

2016 COMMUNITY TREE MANAGEMENT PLAN

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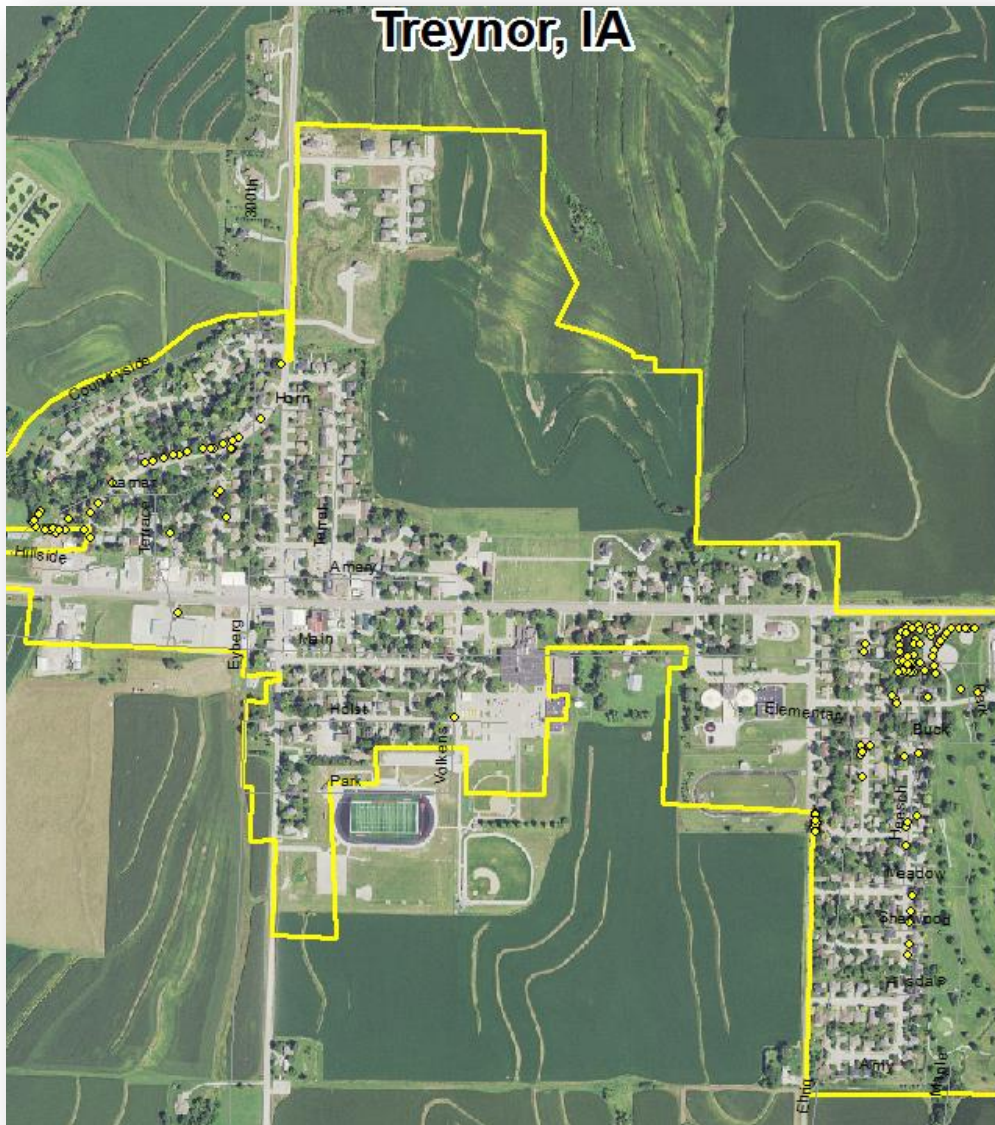


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Executive Summary

Overview

This plan was developed to assist the City of Treynor with managing its urban forest, including budgeting and future planning. Trees can provide a multitude of benefits to the community, and sound management allows communities to best take advantage of these benefits. Management is especially important considering the serious threats posed by forest pests such as the emerald ash borer (EAB). EAB is an invasive insect imported from Eastern Asia on wood shipping crates that kills all species of ash trees (this does not include mountain ash). There is a possibility that 11.7% of your municipally managed trees will die once EAB becomes established in the community. 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 2016, a tree inventory was conducted using Global Positioning System (GPS) data collectors. The inventory was a complete inventory of street right of way and park trees. Below are some key findings of the 128 trees inventoried.

- Each of Treynor's municipal trees provides \$135 worth of benefits to the community each year
- There are over 34 species of trees
- The top three genus are: Maple – 21.1%, Apple – 14.1%, Elm – 11.7%
- 5% of trees are in need of some type of management
- 6 trees are recommended for removal

Recommendations

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

- Of the 6 trees needing removal, 5 trees should be addressed as soon as possible in 2017, and the remaining young tree should be removed in the next 2-3 years. Of the 6 trees recommended for removal, 1 tree is over 18" in diameter. [*City ownership of the trees recommended for removal should be verified prior to any removal*](#)
- 2 of the 15 ash trees are in need of follow up because they are displaying signs and symptoms associated with EAB.
- All trees should be pruned on a routine schedule- one third of the city every two years.
- The costs of removing and replacing all 15 city managed street and park ash trees is estimated to be \$10,300 using contracted labor. Community tree grants can help offset the estimated \$2,700 in replacement tree costs. Budgeting approximately \$1,400-\$2,000 per year for contracted work or in-kind municipal time for the next 10 years should allow you to adequately prepare your community's budget for the repercussions of a potential EAB outbreak (for city maintained trees only). This suggested yearly budget also includes the removal and replacement of the 6 trees recommended for removal.

Introduction

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

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

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

Inventory

In 2016, a tree inventory was conducted that included 100% of the city owned street right of way and park trees. The tree data was collected using a handheld Global Positioning System (GPS) receiver. The data collector gives Geographic Information Systems (GIS) coordinates with an accuracy of 3 meters, which can be used in Arc GIS as an active GIS data layer. Because the inventory is a digital document the data can be updated with new information and become a working document. Your community tree information is available for your use on a web-based GIS program. This GIS website, in addition to the fact sheet on how to operate the website, can be found at: <http://www.iowadnr.gov/Conservation/Forestry/Urban-Forestry/Community-Tree-Inventories>.

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

To quantify the urban forest structure and benefits, specific data is collected for each tree. This data includes: location, land use, species, diameter at 4.5 ft, recommended maintenance, priority of that maintenance, leaf health, and wood condition. Additionally, signs and

symptoms of EAB were noted for all ash trees. The signs and symptoms noted were canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage.

Inventory Results

The data collected for the 128 city trees was entered into the USDA Forest service program Street Tree Resource Analysis Tool for Urban forestry Management (STREETs), part of the i-Tree suite. The following are results from the i-Tree STREETs analysis.

Annual Benefits

Annual Energy Benefits

Trees conserve energy by shading buildings and blocking winds. Treynor's trees reduce energy related costs by approximately \$4,934 annually (Appendix A, Table 1). These savings are both in Electricity (23.4 MWh) and in Natural Gas (3,239.2 Therms).

Annual Stormwater Benefits

Treynor's trees intercept about 224,993 gallons of rainfall or snow melt each year (Appendix A, Table 2). This interception provides \$6,097 of benefits to the city.

Annual Air Quality Benefits

Air quality is a persistent public health issue in Iowa. The urban forest improves air quality by removing pollutants, lowering air temperature, and reducing energy consumption, which in turn reduces emissions from power plants, and emitting volatile organic matter (ozone). In Treynor, it is estimated that trees remove 292.9lbs 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 \$822 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere. In Treynor, trees sequester about 87,216 lbs of carbon a year with an associated value of \$654 (Appendix A, Table 5). In addition, the trees store 788,537 lbs of carbon, with a yearly benefit of \$5,914 (Appendix A, Table 4).

Annual Aesthetics Benefits

Social benefits of trees are hard to capture. The analysis does have a calculation for this area that includes: aesthetic value, property values, lowered rates of mental illness and crime, city livability and much more. Treynor receives \$4,775 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, Treynor's trees provide \$17,302 of benefits annually. Benefits of individual trees vary based on size, species, health and

location, but on average each of the 128 trees in Treynor provide approximately \$135.17 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Treynor has over 34 different tree species along city streets and parks (Appendix A, Figure 1). The distribution of trees by genus is as follows:

Treynor Trees by % Genus		
Genus	Number	Percentage
Maple	27	21.1%
Apple	18	14.1%
Elm	15	11.7%
Ash	15	11.7%
Spruce	6	4.7%
Oak	5	3.9%
Sycamore	5	3.9%
Pine	5	3.9%
Hackberry	5	3.9%
Linden	4	3.1%
Poplar	3	2.3%
Mulberry	3	2.3%
Redbud	3	2.3%
Other Hardwood	3	2.3%
Cherry/plum	2	1.6%
Ginkgo	2	1.6%
Other Conifer	2	1.6%
Mt Ash	1	0.8%
Juniper	1	0.8%
Walnut	1	0.8%
Honey locust	1	0.8%
K. Coffee Tree	1	0.8%
TOTALS	128	100.0%

Age Class

62% of Treynor’s trees fall between 6 and 18 inches in diameter. For age, a Bell Curve is preferred and should show the highest amount of trees around 18 inches in diameter at 4.5 ft. The highest quantity of trees are centered between 6 and 12 inches, indicating an older than average population of trees. Continue to plant trees, as feasible, to increase your canopy cover goals for the community.

Condition: Wood and Foliage

Both wood condition and leaf condition are good indicators of the overall health of the urban forest. The foliage condition results for Treynor indicate that 96% of the trees were in good or fair health in 2016, with only 4% of the sampled trees in poor or dead/dying foliar health (Appendix A, Figure 3). Similarly, 95% of Treynor's trees are in good or fair health for wood condition (appendix A, Figure 4). Wood condition that is in poor health or is considered dead or dying is about 5% of the population. This 5% 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 A, Figures 8 & 9).

TASK	Number of Trees	% of Total trees
Cleaning	31	24%
Removal	6	5%
Treat pest/disease	6	5%
Reduce	2	2%
Raise	1	<1%
Stake/Train	1	<1%

Canopy Cover

The estimated canopy cover for the entire town of Treynor is approximately 36.14 acres (as calculated by the Iowa DNR). The canopy cover estimated by i-tree for the inventoried right of way and park trees is 3 acres (Appendix A, Figure 5). According to the 2010 census, Treynor occupies 371.08 acres. Thus the canopy cover on city parks and right of way areas is about 0.8%, and over the entire community is 10%.

Land Use and Location

The majority of Treynor's city and park trees are in front yards in single family residential neighborhoods and in parks and other vacant lots (Appendix A, Figure 6 & Appendix A, Figure7). The following describes the land use and locations for the street and park trees.

Land Use

Single Family Residential	50%
Park/Vacant/Other	50%

Location

Front yard	100%
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Recommendations

Risk Management

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

Hazardous trees

Treynor has 2 critical concern trees that need immediate cleaning. These trees can be seen on the Location of Trees with Recommended Maintenance map (Appendix B, Figures 4 and 5). In addition, there are 5 trees identified as needing removal in the next 1-3 years, and 1 tree in the next 5 years (see Figure 4 – Mature Tree Immediate and mature tree routine map points). There are 6 trees that needs follow-up due to a forest health issue. Finally, there are 20 trees that should be cleaned in the next 1-3 years and 9 trees that should be cleaned in the next 5 years. There is 1 tree recommended for crown raising and one tree recommended for crown reduction in the next 5 years. There is also one tree recommended for staking/training/or corrective pruning in the next 3 years. These recommendations are summarized on the following table.

PRIORITY TASK	CRITICAL CONCERN	MATURE TREE IMMEDIATE	MATURE TREE ROUTINE	YOUNG TREE IMMEDIATE	YOUNG TREE ROUTINE	TOTAL
NONE:			67		14	81
STAKE/TRAIN		1				1
CLEAN	2	9	20			31
RAISE			1			1
REDUCE			1		1	2
REMOVE		5		1		6
TREAT PEST/DISEASE			5		1	6
TOTAL	2	15	94	1	16	128

Poor tree species

After the removal of the immediate concern trees, ash trees in poor health should be assessed for removal (Appendix B, Figure 1 & Appendix B, Figure 3). None of the 6 recommended removals are ash trees. There are a total of 15 ash trees, and 2 trees have signs and symptoms that have been associated with EAB. None of the ash trees are considered to be in poor health or dead/dying. EAB symptomatic trees should be examined as soon as possible. [*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 five main maintenance issues to be addressed: routine pruning, crown cleaning, crown raising, crown reduction, and treat pest/disease. Crown cleaning removes dead, diseased, and damaged limbs. Crown raising is the removal of lower branches that are 2 inches in diameter or larger in the case of providing clearance for pedestrians or vehicles. Crown reduction is removing individual limbs from structures or utility wires. Treat pest/disease trees showed indications of foliar or structural decline due to insect, disease, or rot. These trees should be investigated further by a certified arborist who can look into the integrity of the tree. It is recommended that all trees be pruned on a routine schedule every five to seven years.

Planting

It is suggested that for every tree removed, a replanting rate of 1.2 should be used, 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 canopy cover in Treynor.

It is important to plant a diverse mix of species in Treynor 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, Treynor is heavily planted with Maple (21.1%) and Apple species (14.1%) (Appendix A, Figure 1). *Maples should not be planted until this percentage can be lowered.* Also, ash trees have not been recommended since 2002, due to the threat of EAB. Other species to avoid because they are public nuisances include: cottonwood, poplar, Chinese and Siberian elms, willow, and black walnut. All trees planted must meet the restrictions in city ordinance (Appendix C).

Bur oak, chinkapin oak, white oak, red oak, Kentucky coffee tree, American linden (basswood), thornless honey locust, and hackberry are all suited to Treynor’s upland soils – and are presently underutilized. In addition, ironwood (*Ostrya virginiana*), eastern redbud, and serviceberry (*Amalanchier arborea*) would make great alternatives to low growing trees for right of ways.

Recommended Species to plant in Western Iowa:

COMMON NAME	SCIENTIFIC NAME	CULTIVARS / SELECTIONS
LARGE SHADE TREES – Plant 35 feet apart and away from overhead power lines.		
White Oak	<i>Quercus alba</i>	
Bur Oak	<i>Quercus macrocarpa</i>	
Red Oak	<i>Quercus rubra</i>	
Black Oak	<i>Quercus veluntina</i>	
Chinkapin Oak	<i>Quercus muehlenbergii</i>	
American Basswood (Linden)	<i>Tilia Americana</i>	Boulevard, Front Yard, Legend, Redmond
Thornless Honeylocust	<i>Gleditsia triacanthos var.</i>	Shademaster, Skyline

American elm	<i>inermis</i> <i>Ulmus Americana</i>	Princeton, Valley Forge
Kentucky coffee tree	<i>Gymnocladus dioicius</i>	Expresso
Black Cherry	<i>Prunus serotina</i>	
Hackberry	<i>Celtis occidentalis</i>	Chicagoland, Prairie Pride, Windy City

LOW GROWING TREES (less than 30 feet tall) planted as close as 12 feet.

Eastern redbud	<i>Cercis Canadensis</i>	
Downy Hawthorn	<i>Crataegus mollis</i>	
Ironwood (hop hornbeam)	<i>Ostrya virginiana</i>	
American hornbeam	<i>Carpinus caroliniana</i>	
Serviceberry	<i>Amalanchier arborea</i>	Autumn brilliance, Cumulus, Princess Diana
Flowering crabapple	<i>Malus</i>	Prairiefire, Adams, Sentinel, Snowdrift
Red mulberry	<i>Morus rubra</i>	
American (wild) plum	<i>Prunus americana</i>	

EVERGREEN TREES – planted 25 feet apart and away from overhead power lines.

Eastern White Pine	<i>Pinus strobes</i>
Jack pine	<i>Pinus banksiana</i>
Juniper (Eastern red cedar)	<i>Juniperus virginiana</i>
Norway spruce	<i>Picea abies</i>
Concolor fir	<i>Abies concolor</i>

Continual Monitoring

Due to the threat of EAB, it is important to continuously check the health of ash trees. It is recommended that ash trees be checked with a visual survey every year for tree death 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 should be prioritized with dead, dying, hazardous trees to be removed first (Appendix B, Figure 3). Next will be all ash in poor condition and displaying signs and symptoms of EAB (Appendix B, Figure 1 & Appendix B, Figure 2). ***City ownership of the tree recommended for removal should be verified prior to any removal***

EAB Quarantines

EAB is an extremely destructive plant pest and it is responsible for the death and decline of over 25 million 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. The entire state of Iowa is under USDA quarantine for EAB.

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.

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? 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.

Canopy Replacement

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

Postponed Work

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

Monitoring

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

Private Ash Trees

It is strongly suggested that private property owners monitor the condition of their privately managed trees. There are numerous options available to them, including: removal and replanting, treating with insecticides, and monitoring until an issue arises. These options are spelled out in: <https://store.extension.iastate.edu/Product/Emerald-Ash-Borer-Management-Options>. Check your city tree ordinance to be sure additional actions are not required for these private trees.

Treating for EAB

Many landowners will want to treat their ash trees with insecticides to prolong the life of their ash trees. This is only recommended by Iowa State University Extension when EAB has been found within 15 miles of the tree in question. The closest known population of EAB to Treynor is Omaha.

Insecticidal injections or drenches can have serious environmental side effects when improperly applied. Some insecticides have application limits – like only treating 3 trees per acre, for instance. Encourage your residents to report ash treatments with the city or their neighbors – in order to prevent over-application of these insecticides. Please contact me if you have any questions.

My suggestion would be to start increasing the city tree budget for removals and replacements now. I would place all efforts and finances on replanting trees – and removing declining trees and EAB casualty trees as they arise. Your community should put heavy thought and consideration into your emerald ash borer plan. For instance, it may be more economical to budget for ash removals as they come, than it would be to treat each city-managed ash tree for the next 5 to 10 years.

Maintenance Plan and Budget

The following tasks are placed in order of yearly priority. These tasks should be fulfilled as your budget or personnel time allows. Critical concern trees should be treated immediately, and immediate mature tree tasks should be completed within 2-3 years (which is their expected lifetime before they become critical concern trees). Mature tree routine trees should be followed up on within 5 years. If you are interested in creating a scheduled maintenance and replanting plan, based on a set budget, please contact me. For now, a priority list looks like this:

2017: Clean the 2 trees identified for critical concern cleaning

Discuss increasing tree removal and replacement time or financial budgets with city staff

Look into tree planting grants for community entities (Trees for Kids, Trees Forever grants)

2017-2019: Complete 6 mature and young tree immediate removals. Complete the remaining 9 immediate cleaning trees, and follow up with the 1 mature tree indicated for immediate staking/training/correctively pruning.

Determine how much money can be budgeted over the next 10 years for potential forest health issues.

Start replanting trees that you have removed, as time and finances permit. 26 trees should be replanted to replace the 22 hazard trees removed. 74 trees will be needed to replace all 62 remaining ash if an EAB infestation occurs. Plan on budgeting or requesting \$150/tree for replanting and maintenance costs.

Monitor for suspicious ash trees.

2019-2021:

Complete the crown cleaning of the 20 remaining trees, the crown raising of the 1 remaining mature tree, and the crown reduction of the 1 mature tree and the 1 young tree. Finally, there are 6 trees that should be followed up with, because they are showing signs of a pest or disease problem. In Treynor, many trees are suffering from nutrient deficiencies. The health of these trees will be improved over the long-term with proper nutrient supplements (iron, manganese – depending on the species).

Consider implementing a routine trimming (cleaning) regimen for the remaining city trees. Ideally, routine trimming should be done to 1/3 of the city's trees every 2 years. In other words, all public and right of way trees should be trimmed once every 6 years.

Also – consider evaluating Treynor's street trees again for hazards by 2021 (if not before).

Monitor for tree health issues – all species.

Proposed Budget Increase

Emerald Ash Borer could potentially kill all ash trees in Treynor within 4 years of its arrival. To remove and replace all 15 inventoried ash trees, you would need to budget an estimated \$10,200 (calculated using \$500/tree removal price and \$150/tree replacement price). Your 6 non-ash trees recommended for removal (and replacement) would cost an additional \$3,550 for a total estimated 10 year tree budget of \$13,750 (which does not include routine trimming costs). If municipal crews usually take down right of way and park trees, the removal costs will

undoubtedly be much less than this figure. However, if you rely on contractors to remove and replant your city trees – you will want to be budgeting for at least \$1,400 to \$2,000 per year for the next 10 years.

It is recommended that Treynor 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. The Trees for Kids Grant will be a great option for your community to use for tree planting projects on public lands. Trees Forever may also have community improvement grants that can assist with replanting expenses.

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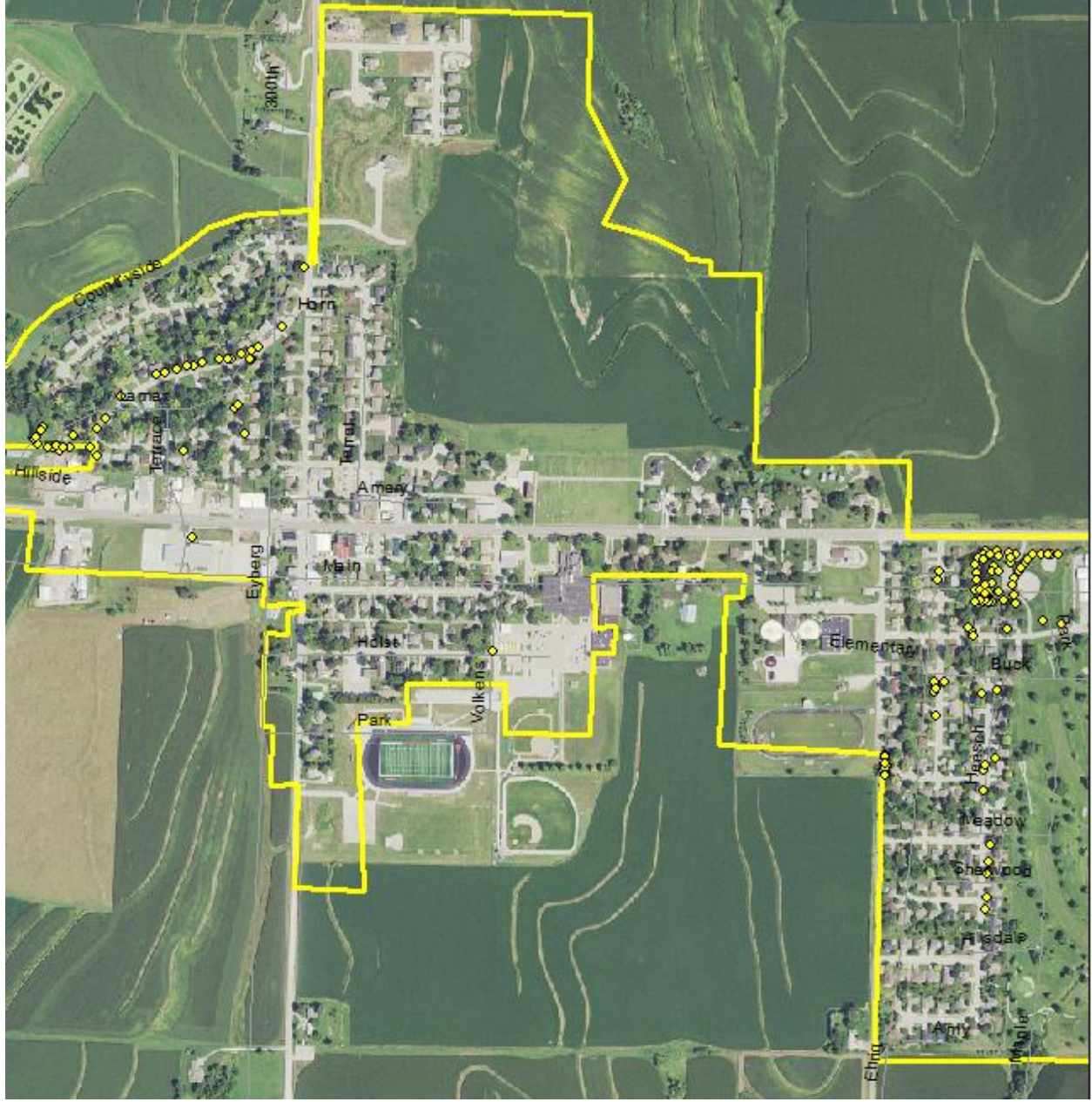
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Treynor, IA



Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Treynor

Annual Energy Benefits of Public Trees

1/9/2017

Species	Total Electricity (MWh)	Electricity (\$)	Total Natural Gas (Therms)	Natural Gas (\$)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Apple	2.0	155	322.9	316	471	(N/A)	14.0	9.5	26.17
Siberian elm	1.9	144	252.2	247	391	(N/A)	11.6	7.9	26.05
Norway maple	2.7	207	367.6	360	567	(N/A)	10.9	11.5	40.53
Green ash	3.0	231	382.0	374	605	(N/A)	10.1	12.2	46.57
Silver maple	3.2	240	421.9	413	654	(N/A)	7.0	13.2	72.62
Northern hackberry	1.8	140	267.7	262	403	(N/A)	3.9	8.1	80.53
American sycamore	1.8	138	254.8	250	388	(N/A)	3.9	7.8	77.58
Blue spruce	0.5	35	64.0	63	98	(N/A)	3.9	2.0	19.64
Austrian pine	0.4	29	50.8	50	79	(N/A)	3.1	1.6	19.66
White mulberry	0.2	17	38.5	38	55	(N/A)	2.3	1.1	18.19
Broadleaf Deciduous Small	0.1	9	20.4	20	29	(N/A)	2.3	0.6	9.67
Cottonwood	1.1	84	143.8	141	225	(N/A)	2.3	4.5	74.96
American basswood	0.9	66	122.2	120	186	(N/A)	2.3	3.8	61.94
Eastern redbud	0.3	25	50.3	49	75	(N/A)	2.3	1.5	24.84
Swamp white oak	0.2	16	33.7	33	49	(N/A)	1.6	1.0	24.47
Cherry plum	0.0	2	4.4	4	6	(N/A)	1.6	0.1	3.13
Pin oak	0.5	38	67.6	66	104	(N/A)	1.6	2.1	51.95
Maple	0.3	22	35.3	35	57	(N/A)	1.6	1.1	28.40
Spruce	0.1	6	13.5	13	19	(N/A)	1.6	0.4	9.59
Ginkgo	0.1	10	19.8	19	29	(N/A)	1.6	0.6	14.72
Ash	0.2	18	29.5	29	47	(N/A)	0.8	0.9	46.78
Sugar maple	0.1	8	14.8	15	22	(N/A)	0.8	0.4	22.22
Bur oak	0.1	7	13.7	13	21	(N/A)	0.8	0.4	20.64
Black walnut	0.1	7	13.7	13	21	(N/A)	0.8	0.4	20.64
Eastern white pine	0.2	14	24.6	24	38	(N/A)	0.8	0.8	38.17
Mountain ash	0.2	14	24.7	24	38	(N/A)	0.8	0.8	38.13
Conifer Evergreen Small	0.0	0	0.7	1	1	(N/A)	0.8	0.0	0.93
Eastern red cedar	0.1	8	16.4	16	25	(N/A)	0.8	0.5	24.57
White ash	0.3	23	43.0	42	66	(N/A)	0.8	1.3	65.60
Amur maple	0.1	6	12.8	13	18	(N/A)	0.8	0.4	18.19
Kentucky coffeetree	0.3	25	46.9	46	71	(N/A)	0.8	1.4	70.91
Honeylocust	0.3	23	42.3	41	65	(N/A)	0.8	1.3	64.79
Littleleaf linden	0.1	6	12.5	12	18	(N/A)	0.8	0.4	18.25
Conifer Evergreen Medium	0.1	5	10.2	10	15	(N/A)	0.8	0.3	14.80
Total	23.4	1,779	3,239.2	3,174	4,954	(N/A)	100.0	100.0	38.40

**Table 2: Annual Stormwater Benefits
Treynor**

Annual Stormwater Benefits of Public Trees

1/9/2017

Species	Total rainfall interception (Gal)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Apple	8,696	236	(N/A)	14.0	3.9	13.09
Siberian elm	15,060	408	(N/A)	11.6	6.7	27.21
Norway maple	17,967	487	(N/A)	10.9	8.0	34.78
Green ash	24,964	677	(N/A)	10.1	11.1	52.04
Silver maple	46,753	1,267	(N/A)	7.0	20.8	140.78
Northern hackberry	18,275	495	(N/A)	3.9	8.1	99.05
American sycamore	24,357	660	(N/A)	3.9	10.8	132.02
Blue spruce	7,076	192	(N/A)	3.9	3.1	38.35
Austrian pine	4,599	125	(N/A)	3.1	2.0	31.16
White mulberry	793	22	(N/A)	2.3	0.4	7.17
Broadleaf Deciduous Small	402	11	(N/A)	2.3	0.2	3.63
Cottonwood	14,195	385	(N/A)	2.3	6.3	128.23
American basswood	9,082	246	(N/A)	2.3	4.0	82.04
Eastern redbud	1,196	32	(N/A)	2.3	0.5	10.80
Swamp white oak	1,172	32	(N/A)	1.6	0.5	15.88
Cherry plum	76	2	(N/A)	1.6	0.0	1.03
Pin oak	5,522	150	(N/A)	1.6	2.5	74.82
Maple	1,741	47	(N/A)	1.6	0.8	23.59
Spruce	808	22	(N/A)	1.6	0.4	10.95
Ginkgo	603	16	(N/A)	1.6	0.3	8.17
Ash	1,409	38	(N/A)	0.8	0.6	38.19
Sugar maple	546	15	(N/A)	0.8	0.2	14.81
Bur oak	608	16	(N/A)	0.8	0.3	16.47
Black walnut	608	16	(N/A)	0.8	0.3	16.47
Eastern white pine	4,605	125	(N/A)	0.8	2.0	124.79
Mountain ash	667	18	(N/A)	0.8	0.3	18.06
Conifer Evergreen Small	24	1	(N/A)	0.8	0.0	0.66
Eastern red cedar	1,635	44	(N/A)	0.8	0.7	44.30
White ash	3,225	87	(N/A)	0.8	1.4	87.40
Amur maple	264	7	(N/A)	0.8	0.1	7.17
Kentucky coffeetree	3,943	107	(N/A)	0.8	1.8	106.85
Honeylocust	2,905	79	(N/A)	0.8	1.3	78.73
Littleleaf linden	461	12	(N/A)	0.8	0.2	12.48
Conifer Evergreen Medium	755	20	(N/A)	0.8	0.3	20.47
Citywide total	224,993	6,097	(N/A)	100.0	100.0	47.27

Table 3: Annual Air Quality Benefits

Treynor

Annual Air Quality Benefits of Public Trees

1/9/2017

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							
Apple	2.5	0.4	1.2	0.1	13	10.1	1.4	1.4	9.2	62	0.0	0	26.3	75 (N/A)	14.0	4.18
Siberian elm	1.7	0.3	0.9	0.1	9	9.0	1.3	1.2	8.6	56	0.0	0	23.0	65 (N/A)	11.6	4.35
Norway maple	2.9	0.5	1.5	0.1	16	13.0	1.9	1.8	12.4	81	-0.8	-3	33.4	94 (N/A)	10.9	6.73
Green ash	2.5	0.4	1.3	0.1	14	14.2	2.1	2.0	13.8	89	0.0	0	36.4	103 (N/A)	10.1	7.91
Silver maple	8.2	1.4	4.0	0.4	44	15.0	2.2	2.1	14.3	93	-4.3	-16	43.3	122 (N/A)	7.0	13.53
Northern hackberry	2.8	0.5	1.4	0.1	15	9.0	1.3	1.2	8.4	56	0.0	0	24.8	71 (N/A)	3.9	14.20
American sycamore	3.4	0.5	1.5	0.2	18	8.7	1.3	1.2	8.3	54	0.0	0	25.1	72 (N/A)	3.9	14.42
Blue spruce	1.1	0.2	0.9	0.1	7	2.2	0.3	0.3	2.1	14	-2.7	-10	4.6	11 (N/A)	3.9	2.22
Austrian pine	0.5	0.1	0.5	0.1	4	1.8	0.3	0.3	1.7	11	-1.6	-6	3.6	9 (N/A)	3.1	2.21
White mulberry	0.1	0.0	0.1	0.0	1	1.1	0.2	0.2	1.0	7	0.0	0	2.7	8 (N/A)	2.3	2.55
Broadleaf Deciduous Small	0.1	0.0	0.0	0.0	0	0.6	0.1	0.1	0.5	4	0.0	0	1.4	4 (N/A)	2.3	1.32
Cottonwood	2.5	0.4	1.1	0.1	13	5.2	0.8	0.7	5.0	33	0.0	0	15.8	46 (N/A)	2.3	15.23
American basswood	1.2	0.2	0.6	0.1	6	4.2	0.6	0.6	3.9	26	-1.0	-4	10.3	29 (N/A)	2.3	9.55
Eastern redbud	0.3	0.0	0.2	0.0	2	1.6	0.2	0.2	1.5	10	0.0	0	4.1	12 (N/A)	2.3	3.88
Swamp white oak	0.1	0.0	0.1	0.0	1	1.0	0.1	0.1	1.0	6	0.0	0	2.5	7 (N/A)	1.6	3.47
Cherry plum	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)	1.6	0.41
Pin oak	1.0	0.2	0.5	0.0	5	2.4	0.3	0.3	2.2	15	-1.8	-7	5.2	13 (N/A)	1.6	6.63
Maple	0.3	0.1	0.2	0.0	2	1.4	0.2	0.2	1.3	9	-0.1	0	3.5	10 (N/A)	1.6	4.94
Spruce	0.1	0.0	0.1	0.0	0	0.4	0.1	0.1	0.4	2	-0.2	-1	0.8	2 (N/A)	1.6	1.02
Ginkgo	0.1	0.0	0.0	0.0	0	0.6	0.1	0.1	0.6	4	0.0	0	1.5	4 (N/A)	1.6	2.12
Ash	0.2	0.0	0.1	0.0	1	1.1	0.2	0.2	1.1	7	-0.1	0	2.8	8 (N/A)	0.8	7.92
Sugar maple	0.0	0.0	0.0	0.0	0	0.5	0.1	0.1	0.5	3	0.0	0	1.1	3 (N/A)	0.8	3.12
Bur oak	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)	0.8	2.99
Black walnut	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)	0.8	2.99
Eastern white pine	0.6	0.1	0.4	0.1	4	0.9	0.1	0.1	0.8	5	-2.9	-11	0.3	-2 (N/A)	0.8	-1.58
Mountain ash	0.2	0.0	0.1	0.0	1	0.9	0.1	0.1	0.8	5	0.0	0	2.3	7 (N/A)	0.8	6.56
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)	0.8	0.09
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)	0.8	2.19
White ash	0.4	0.1	0.2	0.0	2	1.5	0.2	0.2	1.4	9	0.0	0	3.9	11 (N/A)	0.8	11.18
Amur maple	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.3	2	0.0	0	0.9	3 (N/A)	0.8	2.55
Kentucky coffeetree	0.5	0.1	0.2	0.0	3	1.6	0.2	0.2	1.5	10	0.0	0	4.4	12 (N/A)	0.8	12.48
Honeylocust	0.5	0.1	0.3	0.0	3	1.5	0.2	0.2	1.4	9	-0.4	-1	3.8	11 (N/A)	0.8	10.61
Littleleaf linden	0.0	0.0	0.0	0.0	0	0.4	0.1	0.1	0.4	2	0.0	0	0.9	3 (N/A)	0.8	2.55
Conifer Evergreen Medium	0.1	0.0	0.1	0.0	0	0.3	0.0	0.0	0.3	2	-0.2	-1	0.6	2 (N/A)	0.8	1.53
Citywide total	34.2	5.8	17.9	1.7	188	112.2	16.3	15.5	106.2	698	-17.0	-64	292.9	822 (N/A)	100.0	6.38

Table 4: Annual Carbon Stored

Treynor

Stored CO2 Benefits of Public Trees

1/9/2017

Species	Total Stored CO2 (lbs)	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Apple	40,234	302	(N/A)	14.0	5.1	16.76
Siberian elm	44,698	335	(N/A)	11.6	5.7	22.35
Norway maple	48,777	366	(N/A)	10.9	6.2	26.13
Green ash	81,617	612	(N/A)	10.1	10.4	47.09
Silver maple	187,228	1,404	(N/A)	7.0	23.7	156.02
Northern hackberry	41,791	313	(N/A)	3.9	5.3	62.69
American sycamore	109,375	820	(N/A)	3.9	13.9	164.06
Blue spruce	8,718	65	(N/A)	3.9	1.1	13.08
Austrian pine	2,805	21	(N/A)	3.1	0.4	5.26
White mulberry	2,724	20	(N/A)	2.3	0.3	6.81
Broadleaf Deciduous	1,263	9	(N/A)	2.3	0.2	3.16
Cottonwood	85,597	642	(N/A)	2.3	10.9	213.99
American basswood	43,786	328	(N/A)	2.3	5.6	109.46
Eastern redbud	4,853	36	(N/A)	2.3	0.6	12.13
Swamp white oak	2,201	17	(N/A)	1.6	0.3	8.26
Cherry plum	192	1	(N/A)	1.6	0.0	0.72
Pin oak	25,976	195	(N/A)	1.6	3.3	97.41
Maple	3,843	29	(N/A)	1.6	0.5	14.41
Spruce	295	2	(N/A)	1.6	0.0	1.11
Ginkgo	948	7	(N/A)	1.6	0.1	3.56
Ash	3,624	27	(N/A)	0.8	0.5	27.18
Sugar maple	1,101	8	(N/A)	0.8	0.1	8.26
Bur oak	1,035	8	(N/A)	0.8	0.1	7.76
Black walnut	1,035	8	(N/A)	0.8	0.1	7.76
Eastern white pine	7,490	56	(N/A)	0.8	0.9	56.18
Mountain ash	3,037	23	(N/A)	0.8	0.4	22.78
Conifer Evergreen Sm	3	0	(N/A)	0.8	0.0	0.02
Eastern red cedar	1,102	8	(N/A)	0.8	0.1	8.27
White ash	8,458	63	(N/A)	0.8	1.1	63.43
Amur maple	908	7	(N/A)	0.8	0.1	6.81
Kentucky coffeetree	15,773	118	(N/A)	0.8	2.0	118.30
Honeylocust	6,743	51	(N/A)	0.8	0.9	50.57
Littleleaf linden	1,025	8	(N/A)	0.8	0.1	7.68
Conifer Evergreen Me	284	2	(N/A)	0.8	0.0	2.13
Citywide total	788,537	5,914	(N/A)	100.0	100.0	45.85

Table 5: Annual Carbon Sequestered

Treynor

Annual CO₂ Benefits of Public Trees

1/9/2017

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
Apple	2,648	20	-193	-30	-2	3,420	26	5,845	44 (N/A)	14.0	6.7	2.44
Siberian elm	3,224	24	-215	-21	-2	3,172	24	6,159	46 (N/A)	11.6	7.1	3.08
Norway maple	4,577	34	-234	-25	-2	4,578	34	8,896	67 (N/A)	10.9	10.2	4.77
Green ash	6,456	48	-392	-28	-3	5,104	38	11,140	84 (N/A)	10.1	12.8	6.43
Silver maple	13,715	103	-899	-35	-7	5,307	40	18,088	136 (N/A)	7.0	20.7	15.07
Northern hackberry	2,468	19	-201	-18	-2	3,100	23	5,350	40 (N/A)	3.9	6.1	8.03
American sycamore	4,593	34	-525	-20	-4	3,055	23	7,102	53 (N/A)	3.9	8.1	10.65
Blue spruce	440	3	-42	-9	0	784	6	1,173	9 (N/A)	3.9	1.3	1.76
Austrian pine	259	2	-13	-6	0	638	5	877	7 (N/A)	3.1	1.0	1.64
White mulberry	342	3	-13	-4	0	372	3	697	5 (N/A)	2.3	0.8	1.74
Broadleaf Deciduous Smal	190	1	-6	-2	0	199	1	380	3 (N/A)	2.3	0.4	0.95
Cottonwood	1,884	14	-411	-12	-3	1,856	14	3,317	25 (N/A)	2.3	3.8	8.29
American basswood	2,605	20	-210	-10	-2	1,460	11	3,845	29 (N/A)	2.3	4.4	9.61
Eastern redbud	495	4	-23	-4	0	557	4	1,025	8 (N/A)	2.3	1.2	2.56
Swamp white oak	448	3	-11	-2	0	352	3	787	6 (N/A)	1.6	0.9	2.95
Cherry plum	47	0	-1	-1	0	43	0	88	1 (N/A)	1.6	0.1	0.33
Pin oak	2,359	18	-125	-5	-1	832	6	3,061	23 (N/A)	1.6	3.5	11.48
Maple	522	4	-18	-3	0	491	4	992	7 (N/A)	1.6	1.1	3.72
Spruce	71	1	-1	-2	0	132	1	200	1 (N/A)	1.6	0.2	0.75
Ginkgo	115	1	-5	-2	0	223	2	331	2 (N/A)	1.6	0.4	1.24
Ash	386	3	-17	-2	0	395	3	762	6 (N/A)	0.8	0.9	5.71
Sugar maple	150	1	-5	-1	0	170	1	313	2 (N/A)	0.8	0.4	2.35
Bur oak	209	2	-5	-1	0	159	1	361	3 (N/A)	0.8	0.4	2.71
Black walnut	209	2	-5	-1	0	159	1	361	3 (N/A)	0.8	0.4	2.71
Eastern white pine	256	2	-36	-4	0	311	2	528	4 (N/A)	0.8	0.6	3.96
Mountain ash	268	2	-15	-2	0	308	2	560	4 (N/A)	0.8	0.6	4.20
Conifer Evergreen Small	1	0	0	0	0	6	0	6	0 (N/A)	0.8	0.0	0.05
Eastern red cedar	0	0	-5	-2	0	187	1	180	1 (N/A)	0.8	0.2	1.35
White ash	845	6	-41	-3	0	518	4	1,320	10 (N/A)	0.8	1.5	9.90
Amur maple	114	1	-4	-1	0	124	1	232	2 (N/A)	0.8	0.3	1.74
Kentucky coffeetree	857	6	-76	-4	-1	552	4	1,330	10 (N/A)	0.8	1.5	9.97
Honeylocust	936	7	-32	-3	0	515	4	1,417	11 (N/A)	0.8	1.6	10.62
Littleleaf linden	223	2	-5	-1	0	134	1	351	3 (N/A)	0.8	0.4	2.63
Conifer Evergreen Medium	39	0	-1	-1	0	106	1	142	1 (N/A)	0.8	0.2	1.07
Citywide total	51,948	390	-3,786	-265	-30	39,319	295	87,216	654 (N/A)	100.0	100.0	5.07

Table 6: Annual Social and Aesthetic Benefits

Treynor

Annual Aesthetic/Other Benefits of Public Trees

1/9/2017

Species	Total (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Apple	152	(N/A)	14.0	3.2	8.45
Siberian elm	364	(N/A)	11.6	7.6	24.24
Norway maple	476	(N/A)	10.9	10.0	33.99
Green ash	614	(N/A)	10.1	12.9	47.22
Silver maple	1,036	(N/A)	7.0	21.7	115.11
Northern hackberry	316	(N/A)	3.9	6.6	63.12
American sycamore	331	(N/A)	3.9	6.9	66.20
Blue spruce	75	(N/A)	3.9	1.6	15.07
Austrian pine	93	(N/A)	3.1	1.9	23.16
White mulberry	19	(N/A)	2.3	0.4	6.40
Broadleaf Deciduous Small	11	(N/A)	2.3	0.2	3.51
Cottonwood	141	(N/A)	2.3	3.0	47.01
American basswood	193	(N/A)	2.3	4.0	64.18
Eastern redbud	28	(N/A)	2.3	0.6	9.43
Swamp white oak	52	(N/A)	1.6	1.1	26.22
Cherry plum	2	(N/A)	1.6	0.0	1.05
Pin oak	180	(N/A)	1.6	3.8	90.08
Maple	73	(N/A)	1.6	1.5	36.59
Spruce	22	(N/A)	1.6	0.5	11.13
Ginkgo	14	(N/A)	1.6	0.3	6.77
Ash	39	(N/A)	0.8	0.8	39.16
Sugar maple	21	(N/A)	0.8	0.4	21.31
Bur oak	29	(N/A)	0.8	0.6	28.56
Black walnut	29	(N/A)	0.8	0.6	28.56
Eastern white pine	26	(N/A)	0.8	0.5	26.25
Mountain ash	15	(N/A)	0.8	0.3	15.48
Conifer Evergreen Small	4	(N/A)	0.8	0.1	4.27
Eastern red cedar	0	(N/A)	0.8	0.0	0.00
White ash	101	(N/A)	0.8	2.1	101.35
Amur maple	6	(N/A)	0.8	0.1	6.40
Kentucky coffeetree	66	(N/A)	0.8	1.4	65.59
Honeylocust	195	(N/A)	0.8	4.1	194.60
Littleleaf linden	31	(N/A)	0.8	0.7	31.20
Conifer Evergreen Medium	21	(N/A)	0.8	0.4	21.08
Citywide total	4,775	(N/A)	100.0	100.0	37.02

Table 7: Summary of Benefits in Dollars

Treynor

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

1/9/2017

Species	Energy	CO ₂	Air Quality	Stormwater	Aesthetic/Other	Total (\$)	Standard Error	% of Total \$
Apple	471	44	75	236	152	978	(N/A)	5.7
Siberian elm	391	46	65	408	364	1,274	(N/A)	7.4
Norway maple	567	67	94	487	476	1,691	(N/A)	9.8
Green ash	605	84	103	677	614	2,082	(N/A)	12.0
Silver maple	654	136	122	1,267	1,036	3,214	(N/A)	18.6
Northern hackberry	403	40	71	495	316	1,325	(N/A)	7.7
American sycamore	388	53	72	660	331	1,504	(N/A)	8.7
Blue spruce	98	9	11	192	75	385	(N/A)	2.2
Austrian pine	79	7	9	125	93	311	(N/A)	1.8
White mulberry	55	5	8	22	19	108	(N/A)	0.6
Broadleaf Deciduous Sn	29	3	4	11	11	57	(N/A)	0.3
Cottonwood	225	25	46	385	141	821	(N/A)	4.7
American basswood	186	29	29	246	193	682	(N/A)	3.9
Eastern redbud	75	8	12	32	28	155	(N/A)	0.9
Swamp white oak	49	6	7	32	52	146	(N/A)	0.8
Cherry plum	6	1	1	2	2	12	(N/A)	0.1
Pin oak	104	23	13	150	180	470	(N/A)	2.7
Maple	57	7	10	47	73	194	(N/A)	1.1
Spruce	19	1	2	22	22	67	(N/A)	0.4
Ginkgo	29	2	4	16	14	66	(N/A)	0.4
Ash	47	6	8	38	39	138	(N/A)	0.8
Sugar maple	22	2	3	15	21	64	(N/A)	0.4
Bur oak	21	3	3	16	29	71	(N/A)	0.4
Black walnut	21	3	3	16	29	71	(N/A)	0.4
Eastern white pine	38	4	-2	125	26	192	(N/A)	1.1
Mountain ash	38	4	7	18	15	82	(N/A)	0.5
Conifer Evergreen Smal	1	0	0	1	4	6	(N/A)	0.0
Eastern red cedar	25	1	2	44	0	72	(N/A)	0.4
White ash	66	10	11	87	101	275	(N/A)	1.6
Amur maple	18	2	3	7	6	36	(N/A)	0.2
Kentucky coffeetree	71	10	12	107	66	266	(N/A)	1.5
Honeylocust	65	11	11	79	195	359	(N/A)	2.1
Littleleaf linden	18	3	3	12	31	67	(N/A)	0.4
Conifer Evergreen Medi	15	1	2	20	21	59	(N/A)	0.3
Citywide Total	4,954	654	822	6,097	4,775	17,302	(N/A)	100.0

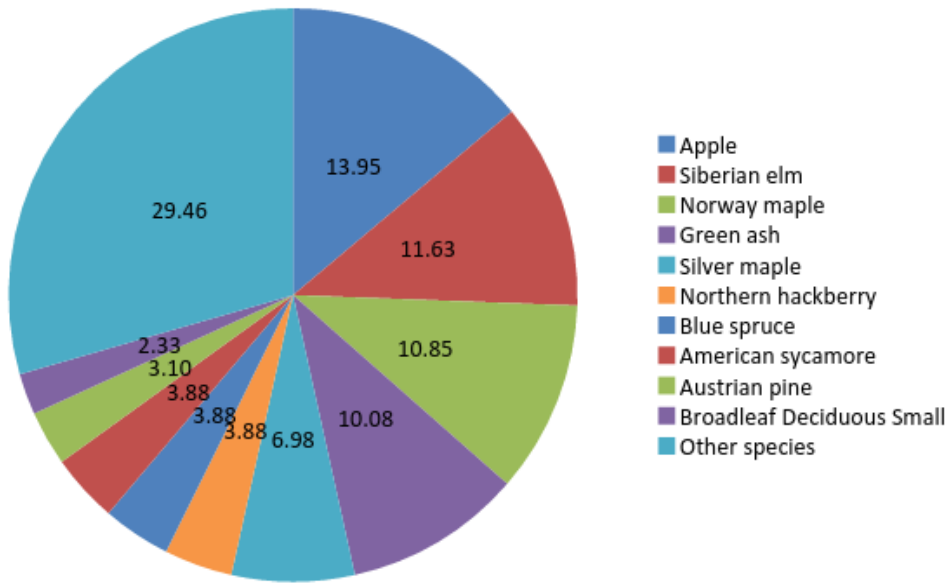


Figure 1: Species Distribution

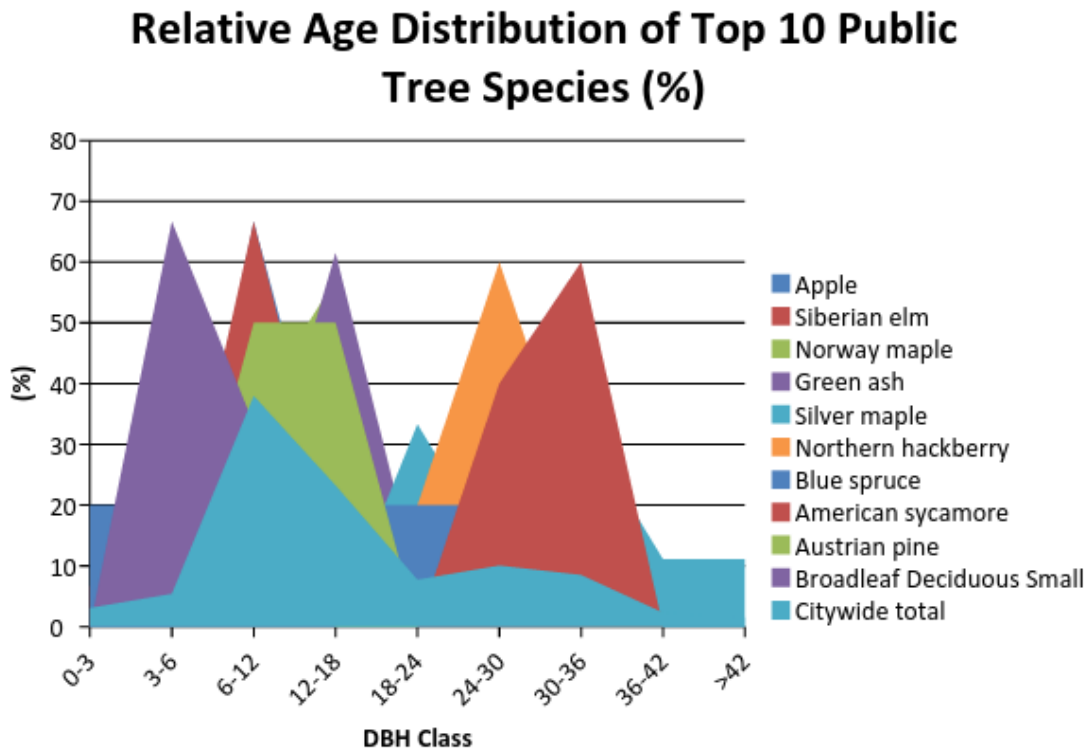


Figure 2: Relative Age Class

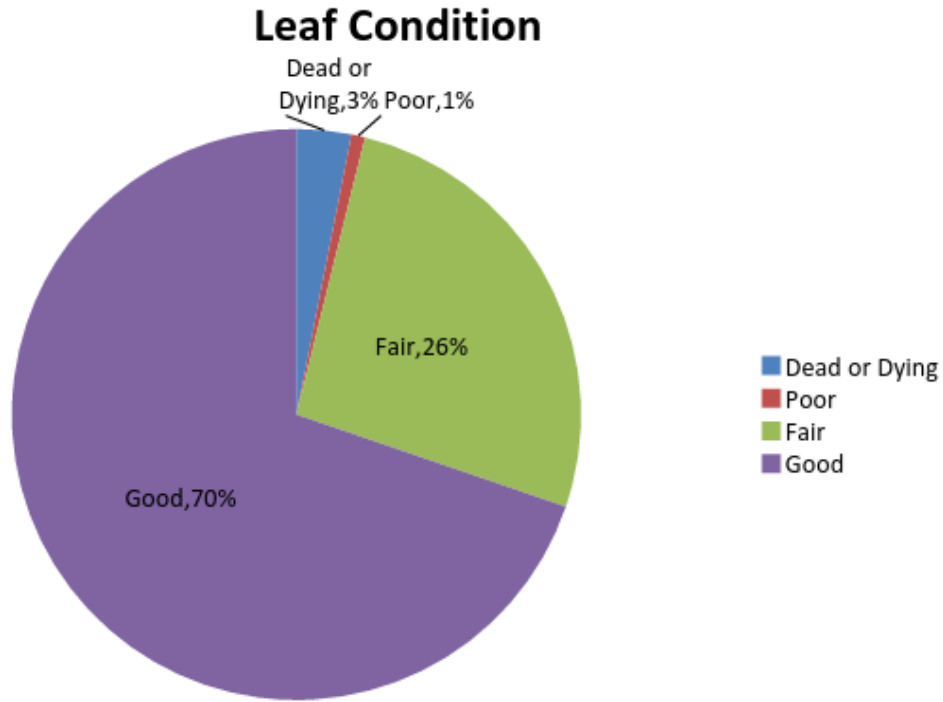


Figure 3: Foliage Condition

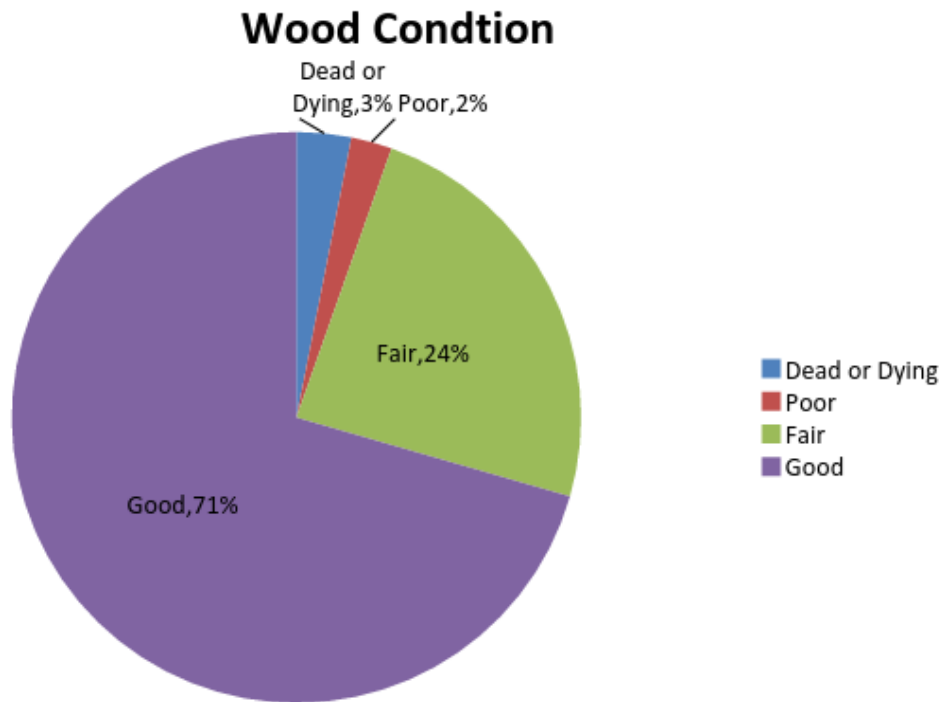


Figure 4: Wood Condition

Canopy Cover

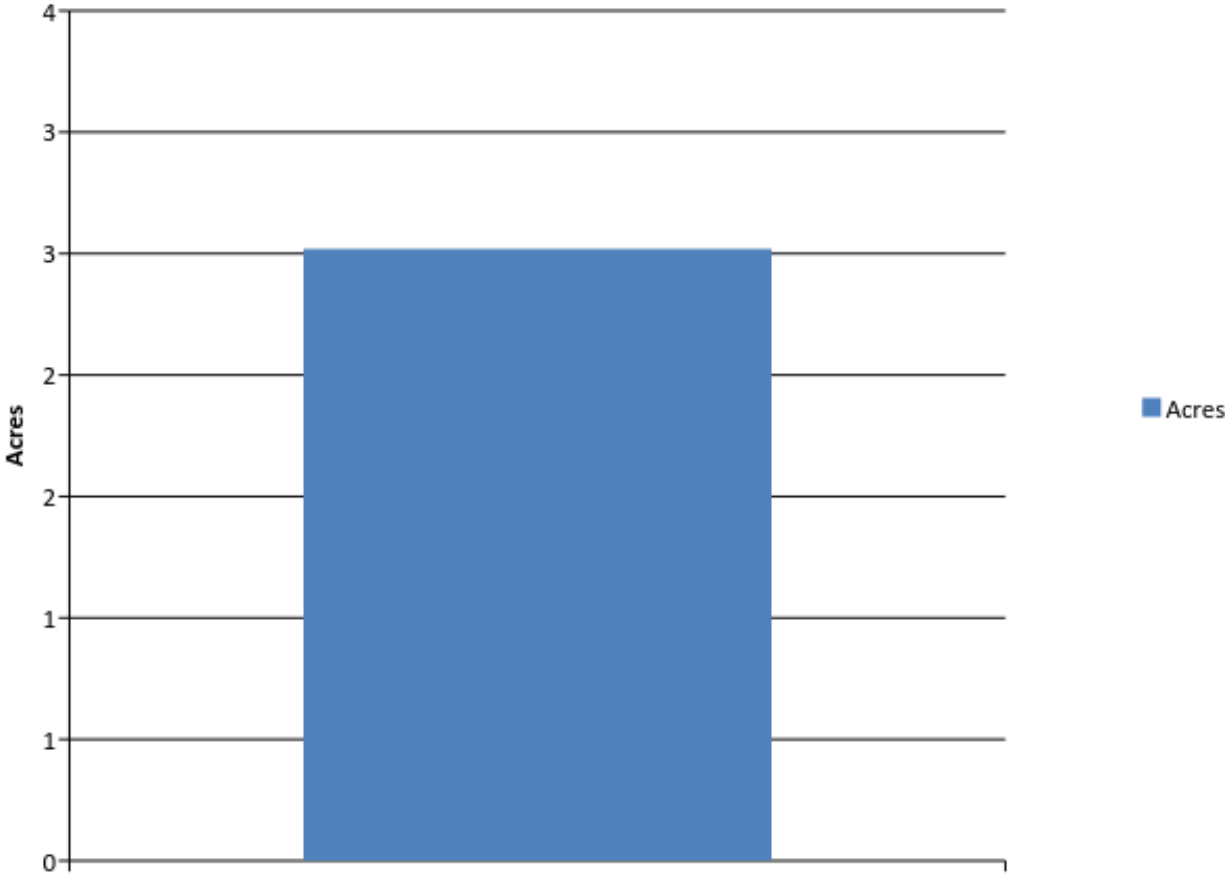


Figure 5: Canopy Cover in Acres



Land use Public Trees by Zone (%)

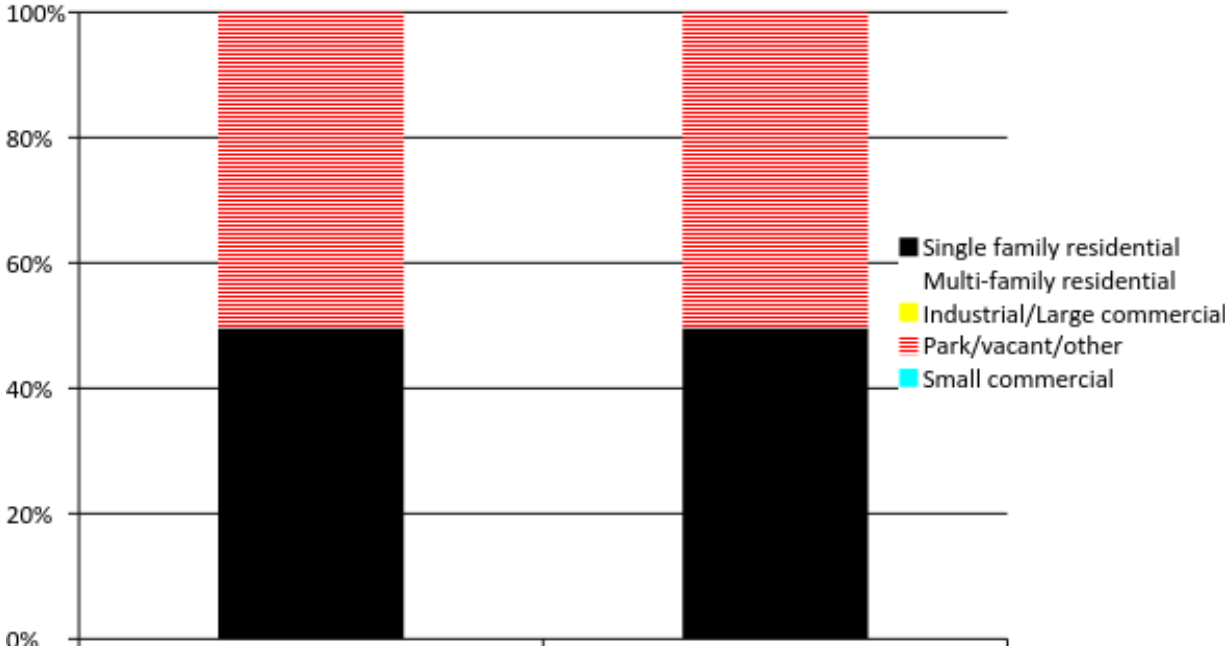


Figure 6: Land Use of city/park trees



Location Public Trees by Zone (%)

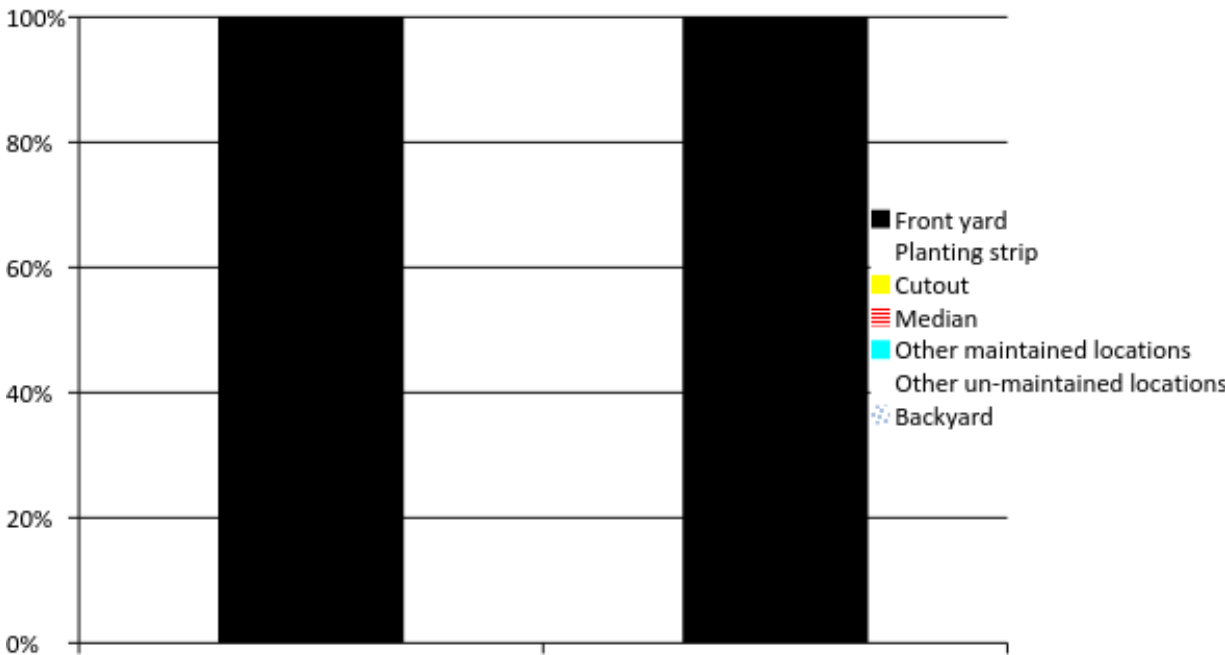


Figure 7: Location of city/park trees

Treynor, IA										
Recommended Maintenance for Public Trees (None)										
1/9/2017										
DBH Class (in)										
Zone	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42	Total
1	0	0	0	0	0	0	0	0	0	0
Citywide total	0	0	0	0	0	0	0	0	0	0

DBH Class (in)											
Maintenance Type	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42	Total	% of Total Population
None	0	0	0	0	0	0	0	0	0	0	0.00
Young tree (routine)	4	7	6	0	0	0	0	0	0	17	13.18
Young tree (immediate)	0	0	1	0	0	0	0	0	0	1	0.78
Mature tree (routine)	0	0	38	26	6	11	9	3	1	94	72.87
Mature tree (immediate)	0	0	3	4	4	1	2	0	1	15	11.63
Critical concern (public safety)	0	0	1	0	0	1	0	0	0	2	1.55
Citywide total	4	7	49	30	10	13	11	3	2	129	100.00

Figure 8. Treynor Trees by size class and recommended maintenance (priority).

Treynor, IA										
Priority Task Summary for Public Trees (None)										
1/9/2017										
DBH Class (in)										
Zone	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42	Total
1	4	7	31	19	4	10	7	0	0	82
Citywide total	4	7	31	19	4	10	7	0	0	82

DBH Class (in)											
Maintenance Type	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42	Total	% of Total Population
None	4	7	31	19	4	10	7	0	0	82	63.57
Stake/Train	0	0	0	1	0	0	0	0	0	1	0.78
Clean	0	0	10	7	5	2	2	3	2	31	24.03
Raise	0	0	1	0	0	0	0	0	0	1	0.78
Reduce	0	0	1	1	0	0	0	0	0	2	1.55
Remove	0	0	3	2	1	0	0	0	0	6	4.65
Treat pest/disease	0	0	3	0	0	1	2	0	0	6	4.65
Citywide total	4	7	49	30	10	13	11	3	2	129	100.00

Figure 9. Treynor Trees by size class and priority task.

Appendix B: ArcGIS Mapping

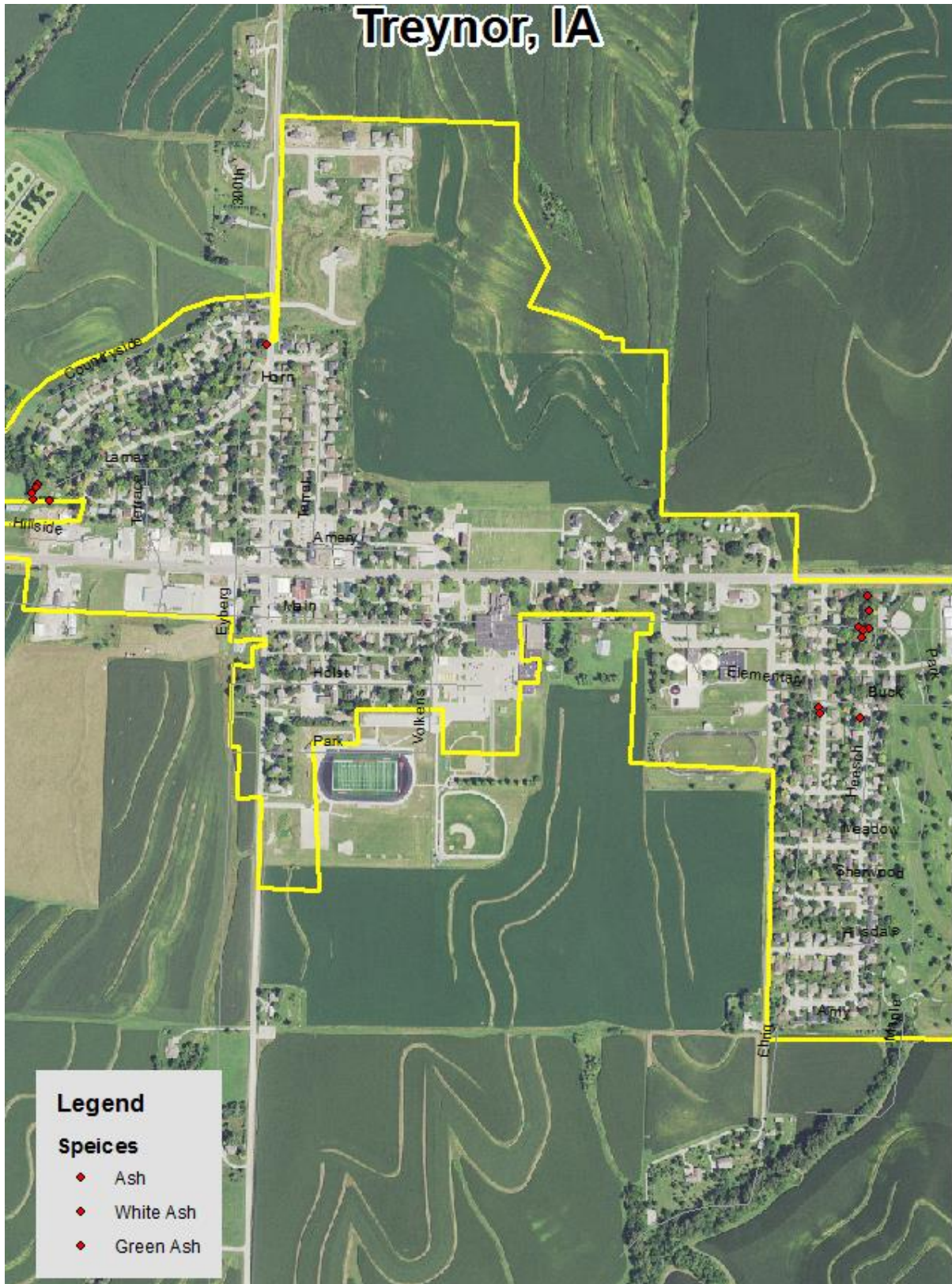


Figure 1: Location of Ash Trees

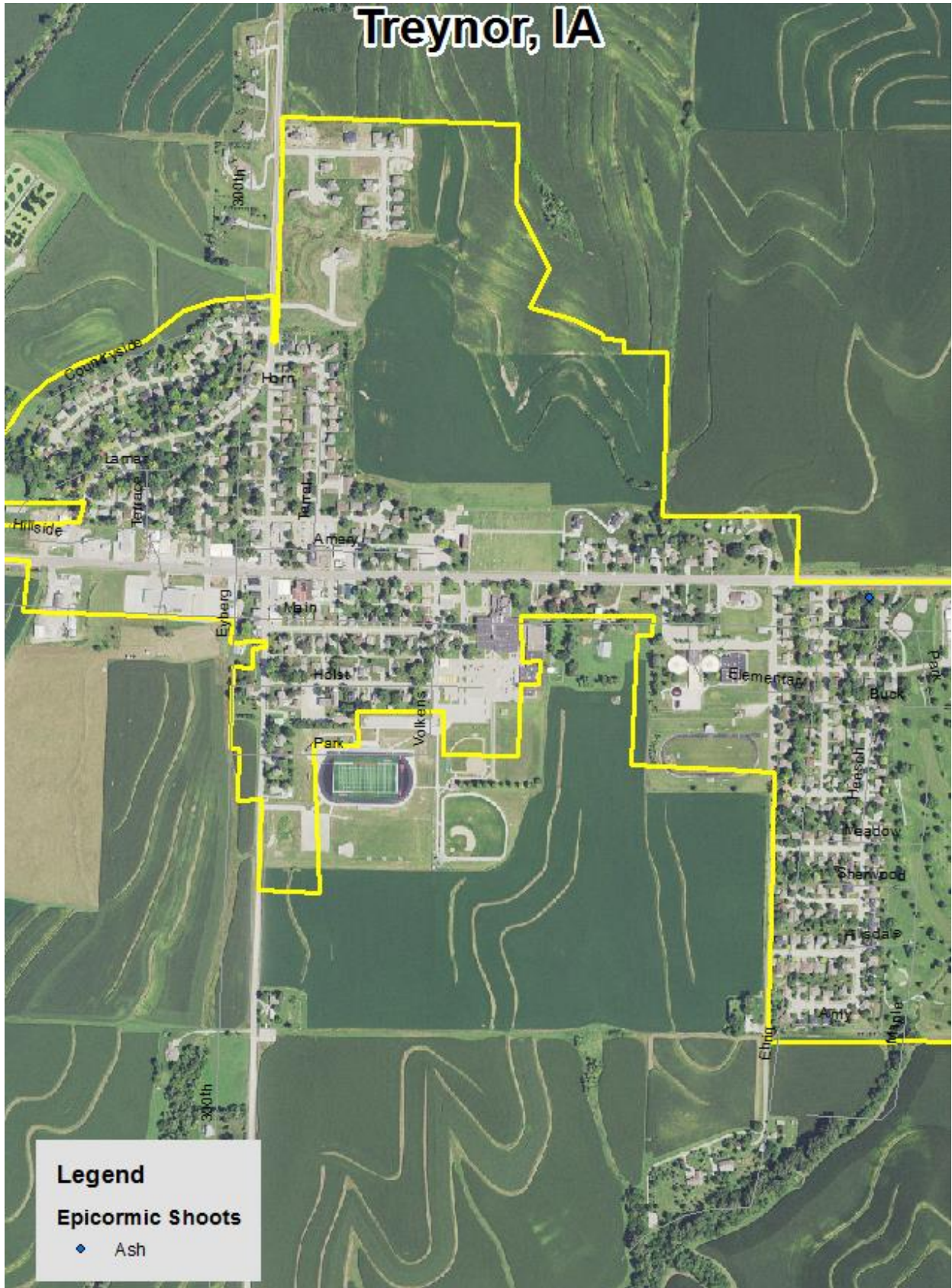


Figure 2: Location of EAB symptoms

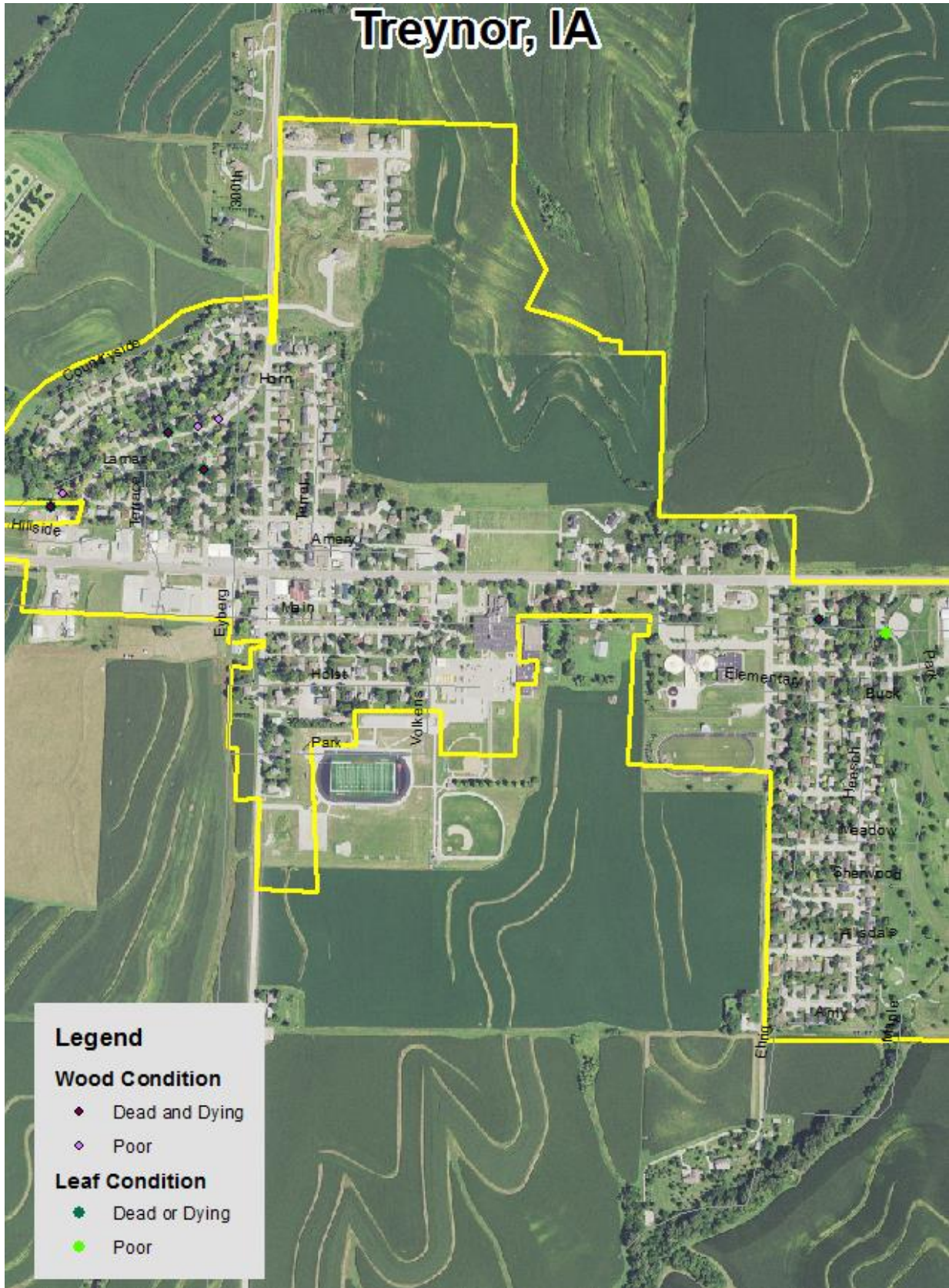


Figure 3: Location of Poor Condition Trees



Figure 4: Location of Trees with Recommended Maintenance

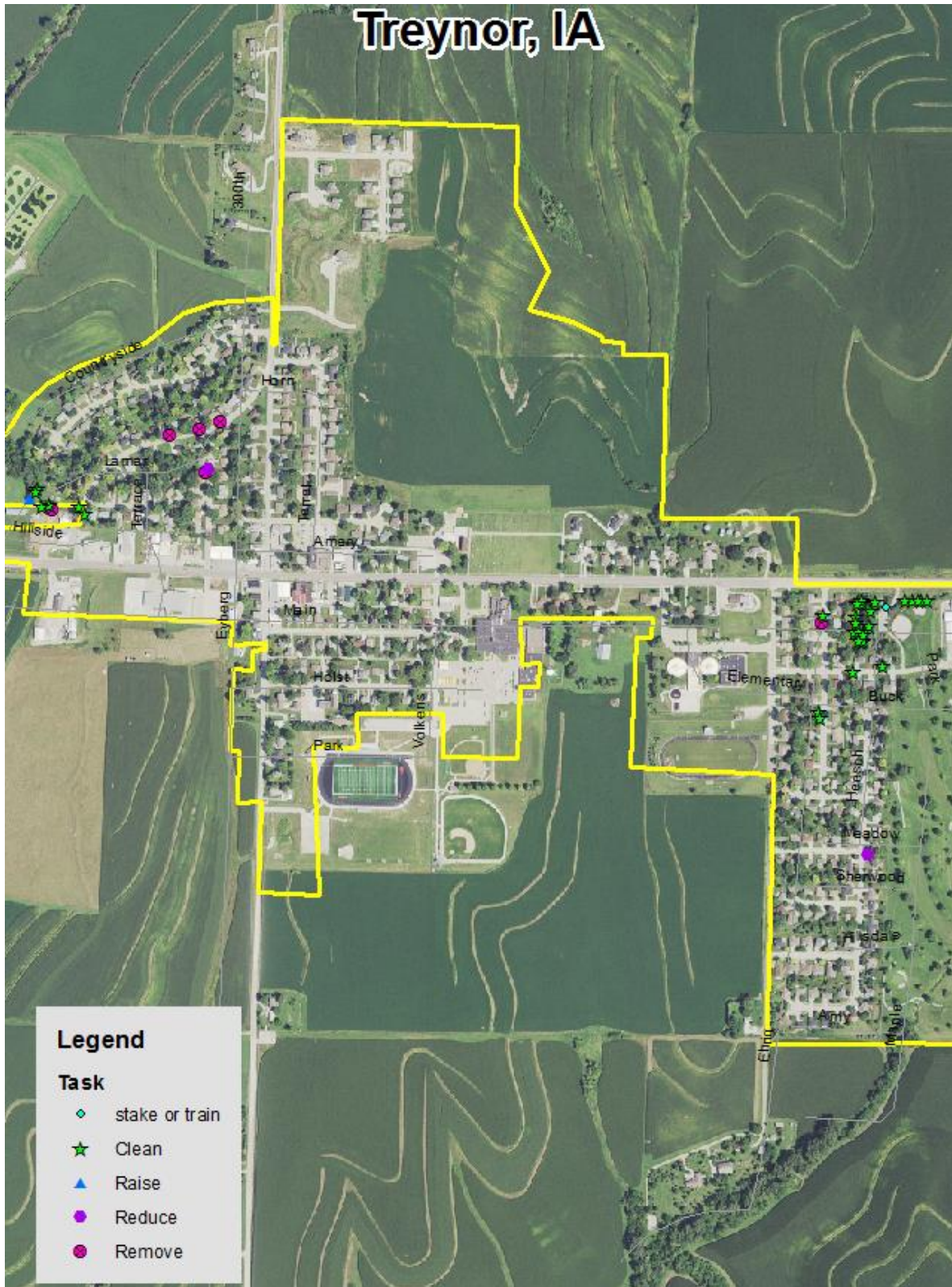


Figure 5: Maintenance Tasks *City ownership of the trees recommended for removal should be verified prior to any removal*

Appendix C: Treynor Tree Ordinances

CHAPTER 151

TREES

151.01 Definition
151.02 Planting Restrictions
151.03 Duty to Trim Trees

151.04 Trimming Trees to be Supervised
151.05 Disease Control
151.06 Inspection and Removal

151.01 DEFINITION. For use in this chapter, “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.

151.02 PLANTING RESTRICTIONS. No trees, shrubs, bushes or flowers shall be planted in any street or parking.

151.03 DUTY TO TRIM TREES. The owner or agent of the abutting property shall keep the trees on, or overhanging the street, trimmed so that all branches will be at least fifteen (15) feet above the surface of the street and eight (8) feet above the sidewalks. If the abutting property owner fails to trim the trees, the City may serve notice on the abutting property owner requiring that such action be taken within five (5) days. If such action is not taken within that time, the City may perform the required action and assess the costs against the abutting property for collection in the same manner as a property tax.

(Code of Iowa, Sec. 364.12[2c, d & e])

151.04 TRIMMING TREES TO BE SUPERVISED. Except as allowed in Section 151.03, it is unlawful for any person to trim or cut any tree in a street or public place unless the work is done under the supervision of the City.

151.05 DISEASE CONTROL. Any dead, diseased or damaged tree or shrub which may harbor serious insect or disease pests or disease injurious to other trees is hereby declared to be a nuisance.

151.06 INSPECTION AND REMOVAL. The Council shall inspect or cause to be inspected any trees or shrubs in the City reported or suspected to be dead, diseased or damaged, and such trees and shrubs shall be subject to the following:

1. **City Property.** If it is determined that any such condition exists on any public property, including the strip between the curb and the lot line of private property, the Council may cause such condition to be

corrected by treatment or removal. The Council may also order the removal of any trees on the streets of the City which interfere with the making of improvements or with travel thereon.

2. Private Property. If it is determined with reasonable certainty that any such condition exists on private property and that danger to other trees or to adjoining property or passing motorists or pedestrians is imminent, the Council shall notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within fourteen (14) days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property.

(Code of Iowa, Sec. 364.12[3b & h])

[The next page is 675]

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If you need accommodations because of disability to access the services of this Agency, please contact the Director at 515-725-8200.