2012 COMMUNITY TREE MANAGEMENT PLAN

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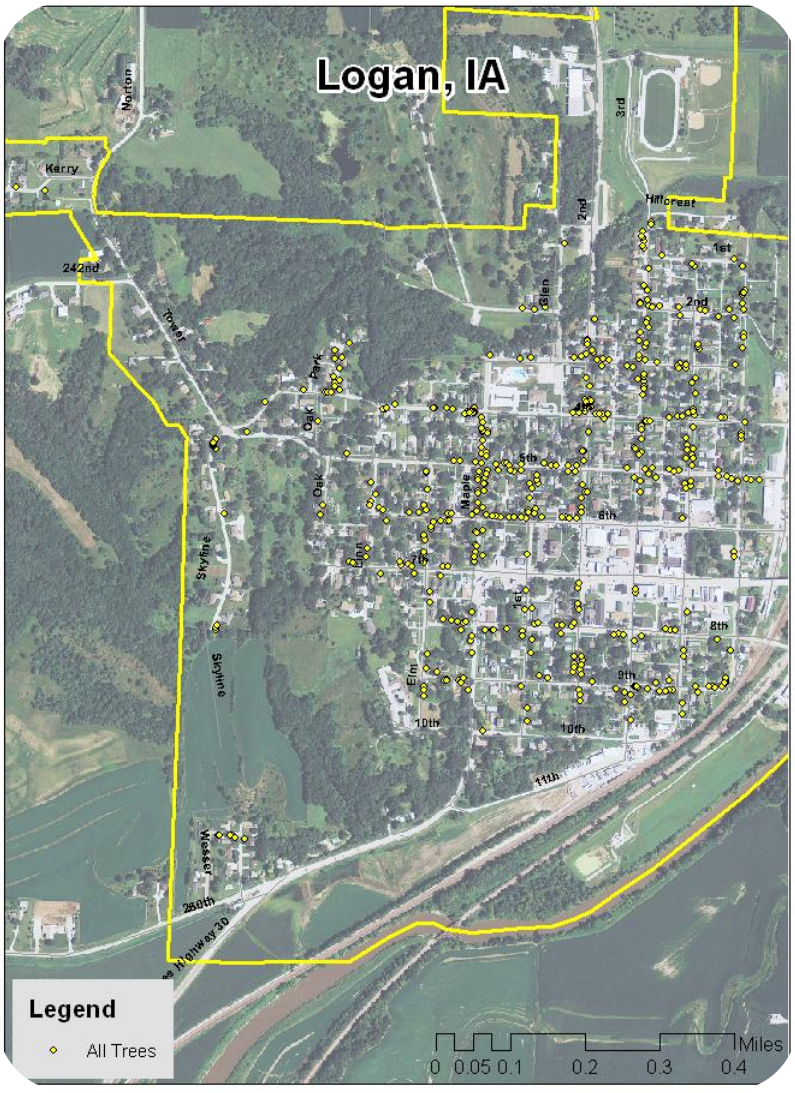

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Executive Summary

Overview

This plan was developed to assist the City of Logan with managing its urban forest, including budgeting and future planning. Trees can provide a multitude of benefits to the community, and sound management allows a community to best take advantage of these benefits. Management is especially important considering the serious threats posed by forest pests such as the emerald ash borer (EAB). EAB is an invasive insect imported from Eastern Asia on wood shipping crates that kills all species of ash trees (this does not include mountain ash). There is a strong possibility that 17% of Logan's city owned trees (ash) 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 2012, a tree inventory was conducted using Global Positioning System (GPS) data collectors. The inventory was a complete inventory of street right of way trees. Below are some key findings of the 483 trees inventoried.

- Logan's trees provide $98,198 of benefits annually, an average of $203 a tree
- There are over 46 species of trees
- The top three genus are: Maple 40%, Ash 17%, and Oak 6%
- 11% of trees are in need of some type of management
- 31 trees are recommended for removal

Recommendations

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

- Of the 31 trees needing removal, 24 trees are over 18 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*
- 14 of the 84 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 other year

Plant a diverse mix of trees that do not include: ash, maple, cottonwood, poplar, box elder, Chinese or Siberian elm, elm, evergreen, willow, black walnut, tree of heaven, exotic mulberry trees (white mulberry is very common), and Bradford/Callery Pear. Please also be careful not to plant the following shrubs, as they are considered invasive species: autumn olive, honeysuckles, salt cedar, rhododendron, multiflora rose, buckthorn, Japanese Barberry, Burning Bush, and Oriental bittersweet (a vine). For additional information on invasive species and native alternatives, please read my article at:
http://api.ning.com/files/upDJWQuP3By62jwQaDQ*HIqC08KqOZIlyknTyIMIfSpJ1cU3EKH*F7hmZYMBaDhDCj0jivi-px1jKSL8TEKs7YPG9gU*Y9EA/CHECKYOURYARDFORFUGITIVES.pdf.

- Check ash trees with a visual survey yearly
- The current estimate for EAB removals and replacement trees is $56,760. Suggestion: request a budget increase to $8,109 annually for 7 years and apply for grants to plant replacement trees

Introduction

This plan was developed to assist Logan 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 Logan, these costs can be extended over years and public safety issues from dead and dying ash trees mitigated.

Trees are an important component of Logan'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 Logan and future generations through good urban forestry management.

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

Inventory

In 2012, a tree inventory was conducted that included 100% of the city owned street right of way 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.

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

Annual Benefits

Annual Energy Benefits

Trees conserve energy by shading buildings and blocking winds. Logan's trees reduce energy related costs by approximately $24,844 annually (Appendix A, Table 1). These savings are both in Electricity (118 MWh) and in Natural Gas (16,213 Therms).

Annual Stormwater Benefits

Logan's trees intercept about 1,385,391 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $37,547 of benefits to the city.

Annual Air Quality Benefits

Air quality is a persistent public health issue in Iowa. The urban forest improves air quality by removing pollutants, lowering air temperature, and reducing energy consumption, which in turn reduces emissions from power plants, and emitting volatile organic mater (ozone). In Logan, it is estimated that trees remove 1,559lbs of air pollution (ozone (O_3), particulate matter less than 10 microns (PM10), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2)) per year with a net value of $4,412 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Logan, trees sequester about 326,378 lbs of carbon a year with an associated value of $4,337 (Appendix A, Table 4). In addition, the trees store 5,275,502 lbs of carbon, with a yearly benefit of $39,566 (Appendix A, Table 5).

Annual Aesthetics Benefits

Social benefits of trees are hard to capture. The analysis does have a calculation for this area that includes: aesthetic value, property values, lowered rates of mental illness and crime, city livability and much more. Logan receives $27,654 in annual social benefits from trees (Appendix A, Table 6).

Financial Summary of all Benefits

According to the USDA Forest Service i-Tree STRATUM analysis, Logan's trees provide $98,198 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 483 trees in Logan provide approximately $203 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Logan has over 46 different tree species along city streets and parks (Appendix A, Figure 1). The distribution of trees by genus is as follows:

Maple	194	40%
Ash	84	17%
Oak	27	6%
Walnut	24	5%
Elm	20	4%
Apple	19	4%
Pine	19	4%
Hackberry	17	3.5%
Spruce	13	3%
Cedar	9	2%
Basswood/Linden	7	1%
Sycamore	7	1%
Mulberry	5	1%
Redbud	5	1%
Black locust	5	1% (invasive species – should be removed)
Coniferous Evergreen	3	<1%
Buckeye	3	<1%
Pear	3	<1%
Cottonwood	2	<1%
Ginkgo	2	<1%
Honeylocust	2	<1%
Kentucky coffee tree	2	<1%
Broadleaf Deciduous	2	<1% (tree of heaven – invasive tree – remove)
Broadleaf Evergreen	2	<1%
Birch	2	<1%
Catalpa	1	<1%
Juniper	1	<1%
Tulip tree	1	<1%
Willow	1	<1%

Age Class

Most of Logan's trees (55.2%) are between 12 and 30 inches in diameter at 4.5 ft (Appendix A, Figure 2). For age, a Bell Curve is preferred and shows the highest amount of trees around 18 inches in diameter at 4.5 ft. Logan's size curve is on the larger side, indicating an older than average stand.

Condition: Wood and Foliage

Both wood condition and leaf condition are good indicators of the overall health of the urban forest. The foliage condition results for Logan indicate that 49% of the trees are in good health, with only 6% of the foliage in poor health, dead or dying (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 59% of Logan's trees are in good health for wood condition (appendix A, Figure 4 & Appendix B, Figure 3). Wood condition that is in poor health, dead or dying is about 11% of the population. This 11% 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).

None	322	66.8%
Stake/Train	8	1.66%
Clean	84	17.4%
Raise	5	1.0%
Reduce	2	0.4%
Remove	31	6.4%
Treat pest/disease	30	6.2%

**Usually treat pest/disease indicates carpenter ant activity or rot in the tree that is suspicious, or that a tree disease, such as oak wilt and/or bur oak blight was observed (which was the case in Logan this summer).

Canopy Cover

The canopy cover of Logan is approximately 14 acres (Appendix A, Figure 4). According to the 2010 census, Logan occupies 640 acres. Thus the canopy cover on city land is about 2%.

Land Use and Location

The majority of Logan's city and park trees are in planting strips in single family residential neighborhoods (Appendix A, Figure 6 & Appendix A, Figure7). The following describes the land use and locations for the street and park trees.

Land Use	
Single family residential	98.5%
Park/vacant/other	1%
Small commercial	0.4%

Location	
Front yard	32.8%
Planting strip	67%
Median	0.2%

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

Logan has 27 critical concern trees that need immediate removal. These trees can be seen on the Location of Trees with Recommended Maintenance map (Appendix B, Figure 4). It is recommended to start with the large diameter critical concern trees first. There are 24 trees over 18 inches in diameter at 4.5 ft that should be addressed immediately. Please refer to the six year maintenance plan at the end of this section. After all of the critical concern trees are addressed, there should be follow up on the remaining critical concern tasks and all other mature tree immediate removals and tasks. There are a total of 32 trees with these needs.

Poor tree species

After the removal of the critical concern trees, ash trees in poor health should be assessed for removal (Appendix B, Figure 3 & Appendix B, Figure 4). Of the 31 removals, 2 are ash trees. There are a total of 84 ash trees, and 14 of those have signs and symptoms that have been associated with EAB. In addition, there are 4 trees that are in poor health. *City ownership of the trees recommended for removal should be verified prior to any removal*

Pruning Cycle

Proper pruning can extend the life and good health of trees, as well as reduce public safety issues. In the Management Needs section of the Findings there are four main maintenance issues to be addressed: routine pruning, crown cleaning, crown raising, and crown reduction. Crown cleaning removes dead, diseased, and damaged limbs. Crown raising is the removal of lower branches that are 2 inches in diameter or larger in the case of providing clearance for pedestrians or vehicles. Crown reduction is removing individual limbs from structures or utility wires. It is recommended that all trees be pruned on a routine schedule every five to seven years. Please refer to the six year maintenance plan for further information.

Planting

Most of the planting over the next 10 years will replace the trees that are removed. It is recommended to plant 1.2 trees for every tree removed, since survival rates will not be 100%. Please refer to the ten year maintenance plan at the end of this section. It is not essential that the new trees be planted in the same location of the trees being removed. However, maintaining the same number of trees helps ensure continuation of the benefits of the existing forest in Logan.

It is important to plant a diverse mix of species in the urban forest to maintain canopy health, since most insects and diseases target a genus (ash) or species (green ash) of trees. Current diversity recommendations advise that a genus (i.e. maple, oak) not make up more than 20% of the urban forest and a single species (i.e. silver maple, sugar maple, white oak, bur oak) not make up more than 10% of the total urban forest. Presently, the forest is heavily planted with Maple (40%) (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, box elder, Chinese elm, evergreen, willow or black walnut, as outlined in section 151.02 of the city ordinance (Appendix C). All trees planted must meet the restrictions in city ordinance 151.02 (Appendix C).

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.		
Swamp White Oak	*Quercus bicolor*	
White Oak	*Quercus alba*	
Bur Oak	*Quercus macrocarpa*	
Red Oak	*Quercus rubra*	
Black Oak	*Quercus veluntina*	
Chinkapin Oak	*Quercus muehlenbergii*	
American Basswood (Linden)	*Tilia Americana*	Boulevard, Front Yard, Legend, Redmond
Thornless Honeylocust	*Gleditsia triacanthos var. inermis*	Shademaster, Skyline
American elm	*Ulmus Americana*	Independence, New harmony, Valley Forge
Cottonwood (seedless) - ***Not recommended for planting near any homes or structures	*Populous deltoides*	Siouxland
Sycamore	*Plantanus occidentalis*	
Gingko	*Gingko biloba*	Male only – Shangri-La, Princeton sentry, Emperor
Ohio Buckeye	*Aesculus hippocastanum*	
Yellowwood	*Cladrastis lutea*	
Kentucky coffeetree	*Gymnocladus diocius*	Expresso
Black Cherry	*Prunus serotina*	
Hackberry	*Celtis occidentalis*	Chicagoland, Prairie Pride, Windy

		City
LOW GROWING TREES (less than 30 feet tall) planted as close as 12 feet.		
Eastern redbud	*Cercis Canadensis*	
Thornless cockspur hawthorn or other native hawthorns	*Crataegus crusgalli var. inermis*	
Ironwood (hop hornbeam)	*Ostrya virginiana*	
American hornbeam	*Carpinus caroliniana*	
Serviceberry	*Amalanchier arborea*	Autumn brilliance, Cumulus, Princess Diana
Flowering crabapple	*Malus*	Prairiefire, Adams, Sentinel, Snowdrift
Red mulberry	*Morus rubra*	
American (wild) plum	*Prunus americana*	
EVERGREEN TREES – planted 25 feet apart and away from overhead power lines.		
Eastern White Pine	*Pinus strobes*	
Jack pine	*Pinus banksiana*	
Junipers (Eastern red cedar)	*Juniperus virginiana*	
Norway spruce	*Picea abies*	
Concolor fir	*Abies concolor*	
Bald cypress	*Taxodium distichum*	
Arborvitae (Northern White cedar)	*Thuja occidentalis*	Techny, Brandon, Holmstrup

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.

Ten Year Maintenance Plan with <u>No Additional Funding</u>

Year 1

Removal: All 24 critical removal trees >18”

Visual Survey for signs and symptoms of EAB

Year 2

Removal/Trimming: 3 remaining critical concern removal trees + remaining critical concern and immediate mature tree tasks (32 trees total). Inspect Mature Tree Routine trees labeled for pest/disease and for removal (8 trees). Perform Mature Tree Routine Cleanings, Raisings, and reductions (86 trees).

Stake/Train: Stake and train 71 young trees, train 4 mature apple trees.

Visual Survey for signs and symptoms of EAB

Year 3

Routine Trimming: Perform routine contract trimming on 1/3 of community trees or 161 trees

Planting: Start planting replacement trees. 31 total removals x 1.2 replacement factor = 37 total trees. Plant 1/3 of trees or 13 and perform yearly maintenance (mulching and watering).

Visual Survey for signs and symptoms of EAB

Year 4

Planting: Plant 1/3 of replacement trees (12) and perform yearly maintenance (mulching and watering).

EAB Budgeting: An estimated $56,760 will be required to remove and replace all ash trees if Emerald Ash Borer were to kill every one of the 82 remaining ash trees. Budget to remove and replace 12 ash trees this year.

Visual Survey for signs and symptoms of EAB

Year 5

Routine Trimming: Perform routine contract trimming on 1/3 of community trees or 161 trees

Planting: Plant 1/3 of replacement trees (12) and perform yearly maintenance (mulching and watering).

EAB Budgeting: Budget to remove and replace 12 ash trees this year.

Visual Survey for signs and symptoms of EAB

Year 6

Removal: Inspect for new removal needs

EAB Budgeting: Budget to remove and replace 12 ash trees this year.

Visual Survey for signs and symptoms of EAB

Year 7

Routine Trimming: Perform routine contract trimming on 1/3 of community trees or 161 trees

Removal: Inspect for new removal needs

EAB Budgeting: Budget to remove and replace 12 ash trees this year.

Visual Survey for signs and symptoms of EAB

Year 8

Routine Trimming: Perform routine contract trimming on 1/3 of community trees or 161 trees

Removal: Inspect for new removal needs

EAB Budgeting: Budget to remove and replace 12 ash trees this year.

Visual Survey for signs and symptoms of EAB

Year 9

Removal: Inspect for new removal needs

EAB Budgeting: Budget to remove and replace 12 ash trees this year.

Visual Survey for signs and symptoms of EAB

Year 10

Routine Trimming: Start routine contract trimming cycle again.

Removal: Inspect for new removal needs
EAB Budgeting: Budget to remove and replace 12 ash trees this year.
Visual Survey for signs and symptoms of EAB

Emerald Ash Borer Plan

Ash Tree Removal

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

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.

A regulated article under the USDA's quarantine includes any of the following items:
• emerald ash borer
• firewood of all hardwood species (for example ash, oak, maple and hickory)
• nursery stock and green lumber of ash
• any other ash material, whether living, dead, cut or fallen, including logs, stumps, roots, branches, as well as composted and not composted chips of the genus ash (Mountain ash is not included)

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

Wood Disposal

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

Canopy Replacement

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

Postponed Work

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

Monitoring

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

Private Ash Trees

It is strongly recommended that private property owners start removing ash trees on their property upon arrival of EAB. City Code 151.06 states “If it is determined with reasonable certainty that any such condition exists (trees or shrubs in the City reported or suspected to be infected with or damaged by any disease or insect or disease pests) on private property and that the danger to other trees or to adjoining property or passing motorists or pedestrians is imminent, the Council shall notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14 days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property.”

Budget

Current Budget
NO CURRENT TREE REMOVAL/REPLACEMENT BUDGET

Year 1
Removal: $12,000 (24 trees x $500/tree)
Year 2
Removal: $2,000 (3 critical, 1 mature tree immediate. X $500/removal)
Critical Concern/immediate concern cleanings/raisings/ reductions, and pest/disease inspections or treatments: 31 trees x $75/tree = $2325
Mature Tree Routine Trimmings: (on city-wide contract): 86 trees x $6.50/tree = $560
Stake/Train: 71 young trees & 7 mature apple trees: 77 x $6.50 = $500

Year 3
Routine Contract Trimming: 161x$6.50 = $1047
Planting: 13 trees x $150/tree = $1950
Year 4
Planting: 12 trees x $150/tree = $1800
EAB Budgeting: $8,109
Year 5
Routine Contract Trimming: $1047
Planting: $1800
EAB Budgeting: $8,109
Year 6
Anticipate new Removals: $xxx?
EAB Budgeting: $8,109
Year 7
Routine Contract Trimming: 161 trees x $6.50/tree = $1047
Anticipate new Removals: $xxx?
EAB Budgeting: $8,109
Year 8
Anticipate new Removals: $xxx?
EAB Budgeting: $8,109
Year 9
Anticipate new Removals: $xxx?
EAB Budgeting: $8,109
Year 10
Routine Contract Trimming: $1047 (1/3 of Logan's street trees).
Anticipate new Removals: $xxx?
EAB Budgeting: $8,109

Proposed Budget Increase

EAB could potentially kill all ash trees in Logan within 4 years of its arrival. To remove and replace all ash trees, plan on budgeting $56,760 (which can be distributed out in your budgets as you see fit). Additionally, it is recommended that Logan 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.

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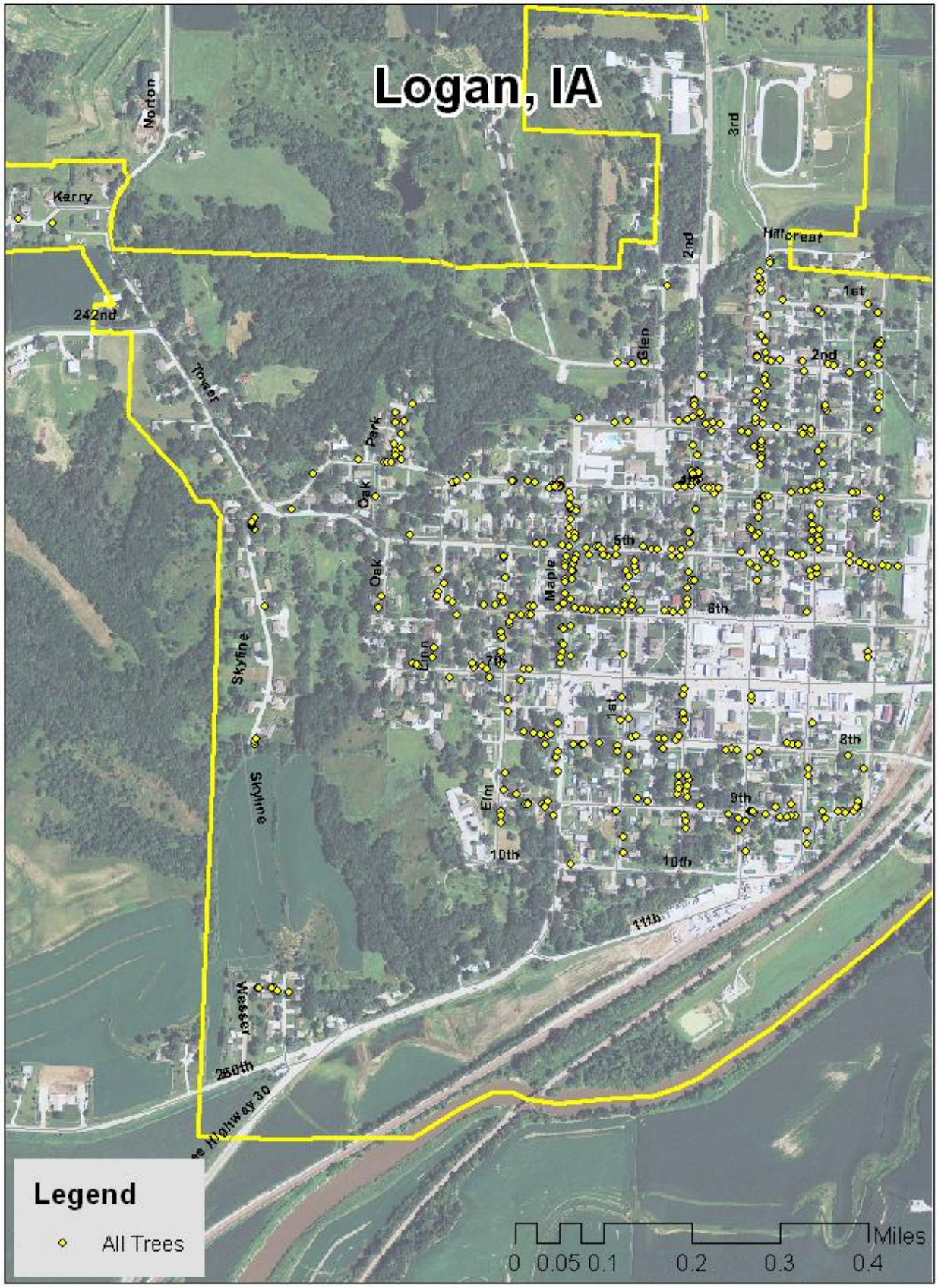

Logan, IA
Norton
Kerry
242nd
Tower
Park
Oak
Oak
Maple
Elm
Skyline
Skyline
Hillcrest
1st
2nd
2nd
3rd
4th
5th
6th
7th
8th
8th
9th
10th
10th
11th
Wessel
250th
Legend
All Trees
Miles
0 0.05 0.1 0.2 0.3 0.4

Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Logan

Annual Energy Benefits of Public Trees by Species

1/5/2013

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	40.1	3,045	5,308.3	5,202	8,247	(N/A)	24.9	33.2	68.72
Green ash	21.8	1,658	3,018.1	2,958	4,616	(N/A)	16.2	18.6	59.17
Norway maple	8.1	615	1,187.6	1,164	1,778	(N/A)	6.6	7.2	55.57
Black walnut	5.9	447	802.8	787	1,234	(N/A)	5.0	5.0	51.40
Apple	2.2	163	336.6	330	493	(N/A)	3.9	2.0	25.96
Amur maple	0.4	31	69.9	69	99	(N/A)	3.5	0.4	5.84
Northern hackberry	5.9	447	842.3	825	1,273	(N/A)	3.5	5.1	74.86
Bur oak	3.2	243	457.2	448	691	(N/A)	2.7	2.8	53.16
Red maple	1.6	121	223.2	219	340	(N/A)	2.5	1.4	28.35
Spruce	0.5	39	75.2	74	113	(N/A)	2.5	0.5	9.38
Blue spruce	0.5	41	77.4	76	117	(N/A)	2.3	0.5	10.60
Sugar maple	2.7	204	354.7	348	552	(N/A)	2.1	2.2	55.21
Siberian elm	3.9	297	514.0	504	801	(N/A)	2.1	3.2	80.06
Northern red oak	1.7	130	238.3	234	363	(N/A)	1.9	1.5	40.38
Northern white cedar	0.0	2	6.0	6	8	(N/A)	1.9	0.0	0.93
American sycamore	2.5	186	343.5	337	523	(N/A)	1.5	2.1	74.72
American basswood	2.0	152	291.1	285	438	(N/A)	1.5	1.8	62.54
Elm	2.7	204	371.2	364	568	(N/A)	1.5	2.3	81.12
Eastern redbud	0.2	15	33.9	33	48	(N/A)	1.0	0.2	9.61
Mulberry	1.0	73	144.2	141	215	(N/A)	1.0	0.9	42.94
Black locust	1.3	102	195.6	192	294	(N/A)	1.0	1.2	58.73
Other street trees	9.7	739	1,321.8	1,295	2,034	(N/A)	11.0	8.2	38.38
Citywide total	118.0	8,955	16,213.0	15,889	24,844	(N/A)	100.0	100.0	51.54

Table 2: Annual Stormwater Benefits

Logan

Annual Stormwater Benefits of Public Trees by Species

1/5/2013

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	581,571	15,762	(N/A)	24.9	42.0	131.35
Green ash	233,566	6,330	(N/A)	16.2	16.9	81.15
Norway maple	81,293	2,203	(N/A)	6.6	5.9	68.85
Black walnut	57,873	1,568	(N/A)	5.0	4.2	65.35
Apple	10,007	271	(N/A)	3.9	0.7	14.27
Amur maple	1,314	36	(N/A)	3.5	0.1	2.09
Northern hackberry	56,002	1,518	(N/A)	3.5	4.0	89.28
Bur oak	35,406	960	(N/A)	2.7	2.6	73.81
Red maple	12,877	349	(N/A)	2.5	0.9	29.08
Spruce	6,908	187	(N/A)	2.5	0.5	15.60
Blue spruce	5,958	161	(N/A)	2.3	0.4	14.68
Sugar maple	28,754	779	(N/A)	2.1	2.1	77.93
Siberian elm	47,089	1,276	(N/A)	2.1	3.4	127.62
Northern red oak	18,420	499	(N/A)	1.9	1.3	55.47
Northern white cedar	439	12	(N/A)	1.9	0.0	1.32
American sycamore	32,838	890	(N/A)	1.5	2.4	127.14
American basswood	21,240	576	(N/A)	1.5	1.5	82.23
Elm	39,033	1,058	(N/A)	1.5	2.8	151.13
Eastern redbud	674	18	(N/A)	1.0	0.1	3.65
Mulberry	4,855	132	(N/A)	1.0	0.4	26.32
Black locust	12,610	342	(N/A)	1.0	0.9	68.35
Other street trees	96,662	2,620	(N/A)	11.0	7.0	49.43
Citywide total	1,385,391	37,547	(N/A)	100.0	100.0	77.90

Table 3: Annual Air Quality Benefits

Logan

Annual Air Quality Benefits of Public Trees by Species

1/5/2013

Species	Deposition (lb) O_3	NO_2	PM_{10}	SO_2	Total Depos. ($)	Avoided (lb) NO_2	PM_{10}	VOC	SO_2	Total Avoided ($)	BVOC Emissions (lb)	BVOC Emissions ($)	Total (lb)	Total ($)	Standard Error	% of Total Trees	Avg. $/tree
Silver maple	101.0	17.1	49.5	4.5	545	189.3	27.7	26.4	181.5	1,184	-52.1	-195	545.1	1,533	(N/A)	24.9	12.78
Green ash	27.5	4.4	13.3	1.2	147	104.5	15.2	14.5	99.0	651	0.0	0	279.7	797	(N/A)	16.2	10.22
Norway maple	17.2	3.0	8.4	0.8	93	39.4	5.7	5.4	36.7	244	-4.0	-15	112.6	322	(N/A)	6.6	10.05
Black walnut	6.4	1.0	3.2	0.3	34	28.1	4.1	3.9	26.7	175	0.0	0	73.6	209	(N/A)	5.0	8.72
Apple	3.2	0.5	1.5	0.1	17	10.6	1.5	1.4	9.7	65	0.0	0	28.6	82	(N/A)	3.9	4.32
Amur maple	0.1	0.0	0.1	0.0	1	2.1	0.3	0.3	1.8	13	0.0	0	4.7	13	(N/A)	3.5	0.78
Northern hackberry	8.6	1.5	4.4	0.4	47	28.5	4.1	3.9	26.7	177	0.0	0	78.1	223	(N/A)	3.5	13.14
Bur oak	4.2	0.7	2.0	0.2	22	15.5	2.2	2.1	14.5	96	0.0	0	41.4	118	(N/A)	2.7	9.08
Red maple	2.9	0.5	1.4	0.1	15	7.7	1.1	1.1	7.2	48	-1.0	-4	21.0	59	(N/A)	2.5	4.95
Spruce	0.7	0.1	0.6	0.1	4	2.5	0.4	0.3	2.3	15	-2.6	-10	4.4	10	(N/A)	2.5	0.85
Blue spruce	0.6	0.1	0.6	0.1	4	2.6	0.4	0.4	2.4	16	-1.9	-7	5.2	13	(N/A)	2.3	1.18
Sugar maple	3.8	0.6	1.9	0.2	20	12.7	1.9	1.8	12.2	80	-3.0	-11	32.1	89	(N/A)	2.1	8.89
Siberian elm	9.0	1.5	4.3	0.4	48	18.5	2.7	2.6	17.7	116	0.0	0	56.7	164	(N/A)	2.1	16.39
Northern red oak	4.0	0.7	1.9	0.2	21	8.2	1.2	1.1	7.8	51	-5.7	-22	19.3	51	(N/A)	1.9	5.66
Northern white cedar	0.0	0.0	0.0	0.0	0	0.2	0.0	0.0	0.1	1	-0.2	-1	0.2	0	(N/A)	1.9	0.05
American sycamore	4.6	0.7	2.1	0.2	24	11.8	1.7	1.6	11.1	73	0.0	0	33.8	97	(N/A)	1.5	13.90
American basswood	2.8	0.5	1.4	0.1	15	9.8	1.4	1.3	9.1	60	-2.4	-9	24.0	66	(N/A)	1.5	9.49
Elm	5.8	0.9	2.6	0.3	30	12.9	1.9	1.8	12.2	80	0.0	0	38.2	110	(N/A)	1.5	15.75
Eastern redbud	0.1	0.0	0.1	0.0	1	1.0	0.1	0.1	0.9	6	0.0	0	2.3	7	(N/A)	1.0	1.32
Mulberry	1.7	0.3	0.8	0.1	9	4.7	0.7	0.6	4.4	29	0.0	0	13.3	38	(N/A)	1.0	7.63
Black locust	2.6	0.4	1.3	0.1	14	6.5	0.9	0.9	6.1	40	-0.6	-2	18.2	52	(N/A)	1.0	10.39
Other street trees	17.5	3.0	9.0	0.9	96	46.4	6.8	6.4	44.1	289	-7.9	-29	126.2	356	(N/A)	11.0	6.71
Citywide total	224.0	37.7	110.2	10.2	1,208	563.4	82.0	78.2	534.4	3,509	-81.3	-305	1,558.7	4,412	(N/A)	100.0	9.15

Table 4: Annual Carbon Stored

Logan

Stored CO2 Benefits of Public Trees by Species

1/5/2013

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	2,266,398	16,998	(N/A)	24.9	43.0	141.65
Green ash	884,491	6,634	(N/A)	16.2	16.8	85.05
Norway maple	283,129	2,123	(N/A)	6.6	5.4	66.36
Black walnut	205,845	1,544	(N/A)	5.0	3.9	64.33
Apple	50,130	376	(N/A)	3.9	1.0	19.79
Amur maple	3,827	29	(N/A)	3.5	0.1	1.69
Northern	126,562	949	(N/A)	3.5	2.4	55.84
Bur oak	134,318	1,007	(N/A)	2.7	2.6	77.49
Red maple	32,132	241	(N/A)	2.5	0.6	20.08
Spruce	5,225	39	(N/A)	2.5	0.1	3.27
Blue spruce	3,024	23	(N/A)	2.3	0.1	2.06
Sugar maple	107,488	806	(N/A)	2.1	2.0	80.62
Siberian elm	220,463	1,653	(N/A)	2.1	4.2	165.35
Northern red oak	88,033	660	(N/A)	1.9	1.7	73.36
Northern white	22	0	(N/A)	1.9	0.0	0.02
American	150,066	1,125	(N/A)	1.5	2.8	160.78
American	100,412	753	(N/A)	1.5	1.9	107.58
Elm	191,037	1,433	(N/A)	1.5	3.6	204.68
Eastern redbud	2,185	16	(N/A)	1.0	0.0	3.28
Mulberry	26,302	197	(N/A)	1.0	0.5	39.45
Black locust	41,740	313	(N/A)	1.0	0.8	62.61
Other street trees	159,970	2,645	(N/A)	11.0	6.7	49.91
Citywide total	5,275,502	39,566	(N/A)	100.0	100.0	82.09

Table 5: Annual Carbon Sequestered

Logan

Annual CO_2 Benefits of Public Trees by Species

1/5/2013

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
Silver maple	168,075	1,261	-10,879	-23	-82	67,290	505	224,464	1,683	(N/A)	24.9	45.0	14.03
Green ash	53,288	400	-4,246	-15	-32	36,636	275	85,664	642	(N/A)	16.2	17.2	8.24
Norway maple	10,346	78	-1,359	-6	-10	13,581	102	22,562	169	(N/A)	6.6	4.5	5.29
Black walnut	13,972	105	-988	-5	-7	9,874	74	22,853	171	(N/A)	5.0	4.6	7.14
Apple	4,132	31	-241	-4	-2	3,609	27	7,497	56	(N/A)	3.9	1.5	2.96
Amur maple	680	5	-18	-3	0	680	5	1,338	10	(N/A)	3.5	0.3	0.59
Northern hackberry	7,504	56	-607	-3	-5	9,882	74	16,775	126	(N/A)	3.5	3.4	7.40
Bur oak	8,058	60	-645	-3	-5	5,370	40	12,781	96	(N/A)	2.7	2.6	7.37
Red maple	3,038	23	-154	-2	-1	2,685	20	5,566	42	(N/A)	2.5	1.1	3.48
Spruce	509	4	-25	-2	0	859	6	1,340	10	(N/A)	2.5	0.3	0.84
Blue spruce	322	2	-15	-2	0	901	7	1,206	9	(N/A)	2.3	0.2	0.82
Sugar maple	5,796	43	-516	-2	-4	4,519	34	9,797	73	(N/A)	2.1	2.0	7.35
Siberian elm	7,614	57	-1,058	-2	-8	6,562	49	13,116	98	(N/A)	2.1	2.6	9.84
Northern red oak	1,413	11	-423	-2	-3	2,871	22	3,859	29	(N/A)	1.9	0.8	3.22
Northern white cedar	32	0	0	-2	0	55	0	85	1	(N/A)	1.9	0.0	0.07
American sycamore	5,911	44	-720	-1	-5	4,119	31	9,309	70	(N/A)	1.5	1.9	9.97
American basswood	6,089	46	-482	-1	-4	3,370	25	8,975	67	(N/A)	1.5	1.8	9.62
Elm	6,267	47	-917	-1	-7	4,510	34	9,858	74	(N/A)	1.5	2.0	10.56
Eastern redbud	312	2	-10	-1	0	328	2	629	5	(N/A)	1.0	0.1	0.94
Mulberry	535	4	-126	-1	-1	1,621	12	2,029	15	(N/A)	1.0	0.4	3.04
Black locust	1,796	13	-200	-1	-2	2,254	17	3,848	29	(N/A)	1.0	0.8	5.77
Other street trees	20,688	155	-1,693	-10	-13	16,332	122	35,316	265	(N/A)	11.0	7.1	5.00
Citywide total	326,378	2,448	-25,322	-94	-191	197,908	1,484	498,870	3,742	(N/A)	100.0	100.0	7.76

Table 6: Annual Social and Aesthetic Benefits

Logan

Annual Aesthetic/Other Benefits of Public Trees by Species

1/5/2013

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Silver maple	13,013	(N/A)	24.9	47.1	108.44
Green ash	4,421	(N/A)	16.2	16.0	56.68
Norway maple	965	(N/A)	6.6	3.5	30.14
Black walnut	1,232	(N/A)	5.0	4.5	51.34
Apple	242	(N/A)	3.9	0.9	12.72
Amur maple	36	(N/A)	3.5	0.1	2.09
Northern hackberry	995	(N/A)	3.5	3.6	58.50
Bur oak	682	(N/A)	2.7	2.5	52.45
Red maple	411	(N/A)	2.5	1.5	34.23
Spruce	162	(N/A)	2.5	0.6	13.47
Blue spruce	164	(N/A)	2.3	0.6	14.93
Sugar maple	608	(N/A)	2.1	2.2	60.79
Siberian elm	486	(N/A)	2.1	1.8	48.64
Northern red oak	102	(N/A)	1.9	0.4	11.37
Northern white cedar	52	(N/A)	1.9	0.2	5.76
American sycamore	437	(N/A)	1.5	1.6	62.39
American basswood	451	(N/A)	1.5	1.6	64.50
Elm	438	(N/A)	1.5	1.6	62.63
Eastern redbud	17	(N/A)	1.0	0.1	3.39
Mulberry	31	(N/A)	1.0	0.1	6.19
Black locust	168	(N/A)	1.0	0.6	33.66
Other street trees	2,542	(N/A)	11.0	9.2	47.96
Citywide total	27,654	(N/A)	100.0	100.0	57.37

Table 7: Summary of Benefits in Dollars

Logan

Total Annual Benefits of Public Trees by Species ($)

1/5/2013

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Silver maple	8,247	1,683	1,533	15,762	13,013	40,238	(±0)	41.0
Green ash	4,616	642	797	6,330	4,421	16,807	(±0)	17.1
Norway maple	1,778	169	322	2,203	965	5,437	(±0)	5.5
Black walnut	1,234	171	209	1,568	1,232	4,415	(±0)	4.5
Apple	493	56	82	271	242	1,145	(±0)	1.2
Amur maple	99	10	13	36	36	194	(±0)	0.2
Northern hackberry	1,273	126	223	1,518	995	4,134	(±0)	4.2
Bur oak	691	96	118	960	682	2,546	(±0)	2.6
Red maple	340	42	59	349	411	1,201	(±0)	1.2
Spruce	113	10	10	187	162	482	(±0)	0.5
Blue spruce	117	9	13	161	164	464	(±0)	0.5
Sugar maple	552	73	89	779	608	2,102	(±0)	2.1
Siberian elm	801	98	164	1,276	486	2,826	(±0)	2.9
Northern red oak	363	29	51	499	102	1,045	(±0)	1.1
Northern white cedar	8	1	0	12	52	73	(±0)	0.1
American sycamore	523	70	97	890	437	2,017	(±0)	2.1
American basswood	438	67	66	576	451	1,599	(±0)	1.6
Elm	568	74	110	1,058	438	2,248	(±0)	2.3
Eastern redbud	48	5	7	18	17	95	(±0)	0.1
Mulberry	215	15	38	132	31	431	(±0)	0.4
Black locust	294	29	52	342	168	885	(±0)	0.9
Other street trees	2,034	265	356	2,620	2,542	7,816	(±0)	8.0
Citywide Total	24,844	3,742	4,412	37,547	27,654	98,198	(±0)	100.0

Table 8: Summary of Recommended Maintenance Tasks by Diameter Class

Logan

Recommended Maintenance for Public Trees (None)

1/5/2013

	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)	41	25	5	0	0	0	0	0	0	71	14.73
Young tree (immediate)	0	1	0	0	0	0	0	0	0	1	0.21
Mature tree (routine)	0	8	41	56	74	109	36	21	9	354	73.44
Mature tree (immediate)	0	0	0	0	0	3	3	0	0	6	1.24
Critical concern (public safety)	0	0	1	3	5	16	12	7	6	50	10.37
Citywide total	41	34	47	59	79	128	51	28	15	482	100.00

Table 9: Summary of Priority Tasks by Diameter Class

Logan

Priority Task Summary for Public Trees (None)

1/5/2013

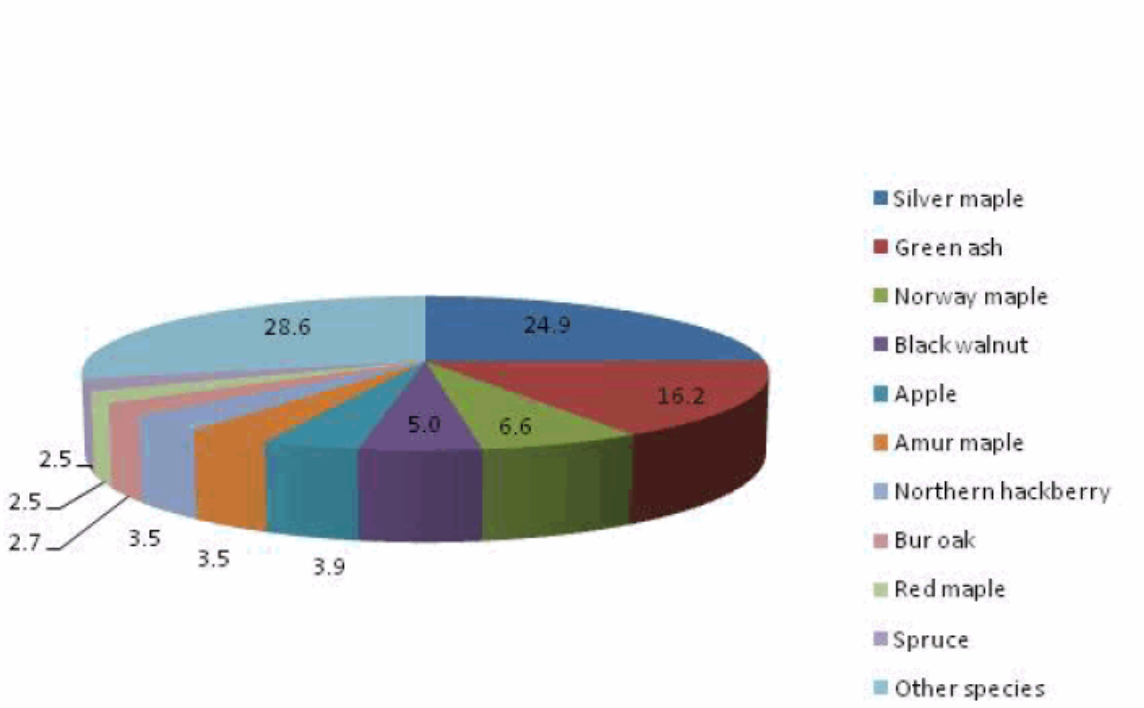
	DBH Class (in)									
Zone	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42	Total
1	37	32	33	39	57	71	29	18	6	322
Citywide total	37	32	33	39	57	71	29	18	6	322

	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	37	32	33	39	57	71	29	18	6	322	66.80
Stake/Train	3	0	3	1	1	0	0	0	0	8	1.66
Clean	1	0	9	15	13	34	8	1	3	84	17.43
Raise	0	0	0	0	2	2	0	1	0	5	1.04
Reduce	0	0	1	1	0	0	0	0	0	2	0.41
Remove	0	1	0	3	4	9	6	4	4	31	6.43
Treat pest/disease	0	1	1	0	2	12	8	4	2	30	6.22
Citywide total	41	34	47	59	79	128	51	28	15	482	100.00

Logan

Species Distribution of Public Trees (%)

1/5/2013



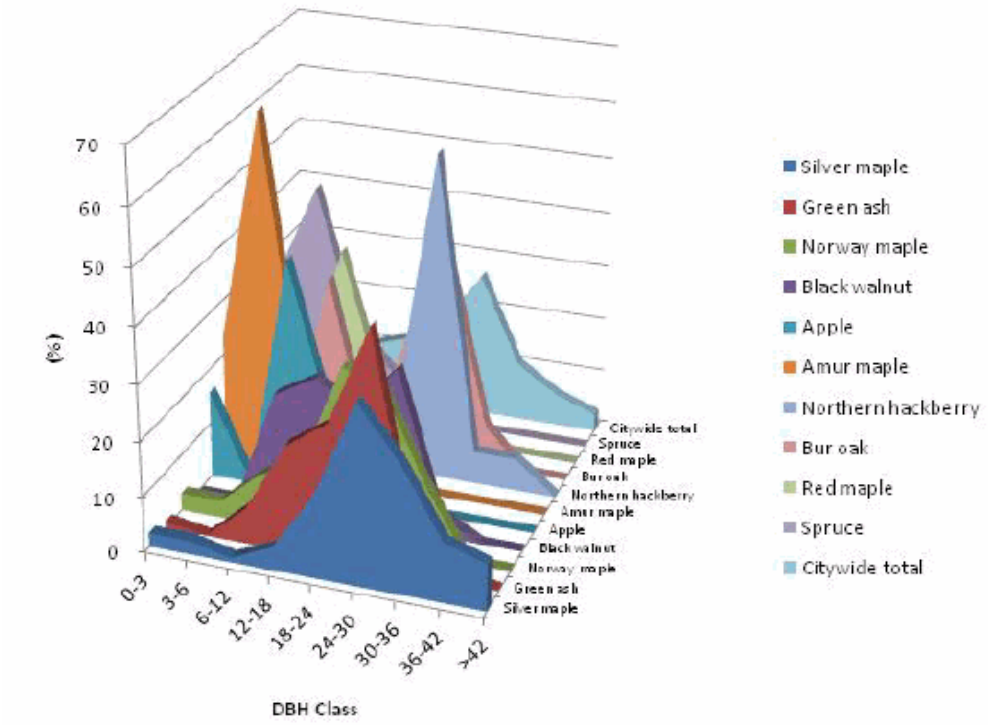
Species	Percent
Silver maple	24.9
Green ash	16.2
Norway maple	6.6
Black walnut	5.0
Apple	3.9
Amur maple	3.5
Northern hackberry	3.5
Bur oak	2.7
Red maple	2.5
Spruce	2.5
Other species	28.6
Total	100.0

Figure 1: Species Distribution

Logan

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

1/5/2013



	DBH class (in)								
Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42
Silver maple	2.5	2.5	0.8	4.2	15.0	32.5	23.3	10.8	8.3
Green ash	1.3	0.0	6.4	19.2	24.4	42.3	5.1	1.3	0.0
Norway maple	3.1	3.1	9.4	12.5	31.3	28.1	12.5	0.0	0.0
Black walnut	0.0	0.0	20.8	25.0	20.8	29.2	4.2	0.0	0.0
Apple	15.8	0.0	42.1	15.8	26.3	0.0	0.0	0.0	0.0
Amur maple	23.5	64.7	11.8	0.0	0.0	0.0	0.0	0.0	0.0
Northern hackberry	0.0	0.0	5.9	11.8	11.8	58.8	5.9	5.9	0.0
Bur oak	0.0	0.0	30.8	0.0	23.1	38.5	7.7	0.0	0.0
Red maple	25.0	8.3	33.3	8.3	16.7	8.3	0.0	0.0	0.0
Spruce	25.0	41.7	16.7	8.3	8.3	0.0	0.0	0.0	0.0
Citywide total	8.5	7.1	9.8	12.2	16.4	26.6	10.6	5.8	3.1

Figure 2: Relative Age Class

Logan

Functional (Foliage) Condition of Public Trees by Species (%)

1/5/2013

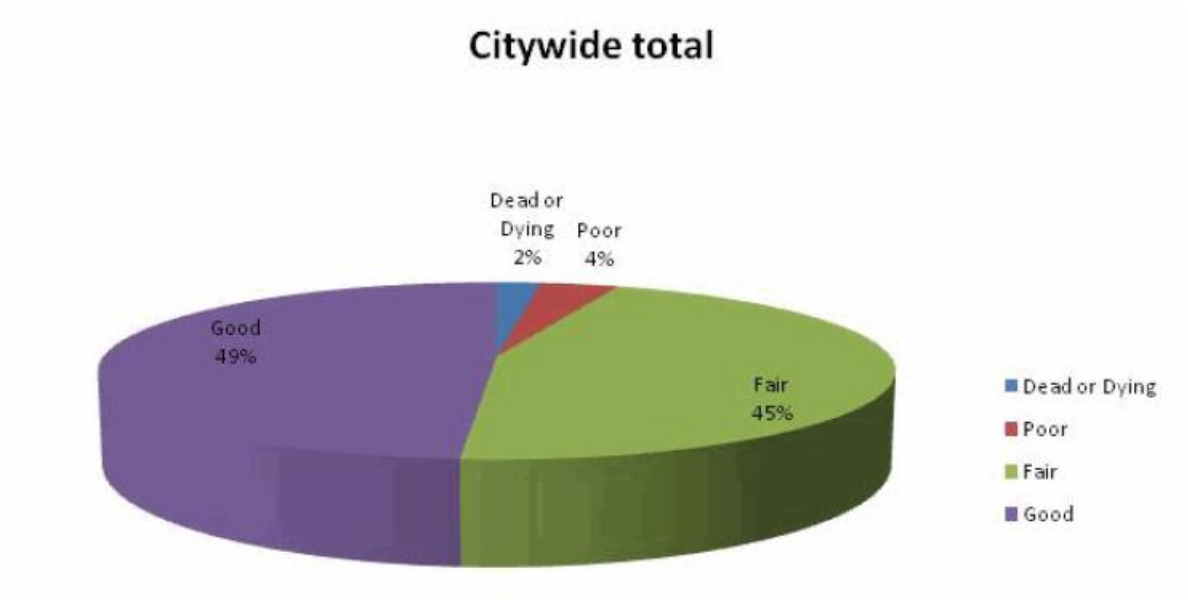


Figure 3: Foliage Condition

Logan

Structural (Woody) Condition of Public Trees by Species (%)

1/5/2013

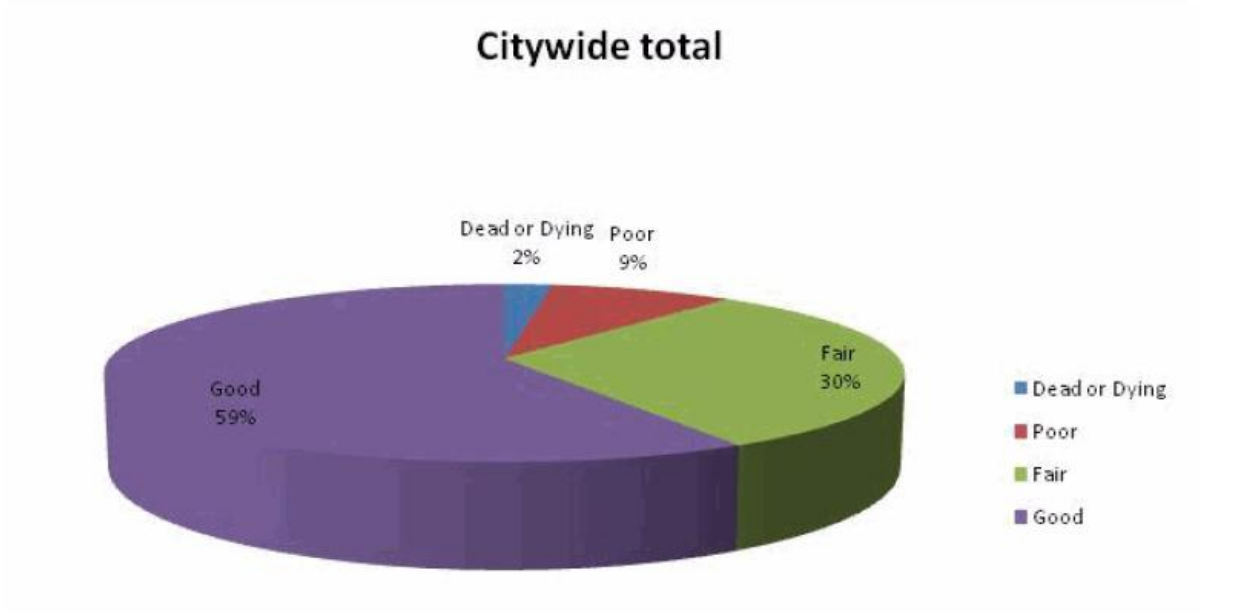
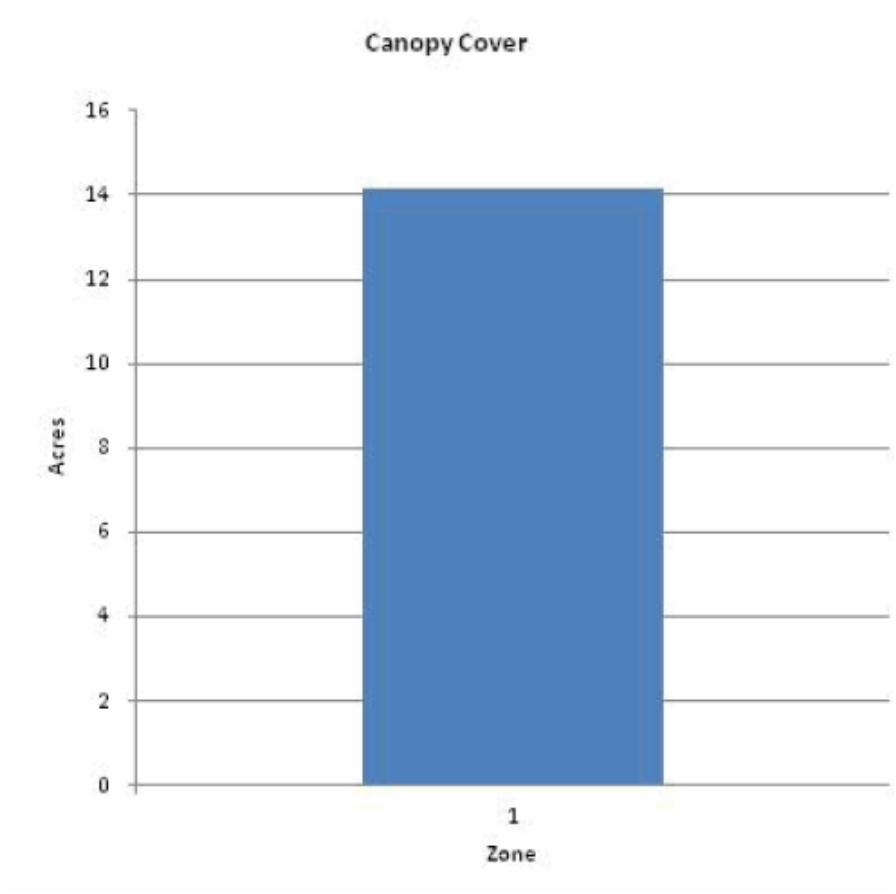


Figure 4: Wood Condition

Logan

Canopy Cover of Public Trees (Acres)

1/5/2013



Zone	Acres	% of Total Canopy Cover
1	14	100.0
Citywide total	14	100.0

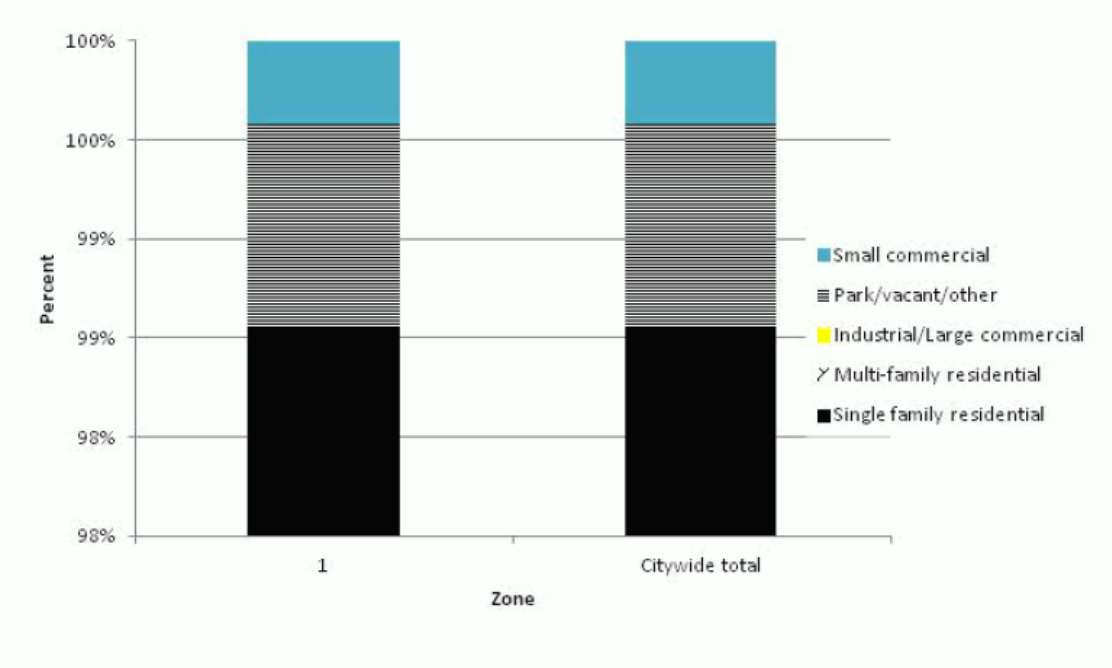
	Total Land Area	Total Street and Sidewalk Area	Total Canopy Cover	Canopy Cover as % of Total Land Area	Canopy Cover as % of Total Streets and Sidewalks
Citywide	0	0	14		

Figure 5: Canopy Cover in Acres

Logan

Land Use of Public Trees by Zone (%)

1/5/2013



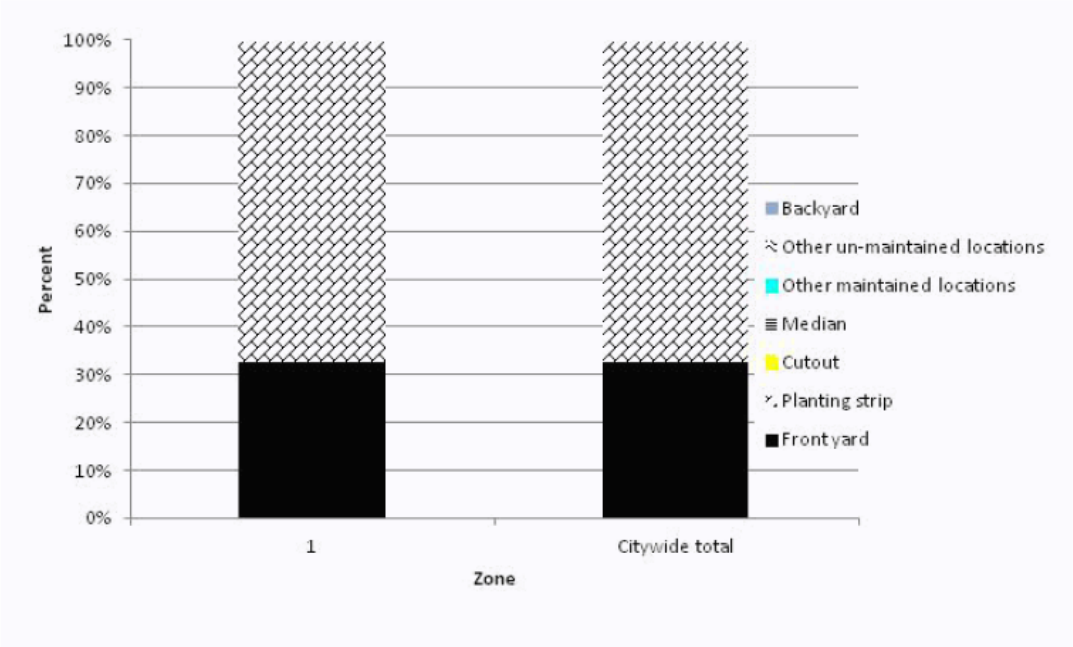
Zone	Single family residential	Multi-family residential	Industrial/ Large commercial	Park/vacant/ other	Small commercial
1	98.5	0.0	0.0	1.0	0.4
Citywide total	98.5	0.0	0.0	1.0	0.4

Figure 6: Land Use of city/park trees

Logan

Location of Public Trees by Zone (%)

1/5/2013



Zone	Front yard	Planting strip	Cutout	Median	Other maintained locations	Other un-maintained locations	Backyard
1	32.8	67.0	0.0	0.2	0.0	0.0	0.0
Citywide total	32.8	67.0	0.0	0.2	0.0	0.0	0.0

Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

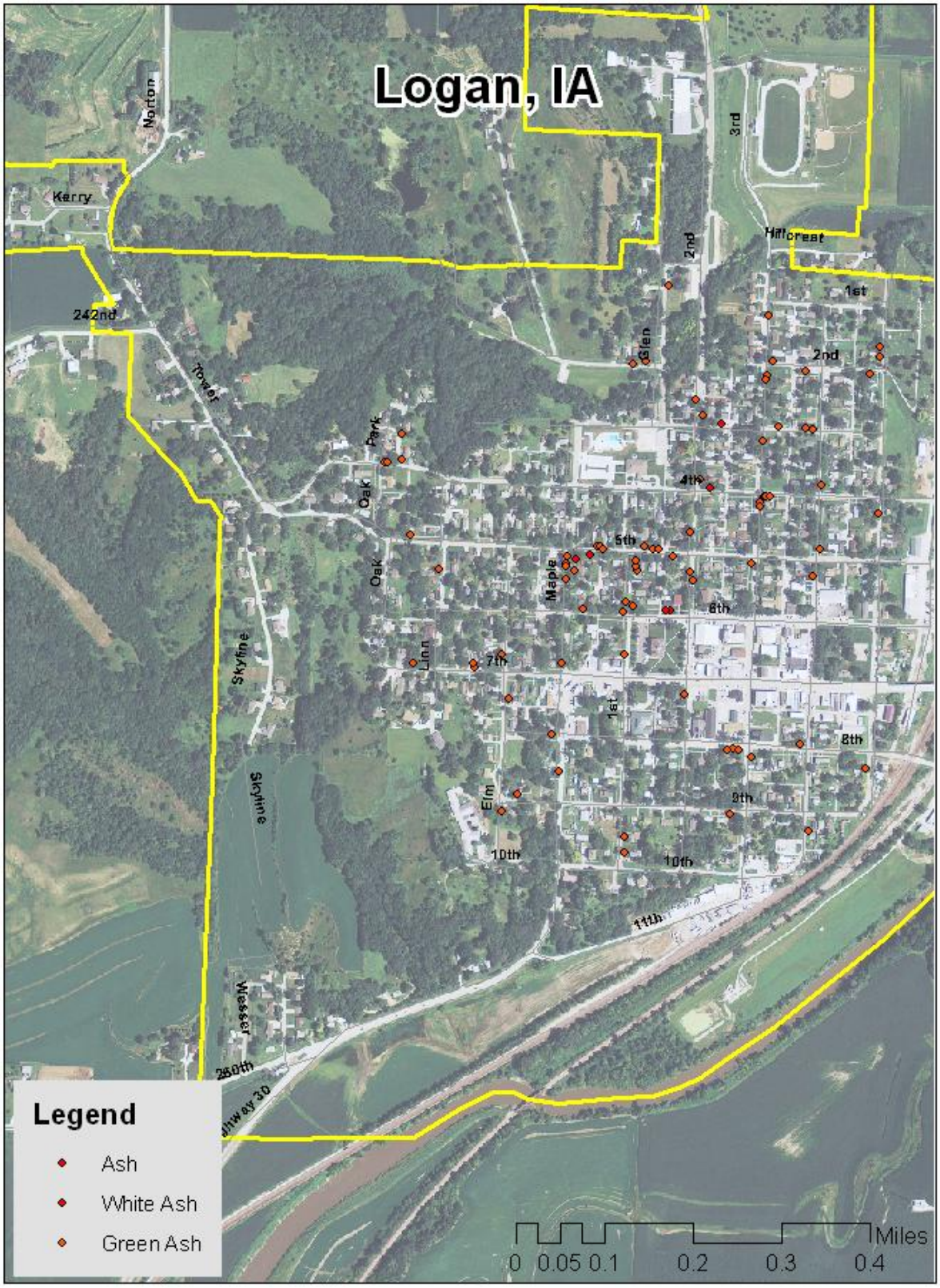


Figure 1: Location of Ash Trees

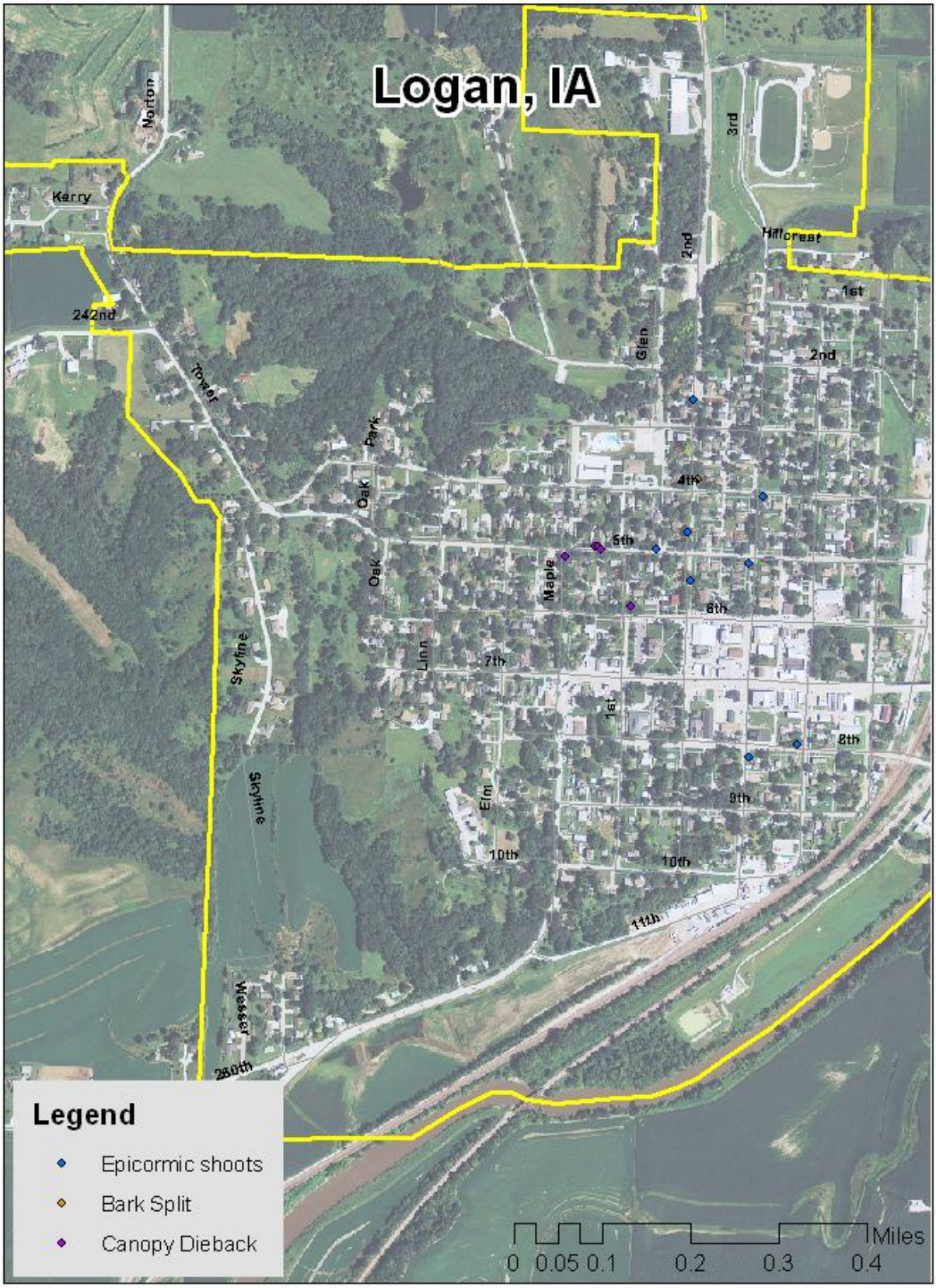


Figure 2: Location of EAB symptoms

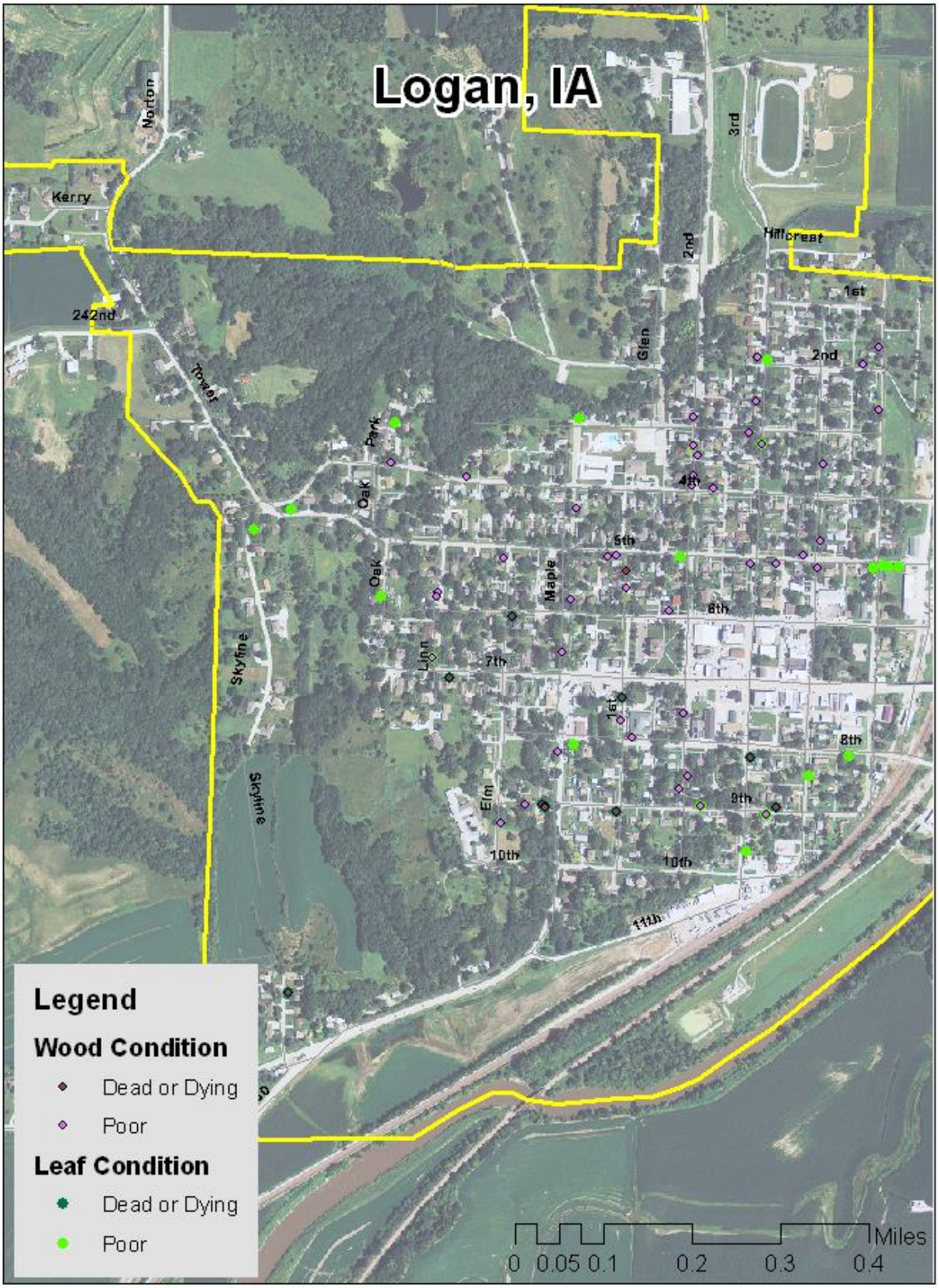


Figure 3: Location of Poor Condition Trees

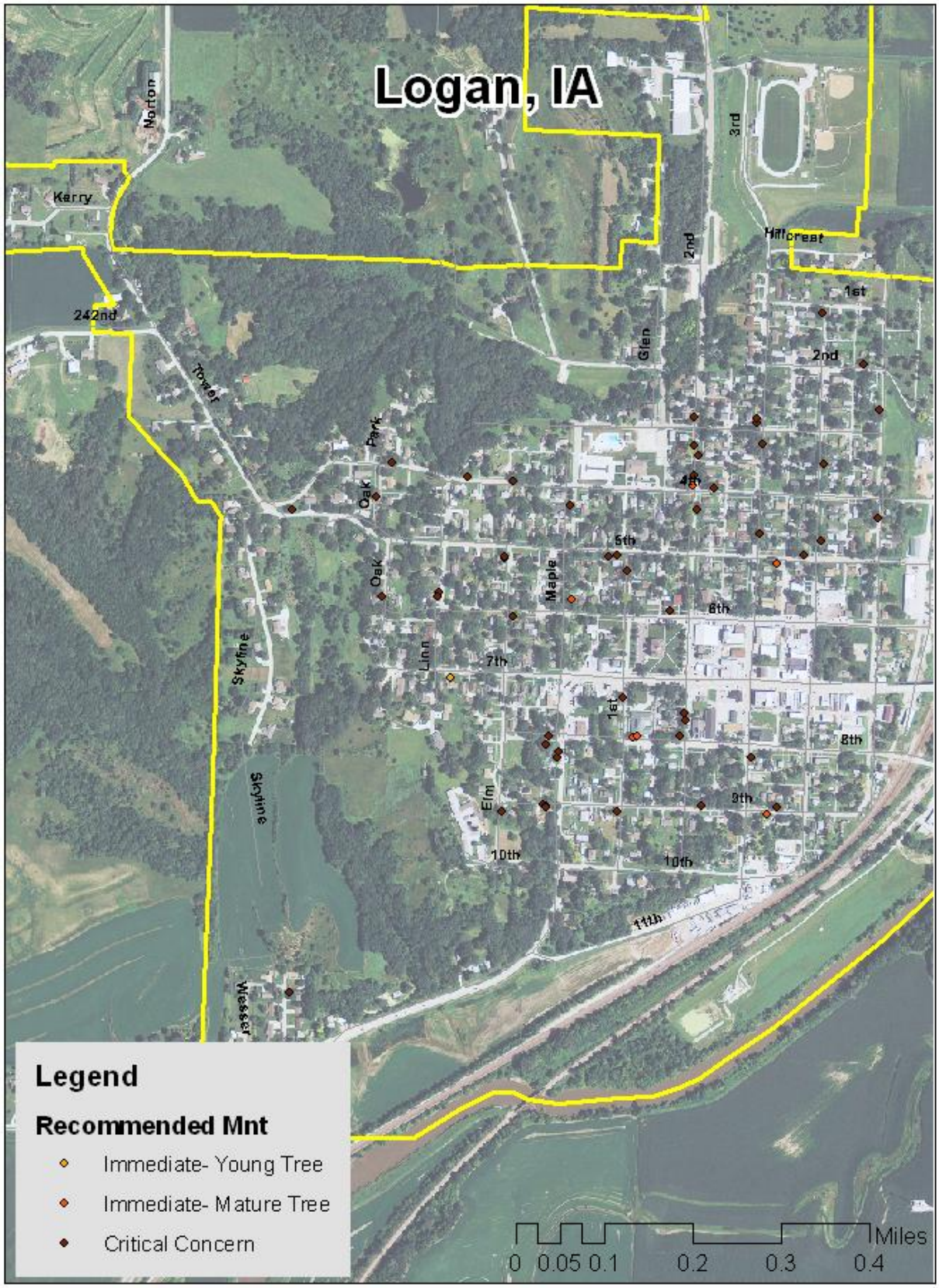


Figure 4: Location of Trees with Recommended Maintenance

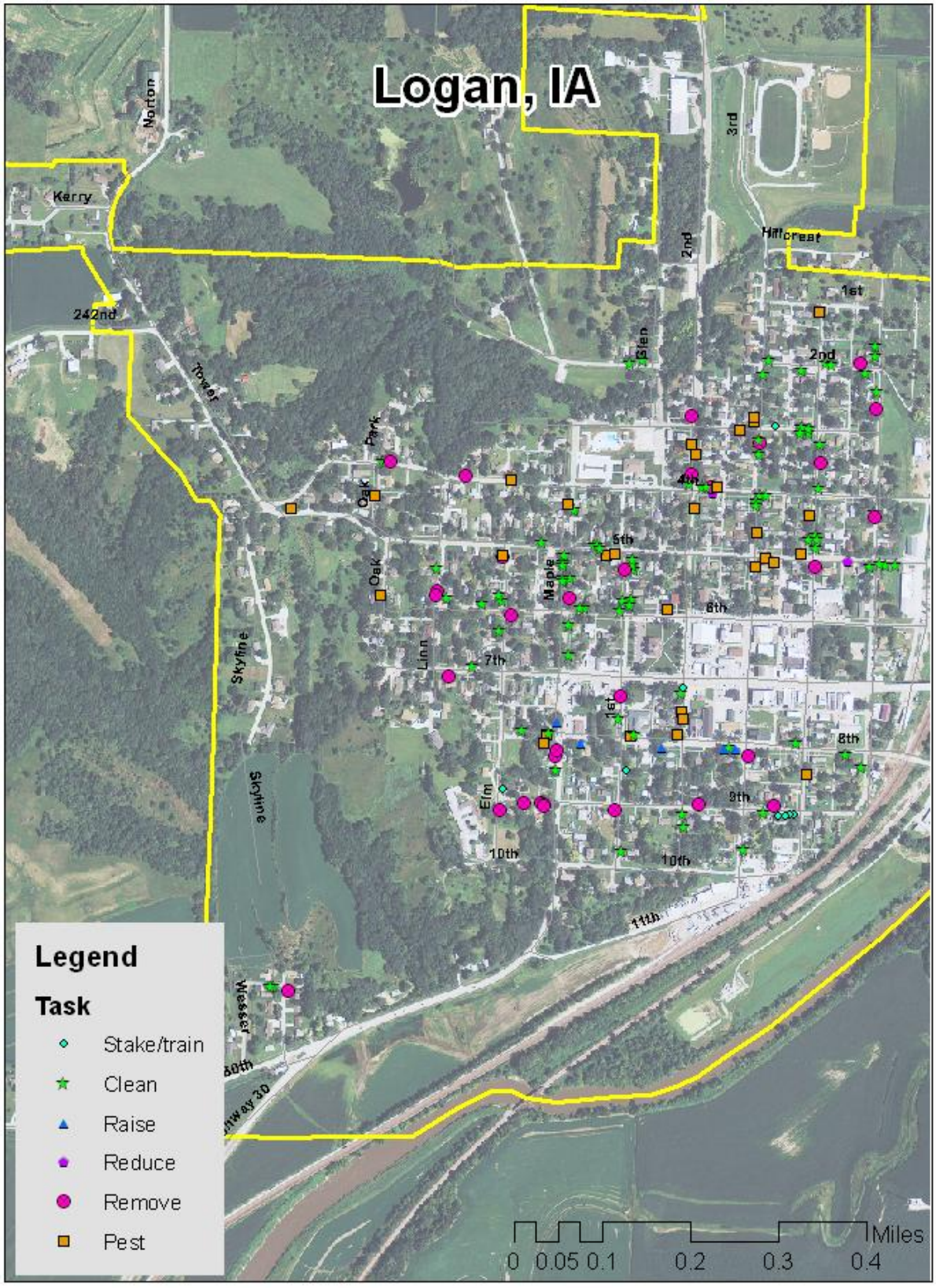


Figure 5: Maintenance Tasks *City ownership of the trees recommended for removal should be verified prior to any removal*

Appendix C: Logan Tree Ordinances

CHAPTER 151
TREES AND GRASS

151.01 DEFINITION. For use in this chapter, "boulevard" 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 tree shall be planted in any boulevard or street except in accordance with the following:
1. Alignment. All tress planted in any street shall be planted in the boulevard midway between the outer line of the sidewalk and the curb. In the event a curb line is not established, trees shall be planted on a line ten (10) feet from the property line.
2. Spacing. Trees shall not be planted on any boulevard which is less than nine (9) feet in width, or contains less than eighty-one (81) square feet of exposed soil surface per tree. Trees shall not be planted closer than twenty (20) feet from street intersections (property lines extended) and ten (10) feet from driveways. If it is at all possible trees should be planted inside the property lines and not between the sidewalk and the curb.
3. Prohibited Trees. No person shall plant in any street any fruit-bearing tree or any tree of the kinds commonly known as cottonwood, poplar, box elder, Chinese elm, evergreen, willow or black walnut.

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 eighteen (18) feet above the surface of a street, twenty (20) feet above the surface of a primary highway, 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 infected with or damaged by any disease or insect or disease pests, and such trees and shrubs shall be subject to removal as follows:
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 the danger to other trees or to adjoining property or passing motorists or pedestrians is imminent, the Council shall notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within 14 days of receipt of notice, the Council may cause the condition to be corrected and the cost assessed against the property.
(Code of Iowa, Sec. 364.12[3b & h])

151.07 CUTTING OR MOWING OF GRASS.
1. Duty to Cut and Mow Lawns and Lots. The owner of any property shall cut and mow all lawns and lots so that such growth shall be less than four (4) inches at all times.
2. Cutting and Mowing by City. If a property owner refuses or fails to cut and mow lawns and lots within forty-eight (48) hours after being delivered a notice from the City to perform such action, the Council may require said work to be done and the cost and expenses thereof shall be assessed to the property owner after due notice is given. The amount of such assessment shall be certified to the County Auditor as provided by law and the same shall be collected with and in the same manner as general property taxes.

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 Director Chuck Gipp at 515-281-5918.