TORONTO, IA

2011 Management Plan

Prepared by David Bridges
IDNR District Forester

Table of Contents

Executive Summary

Overview

This plan was developed to assist the City of Toronto with managing its urban forest, including a snapshot of the current situation and future planning. Trees can provide a multitude of benefits to the community, and sound management should increase the benefits given by a healthy urban forest. Management is especially important considering the serious threats posed by current known forest pests and those that may arise in the future. One known threat is 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 13.8% of Toronto's city owned trees (ash) will die once EAB becomes established in the community. With proper planning, management and keeping current of the options, the costs of removing dead and dying trees can be extended over years, mitigating public safety issues.

Inventory, Results and Summary of Recommendations

In 2010, a tree inventory was conducted using Global Positioning System (GPS) data collectors. The inventory was a complete inventory of street and trees. Below are some key findings of the 29 trees inventoried.

- Toronto's trees provide $1,377 of benefits annually, an average of $69 a tree
- There are 4 species of trees
- The most common trees are: Siberian Elm 60%, Red Pine 25%, Eastern redcedar 10% and silver Maple5%
- 2 trees are in need of some type of management
- 0 trees are recommended for removal *City ownership of the trees recommended for removal should be verified prior to any removal*
- All trees should be visited on a routine schedule
- Plant a diverse mix of trees that do not include: ash, maple, Autumn olive, black locust, black walnut, boxelder, Chinese elm, Siberian elm, cottonwood, poplar, tree of heaven or willow.

Introduction

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

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

Inventory

In 2010, a tree inventory was conducted that included 100% of the city owned trees along the streets. 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 20 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. Toronto's trees reduce energy related costs by approximately $359 annually (Appendix A, Table 1). These savings are both in Electricity (7.3 MWh) and in Natural Gas (1,033 Therms).

Annual Stormwater Benefits

Toronto's trees intercept about 17,696 gallons of rainfall or snow melt a year (Appendix A, Table 2). This interception provides $480 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 Toronto, it is estimated that trees remove 92 lbs. 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 $55 (Appendix A, Table 3).

Annual Carbon Benefits

Carbon sequestration and storage reduce the amount of carbon in the atmosphere, mitigating climate change. In Toronto, trees sequester about 3,312 lbs of carbon a year with an associated value of $25 (Appendix A, Table 5). In addition, the trees store 41,639 lbs of carbon, with a yearly benefit of $312 (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. Toronto receives $439 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, Toronto's trees provide $1,377 of benefits annually. Benefits of individual trees vary based on size, species, health and location, but on average each of the 20 trees in Toronto provide approximately $69 annually (Appendix A, Table 7).

Forest Structure

Species Distribution

Toronto has 4 different tree species along city streets (Appendix A, Figure 1).
The distribution of trees by genus and species is as follows:

Genus	# of Trees	% of Total
Siberian Elm	12	60
Red Pine	4	25
Eastern Redcedar	2	10
Silver Maple	1	5

Size Class

There are 9 (45%) city street tree 0-6 " at 4.5 feet above ground. 35% of the trees are between 6 and 12" in diameter, and 10% are between 12 and 18 inches in diameter (Appendix A, Figure 2). For size, a Bell Curve is preferred and shows the highest amount of trees around 10 inches in diameter at 4.5 ft. These figures suggest that there are enough small diameter trees to replace the larger ones.

Condition: Wood and Foliage

Both wood condition and leaf condition are good indicators of the overall health of the urban forest. The foliage that was present on trees appeared quite healthy with 40% ranked as fair and 60% ranked good (Appendix A, Figure 3 & Appendix B, Figure 3). Similarly, 95% of Toronto's trees are in good or fair health for wood condition (appendix A, Figure 4 & Appendix B, Figure 3).

Management Needs

The following outlines the specific management needs of the street trees by number of trees (Figure 5).

Crown Raising - Crown should be raised by removing lower branches from the tree trunk or main branches to eliminate obstructions or clearance issues. 4 trees

Tree Removal – Tree is dangerous, dead or dying, and no amount of maintenance will increase longevity or safety. 6 trees

Crown Cleaning – Crown needs cleaning to remove dead, diseased, damaged, poorly attached, or crossing branches to increase the health or the longevity of tree. 5 trees

Crown Reducing - Crown should be reduced/thinned by pruning to reduce tree height, spread, overcrowding, wind resistance, or an increase of light penetration. 6 trees

Canopy Cover

The canopy cover of Toronto is approximately 1 acre (Appendix A, Figure 4).

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.

Ash trees

There are no ash trees listed as city street trees. If there are ash trees in a city park or private property it is recommended that they be looked at every year to check for symptoms

associated with Emerald Ash Borer. *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. 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.

Pruning Practices


Two examples of improper cuts.

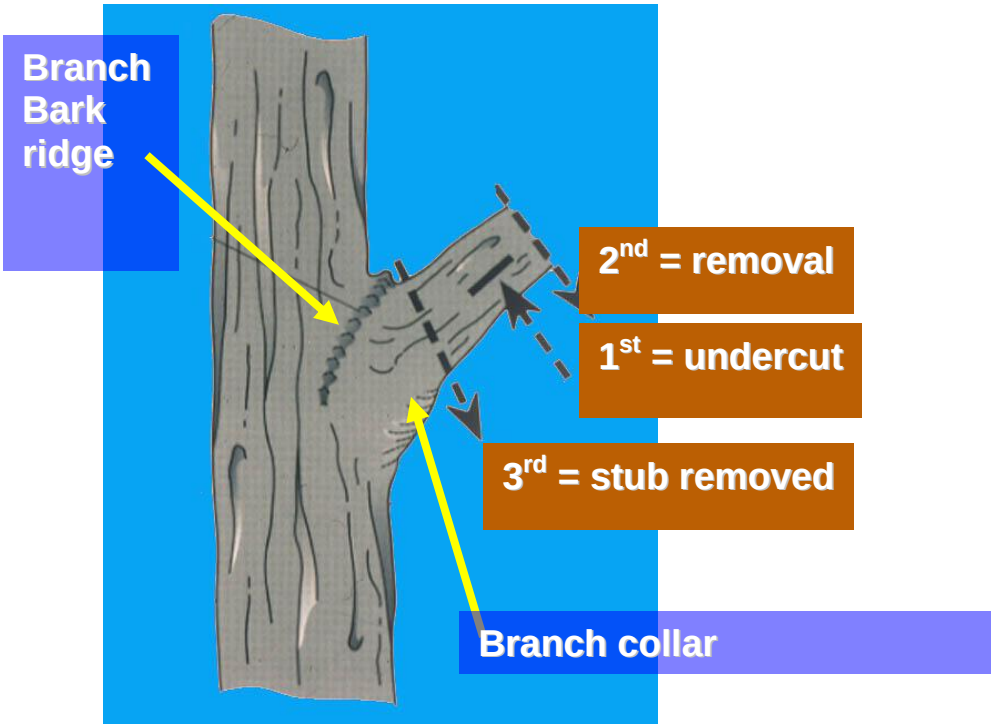
Consider the guidelines when pruning:

1. To avoid concerns related to the fungus that causes the disease oak wilt, all oak species should only be pruned between October 1 and February 28th.
2. All final cuts should be outside the branch collar.
3. Unless pruning broken oak branches between March 1 and September 30th pruning paints are not needed.

Branch collar

Proper Pruning

Improper Pruning



Proper Pruning Cut

Planting

There are locations where new trees could be planted. Select the appropriate species for the site to ensure a good fit for the tree and location. It is recommended to plant 1.2 trees for every tree removed, since survival rates will not be 100%. It is not essential that the new trees be planted in the same location of the trees being removed. However, maintaining the same number of trees or even increasing the number helps ensure continuation of the benefits of the existing forest in Toronto.

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) of trees. Current diversity recommendations advise that a genus (i.e. maple, oak) not make up more than 20% of the urban forest and a single species (i.e. silver maple, sugar maple, white oak, bur oak) not make up more than 10% of the total urban forest. Presently, the forest is heavily planted with Ash (Appendix A, Figure 1). 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: Autumn olive, black locust, black walnut, boxelder, Chinese elm, Siberian elm, cottonwood, poplar, tree of heaven, or willow.

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

Summary

Follow the movements of EAB on http://www.emeraldashborer.info/iowainfo.cfm. This site coordinates efforts from many agencies working together for a common cause. Currently EAB is over 100 miles from Toronto. EAB could arrive in 1 year or 15 years. The proximity of the borer should dictate the rate at which ash is addressed.

Also follow developments as far as biologic controls and treatments. Research on insecticide injections of ash trees is just beginning. The early research shows repeated treatments could save ash trees, but more research is needed. Typically it is less expensive to cut and replace, but the option of tree injections may prove to be the best option in a small percentage of situations. Private homeowners may be more willing to incur the expense than a municipality if this proves effective.

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 trees in poor condition that develop into dead, dying and hazardous trees (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 the budget permits, all removed trees will be replaced. All trees will meet the restrictions of any city ordinances. The new plantings should be a diverse mix and will not include ash, maple, Autumn olive, black locust, black walnut, boxelder, Chinese elm, Siberian elm, cottonwood, poplar, tree of heaven, or willow.

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 as trees are infested with Emerald Ash Borer. Trees that are on private property are part of Toronto's urban forest. Private property owners should be given direction to the proper species to plant, spacing, and location.

Four Year Work Plan and Estimated Costs

Year 1:

Inspect all trees scheduled for maintenance

Plant trees in open locations $100/tree

Year 2:

Inspect all trees scheduled for maintenance
Plant trees in open locations $100/tree

Year 3:

Inspect all trees scheduled for maintenance
Plant trees in open locations $100/tree

Year 4:

Inspect all trees scheduled for maintenance
Plant trees in open locations $100/tree

Funding

Depending on how the removals, maintenance and replanting are completed, this may be above the current budget. Toronto can 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.

Works Cited

Census Bureau. 2000. http://censtats.census.gov/data/IA/1601964290.pdf (April, 2011)

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

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

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

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


Toronto, IA
0
0.0375
0.075
0.15
0.225
0.3
Miles

Appendix A: i-Tree Data

Table 1: Annual Energy Benefits

Annual Energy Benefits of Public Trees by Species

12/11/2010

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Siberian elm	0.9	69	126.3	124	193	(N/A)	60.0	53.8	16.10
Red pine	0.3	24	47.1	46	70	(N/A)	25.0	19.6	14.10
Eastern red cedar	0.1	9	17.1	17	26	(N/A)	10.0	7.1	12.75
Silver maple	0.3	26	45.3	44	70	(N/A)	5.0	19.5	70.12
Other street trees	0.0	0	0.0	0	0	(N/A)	0.0	0.0	0.00
Citywide total	1.7	128	235.9	231	359	(N/A)	100.0	100.0	17.97

Table 2: Annual Stormwater Benefits

Annual Stormwater Benefits of Public Trees by Species

12/11/2010

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Siberian elm	8,078	219	(N/A)	60.0	45.7	18.24
Red pine	3,538	96	(N/A)	25.0	20.0	19.18
Eastern red cedar	1,659	45	(N/A)	10.0	9.4	22.48
Silver maple	4,422	120	(N/A)	5.0	25.0	119.83
Other street trees	0	0	(N/A)	0.0	0.0	0.00
Citywide total	17,696	480	(N/A)	100.0	100.0	23.98

Table 3: Annual Air Quality Benefits

Annual Air Quality Benefits of Public Trees by Species

12/11/2010

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
Siberian elm	0.9	0.2	0.5	0.0	5	4.4	0.6	0.6	4.1	27	0.0	0	11.4	32	(N/A)	60.0	2.69
Red pine	0.3	0.1	0.3	0.0	2	1.6	0.2	0.2	1.5	10	-1.1	-4	3.1	8	(N/A)	25.0	1.56
Eastern red cedar	0.3	0.1	0.3	0.0	2	0.6	0.1	0.1	0.5	3	-0.9	-3	1.1	2	(N/A)	10.0	1.14
Silver maple	0.7	0.1	0.4	0.0	4	1.6	0.2	0.2	1.5	10	-0.4	-1	4.4	12	(N/A)	5.0	12.49
Other street trees	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)	0.0	0.00
Citywide total	2.3	0.4	1.4	0.2	14	8.1	1.2	1.1	7.6	50	-2.4	-9	20.0	55	(N/A)	100.0	2.75

Table 4: Annual Carbon Stored

Stored CO2 Benefits of Public Trees by Species

12/11/2010

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Siberian elm	24,276	182	(N/A)	60.0	58.3	15.17
Red pine	1,978	15	(N/A)	25.0	4.8	2.97
Eastern red cedar	1,105	8	(N/A)	10.0	2.7	4.14
Silver maple	14,280	107	(N/A)	5.0	34.3	107.10
Other street trees	0	0	(N/A)	0.0	0.0	0.00
Citywide total	41,639	312	(N/A)	100.0	100.0	15.61

Table 5: Annual Carbon Sequestered

Annual CO_2 Benefits of Public Trees by Species

12/11/2010

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
Siberian elm	1,760	13	-117	-2	-1	1,534	12	3,175	24	(N/A)	60.0	53.4	1.98
Red pine	291	2	-9	-1	0	538	4	818	6	(N/A)	25.0	13.8	1.23
Eastern red cedar	43	0	-5	0	0	193	1	231	2	(N/A)	10.0	3.9	0.87
Silver maple	1,218	9	-69	0	-1	568	4	1,718	13	(N/A)	5.0	28.9	12.88
Other street trees	0	0	0	0	0	0	0	0	0	(N/A)	0.0	0.0	0.00
Citywide total	3,312	25	-200	-4	-2	2,833	21	5,941	45	(N/A)	100.0	100.0	2.23

Table 6: Annual Social and Aesthetic Benefits

Annual Aesthetic/Other Benefits of Public Trees by Species

12/11/2010

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Siberian elm	233	(N/A)	60.0	53.1	19.41
Red pine	85	(N/A)	25.0	19.5	17.08
Eastern red cedar	18	(N/A)	10.0	4.1	8.98
Silver maple	103	(N/A)	5.0	23.4	102.63
Other street trees	0	(±NaN)	0.0	0.0	0.00
Citywide total	439	(N/A)	100.0	100.0	21.95

Table 7: Summary of Benefits in Dollars

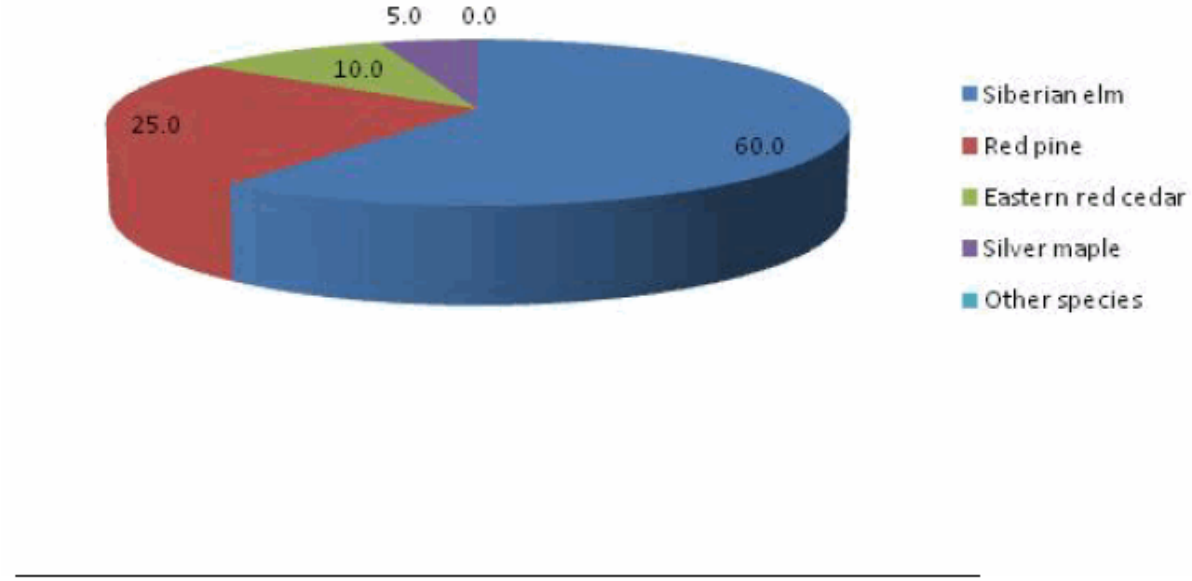
Total Annual Benefits of Public Trees by Species ($)

12/11/20

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error	% of Total $
Siberian elm	193	24	32	219	233	701	(±0)	50.9
Red pine	70	6	8	96	85	266	(±0)	19.3
Eastern red cedar	25	2	2	45	18	92	(±0)	6.7
Silver maple	70	13	12	120	103	318	(±0)	23.1
Other street trees	0	0	0	0	0	0	(±0)	0.0
Citywide Total	359	45	55	480	439	1,377	(±0)	100.0

Species Distribution of Public Trees (%)

12/11/2010

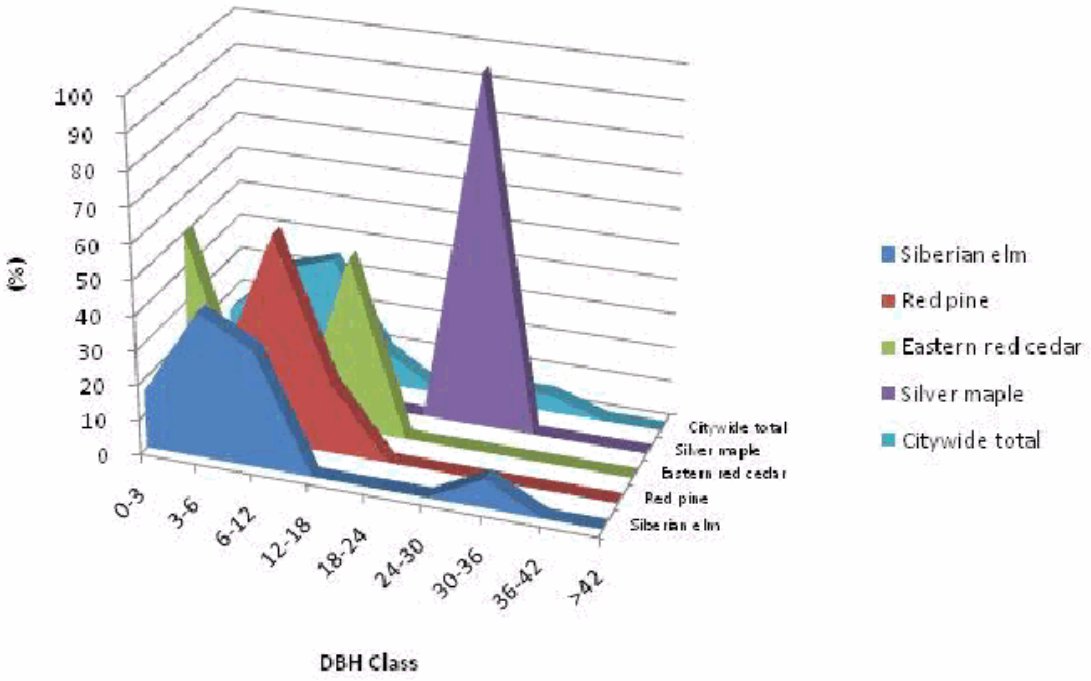


Species	Percent
Siberian elm	60.0
Red pine	25.0
Eastern red cedar	10.0
Silver maple	5.0
Other species	0.0
Total	100.0

Figure 1: Species Distribution

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

12/11/2010



	DBH class (in)								
Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42
Siberian elm	16.7	41.7	33.3	0.0	0.0	0.0	8.3	0.0	0.0
Red pine	0.0	20.0	60.0	20.0	0.0	0.0	0.0	0.0	0.0
Eastern red cedar	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0
Silver maple	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Citywide total	15.0	30.0	35.0	10.0	0.0	5.0	5.0	0.0	0.0

Figure 2: Relative Age Class

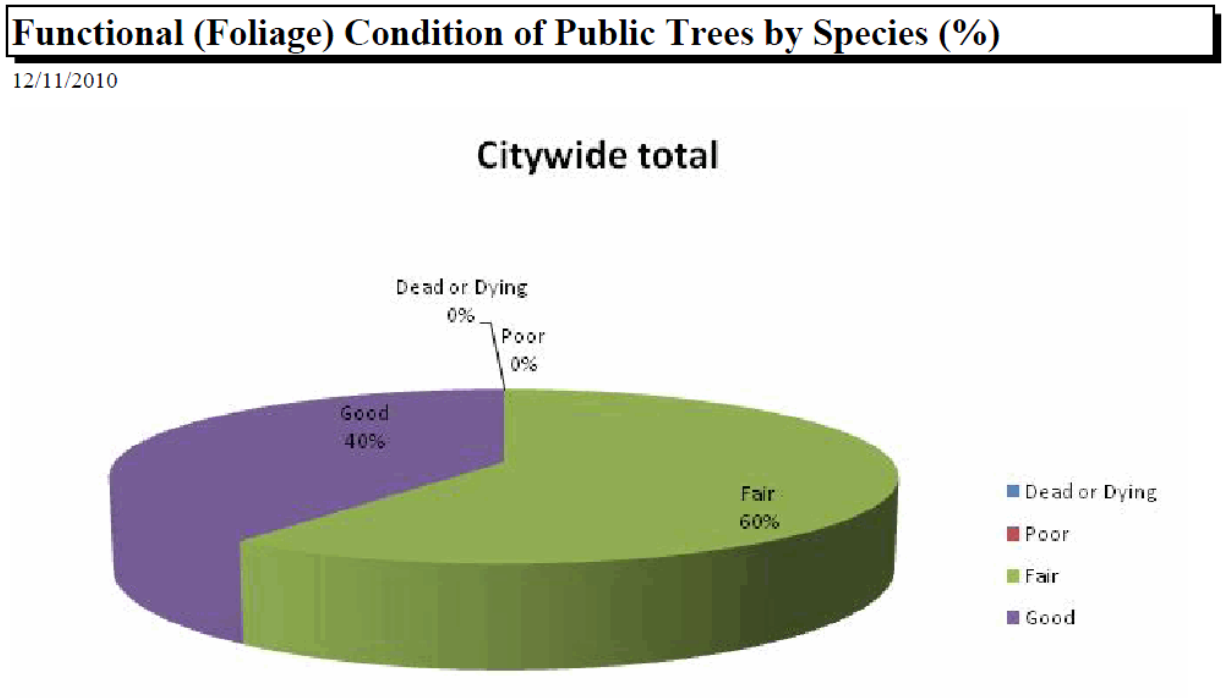


Figure 3: Foliage Condition

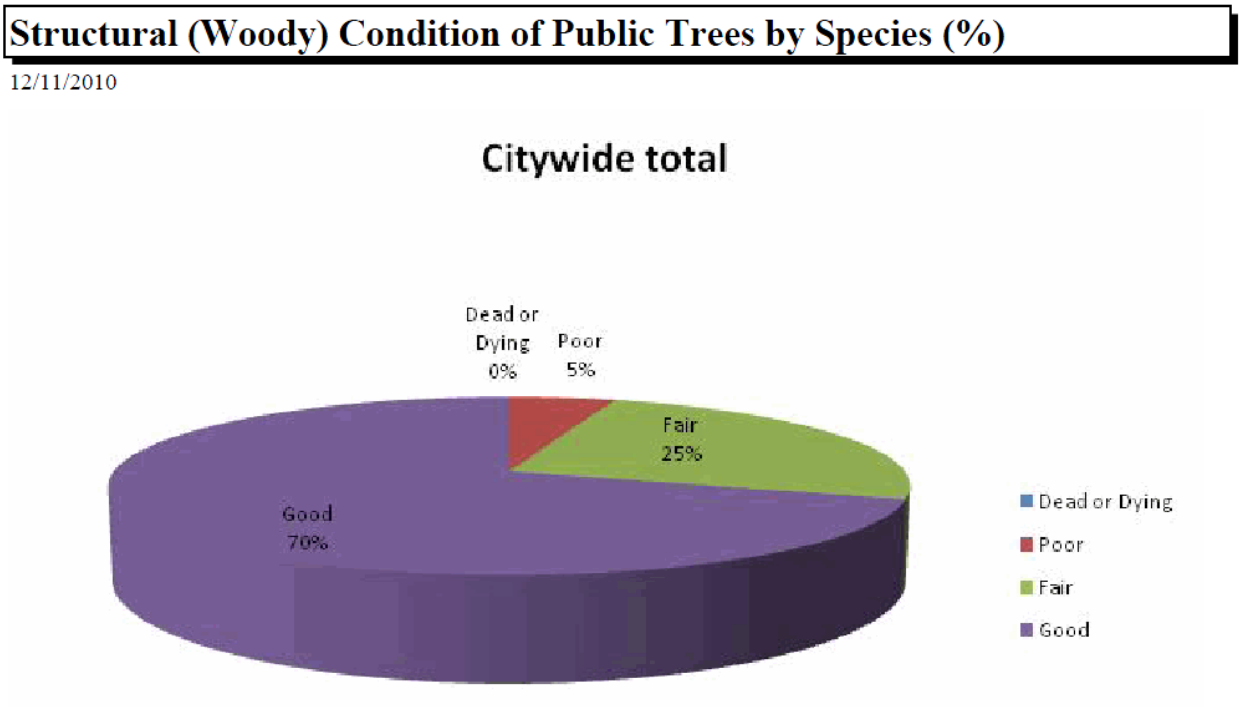
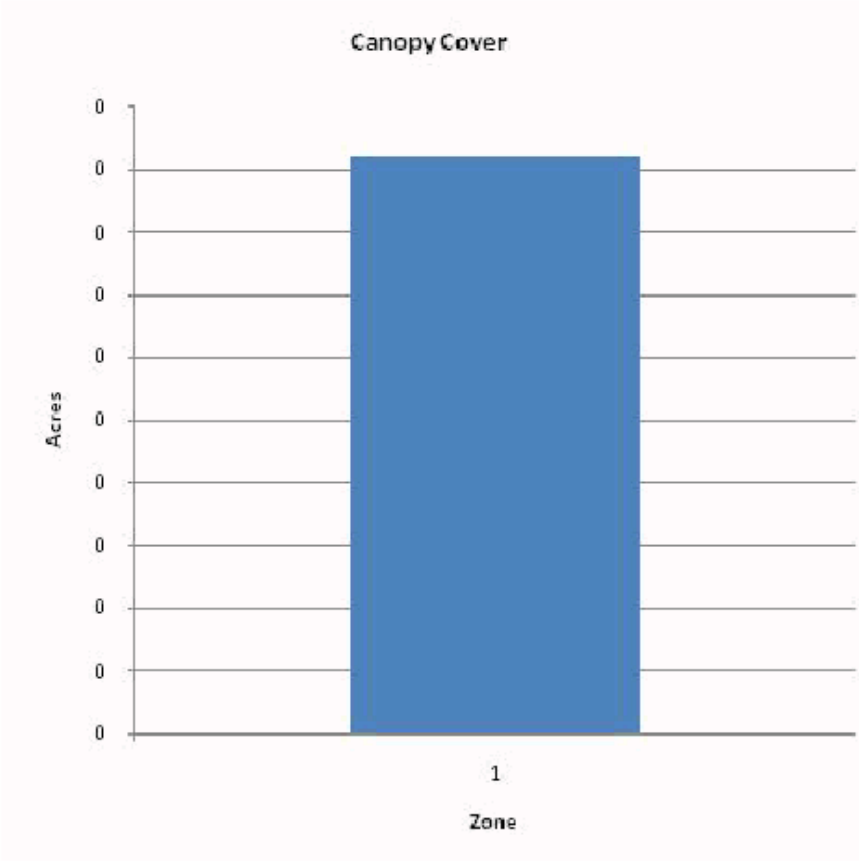


Figure 4: Wood Condition

Canopy Cover of Public Trees (Acres)

12/11/2010



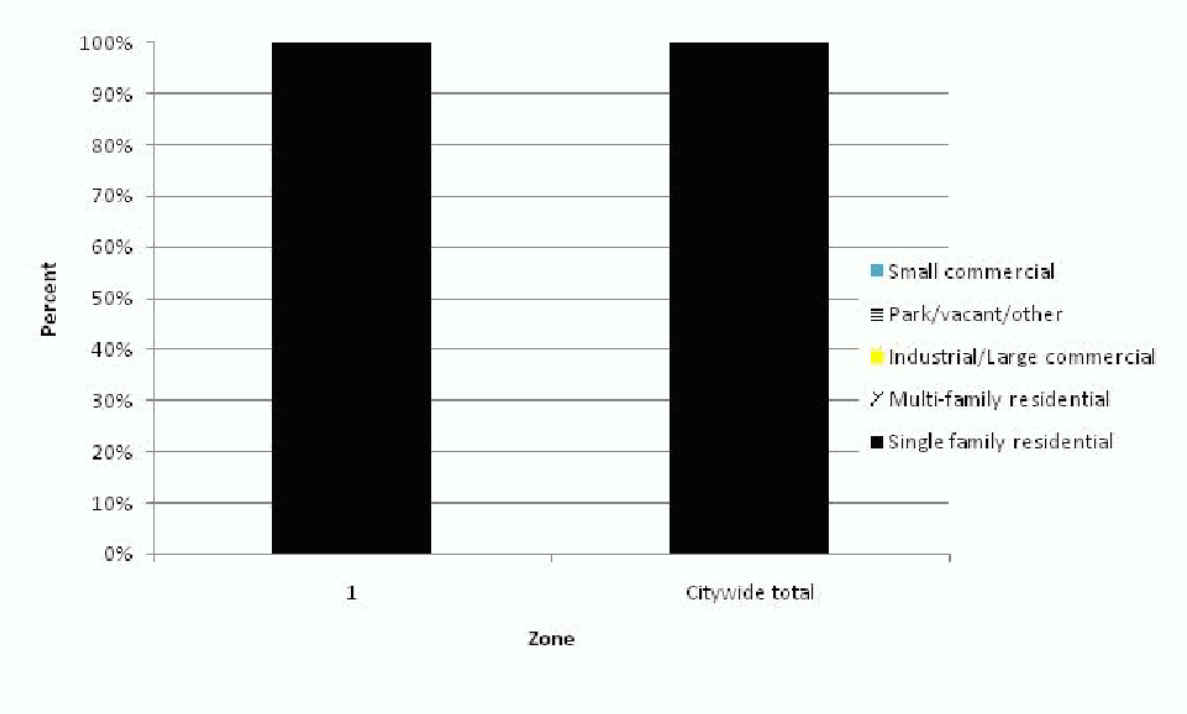
Zone	Acres	% of Total Canopy Cover
1	0	100.0
Citywide total	0	100.0

	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	0		

Figure 5: Canopy Cover in Acres

Land Use of Public Trees by Zone (%)

12/11/2010

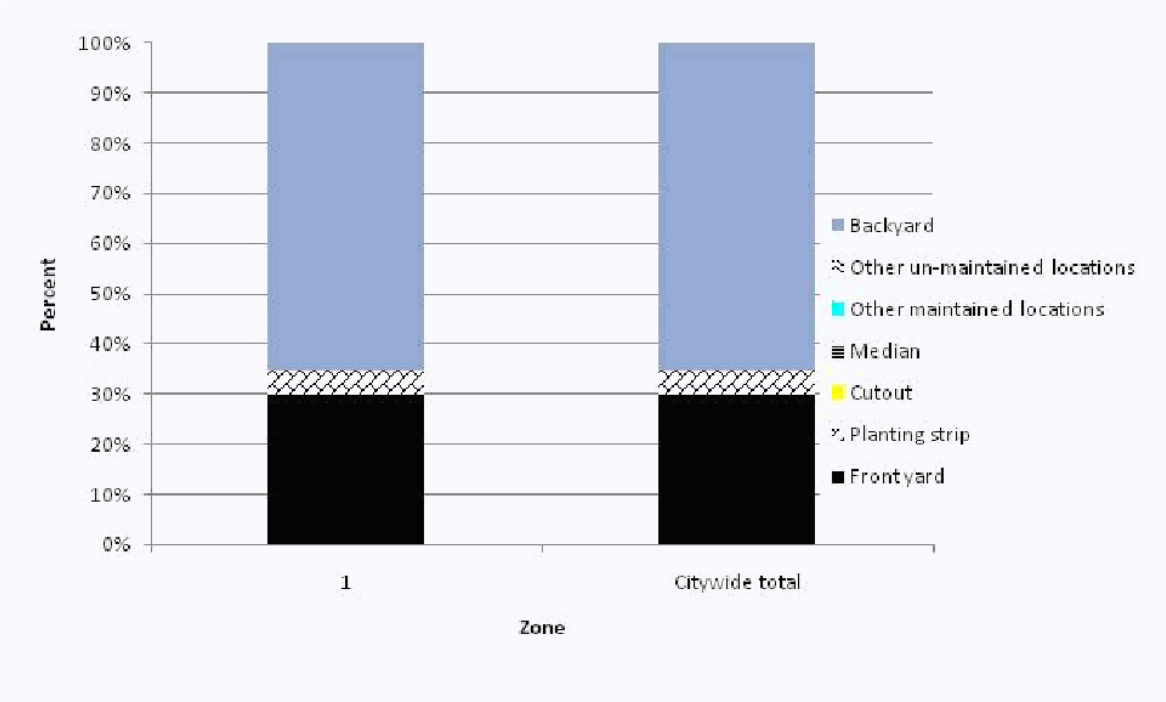


Zone	Single family residential	Multi-family residential	Industrial/ Large commercial	Park/vacant/ other	Small commercial
1	100.0	0.0	0.0	0.0	0.0
Citywide total	100.0	0.0	0.0	0.0	0.0

Figure 6: Land Use of city/park trees

Location of Public Trees by Zone (%)

12/11/2010



Zone	Front yard	Planting strip	Cutout	Median	Other maintained locations	Other un-maintained locations	Backyard
1	30.0	5.0	0.0	0.0	0.0	0.0	65.0
Citywide total	30.0	5.0	0.0	0.0	0.0	0.0	65.0

Figure 7: Location of city/park trees

Appendix B: ArcGIS Mapping

NO ASH

Figure 1: Location of Ash Trees

NO SYMTOMS

Figure 2: Location of EAB symptoms

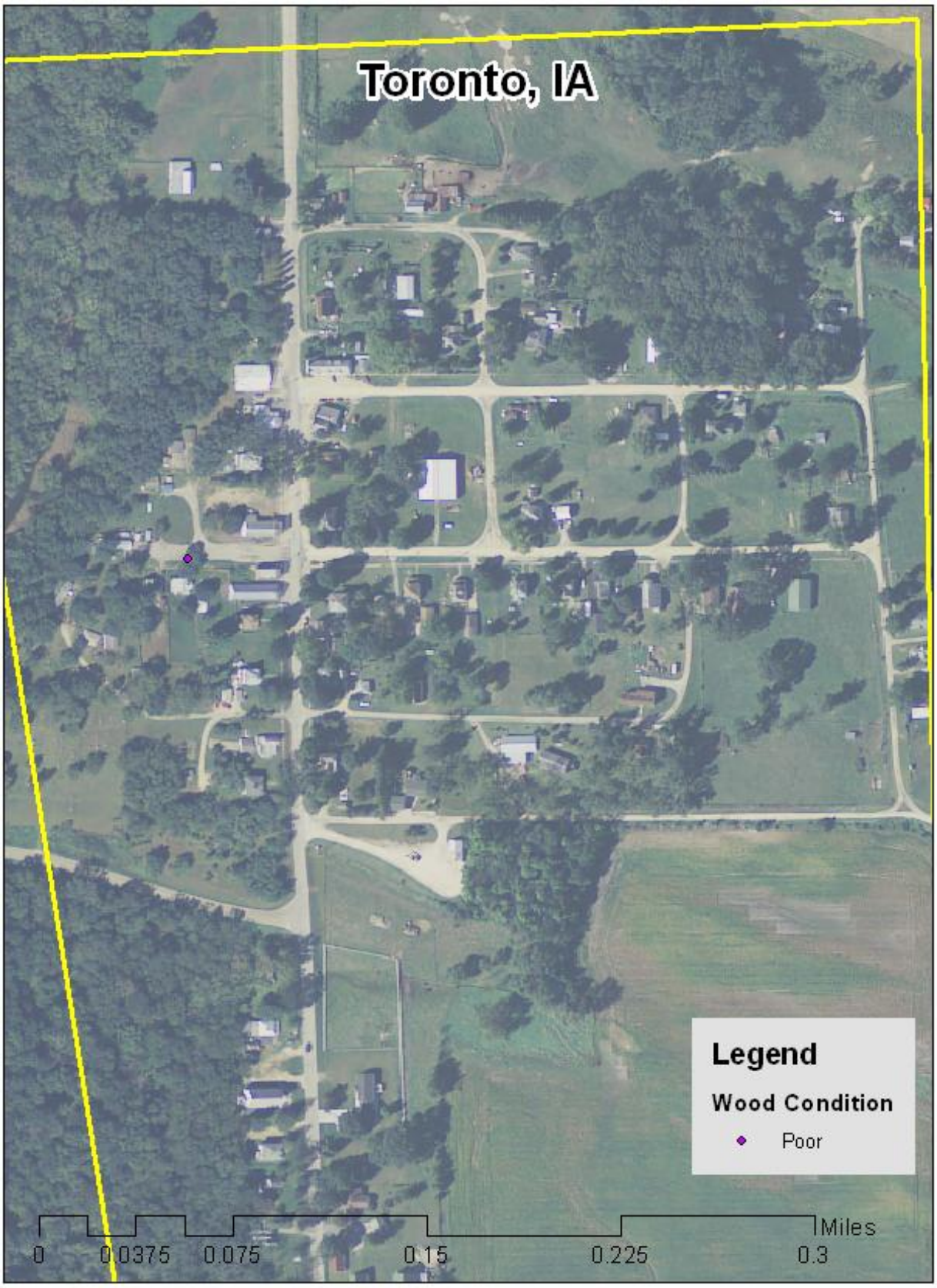

Toronto, IA
Legend
Wood Condition
Poor
0
0.0375
0.075
0.15
0.225
0.3
Miles

Figure 3: Location of Poor Condition Trees

NO RECOMMENDED MAINTENANCE

Figure 4: Location of Trees with Recommended Maintenance


Toronto, IA
Legend
Task
Clean
Raise
Miles
0
0.0375
0.075
0.15
0.225
0.3

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

Appendix A: i-Tree Data