intercept about 142,557 gallons of rainfall or snow melt per year (Appendix A, Table 2). This interception provides $3,863 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 Raymond, it is estimated that trees remove 138.7 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 $374 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Raymond, trees sequester about 26,248 lbs of carbon per year with an associated value of $197 (Appendix A, Table 5). In addition, the trees store 411,649 lbs of carbon, with a yearly benefit of $3,087 (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. Raymond receives $2,934 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, Raymond's trees provide $10,005 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 94 trees in Raymond provide approximately $106.43 annually (Appendix A, Table 7).

ENERGY	STORMWATER	AIR QUALITY	CARBON	AESTHETICS	SUMMARY
• Reduce energy cost by **$2,501**	• Intercept **142,557 gallons** • Provides **$3,863** benefit	• Remove **138.7 lbs** of pollution • Net value of **$374**	• Sequester **26,248 lbs** • Value of **$197** • Store **411,649 lbs** • Value of **$3,087**	• **$2,934** in social benefits	• **$10,005** annual benefits • Each tree provides **$106.43** annually

FOREST STRUCTURE

Species Distribution

Raymond has over 22 different tree species along city streets and parks (Appendix A, Figure 1).

The distribution of trees by genera is as follows:

Spruce	34	36%
Maple	18	19%
Ash	15	16%
Pine	11	12%
Cedar	3	3%
Honeylocust	2	2%
Linden	2	2%
Oak	2	2%

Tulip tree	1	1%
Kentucky coffee	1	1%
Birch	1	1%
Hackberry	1	1%
Elm	1	1%
Apple (Crab)	1	1%
Mulberry	1	1%

Age Class

Most of Raymond's trees (45.75%) are between 3 and 12 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. Raymond'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 urban forest's overall health. The foliage condition results for Raymond indicate that 78% of the trees are in good or fair health, with only 22% of the foliage in poor health, dead, or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 77% of Raymond's trees are in good health for wood condition (Appendix A, Figure 4 & Appendix B, Figure 3). Twenty-three percent of the tree population's wood condition is in poor health, dead, or dying. This 23% 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	13	14%
Crown Reduction	0	0%
Tree Removal	20	21%
Crown Raising	9	9.5%
Tree Staking	0	0%

Canopy Cover

The total canopy with both private and public trees is 137.38 acres or 13% cover. The canopy cover included in the Raymond inventory includes approximately 1 acre (Appendix A, Figure 4). The city's canopy goal is to increase canopy by 6% 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 Raymond'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	4%
Industrial/Large Commercial	0%
Park/Vacant/Other	96%
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

Raymond has 20 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 7 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 22 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 20 removals, 12 are ash trees. There are a total of 15 ash trees, and 12 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 Raymond.

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 spruce (36%) and maple (19%)(Appendix A, Figure 1). Spruce and maples should not be planted until this percentage can be lowered. Also, ash trees have not been recommended since 2002, due to the threat of EAB. Other species to avoid because they are public nuisances include: cottonwood, poplar, boxelder, Chinese elm, evergreen, willow, or black walnut. All trees planted must meet the restrictions in city ordinance 12.30.060 (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 12.30.060 (Appendix C): " The selection of street trees will be in accordance with the "City of Raymond Street Tree Plan," attached to the ordinance codified in this chapter as Exhibit A. Street tree plantings shall consider the location of existing utilities, lighting, driveways, business entrances, and signs" and "trees shall be grown and harvested in accordance with the standards in the American Standard for Nursery Stock (ANSI Z60.1-2014 or most current edition). Trees acquired for planting in the city right-of-way shall be nursery-grown in a USDA hardiness zone suitable for the region and shall exhibit the following characteristics:

1. Healthy and vigorous, with trunk and limbs free from insects, disease, defects, injuries, and decay;

2. Single trunk that is straight, with a well-developed leader and good trunk taper (one-and-one-half-inch to two-inch caliper);

3. Well-distributed branches that are considerably smaller in diameter than the trunk, with wide-angled branch attachments or branch attachments that are appropriate for the tree form; and

4. A fibrous root system."

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 12.30.040 states "The city may remove or trim a tree or shrub described as a hazard or nuisance in this section, or may require the property owner to remove or trim any such tree on private property, including any tree or shrub that interferes with the proper spread of light along the street from a street light, or interferes with the visibility of any traffic control device or sign. Failure of the property owner to remove or trim the tree within 30 days after receiving written notice from the city is a violation of this chapter, and the city may then remove or trim the tree and assess the costs as a lien against the property as per RCW 35.21.310.

Schedule & Budget

PROPOSED WORK SCHEDULE & BUDGET

Budget Allowance of $5,000/Year – (Based off Reported Yearly Tree Budget)

YEAR 1	Est. Cost
Remove 5 trees recommended for immediate removal	$3,500
Plant 10 trees in open locations	$1,500
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$5,000**

YEAR 2	Est. Cost
Remove 5 trees recommended for immediate removal	$3,500
Plant 6 trees in open locations	$900
Prune 1/3 of city owned trees	$470
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$4,870**

YEAR 3	Est. Cost
Remove 5 trees recommended for immediate removal	$3,500
Plant 10 trees in open locations	$1,500
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$5,000**

YEAR 4	Est. Cost
Remove 5 trees recommended for immediate removal	$3,500
Plant 6 trees in open locations	$900
Prune 1/3 of city owned trees	$470
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$4,870**

YEAR 5	Est. Cost
Remove 3 remaining ash trees	$2,100
Plant 10 trees in open locations	$1,500
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$3,600**

YEAR 6	Est. Cost
Remove 4 trees (if necessary)	$2,800
Plant 10 trees in open locations	$1,500
Prune 1/3 of city owned trees	$470
Visual Survey of EAB Signs/Symptoms	n/a
TOTAL	**$4,770**

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 3 years alone, the budget would need to be $3,500 a year. If the budget were increased to $5,000 a year all ash could be removed in 2 years.*

Proposed Schedule and Budget

EAB could potentially kill all ash trees in Raymond within four years of its arrival. To remove all ash trees within 3 years, the budget would need to be increased to $3,500 a year. If the budget were increased to $5,000 per year all ash could be removed within 2 years. Additionally, we recommend that Raymond 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 Raymond would still need to find $7,700 for removal. Alternatively, if there are 8 treatable trees, it would cost approximately $2,400 a year for treatment and leave $4,900 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 Raymond. We suggest considering an increased budget to plan for this.

WORKS CITED

Census Bureau. 2010. http://censtats.census.gov/data/IA/1601964290.pdf(April, 2013)

USDA Forest Service, et al. 2006. i-Tree Software Suite v1.0 User's Manual. Pp. 27-40.

McPherson EG, Simpson JR, Peper PJ, Gardner SL, Vargas KE, Ho J, Maco S, Xiao Q. 2005b. City of Charleston, South Carolina, municipal forest resource analysis. Internal Tech Rep. Davis, CA: U.S. Department of Agriculture, Center for Urban Forest Research. p. 57

Nowak, DJ and JF Dwyer. 2007. Understanding the benefits and costs of urban forest ecosystems. In: Kuser, J. (ed.) Urban and Community Forestry in the Northeast. New York: Springer. Pp. 25-46.

Peper, Paula J; McPherson, E Gregory; Simpson, James R; Vargas, Kelaine E; Xiao, Qingfu 2009. Lower Midwest community tree guide: benefits, costs, and strategic planting. Gen. Tech. Rep. PSW-GTR-219. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. p.115

Appendices

APPENDIX A: i-TREE DATA

Table 1: Annual Energy Benefits

Raymond

Annual Energy Benefits of Public Trees

2/10/2022

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Norway spruce	1.1	81	154.4	151	233	(N/A)	23.4	9.3	10.57
Green ash	3.9	296	502.0	492	788	(N/A)	14.9	31.5	56.28
Silver maple	1.9	146	255.1	250	396	(N/A)	10.6	15.8	39.60
Blue spruce	0.3	25	45.5	45	69	(N/A)	8.5	2.8	8.67
Scotch pine	1.0	73	128.1	125	198	(N/A)	6.4	7.9	33.04
Eastern white pine	0.4	29	57.1	56	85	(N/A)	5.3	3.4	16.90
Spruce	0.2	13	23.2	23	36	(N/A)	4.3	1.5	9.07
Norway maple	0.6	47	93.2	91	139	(N/A)	3.2	5.5	46.17
Sugar maple	0.2	13	24.0	24	36	(N/A)	3.2	1.5	12.16
Northern white cedar	0.2	13	28.5	28	41	(N/A)	3.2	1.6	13.58
Northern red oak	0.1	6	10.8	11	16	(N/A)	2.1	0.7	8.25
Red maple	0.3	20	30.8	30	50	(N/A)	2.1	2.0	24.99
Littleleaf linden	0.1	8	16.4	16	24	(N/A)	2.1	1.0	12.03
Honeylocust	0.7	51	89.7	88	139	(N/A)	2.1	5.6	69.53
Paper birch	0.1	7	13.7	13	21	(N/A)	1.1	0.8	20.64
Tulip tree	0.0	2	3.7	4	6	(N/A)	1.1	0.2	5.82
Apple	0.2	15	31.6	31	46	(N/A)	1.1	1.8	46.14
Kentucky coffeetree	0.0	0	0.5	0	1	(N/A)	1.1	0.0	0.66
White mulberry	0.2	15	31.6	31	46	(N/A)	1.1	1.8	46.14
Siberian elm	0.4	30	53.2	52	82	(N/A)	1.1	3.3	82.09
Northern hackberry	0.0	0	0.8	1	1	(N/A)	1.1	0.0	1.14
White ash	0.3	20	28.4	28	48	(N/A)	1.1	1.9	48.12
Total	12.0	911	1,622.3	1,590	2,501	(N/A)	100.0	100.0	26.61

Table 2: Annual Stormwater Benefits

Raymond

Annual Stormwater Benefits of Public Trees

2/10/2022

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Norway spruce	11,734	318	(N/A)	23.4	8.2	14.45
Green ash	37,125	1,006	(N/A)	14.9	26.0	71.86
Silver maple	31,184	845	(N/A)	10.6	21.9	84.51
Blue spruce	4,304	117	(N/A)	8.5	3.0	14.58
Scotch pine	21,086	571	(N/A)	6.4	14.8	95.24
Eastern white pine	6,604	179	(N/A)	5.3	4.6	35.79
Spruce	2,013	55	(N/A)	4.3	1.4	13.64
Norway maple	6,406	174	(N/A)	3.2	4.5	57.87
Sugar maple	827	22	(N/A)	3.2	0.6	7.47
Northern white cedar	1,787	48	(N/A)	3.2	1.3	16.14
Northern red oak	335	9	(N/A)	2.1	0.2	4.54
Red maple	1,616	44	(N/A)	2.1	1.1	21.89
Littleleaf linden	554	15	(N/A)	2.1	0.4	7.51
Honeylocust	7,590	206	(N/A)	2.1	5.3	102.84
Paper birch	608	16	(N/A)	1.1	0.4	16.47
Tulip tree	172	5	(N/A)	1.1	0.1	4.65
Apple	1,174	32	(N/A)	1.1	0.8	31.82
Kentucky coffeetree	18	0	(N/A)	1.1	0.0	0.48
White mulberry	1,174	32	(N/A)	1.1	0.8	31.82
Siberian elm	4,567	124	(N/A)	1.1	3.2	123.78
Northern hackberry	18	0	(N/A)	1.1	0.0	0.49
White ash	1,663	45	(N/A)	1.1	1.2	45.05
Citywide total	142,557	3,863	(N/A)	100.0	100.0	41.10

Table 3: Annual Air Quality Benefits

Raymond

Annual Air Quality Benefits of Public Trees

2/10/2022

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								
Norway spruce	1.0	0.2	1.0	0.1	7	5.2	0.7	0.7	4.9	32	-3.7	-14	10.1	25	(N/A)	23.4	1.15
Green ash	4.2	0.7	2.1	0.2	23	18.3	2.7	2.6	17.7	115	0.0	0	48.4	138	(N/A)	14.9	9.83
Silver maple	5.7	1.0	2.8	0.3	31	9.1	1.3	1.3	8.7	57	-3.0	-11	27.0	76	(N/A)	10.6	7.61
Blue spruce	0.6	0.1	0.5	0.1	4	1.6	0.2	0.2	1.5	10	-1.5	-6	3.1	8	(N/A)	8.5	0.95
Scotch pine	2.5	0.5	2.0	0.3	16	4.5	0.7	0.6	4.3	28	-11.2	-42	4.3	3	(N/A)	6.4	0.44
Eastern white pine	0.7	0.1	0.6	0.1	5	1.8	0.3	0.3	1.7	11	-3.4	-13	2.2	3	(N/A)	5.3	0.68
Spruce	0.2	0.0	0.2	0.0	1	0.8	0.1	0.1	0.8	5	-0.7	-3	1.6	4	(N/A)	4.3	1.00
Norway maple	1.4	0.2	0.7	0.1	7	3.0	0.4	0.4	2.8	19	-0.3	-1	8.7	25	(N/A)	3.2	8.32
Sugar maple	0.0	0.0	0.0	0.0	0	0.8	0.1	0.1	0.8	5	0.0	0	1.9	5	(N/A)	3.2	1.72
Northern white cedar	0.2	0.0	0.2	0.0	1	0.9	0.1	0.1	0.8	5	-0.5	-2	1.7	4	(N/A)	3.2	1.48
Northern red oak	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.4	2	0.0	0	0.8	2	(N/A)	2.1	1.15
Red maple	0.3	0.1	0.2	0.0	2	1.2	0.2	0.2	1.2	8	-0.1	0	3.2	9	(N/A)	2.1	4.44
Littleleaf linden	0.0	0.0	0.0	0.0	0	0.5	0.1	0.1	0.5	3	0.0	0	1.2	3	(N/A)	2.1	1.67
Honeylocust	1.5	0.2	0.7	0.1	8	3.2	0.5	0.4	3.0	20	-1.1	-4	8.5	23	(N/A)	2.1	11.74
Paper birch	0.0	0.0	0.0	0.0	0	0.5	0.1	0.1	0.4	3	0.0	0	1.1	3	(N/A)	1.1	2.99
Tulip tree	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)	1.1	0.87
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)	1.1	8.35
Kentucky coffeetree	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)	1.1	0.08
White 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)	1.1	8.35
Siberian elm	0.8	0.1	0.4	0.0	4	1.9	0.3	0.3	1.8	12	0.0	0	5.6	16	(N/A)	1.1	16.11
Northern hackberry	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)	1.1	0.14
White ash	0.1	0.0	0.1	0.0	1	1.2	0.2	0.2	1.2	8	0.0	0	3.0	8	(N/A)	1.1	8.32
Citywide total	20.2	3.5	11.8	1.3	115	57.0	8.3	7.9	54.4	356	-25.8	-97	138.7	374	(N/A)	100.0	3.98

Table 4: Annual Carbon Stored

Raymond

Stored CO2 Benefits of Public Trees

2/10/2022

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Norway spruce	6,425	48	(N/A)	23.4	1.6	2.19
Green ash	137,037	1,028	(N/A)	14.9	33.3	73.41
Silver maple	139,368	1,045	(N/A)	10.6	33.9	104.53
Blue spruce	3,834	29	(N/A)	8.5	0.9	3.59
Scotch pine	28,352	213	(N/A)	6.4	6.9	35.44
Eastern white pine	8,299	62	(N/A)	5.3	2.0	12.45
Spruce	1,249	9	(N/A)	4.3	0.3	2.34
Norway maple	22,444	168	(N/A)	3.2	5.5	56.11
Sugar maple	1,538	12	(N/A)	3.2	0.4	3.84
Northern white cedar	770	6	(N/A)	3.2	0.2	1.93
Northern red oak	373	3	(N/A)	2.1	0.1	1.40
Red maple	3,641	27	(N/A)	2.1	0.9	13.65
Littleleaf linden	1,211	9	(N/A)	2.1	0.3	4.54
Honeylocust	18,988	142	(N/A)	2.1	4.6	71.20
Paper birch	1,035	8	(N/A)	1.1	0.3	7.76
Tulip tree	185	1	(N/A)	1.1	0.0	1.39
Apple	6,743	51	(N/A)	1.1	1.6	50.57
Kentucky coffeetree	12	0	(N/A)	1.1	0.0	0.09
White mulberry	6,743	51	(N/A)	1.1	1.6	50.57
Siberian elm	19,728	148	(N/A)	1.1	4.8	147.96
Northern hackberry	5	0	(N/A)	1.1	0.0	0.04
White ash	3,672	28	(N/A)	1.1	0.9	27.54
Citywide total	411,649	3,087	(N/A)	100.0	100.0	32.84

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

Raymond

Annual CO $_2$ Benefits of Public Trees

2/10/2022

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
Norway spruce	945	7	-31	-21	0	1,798	13	2,691	20 (N/A)	23.4	6.1	0.92
Green ash	8,712	65	-658	-37	-5	6,541	49	14,558	109 (N/A)	14.9	32.9	7.80
Silver maple	9,255	69	-672	-24	-5	3,226	24	11,783	88 (N/A)	10.6	26.6	8.84
Blue spruce	258	2	-18	-6	0	546	4	780	6 (N/A)	8.5	1.8	0.73
Scotch pine	1,262	9	-136	-18	-1	1,607	12	2,715	20 (N/A)	6.4	6.1	3.39
Eastern white pine	432	3	-40	-8	0	632	5	1,016	8 (N/A)	5.3	2.3	1.52
Spruce	155	1	-6	-3	0	298	2	444	3 (N/A)	4.3	1.0	0.83
Norway maple	936	7	-108	-7	-1	1,043	8	1,863	14 (N/A)	3.2	4.2	4.66
Sugar maple	263	2	-9	-2	0	286	2	537	4 (N/A)	3.2	1.2	1.34
Northern white cedar	158	1	-4	-4	0	283	2	434	3 (N/A)	3.2	1.0	1.08
Northern red oak	110	1	-2	-1	0	130	1	237	2 (N/A)	2.1	0.5	0.89
Red maple	486	4	-18	-2	0	438	3	904	7 (N/A)	2.1	2.0	3.39
Littleleaf linden	283	2	-6	-2	0	177	1	452	3 (N/A)	2.1	1.0	1.69
Honeylocust	936	7	-91	-5	-1	1,130	8	1,970	15 (N/A)	2.1	4.5	7.39
Paper birch	209	2	-5	-1	0	159	1	361	3 (N/A)	1.1	0.8	2.71
Tulip tree	74	1	-1	-1	0	49	0	121	1 (N/A)	1.1	0.3	0.91
Apple	478	4	-32	-3	0	335	3	778	6 (N/A)	1.1	1.8	5.84
Kentucky coffeetree	3	0	0	0	0	4	0	7	0 (N/A)	1.1	0.0	0.05
White mulberry	0	0	-32	-4	0	335	3	299	2 (N/A)	1.1	0.7	2.24
Siberian elm	797	6	-95	-4	-1	662	5	1,359	10 (N/A)	1.1	3.1	10.20
Northern hackberry	3	0	0	0	0	8	0	11	0 (N/A)	1.1	0.0	0.08
White ash	494	4	-18	-2	0	449	3	923	7 (N/A)	1.1	2.1	6.92
Citywide total	26,248	197	-1,982	-156	-16	20,134	151	44,244	332 (N/A)	100.0	100.0	3.53

Table 6: Annual Social and Aesthetic Benefits

Raymond

Annual Aesthetic/Other Benefits of Public Trees

2/10/2022

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Norway spruce	294	(N/A)	23.4	10.0	13.37
Green ash	755	(N/A)	14.9	25.7	53.89
Silver maple	749	(N/A)	10.6	25.5	74.93
Blue spruce	83	(N/A)	8.5	2.8	10.33
Scotch pine	241	(N/A)	6.4	8.2	40.14
Eastern white pine	79	(N/A)	5.3	2.7	15.87
Spruce	52	(N/A)	4.3	1.8	12.94
Norway maple	87	(N/A)	3.2	3.0	29.13
Sugar maple	36	(N/A)	3.2	1.2	11.97
Northern white cedar	46	(N/A)	3.2	1.6	15.42
Northern red oak	14	(N/A)	2.1	0.5	7.21
Red maple	66	(N/A)	2.1	2.2	32.96
Littleleaf linden	42	(N/A)	2.1	1.4	20.86
Honeylocust	195	(N/A)	2.1	6.6	97.30
Paper birch	29	(N/A)	1.1	1.0	28.56
Tulip tree	15	(N/A)	1.1	0.5	14.73
Apple	29	(N/A)	1.1	1.0	28.80
Kentucky coffeetree	5	(N/A)	1.1	0.2	5.26
White mulberry	0	(N/A)	1.1	0.0	0.00
Siberian elm	51	(N/A)	1.1	1.7	50.67
Northern hackberry	4	(N/A)	1.1	0.1	3.69
White ash	64	(N/A)	1.1	2.2	63.74
Citywide total	2,934	(N/A)	100.0	100.0	31.22

Table 7: Summary of Benefits in Dollars

Raymond

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

2/14/2022

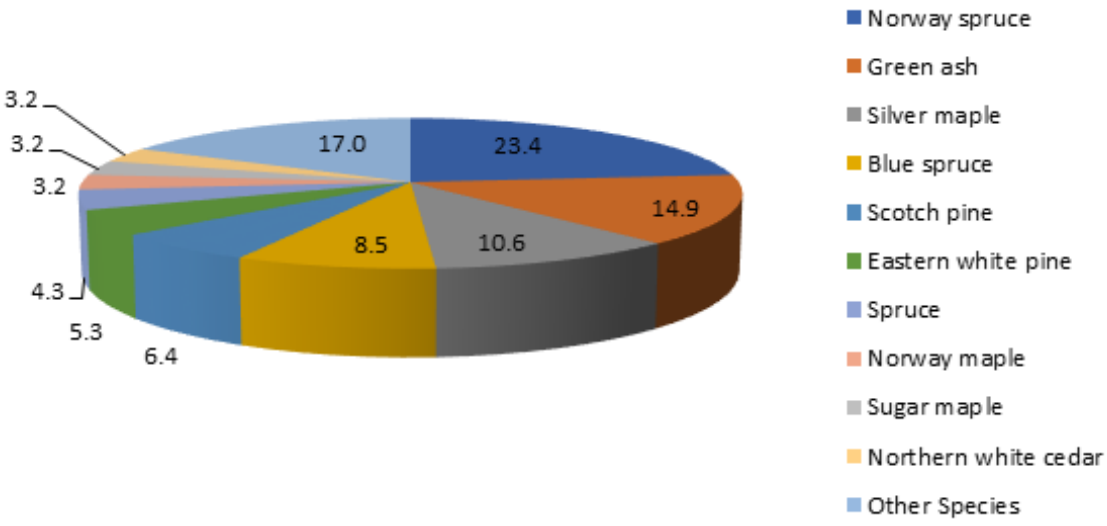
Benefits	Total ($)	Standard Error	$/tree	Standard Error	$/capita	Standard Error
Energy	2,501	(N/A)	26.61	(N/A)	0.00	(N/A)
CO2	332	(N/A)	3.53	(N/A)	0.00	(N/A)
Air Quality	374	(N/A)	3.98	(N/A)	0.00	(N/A)
Stormwater	3,863	(N/A)	41.10	(N/A)	0.00	(N/A)
Aesthetic/Other	2,934	(N/A)	31.22	(N/A)	0.00	(N/A)
Total Benefits	10,005	(N/A)	106.43	(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	10,005	(N/A)	106.43	(N/A)	0.00	(N/A)
Benefit-cost ratio	0.00	(N/A)				

Figure 1: Species Distribution

Raymond

Species Distribution of Public Trees

2/10/2022



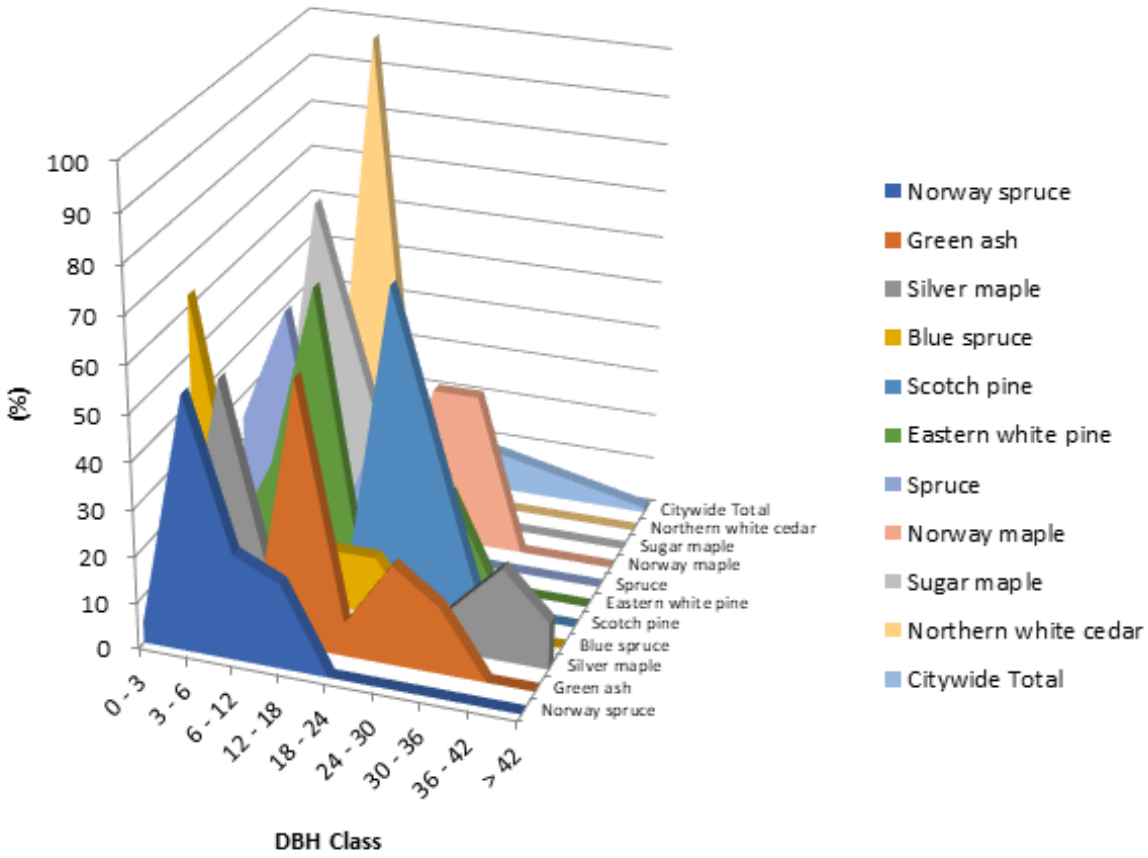
Species	Percent
Norway spruce	23.4
Green ash	14.9
Silver maple	10.6
Blue spruce	8.5
Scotch pine	6.4
Eastern white pine	5.3
Spruce	4.3
Norway maple	3.2
Sugar maple	3.2
Northern white cedar	3.2
Other Species	17.0
Total	100.0

Figure 2: Relative Age Class

Raymond

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

2/10/2022



	DBH class (in)								
Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	> 42
Norway spruce	4.55	54.55	22.73	18.18	0.00	0.00	0.00	0.00	0.00
Green ash	0.00	0.00	0.00	57.14	7.14	21.43	14.29	0.00	0.00
Silver maple	0.00	50.00	10.00	0.00	0.00	0.00	10.00	20.00	10.00
Blue spruce	62.50	12.50	0.00	12.50	12.50	0.00	0.00	0.00	0.00
Scotch pine	0.00	0.00	0.00	0.00	66.67	33.33	0.00	0.00	0.00
Eastern white pine	0.00	20.00	60.00	0.00	0.00	20.00	0.00	0.00	0.00
Spruce	25.00	50.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00
Norway maple	0.00	33.33	0.00	0.00	33.33	33.33	0.00	0.00	0.00
Sugar maple	0.00	66.67	33.33	0.00	0.00	0.00	0.00	0.00	0.00
Northern white cedar	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Citywide Total	10.64	29.79	15.96	17.02	9.57	7.45	5.32	3.19	1.06

Figure 3: Foliage Condition

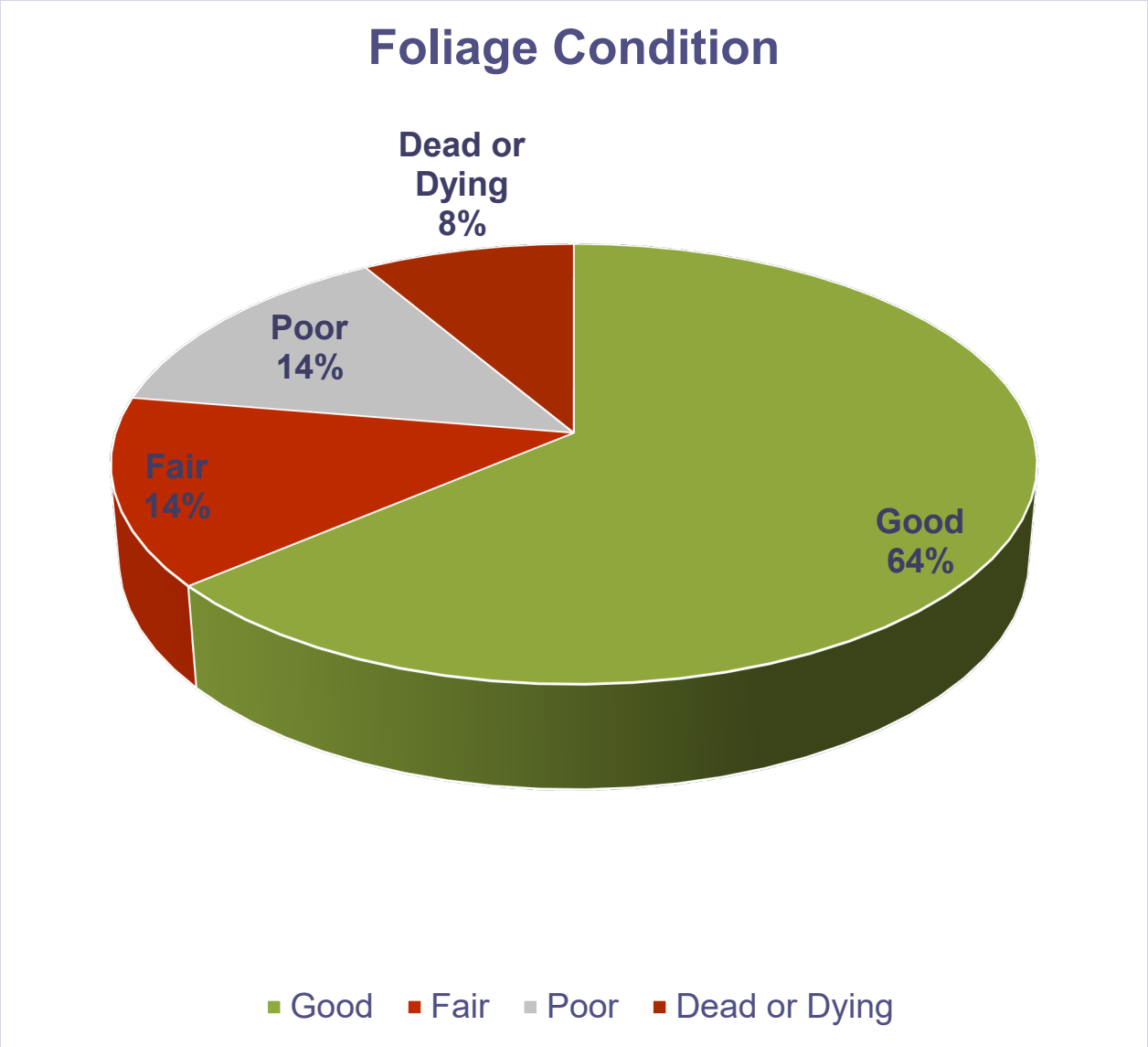


Figure 4: Wood Condition

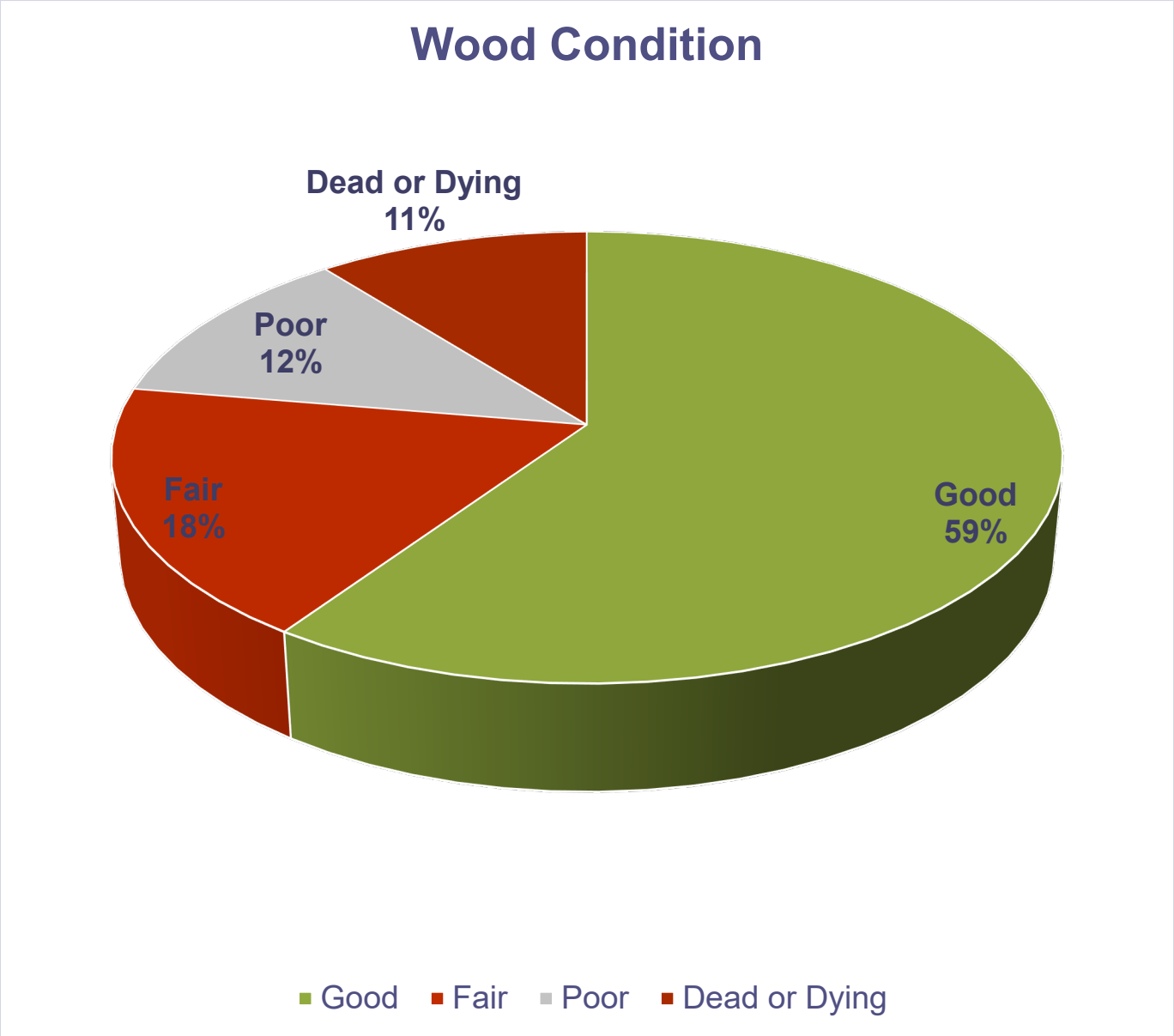
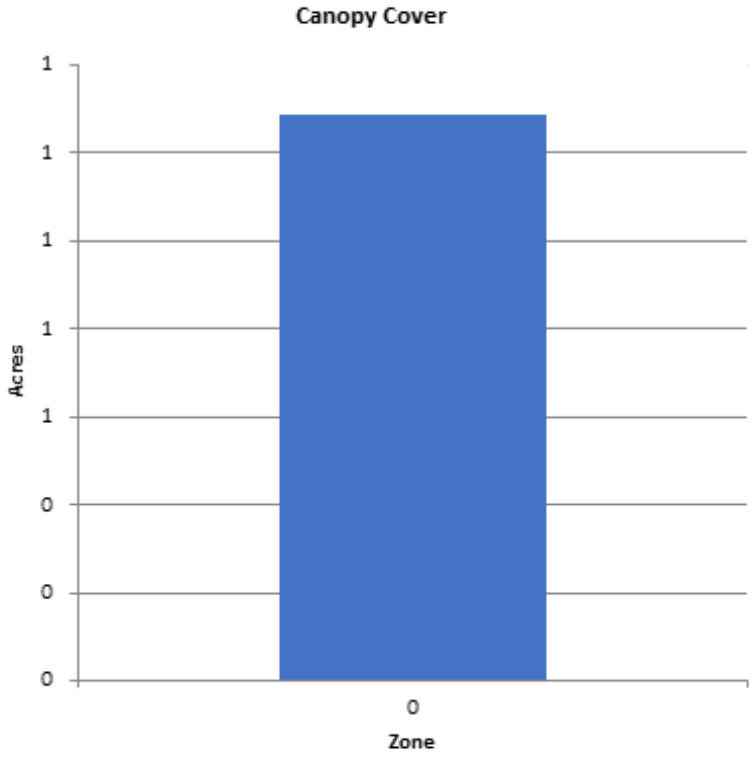


Figure 5: Canopy Cover in Acres

Raymond

Canopy Cover of Public Trees (Acres)

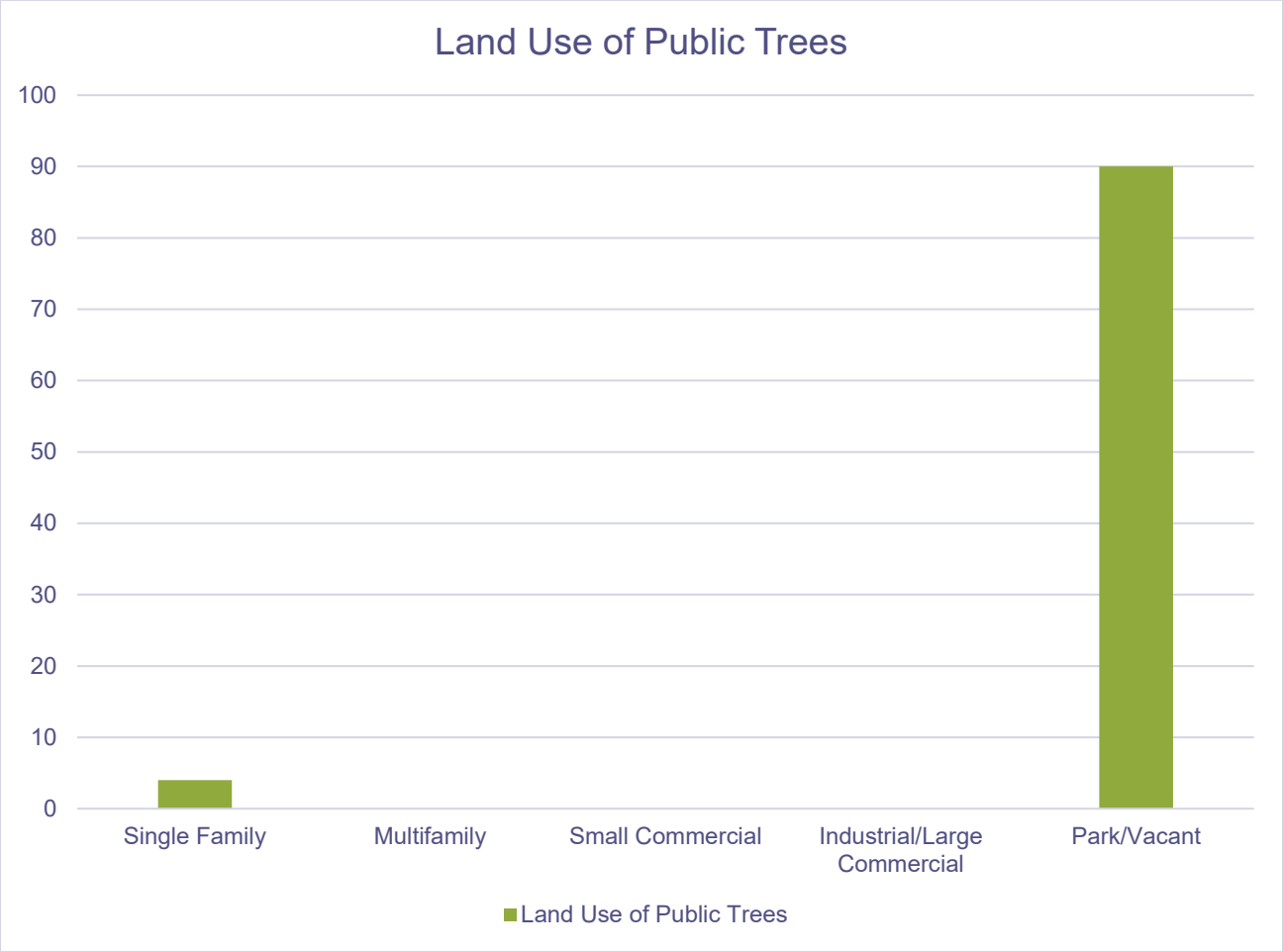
2/10/2022



Zone	Acres	% of Total Canopy Cover
0	1	100.0
Citywide total	1	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	1	0.00	0.00

Figure 6: Land Use of City/Park Trees



APPENDIX B: ArcGIS MAPPING

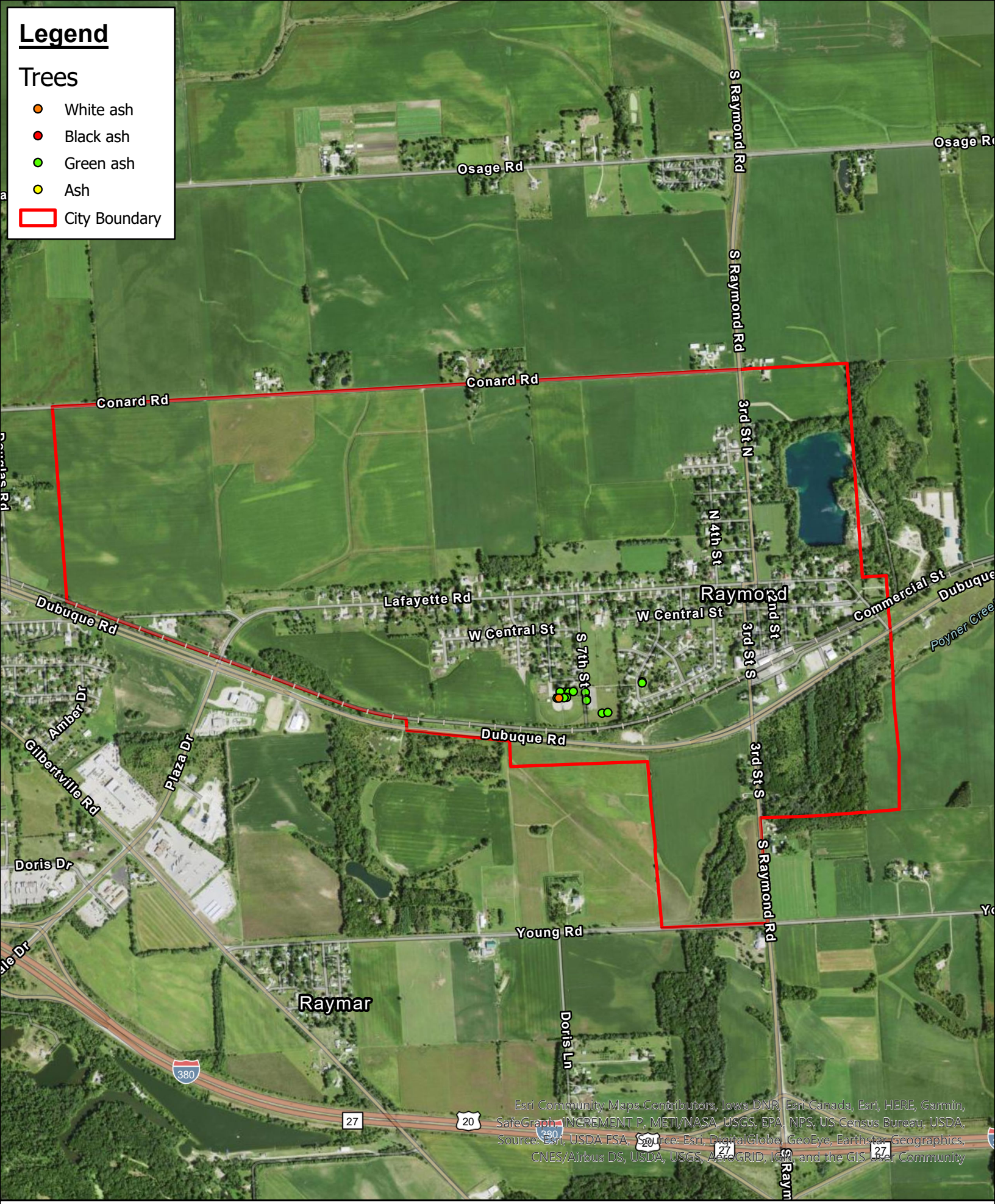
Figure 1: Location of Ash Trees

Figure 2: Location of EAB Symptoms

Figure 3: Location of Poor Condition Trees

Figure 4: Location of Trees with Recommended Maintenance

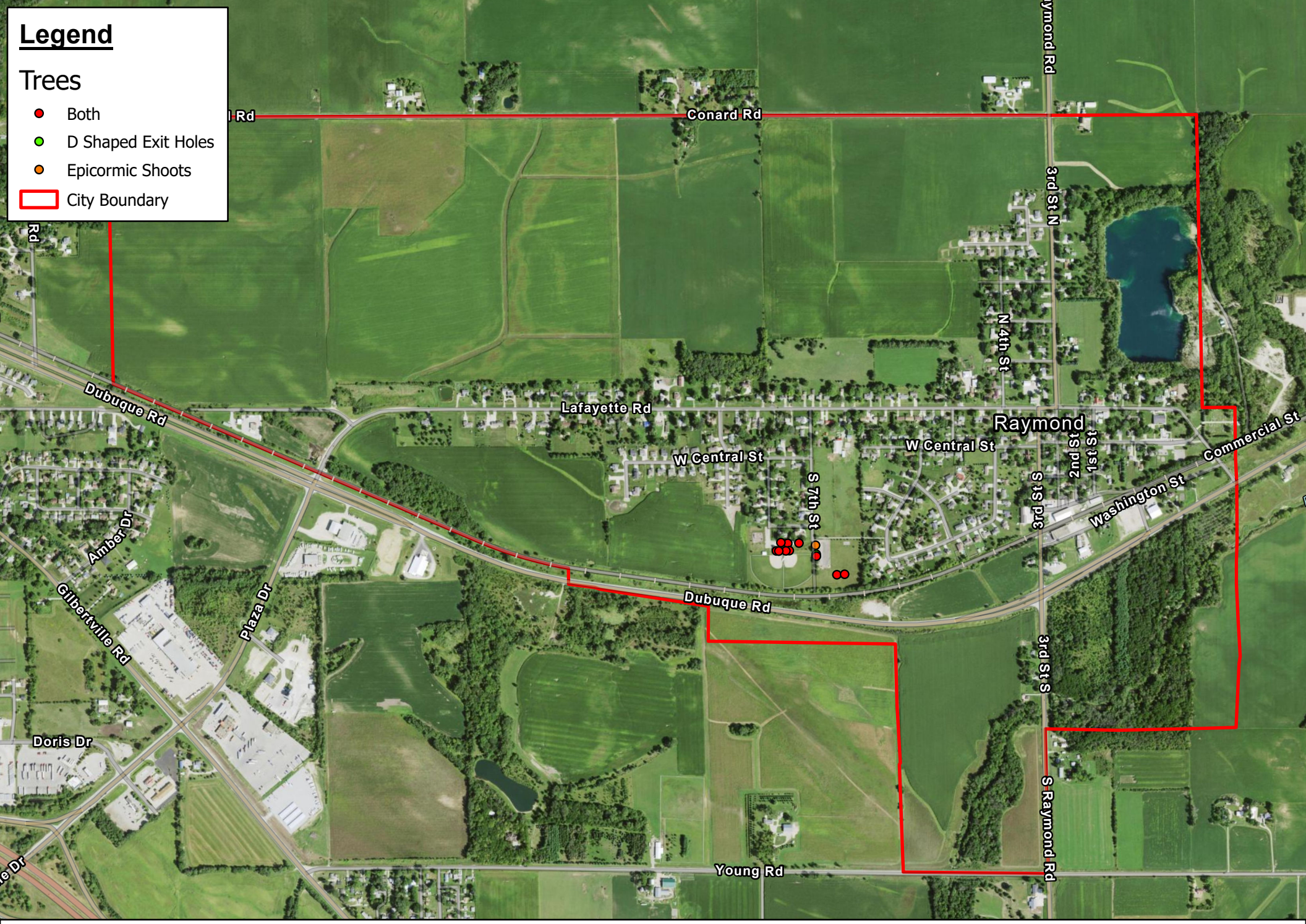
City ownership of the trees recommended for removal should be verified prior to any removal



Ash Tree Location

0 5001,000 2,000 Feet

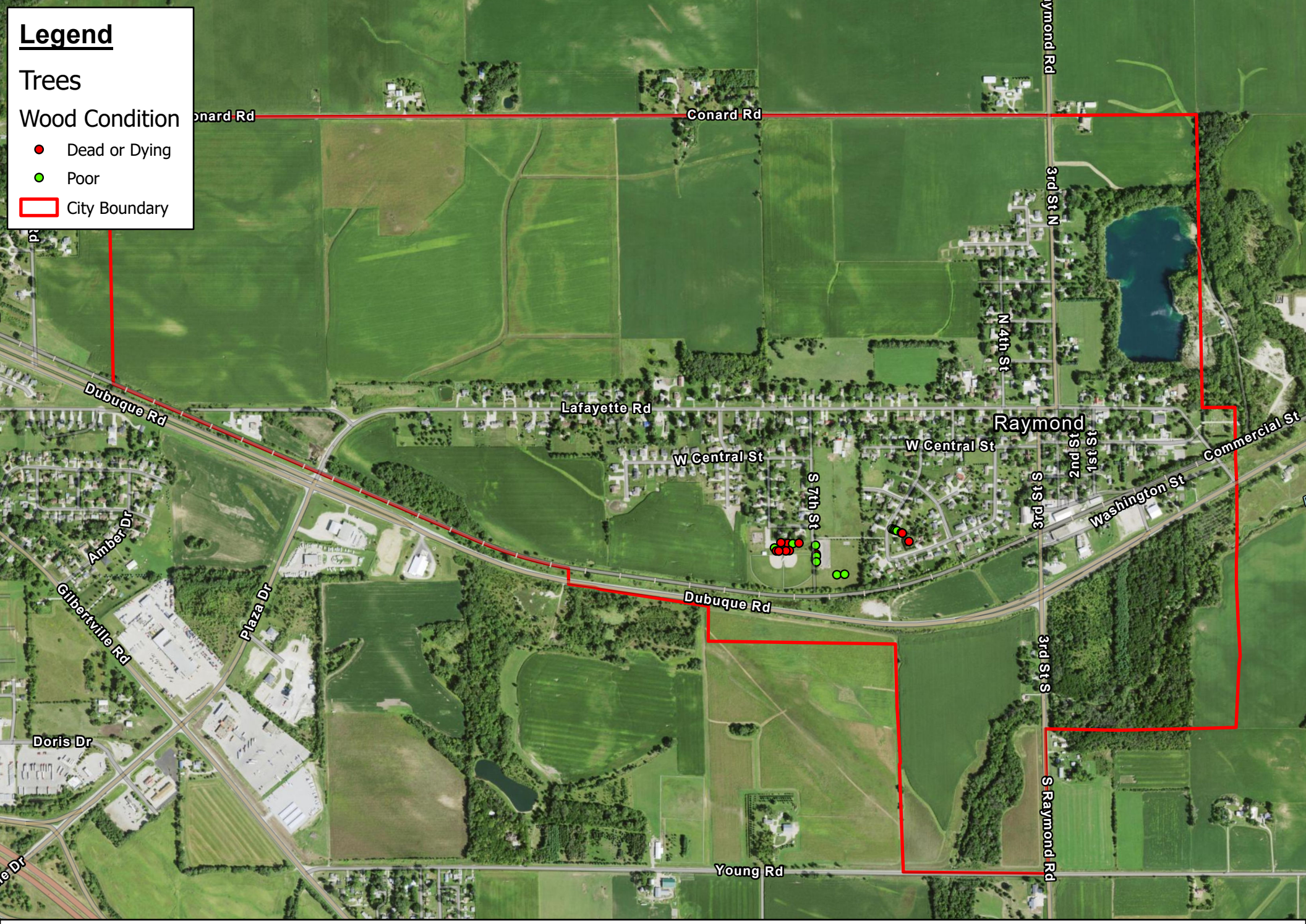
N



EAB Signs/Symptoms

0 500 1,000 2,000 Feet

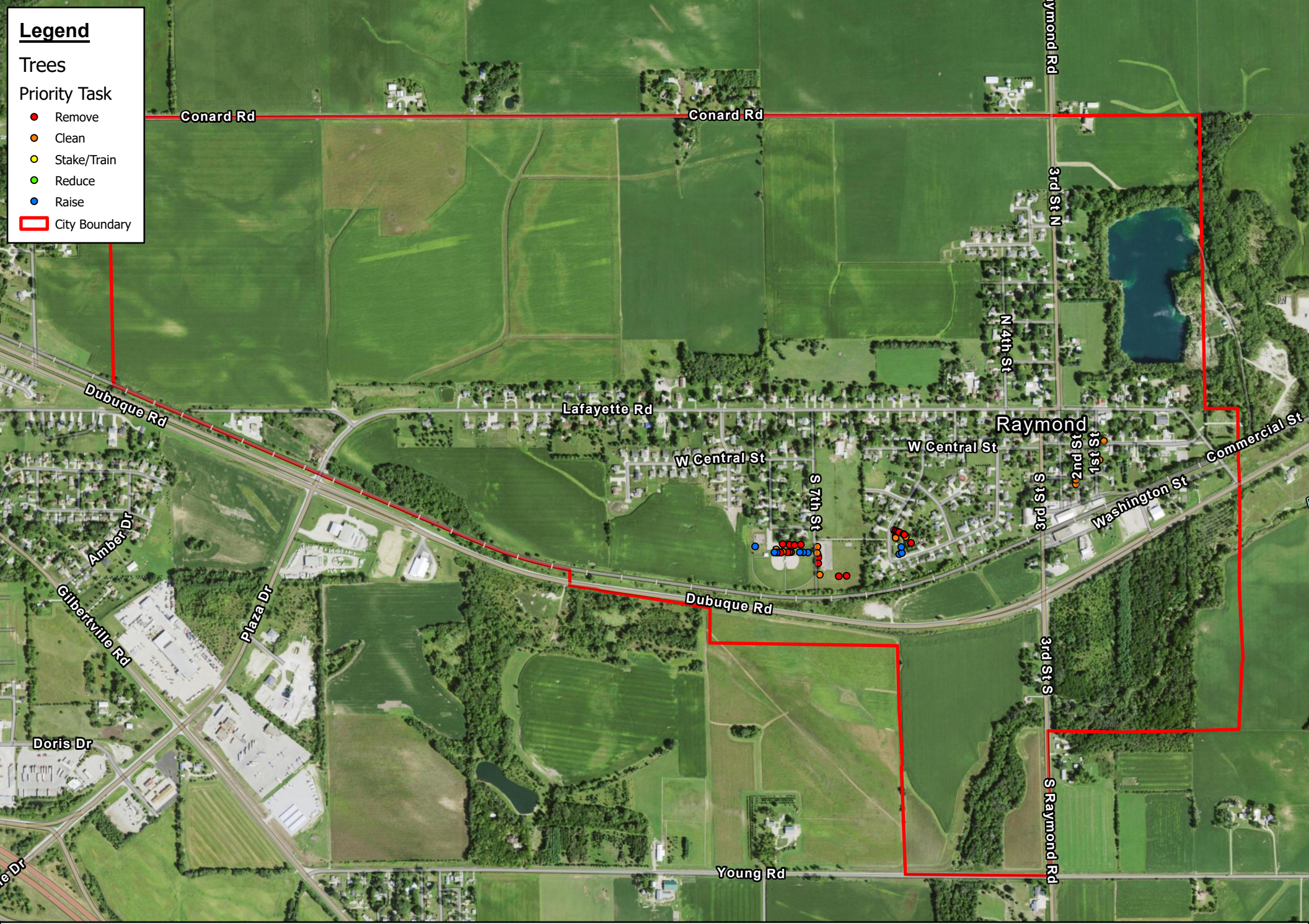
N



Poor Condition Trees

0 500 1,000 2,000 Feet

N



Priority Task

0 500 1,000 2,000 Feet

N

APPENDIX C: RAYMOND TREE ORDINANCES

12.30.020 DEFINITIONS.
For the purpose of this chapter, the following terms, phrases, words, and their derivations shall have the meanings given herein:

A. “Abutting property” means real property having lines in common with adjacent property or separated only by a public right-of-way.

B. “Administrator” means the director of public works or authorized representative.

C. “Caliper” means the diameter of a tree as measured six inches above ground level.

D. “City” means the city of Raymond, Washington.

E. “City council” means the city council of the city of Raymond, Washington.

F. “Emergency” means damage to utility lines, or to public or private property, due to storm or other acts of God or other accidents which require immediate attention to alleviate the condition or commence and complete repairs.

G. “Hazard” means the effect of unpredictable and unanalyzable forces in determining an event, or the degree of danger or risk.

H. “Nuisance” means a person, thing, or circumstance causing inconvenience or annoyance.

I. “Owner” means any person, firm, association, syndicate, co-partnership, or corporation having proprietary interest, dominion, or title to the real property.

J. “Person” means any individual, partnership, joint venture, society, association, club, trustee, company, firm or corporation; or any officers, agents, employees, or any personal representatives of any thereof, in any capacity, acting either for himself, or any other person, under either personal appointment or pursuant to law.

K. “Public right-of-way” means property owned or controlled through dedication, easement, or other legal instrument that is available to the public for ingress and egress, and commonly used for the placement of utilities.

L. “Removal” means the act of cutting down or removing any tree or shrub from the public right-of-way.

M. “Street tree” means any tree planted or growing within a public sidewalk.

N. “Topping” means the severe cutting back of limbs leaving stubs beyond the branch collar within the tree’s crown or to such a degree as to remove a substantial portion of the normal canopy and disfigure the tree. (Ord. 1871 § 1, 2018)

12.30.030 Street Trees are Public Property - Maintenance

A. All ornamental, shade, or other trees and shrubs which have been planted and are now situated in the sidewalks within the general commercial (GC) and retail core (RC) zoning districts are declared to be public property and subject to the control of the city.

B. No person shall plant, remove, or otherwise disturb any tree or shrub located within the sidewalk of any public right-of-way within the GC or RC zoning districts without prior approval from the city.

C. The city shall authorize or perform the removal and replanting of trees or shrubs deemed to be dead, diseased, or hazardous; or missing due to any other circumstance.

D. No street trees located within the sidewalk of any public right-of-way within the GC or RC zoning districts shall be trimmed or pruned except in a symmetrical and even manner according to the accepted forms of practice for the trimming and pruning of such trees. Such trimming and pruning or cutting thereof shall only be done under permission of the city.

E. It is unlawful for any person or city department to top any street tree, park tree, or other tree on public property. Trees severely damaged by storms or other causes, or certain trees under utility wires or other obstructions where other pruning practices are impractical, may be exempted from this chapter at the determination of the city. Tree topping is not a preferable means of maintenance.

F. When any tree or shrub is removed from the public right-of-way the stump shall be completely removed. The administrator may authorize the grinding of the stump to a depth of one foot below the surrounding average finished grade. When the city decrees that a tree or shrub is not required to be replaced the sidewalk cutout will be filled with a thin layer of asphalt, concrete, bricks, or other material approved by the administrator.

G. If a sidewalk sustains damage as a result of a street tree the city will be responsible for repair costs. (Ord. 1871 § 1, 2018)

12.30.040 City Powers – Removal of Nuisance Trees

A. The city may remove or trim a tree or shrub described as a hazard or nuisance in this section, or may require the property owner to remove or trim any such tree on private property, including any tree or shrub that interferes with the proper spread of light along the street from a street light, or interferes with the visibility of any traffic control device or sign. Failure of the property owner to remove or trim the tree within 30 days after receiving written notice from the city is a violation of this chapter, and the city may then remove or trim the tree and assess the costs as a lien against the property as per RCW 35.21.310.

B. The city may cause the removal of all or part of any dead, dangerous, or diseased tree when the tree constitutes a hazard to life, property, or harbors insects or disease which constitutes a potential threat to other trees.

C. The city may approve the removal of trees on public rights-of-way for work conducted by or on behalf of a federal, state, county, municipal, or other governmental agency in pursuance of its lawful activities or functions in the construction, improvement, or maintenance of public rights-of-way. (Ord. 1871 § 1, 2018)

12.30.050 Enforcing Authority

The administrator shall be charged with the enforcement of this chapter. (Ord. 1871 § 1, 2018)

12.30.060 Planting Standards

A. General Provisions. The selection of street trees will be in accordance with the "City of Raymond Street Tree Plan," attached to the ordinance codified in this chapter as Exhibit A. Street tree plantings shall consider the location of existing utilities, lighting, driveways, business entrances, and signs.

B. Planting Season. The time of year a tree is planted can greatly affect the tree's establishment because newly planted trees require water to survive and grow. Planting during the wet, cool months will help ensure tree establishment and survival. Therefore, the planting season in the city is designated as October 1st through April 30th.

C. Tree Spacing. Trees should be planted a minimum distance of 25 feet apart, except in special plantings approved by the city.

D. Tree Vaults. Tree vault sizes shall be a minimum of four feet wide by four feet long.

E. Distance from Curb and Sidewalk. The distance trees may be planted from curbs or curb lines and sidewalks will be determined by the city on a street-by-street basis; every effort will be made to promote continuity and uniformity per each street but not necessarily city wide. On streets that do not have curbs and/or sidewalks, or planters designed for public tree placement, the city shall approve the location of new trees consistent with street and sidewalk construction standards.

F. Distance from Street Corners, Business Entrances, Traffic Signs, and Fire Hydrants. No street tree shall be planted closer than 20 feet from any street corner, measured from the nearest intersection curb or curb line point. Trees should not be planted in building entrances, within 20 feet from the front of stop signs or other directional and safety signs such as yield, pedestrian crossing, school, speed limit, etc., or within 10 feet from a fire hydrant.

G. Utilities. No street tree, other than small trees, may be planted under or within 10 lateral feet of any overhead utility wire, or over or within five lateral feet of any underground water line, transmission line, or other utility.

H. Requirements for New Street Trees. Trees shall be grown and harvested in accordance with the standards in the American Standard for Nursery Stock (ANSI Z60.1-2014 or most current edition). Trees acquired for planting in the city right-of-way shall be nursery-grown in a USDA hardiness zone suitable for the region and shall exhibit the following characteristics:

    a. Healthy and vigorous, with trunk and limbs free from insects, disease, defects, injuries, and decay;

    b. Single trunk that is straight, with a well-developed leader and good trunk taper (one-and-one-half-inch to two-inch caliper);

c. Well-distributed branches that are considerably smaller in diameter than the trunk, with wide-angled branch attachments or branch attachments that are appropriate for the tree form; and

d. A fibrous root system.

I. Root Barriers. It is ideal to plant the right tree in the right place to reduce tree conflicts, but the right-of-way is not often an ideal place for a tree to grow due to narrow space, compacted soil, and hard surfaces such as sidewalks. Tree roots can grow underneath sidewalks and lift or crack the sidewalk. Damaged sidewalks create safety concerns and are expensive to replace, and trees that cause infrastructure damage can become less desirable to retain through the end of their natural lifespan. This means planting small trees in small spaces and big trees in big spaces. However, extra protection can be taken by installing root barriers at the time of planting. A root barrier is a device installed in the ground, between a tree and the sidewalk, intended to guide roots down and away from the sidewalk to prevent sidewalk lifting from tree roots. Root barriers are required to be installed in conjunction with street tree plantings, unless specifically exempted by the city.

a. Root barriers shall be commercially produced for deflecting tree roots downward. Root barriers shall be installed as per the manufacturer's instructions. Root guide ridges shall face towards the tree, with the back flush against the sidewalk. The top of the root barrier shall be one-half to one inch above the finished soil grade or level with the sidewalk, whichever is lower, when installation is complete;

b. Root barriers should generally be made of polypropylene, polyethylene, or polystyrene, at least 12 inches deep, with vertical root guides every six inches. Root barrier products should specify use as a tree root barrier; and

c. Alternative root barrier materials may be used when approved by the city.

J. Tree Grates. Tree grates shall be used to reduce trip hazards and assist in keeping sidewalks neat and clean. Grates will be placed so they are even with the walking surface of the sidewalk. When an individual planting area is not symmetrical, the longer dimension shall run along the curb. When there is on-street parking, a tree grate or a paved walk 18 inches wide behind the curb are encouraged to help avoid conflicts with car doors and foot traffic. A minimum clear pedestrian walking path of four feet, as required by the RMC, shall be maintained. Where tree grates are used, they shall be ADA accessible and have a similar size and material as tree grates found in adjacent streets. Grates can be:

a. Poured and framed during sidewalk construction for insertion of a metal grate;

b. Hand placed pavers or similar material; or

c. Of other similar material as approved by the city. (Ord. 1871 § 1, 2018)

12.30.070 Abuse of Trees Prohibited

No person shall abuse, destroy, or mutilate any street tree, or attach or place any rope or wire (other than one used to support the tree itself), sign, poster, handbill, or other thing to, or on any tree growing in a public place, or cause or permit any wire charged with electricity with the exception of decorative lights for a period not exceeding 45 days per year, to come into contact

with any such tree, or to allow any gaseous, liquid, or solid substance which is harmful to such trees, to come into contact with their roots or leaves. (Ord. 1871 § 1, 2018)

12.30.080 Interference with City
No person shall prevent, delay, or interfere with the city or any of its agents, while engaging in the planting, cultivating, mulching, pruning, spraying, or removal of any street trees. (Ord. 1871 § 1, 2018)

12.30.090 Emergency Tree Maintenance

Emergency tree maintenance procedures are authorized to be performed by utility companies, contractors, abutting property owners, and the city, when necessary, due to unforeseen circumstances or conditions that impose an immediate threat to utility systems, public or private property, or the welfare of persons residing or traveling near the tree in question. Only the work required to remove the immediate threat shall be performed. (Ord. 1871 § 1, 2018)

12.30.100 Exceptions
Anyone with an ownership interest in land may request an exception from the provisions of this chapter based on special circumstances pertaining to that land or the trees on it. Such requests shall be addressed in writing or in person, with full documentation and justification, to the city council. (Ord. 1871 § 1, 2018)

12.30.110 Appeals
Appeals, to a decision of the administrator made under this chapter, will be filed within 15 days of the final decision, to the city council. (Ord. 1871 § 1, 2018)

12.30.120 Violation - Penalties
Any person, firm, or corporation responsible for removing a street tree or park tree without the approval of the city, or under an exemption hereunder, shall pay the full value times two, as determined by the city, of the tree that was removed, to the city to be dedicated to the maintenance and replacement of street trees. Any person, firm, or corporation violating any provisions of this chapter shall, upon conviction or a plea of guilty, be subject to a fine of not more than $500.00. All fines collected shall be set aside for the planting, maintenance, and enhancement of street and park trees. The foregoing penalty provisions hereof shall be in addition to any remedies provided by laws of the state. (Ord. 1871 § 1, 2018)

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.