



Village of Shorewood Hills EAB Management Plan 2014

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1 Executive Summary

The Emerald Ash Borer (EAB) has had a devastating economic, ecologic, and aesthetic impact on infested communities throughout the eastern and midwestern United States. This plan is intended to solidify a plan of action to compliment the EAB preparation efforts currently underway in the Village of Shorewood Hills. The village stands well prepared, relative to many other communities, but still has a great deal of work ahead as it responds to an expanding EAB infestation. Significant points from the report are:

- There are currently 140 ash trees along village streets and 119 located in parks for a total of 259 ash trees under village management.
- Forestry staff have been preparing for EAB by removing poor quality ash, educating the public about the pest, inventorying all trees managed by the village, and replanting a diverse mix of trees.
- The village will be electing to treat healthy, high value ash trees with an insecticide injection to protect them from EAB infestation.
- A new program titled “Adopt-an-Ash” offers village citizens the opportunity to donate money to preserve ash trees in the village.
- Ash trees less than 10” in diameter and/or with a condition rating of less than 0.65 will be pre-emptively removed.
- 72% of all ash trees have a condition rating of Good, Very Good, or Excellent.
- Budgetary needs to treat suitable trees and remove small and unhealthy trees are \$72,085 over the next 5 years.
- Current material disposal methods are sufficient for dealing with EAB waste, but require changes to limit the spread of the insect and to utilize logs for their highest use.
- All ash trees removed in maintained village right-of-ways will be replaced within 1 year of removal.

2 Current History of the Emerald Ash Borer

The emerald ash borer (*agrilus planipennis*) is an invasive wood-boring beetle that feeds on the cambium layer of native ash (*Fraxinus*) species. As the larvae feed on the tree's cambium, they interrupt the vascular system, reducing the tree's ability to transport water and nutrients between its canopy and roots, a process that essentially girdles the tree. Native species of susceptible trees in Southern Wisconsin include white and green ash (*Fraxinus Americana* and *F. pennsylvanica*).

Native to eastern Asia, the beetle was first found in North America in the Detroit area in 2002, presumably transported there on an untreated shipping crate. In a relatively short time, EAB has spread to 21 states throughout the Eastern, Midwestern, and Mountain states, as well as several Canadian Provinces. The wide range of dispersion is a result of human movement of the insect by way of infested wood products, rather than natural insect movement. To date, it is estimated that EAB has killed 150-200 million ash trees in North America.

EAB was first detected in Newburg, WI in 2008, before being found in several other locations throughout the state. In November 2013 EAB was positively identified on the north side of Madison—the first confirmed case in Dane County. As with most EAB discoveries, the infestation in Madison had been present for several years. It is therefore likely that EAB is present throughout the Madison area—possibly even in the Village of Shorewood Hills.

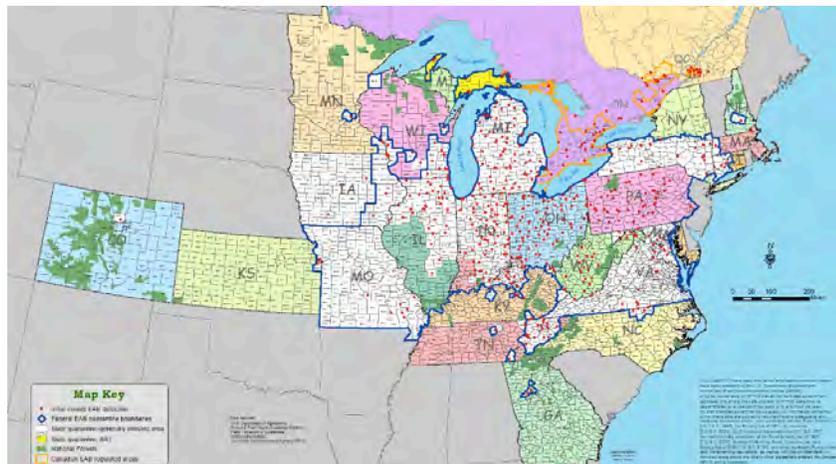


Figure 1: Locations of EAB infestations in North America (Feb, 2014; photo courtesy of USDA)

Management of the EAB invasion has been a mix of success and failure. Little success has been found in containing the spread of the beetle or limiting the growth of existing infestations. However, unlike previous catastrophic pests/diseases (i.e. dutch elm disease, hickory blight), extremely effective means of protecting individual trees are readily available. The two primary chemicals used to protect individual ash trees are imidacloprid and emamectin benzoate. Imidacloprid can be

applied as either a soil drench (spreading a dilute chemical over the root zone of the tree) or a direct injection (placing a concentrated formulation directly into the cambium of the tree). Emamectin benzoate can only be injected directly into the tree using the “Arbor-jet” system. Research studies have shown imidacloprid to be moderately effective with annual retreatment, while emamectin benzoate has proven highly effective over a 2-4 year period. This increased efficacy and reduced environmental impact—relative to the soil-drench technique—make it the first choice among professionals and municipalities to control EAB. Though both of these chemicals have been approved by the EPA (Environmental Protection Agency) to be safe; concerns exist regarding chemical breakdown and exposure. For this reason, the Village of Shorewood Hills will also offer an organic insecticide, TreeAzin, to residents who are uncomfortable with conventional insecticides.

3 VOSH Ash Tree Management to Date

3.1 Previous Plan Recommendations

An EAB Readiness plan was written for the Village of Shorewood Hills by Davey Resource Group in 2008. This plan outlined a series of steps that would help prepare the village for an EAB infestation. These were:

- 1.) Update and revise appropriate public ordinances.
- 2.) Establish a complete public tree inventory.
- 3.) Determine the Village’s comprehensive ash tree policy.
- 4.) Develop an ash tree reduction program.
- 5.) Train personnel and conduct surveys to look for EAB.
- 6.) Locate a possible holding yard for large quantities of wood and develop procedures for dealing with infested material.
- 7.) Establish re-planting recommendations.
- 8.) Develop and strengthen community education and outreach.
- 9.) Keep local authorities updated as EAB moves closer to Wisconsin.

3.2 Actions by Village Forestry Staff

As a result of these recommendations, and developing knowledge about EAB, the Village has been actively preparing for an EAB infestation. Below are the responses Shorewood Hills has made to the previous recommendations:

- 1.) Public ordinances were updated to define EAB infested ash trees as a public nuisance; allow the Village Forester to inspect trees on private property; and allow the village to remove infested trees on private property.
- 2.) The Village now has a complete tree inventory of all public parks and right-of-ways that includes 6182 trees.

- 3.) This plan will define the Village’s comprehensive plan regarding ash treatment and removal on public property.
- 4.) Over the last 6 years, low value ash in poor condition have been selectively removed in tandem with street construction projects, routine pruning, and hazard mitigation programs. This has greatly reduced the total population of ash in the village.
- 5.) Village Forester, Corey George, has received training in how to identify and detect EAB. Mr. George is on site during nearly all tree care operations and inspects ash material for signs of EAB. Tree care contractors hired by the village are all ISA Certified Arborists, who are also trained in EAB identification.
- 6.) The Village has identified Quarry Park as a holding yard for infested wood. This plan also outlines options for utilizing wood biomass and safely disposing of infested material.
- 7.) Village forestry staff have actively filled open planting spaces, while developing relationships with several area nurseries to utilize a diverse mix of urban-tolerant tree species. They will continue to fill open spaces in parks and along streets, using many different tree species, as existing ash are removed.
- 8.) The Village Forester works actively with village residents, community groups, garden clubs, and municipal government to provide education about the Emerald Ash Borer—as well as other urban forestry topics. He regularly writes articles in the village bulletin pertaining to maintenance of the urban forest.
- 9.) Village personnel and the Village Board have been notified of the risk of EAB and are now aware of its presence in Madison.

4 Street Tree Management

4.1 Current Situation

The Village of Shorewood Hills presently has 140 ash trees adjacent to Village streets. The table below summarizes how these trees are distributed across diameter classes—an important factor for budgetary and management planning. The majority of these trees are less than 30” in diameter (96%) and 31% (44 trees) are less than 10” in diameter.

The graph below illustrates the condition ratings of these 140 trees. In preparation for the arrival of EAB, many ash trees in poor condition were preemptively removed. The result is a population that is generally in good condition. Seventy-three percent of the ash trees along village streets have a condition rating of 0.65 or greater, indicating a “good” condition or better.

4.2 Management Strategy

At present the Village has not budgeted to treat public ash trees along village streets to prevent EAB infestation. Rather, the village will be depending on private property owners to pay for ash trees along Village streets to be treated see section 5, “Adopt-an-Ash Program”). Funding for EAB treatment will be revisited by the Village Board in 2015.

Small ash (<10” in diameter) and those with condition ratings below 0.65 will continue to be removed before they become infested. All trees fitting these criteria, or not “adopted” by a property owner, will be removed within 3 years.

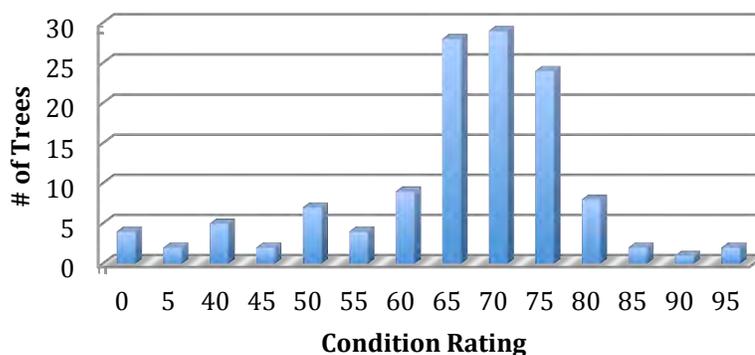
This will provide a steady response to the pest that works within the current budget and allows for replanting.

Street Trees by Diameter Class

Diameter Class	# of Trees	% of Total
<5"	15	11
6-10"	29	21
11-20"	54	39
21-30"	37	26
31-40"	5	4
>40"	0	0
Total	140	100

It is extremely important that the village tree inventory is updated as trees are removed or treated. The GIS-based tree inventory will be used to prioritize

Street Ash Trees by Condition Rating



removals and treatments as well as budget for maintenance. The Village recently purchased a tablet computer, which will allow field updates of the tree inventory. Keeping the inventory updated will:

- 1.) Require fewer field inspections of individual trees.
- 2.) Ensure that hazardous or infested trees do not go unaccounted for.
- 3.) Allow for a seamless treatment plan of high-value trees.

5 Adopt-an-Ash Program

5.1 Intro

Trees located within the public right-of-way represent a significant portion of the Shorewood Hills urban forest. Although the Village manages these trees, it is the adjacent property owner who most often interacts with the tree. Budgetary restrictions and a desire to be equitable among village residents have led to the decision by village forestry staff to not budget for treatment of any ash trees along public streets. Rather than simply removing all of these trees, the option has been created to allow village residents to pay for the treatment of individual trees. The “adopted” tree can be one in front of a resident’s home, or a donation can be made to treat a tree of the Village Forester’s choice.

5.2 Program Logistics

5.2.1 Adopt-an-Ash Participation

All village residents with a healthy ash tree—deemed suitable for treatment by the Village Forester—will be contacted regarding the adopt-an-ash program. If they elect to pursue treatment, they will pay a fee—a based on the diameter of their tree—directly to the Village. This payment covers a one-time treatment. The property owner will be made aware that this is a recurring process and they will be called upon to make the same decision again in 2 years. A copy of a program flyer is included in the appendix.

5.2.2 Treatment Methods

The treatment method chosen by the village forester involves injecting an insecticide (emamectin benzoate) directly into the cambium of susceptible ash trees. This chemical has been shown in research trials and real-world applications to be highly effective at preventing EAB infestation of healthy ash trees. The chemical is effective for 2 years, at which point a tree needs to be re-treated. This process can only be completed by a qualified and licensed pesticide applicator. The Village Forester will procure bids from qualified contractors to treat adopted trees.

5.3 Outcomes

Preserving high-value ash trees in the landscape benefits the community in a variety of ways. Perhaps most significant, it reduces the loss of urban forest canopy—a characteristic feature of Shorewood Hills. It is difficult to place a value on the aesthetic benefit provided to a community, but research has shown that a single mature tree can increase the value of a residential property by as much as 11%. Urban trees also provide a multitude of benefits to their communities. These include: stormwater reduction decreased heating and cooling costs, air pollution mitigation, carbon sequestration, and physical and emotional wellbeing. The national tree benefit calculator estimates that a single 30” diameter ash tree

provides \$306 in annual benefits. Neighborhoods, streets, and municipalities with canopied public areas and streets have better real estate markets, happier and healthier citizens, cleaner air, and better water quality.

Ultimately ash trees will be eliminated from Shorewood Hills, but preserving a subset of the population has several implications:

- 1.) Removal of ash trees can take place at a slower rate, reducing the up-front cost to the village.
- 2.) By targeting mature trees for treatment, urban forest benefits will be maximized. This means more stormwater will be intercepted, air pollutants removed, and carbon sequestered.
- 3.) Property owners take an active role in managing their trees, enhancing community support for urban forestry.

6 Park Tree Management

6.1 Current Situation

There are 119 ash trees located in village parks. The table below lists the number in each park by diameter class. Ash growing in the wooded parks of Shorewood Hills tend to be smaller diameter trees, which will be less expensive to remove or treat. The greatest number of trees are located in JC McKenna Park and Quarry Park, which each contain 39 and 24 ash trees, respectively.

Park Name	DBH Class						Total
	<5"	6-10"	11-20"	21-30"	31-40"	>40"	
Bigfoot Park	1		1				2
Bradley Park	1	1					2
East Rail Corridor	1	1					2
Four Corners Park	1	2	1				4
JC McKenna Park	7	18	12	1	1		39
Koval Woods	3	3	1				7
Marina Park	1	2	2				5
Oak Way Lots	5	5					10
Post Farm Park	2	1	3				6
Quarry Park	2	10	10	2			24
Reese Woods	7	6	3				16
School				1			1
Shorewood Entrance Park				1			1
Parks Total	31	49	33	5	1	0	119

6.2 Management Strategy

Ash trees located in public parks will be either treated with insecticide or removed using the same criteria as established for street trees. Unlike village street trees, some public funding will be allocated for insecticide treatment. This will be available to high-value trees in public areas. The Village Forester will re-assess all ash trees over 10" in diameter in public parks to determine priority for preservation. From these trees he will select which trees will be treated.

Trees that are not selected for treatment will be removed. Unlike trees growing along village streets, many ash trees in natural areas and public parks do not pose a hazard to public safety when they decline. For this reason, not all ash trees will

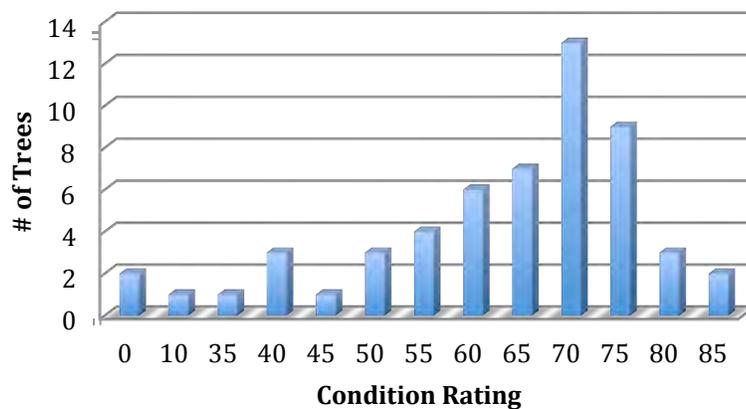
need to be removed before infestation. Trees in high-traffic areas will be prioritized for removal before those in natural areas. Trees that pose a risk to public safety, should they die, will be removed within the next three years. This is estimated to be 25% of parks trees for budgeting. Ash trees in public parks that will not pose a risk to public safety and are not selected for insecticide treatment will be removed within the next 5 years.

As mentioned previously, keeping the tree inventory up-to-date with removals, treatments, and changing condition ratings will increase the efficiency of response to EAB.

7 Private Ash Trees

The Village of Shorewood Hills is renowned for its extensive, mature, urban forest canopy. This canopy extends beyond public property, encompassing all trees within village boundaries. Although the Village is not responsible for management of private trees, it does take an active role in educating the populace about how to maintain their trees. Pertaining to EAB, the role of the village forestry department will be to:

Park Ash Trees by Condition Rating



- 1.) Provide information about ash treatments and removals.
- 2.) Provide a list of qualified tree care contractors.
- 3.) Consult with individual property owners about the health of their trees.
- 4.) Work with the contractor chosen to treat public trees to provide the same discounted pricing to private property owners. This can result in a significant savings on insecticide injections and more preserved trees in the Village.

8 Budgetary Needs

8.1 Street Trees

The calculations below account for the removal of all trees <10" in diameter as well as larger trees with condition ratings below 0.65 within 3 years. The cost to treat all trees that are not immediate candidates for removal is included below. These treatments are contingent on receiving funding through the Adopt-an-Ash program from private citizens or additional funding through Village Board. These numbers are for a single treatment, effective for 2 years. Treatments should begin as soon as possible to prevent EAB infestation. A complete list of removal and treatment cost by tree diameter is included in the appendix. Removal costs are calculated at \$25/diameter inch, while treatment costs are \$8/diameter inch.

Street Tree Removal and Treatment Costs (\$)

	Total Removal Costs	Total Treatment Costs
<5"	1650	0
6-10"	5950	0
11-20"	350	6776
21-30"	0	7240
31-40"	0	1288
>40"		
Grand Total	\$7,950	\$15,304

8.2 Park Trees

Below is a table listing the treatment and removal costs for parks trees based on the same criteria and pricing described for street trees. Twenty-five percent of parks trees are estimated to pose a risk to public safety based on their proximity to walking paths, streets, or other public areas. These trees will be removed within 3 years. The remaining 75% of ash trees in public parks will be removed within 5 years. The cost to treat all trees that are not immediate candidates for removal is

included below. Funding for these treatments will come from either the forestry budget or private donations. These numbers are for a single treatment, effective for 2 years. Treatments should begin as soon as possible to prevent EAB infestation.

Park Tree Removal and Treatment Costs (\$)		
	Total Removal Costs	Total Treatment Costs
<5"	3050	0
6-10"	9800	0
11-20"	625	3488
21-30"	0	1016
31-40"	0	456
>40"		
Grand Total	\$13,475	\$4,960

8.3 Five-Year Budget

The table below splits the removal and treatment costs for both street and park ash trees across the next 5 calendar years.

	Street Trees		Park Trees		Total
	Removal Costs	Treatment Costs	Removal Costs	Treatment Costs	
Year 1	2650	7652	1123	2480	13905
Year 2	2650	7652	1123	2480	13905
Year 3	2650	7652	1123	2480	13905
Year 4	0	7652	5053	2480	15185
Year 5	0	7652	5053	2480	15185
Total	\$7,950	\$38,260	\$13,475	\$12,400	\$72,085

9 Disposal/Utilization of Ash Material

9.1 Current Disposal Methods

Tree care material disposal falls into one of two categories: (1) wood chips and (2) logs. Typically, forestry staff will chip all material less than 12" in diameter. These chips are brought to the former rock quarry, in Quarry Park for storage. Later, these chips are dispersed around the Village on flowerbeds, walking trails, and community gardens. Wood that is not chipped is also brought to Quarry Park. This wood is available for village residents to take for firewood. Larger pieces or those

unsuitable for burning are loaded in a dump truck and driven to a dumpsite in Black Earth, WI, approximately 17 miles from Shorewood Hills.

9.2 Disposal of Infested Material

With the discovery of EAB in Dane County in late November 2013 came a quarantine of wood products moving in and out of the county. Shorewood Hills is located in Dane County, meaning that no cut logs or wood chips (with a dimension greater than 1”) can move out of the county. This quarantine does not directly conflict with current material disposal methods, as most wood products stay within the village and those logs that are moved stay within Dane County. However, given that EAB has only been found in one place in Dane County, moving potentially infested material to different parts of the county could accelerate the infestation. It is therefore recommended that wood material that comes from tree pruning or removal in the Village stay as local as possible.

Current disposal methods are largely sufficient, and optimal, for limiting the potential spread of EAB. Keeping wood chips and firewood within the Village is the best way to contain Emerald Ash Borer larvae. It is recommended that wood—especially ash—no longer be transported out of the Madison Area. It is also recommended that measures be taken to ensure that wood chips and firewood removed from Quarry Park stay within the Village. Below are three recommended actions to limit the potential spread of EAB:

1. Post signage in Quarry Park stating that wood chips and firewood are only available to village residents to be utilized within village limits.
2. Include in signage information explaining the active quarantine laws and how EAB is spread.
3. Find a new disposal site for large pieces of wood. Two options include: the City of Madison disposal site on Olin Ave. and the commercial composting facility on County Highway Q in Waunakee.

Village forestry staff have been proactive in removing low-quality ash trees, leaving a smaller number, of relatively high quality trees under village management. For this reason, a large influx of ash material is not expected to overload current disposal methods. However, if current storage sites become overfilled, a new holding area could be established in Quarry Park or material could be transported to an offsite location, such as those recommended in item #3 above.

9.3 Urban Wood Utilization

There is a growing interest within the urban forestry industry to utilize urban trees for a higher purpose than wood chips or firewood. The Madison area has several businesses, municipalities, and non-profit organizations that are currently involved in urban wood utilization efforts. Working with these groups to dispose of wood material has several benefits:

1. Allowing businesses to utilize logs reduces the amount of material that is stored in the village holding yard and/or brought to other disposal sites, which saves money on wages, equipment, and tipping fees.
2. Making use of urban trees for lumber, furniture, or flooring increases public interest in urban forestry and support for removal of hazardous, diseased, or dead trees.
3. Making products from urban trees ties-up the carbon contained in the wood, rather than releasing it back into the atmosphere through burning or decomposition.

10 Replanting

Stated throughout this plan is the value and importance placed on the urban forest of Shorewood Hills. It is part of the community's identity as well as an important contributor to quality of life, aesthetics, ecological health, and property values in the Village. The Emerald Ash Borer is a costly and destructive pest, but it also presents an opportunity to make planning decisions that will ensure future pests and disease will not be as significant. Since the discovery of EAB, Village Forestry has been working to diversify the street tree population with a more even mix of tree species. This effort will continue as a wide array of tree species, suitable to this climate and local growing conditions, are planted to replace removed ash trees. All ash trees removed in maintained village right-of-ways will be replaced within 1 year of removal. This does not include trees removed in natural areas or unsuitable planting locations. A list of suitable tree species is included in the appendix. The approximate cost of replacement trees, inclusive of nursery stock and planting, is \$300 per tree.

11 Appendix

11.1 Adopt-an-ash flyer

Village of Shorewood Hills Adopt-an-Ash Program

What is EAB?



The emerald ash borer (EAB) (*Agrilus planipennis*) is an invasive wood-boring beetle that feeds on the cambium layer of native ash (*Fraxinus*) species. As the larvae feed on the tree's cambium, they interrupt the vascular system, slowly killing the tree.

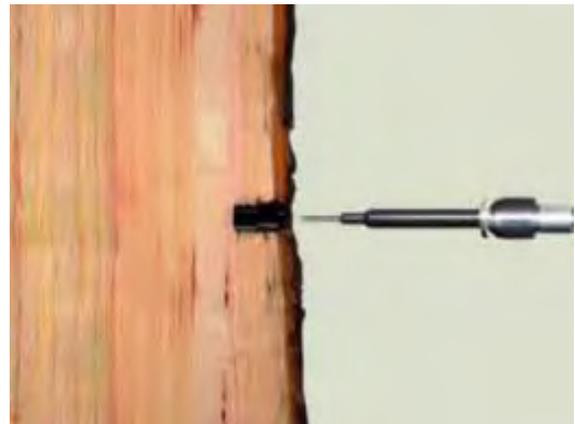
In November 2013 EAB was positively confirmed on the north side of Madison—the first confirmed case in Dane County. As with most EAB discoveries, the infestation in Madison had been present for several years. It is therefore likely that EAB is present throughout the Madison area—possibly even in the Village of Shorewood Hills.

What can be done?

Very effective insecticides exist to protect individual trees from EAB. The most effective chemical (emamectin benzoate) has an very low toxicity to humans, is injected directly into the tree, and lasts for 2 years. An organic insecticide option (TreeAzin) is also available that offers the same protection with the same application method.

The Village Forestry Department will be paying to treat some trees in city parks, but will NOT be treating trees along public streets.

Village residents have the option to “adopt-an-ash” by paying for its treatment. Village Forestry will hire a contractor and manage the injections. Help us preserve our precious urban forest by paying for the treatment of the tree in front of your house or somewhere else in the village!



Next Steps

1. Contact village forester Corey George (608-267-2688 ext: 112, coreygeorge@shorewood-hills.org) to see if your tree is suitable for treatment and to determine treatment cost.
2. Make a donation to the village forestry department.
3. Property owners with ash trees on their property are eligible to receive the same, discounted, treatment rates. Contact Mr. George for more information.
4. Treatments will begin in April 2014.

11.2 Street Tree Removal and Treatment Costs

Diameter	# of Removals	Sum of Removal Cost	# of Treatments	Sum of Treatment Cost
2	1	50	0	0
4	6	600	0	0
5	8	1000	0	0
6	5	750	0	0
7	4	700	0	0
8	8	1600	0	0
9	4	900	0	0
10	8	2000	0	0
11	0	0	5	440
12	0	0	4	384
13	0	0	3	312
14	1	350	6	672
15	0	0	4	480
16	0	0	4	512
17	0	0	6	816
18	0	0	10	1440
19	0	0	5	760
20	0	0	6	960
21	0	0	10	1680
22	0	0	1	176
23	0	0	5	920
24	0	0	4	768
25	0	0	3	600
26	0	0	2	416
27	0	0	5	1080
28	0	0	3	672
29	0	0	4	928
31	0	0	3	744
33	0	0	1	264
35	0	0	1	280
Grand Total	45	\$7,950	95	\$15,304

11.3 Park Tree Removal and Treatment Costs

Tree Diameter	# of Removals	Sum of Removal Cost	# of Treatments	Sum of Treatment Cost
1	2	50	0	0
2	3	150	0	0
3	1	75	0	0
4	14	1400	0	0
5	11	1375	0	0
6	7	1050	0	0
7	13	2275	0	0
8	12	2400	0	0
9	7	1575	0	0
10	10	2500	0	0
11	0	0	5	440
12	1	300	6	576
13	1	325	3	312
14	0	0	3	336
15	0	0	6	720
16	0	0	4	512
17	0	0	1	136
18	0	0	1	144
19	0	0	1	152
20	0	0	1	160
21	0	0	1	168
22	0	0	1	176
27	0	0	2	432
30	0	0	1	240
57	0	0	1	456
Grand Total	82	\$13,475	37	\$4,960

11.4 Species Planting List

Genus	Species	Common Name
Abies	concolor	white Fir
Abies	balsamea	balsam Fir
Acer	rubrum	red maple
Acer	saccharum	sugar maple
Acer	freemanii	Freeman maple
Aesculus	glabra	Ohio buckeye
Alnus	spp	european alder
Amelanchier	spp	serviceberry
Betula	nigra	river birch
Carpinus	caroliniana	american hornbeam
Carya	cordiformis	bitternut hickory
Carya	ovata	shagbark hickory
Catalpa	speciosa	northern catalpa
Celtis	occidentalis	hackberry
Cercidiphyllum	japonicum	katsura
Cercis	canadensis	eastern redbud
Cladrastis	kentukea	yellowwood
Cornus	alternifolia	pagoda dogwood
Cornus	mas	cornelian cherry
Crataegus	spp	cockspur hawthorn
Ginkgo	biloba	ginkgo
Gleditsia	triacanthos	honeylocust (variety)
Gleditsia	triacanthos	honeylocust (thornless)
Gymnocladus	dioicus	kentucky coffeetree
Juniperus	virginiana	eastern redcedar
Larix	spp	tamarack (native)
Liquidambar	styraciflua	sweetgum
Liriodendron	tulipifera	tulip tree
Magnolia	spp	magnolia spp.
Malus	spp	crab apple var.
Malus	spp	crab apple spp.
Ostrya	virginiana	ironwood
Picea	abies	Norway spruce
Picea	spp	black hills spruce
Pinus	strobus	white pine

Platanus	occidentalis	sycamore
Populus	tremuloides	quaking aspen
Prunus	spp	amur chokecherry
Prunus	spp	cherry and plum spp.
Pyrus	calleryana	callery pear spp.
Quercus	alba	white oak
Quercus	bicolor	swamp white oak
Quercus	ellipsoidalis	northern pin oak
Quercus	macrocarpa	bur oak
Quercus	palustris	pin oak
Quercus	robur	english oak
Quercus	rubra	northern red oak
Quercus	Muehlenbergii	chinkapin oak
Syringa	reticulata	Japanese tree lilac
Taxodium	Distichum	baldcypress
Thuja	occidentalis	northern white- cedar
Tilia	americana	American basswood
Tilia	americana	Redmond linden
Tilia	americana	basswood spp.
Tilia	cordata	litleaf linden
Tsuga	canadensis	eastern hemlock
Ulmus	americana	American elm
Ulmus	spp	Hybrid Elm