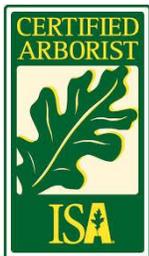


Village of Roselle
Emerald Ash Borer Management Update
Spring 2014



May 5, 2014

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Cover Photograph:

Fraxinus americana biltmoreana. “Biltmore Ash”. Specimen tree on the parkway at 979 Stonehurst. Photo taken June 2013 by Phil Graf.

1. Introduction and Recap of the EAB Management Plan

After the Emerald Ash Borer (EAB) was discovered in Roselle in September 2010, the Village initiated a proactive management program. The first step was to perform a comprehensive stem-by-stem tree inventory, which was completed in April of 2011. Using the Ash tree data taken from the inventory, an EAB Management Plan was drafted that April and approved by the Village Board in May of 2011.

The EAB Management Plan detailed a program made up of three main components by which the Village has managed the EAB so far. These components are:

- 1.) The continued identification and removal of infested Ash trees.
- 2.) A treatment program for the high quality Ash trees. These are Ash trees that were identified as being in good condition and being in good locations.
- 3.) The reforestation of Roselle to compensate for the lost Ash trees.

These three components, and how they are being managed, will be discussed in detail in this report.

At the time of the tree inventory in 2011, Village officials realized that EAB was going to dramatically change the tree canopy over the next few years, and would be a long-term problem. These problems would be both financial problems, such as increases in tree removals, and costs associated with Ash tree treatment, and environmental problems associated with mass tree loss, such as a decrease in air quality, increase in storm water runoff, and rising energy costs due to loss of shade.

The tree inventory was conducted in a GIS environment, which allows for data management, update, and analysis. Since the canopy would be changing so much over the coming years, Roselle decided to maintain as accurate an inventory as possible. In March of 2012, 2013, and again in 2014, all parkway Ash trees were reevaluated. During this process, severely infested trees were identified for removal, and the success of treatment was monitored.

This report will first analyze the Ash tree data followed by a discussion of the results of the 2014 Ash tree reevaluation and other observations and projections.

2. Ash Tree Data Update

A snapshot of the current Ash tree population

After the 2014 reevaluation, there are 1,129 Ash trees on the Village's parkways and Village-owned property. 647 Ash trees have been removed since the discovery of EAB in 2010. 324 severely infested Ash trees are scheduled for removal this April and May, prior to EAB flight season, which is expected to begin around June 15. After the infested Ash trees are removed, the Ash tree count will be reduced to 805, 675 of which will be treated. The Village will have removed 971 Ash trees, which represents 54.7% of its initial Ash population, since the discovery of EAB in Roselle in September 2010. By June 2014, assuming the treatment efforts continue to succeed, the Village will have only 130 untreated Ash trees left to remove in future years.

Ash tree count as of April 2011: 1,776

Ash tree count as of April 2014: 1,129

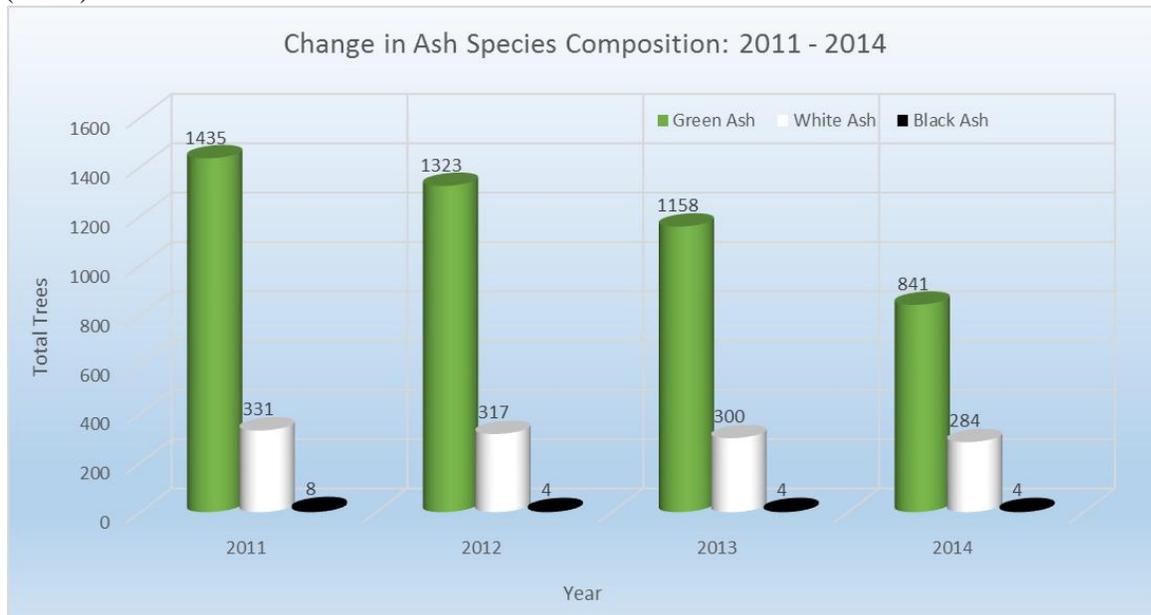
Ash tree count as of June 2014: 805

Treated Ash trees: 675

Untreated Ash trees: 130

Updated Ash Tree Species breakdown

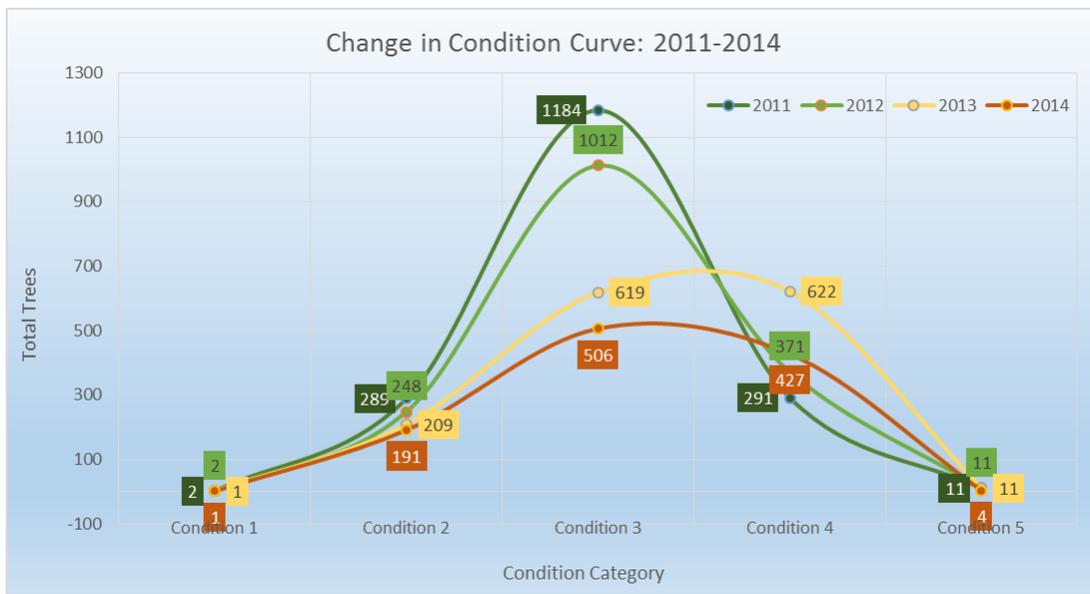
At the time of the Ash tree reevaluation in 2014, the Village's current Ash tree population consists of 841 Green Ash trees (74.5%), 284 White Ash trees (25.2%), and 4 Black Ash trees (0.3%).



When looking at this species breakdown, we can see that the untreated Green Ash population is declining more rapidly than the other species, just as we have expected. As indicated on page 10, trends show that Green Ash trees are infested by EAB more rapidly than other species of Ash, and therefore are the most rapidly removed.

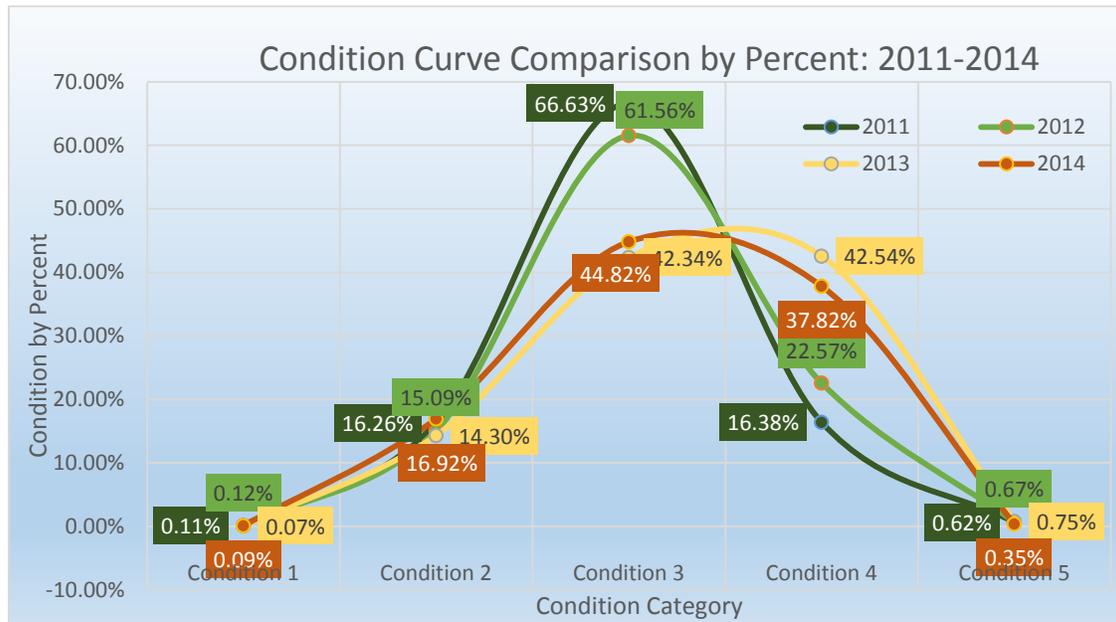
Updated Ash Tree Condition

Due to the EAB, the overall condition rating of Roselle’s Ash trees has declined over the past four years. Considering our standard distribution rating scale of 1-5 (1 being the best and 5 being the worst), the average condition rating of Roselle’s Ash trees has progressively worsened from 3.00 in 2011, to 3.09 in 2012, to 3.30 in 2013, and now to 3.87 in 2014.



The above chart shows that the Ash tree condition overall has declined, but we need to correct for the change in the size of the Ash population from year to year in order to make any reasonable comparisons. To do this, we must look at the Ash tree condition as a function of Ash population size. Since there are 3 factors at work here (EAB infestation rate, treatment and removal rate, tree population size), we need to normalize (in the mathematical sense) this information as much as possible. For instance, when the EAB infestation was at a low rate in Roselle, but there were many Ash trees, the average condition rating appeared "good", because there were many trees that simply had not been subject to the EAB yet. The following year, Roselle had fewer Ash trees due to the previous year's removals, but the Ash Borer itself had a greater presence due to its natural spread. So despite fewer trees, there were more infested trees than the previous year. As untreated trees succumb to the EAB, their condition is reflected in the data as a higher number – or worse condition rating. But since we need to correct for the change in the size of the Ash tree population, as well as the treatment program, we need to look at these data by eliminating Ash population size. To accomplish this, instead of looking at the "raw" numbers (120 condition 1 trees, 300 condition 2 trees, etc.) year to year, we looked at the percentage of each category (15% condition 1 trees, 28% condition 2 trees, etc) and compared those figures year to year. The results show an improving trend overall. The most important part of this trend is that the percentage of trees in a condition 3 or better is now higher than they were last year. This means the remaining Ash population is starting to rebound from the heaviest phase of EAB infestation and come back to a more "normal" curve. In addition, it shows that the treatment and removal efforts have, on average, been able to stabilize approximately 40% the Ash

population at a condition rating of approximately 3.5 from year to year, since all curves pass through this point of the chart. Through continued survey, removal, and treatment efforts, Roselle has been able to keep a stable Ash population through the worst of the EAB infestation. We are now seeing significant signs of improvement, and the chart below is graphic evidence of that process



Generally speaking, it appears that over the past four years, the Village has stabilized the condition of the Ash tree population at a condition rating of approximately 3.5. This has been done during a time that the Emerald Ash Borer has decimated communities in northeastern Illinois. I attribute this to the following two reasons:

1. The combination of the timing of the annual removal program (pre-flight season), and proper sanitation of infested material. Together, these strategies have reduced the amount of EAB adult beetles that would have continued to exacerbate the spread of the infestation.
2. The proactive Ash tree treatment program. This has kept 675 Ash trees from becoming infested and dying.

One of the most interesting facets of the above “Condition by Percentage” chart is that the Ash population is showing signs of increasing in quality due to the removal, treatment, and sanitation efforts discussed above. For three years, the number of condition 1,2 and 3 trees (Excellent to average condition) decreased as the number of condition 4 and 5 (Poor and very poor) trees increased. This past year, the trend began to reverse, as treated Ash trees increased in relative percentage in the entire population, and the proportion of excellent to average Ash trees actually increased in 2014 over previous levels, as can be seen on the above chart. This is not only indicative of an Ash population in the early stages of recovery from EAB, but may also serve as one of very few case studies which could serve as a guidepost for other communities which are just now beginning to deal with EAB.

Updated EAB Damage

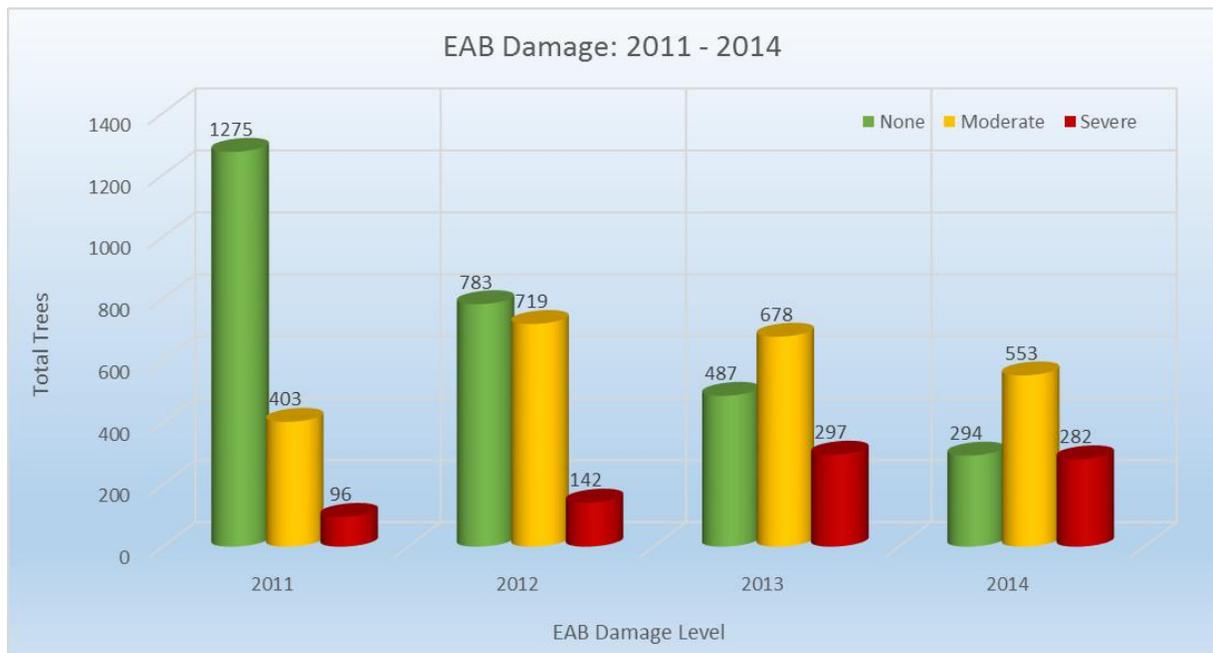
Several areas and neighborhoods that were found to be badly infested in the first three seasons have now had many of their Ash trees removed and are no longer EAB "hot-spots". These areas include:

- Granville Av. and Devon Av. east of Turner Park to Plum Grove Road,
- Waterbury/Newport South
- West Pine Street just north and south of Mensching Road
- Britannia Way, Travis Parkway, and Winfield Way

New areas have now been found to be in poor condition and have many more declining trees to be found within them. These areas include the following:

- The Trails subdivision on the Village's north side just south of Nerge Road.
- Case Drive
- Hygate/Colony
- Countryside/Ventura Club

It should be noted that EAB damage is determined by what is visible, so when we see moderate visible damage, it can be rightfully assumed that the damage is much worse under the bark. Therefore, as the insect population within the untreated trees rises, the tree's condition worsens. The following graph shows the rate at which the Ash trees have been declining since 2011. It is also worthy of note, that less trees in the "none visible" category and more trees in the "moderate" or "severe" category is not an indication of treatment failure. Many of the treated Ash trees began to show signs of EAB even after the first two years, but are recovering nicely and doing much better due to the treatment process. When we record the data during the reevaluations, we can no longer categorize them as having "no visible damage, but they are doing very well.



3. Ash Tree Removal Update

2011: Year One, Implementing the Initial EAB Management Plan

The plan called for the immediate removal of 96 severely infested Ash trees. In an attempt to limit the amount of adult EAB beetles, these Ash trees were removed and double ground for mulch prior to the anticipated flight season, which begins around June 1st. The Village's Forestry Staff removed all infested Ash trees under 14" diameter, while a contractor hired by the Village to remove all infested Ash trees larger than and equal to 14" diameter. All infested wood from these removals was ground at the Village owned lot next to the Public Works Facility. The mulch produced during these operations was used by the Village and Park District as mulch for public and park property. Subsequent to the 96 Ash trees, 28 additional Ash trees were later removed.

2012: Year Two, the Decline Begins

After each Ash tree was inspected in March of 2012, 139 Ash trees were identified as being infested and were then removed prior to EAB flight season. This occurred approximately five weeks earlier in 2012 compared to 2011, due to an extremely warm spring. The Village's Forestry Staff once again removed the infested Ash trees under 14" diameter, while contractors again removed infested Ash trees larger than and equal to 14" diameter. This time, the infested wood waste (wood chips, logs, and stump grindings) were hauled outside of the Village and not recycled on site for mulch. All of the infested wood waste was removed from Roselle prior the flight season, significantly reducing the amount of emerging EAB adult beetles. The importance of this timely sanitation cannot be understated, as the spread of EAB has been slowed and insect pressure has been lowered for un-infested Ash trees as well as the Ash trees in the treatment set. As 2012 progressed, 49 additional Ash trees were removed due to the July 1st storm and for reasons such as rapid decline and poor health.

2013: Year Three, the Decline Continues

In 2013 Ash tree inspections were performed again during the month of March. At that time, 297 Ash trees were found to be infested, a much larger number compared to 2011 and 2012, but a number which was consistent with extrapolations from the previous year's data.

Similar to 2011, and 2012, infested Ash trees were safely removed before the EAB flight season. Village crews removed infested Ash trees smaller than 14" diameter, while a tree removal contractor performed the removal of the infested Ash trees larger than and equal to 14" diameter, along with stump grinding and hauling all related wood waste outside of the Village.

By the year's end, 327 total Ash trees were removed.

2014: Year Four, Reversing the Trend

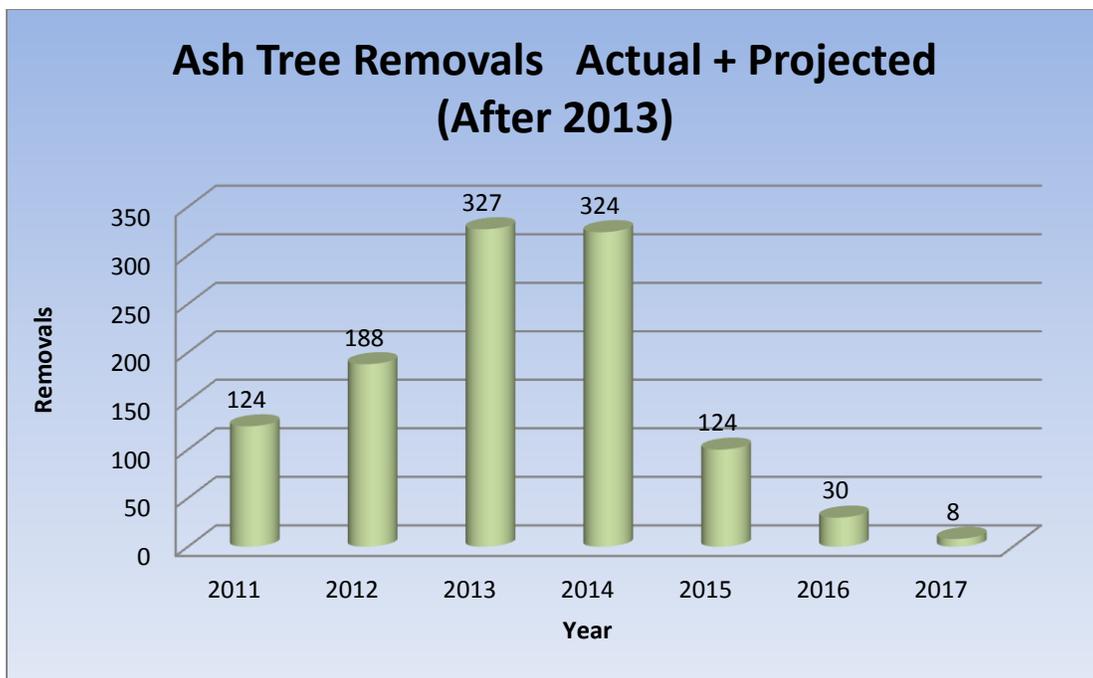
As was originally projected in 2011, last year and this year appear to be the peak years for tree removal in Roselle. 324 infested Ash trees were identified for removal during this year's inspections. After this year, it is believed that EAB insect populations will have reached their peak and may be declining in numbers. This is largely because the Village's commitment to removing Ash trees as they become infested, and before millions of new beetles can emerge the following season. The Park District has also removed all of its infested Ash trees and is also treating 270 Ash trees. We have observed many dead and dying Ash trees on private properties. Once these Ash trees are completely dead or removed, they are no longer able to harbor EAB larvae, and are therefore less of a threat to the Village's Ash trees.

The Village is moving forward this year with its plan of having its Forestry Staff remove the infested Ash trees less than 14” diameter, while contractors will be removing infested Ash trees larger than and equal to 14” diameter. The infested wood waste (wood chips, logs, and stump grindings) will be hauled outside of the Village.

Forecast for Future Ash Tree Removal (2015-2017)

Considering the spread of EAB in Roselle, and the number of untreated Ash trees that will remain after this year’s removal program, the number of Ash trees that will need to be removed in 2015 and beyond will be significantly lower. The Village will now be “over the hump”, so to speak, with infested Ash tree removal. This means the amount of trees that will need to be removed this year will remain consistent with the 2013 levels before precipitously decreasing, as the non-treated Ash tree population of Roselle declines during this time period. The Village should keep this decreasing removal figure in mind while preparing the annual budget for 2015 and beyond.

Based on the current number of Ash trees and their EAB Damage status, we have projected that only 154 Ash tree removals will be necessary over the next three years (2015-2017), if the Village continues to treat the Ash trees that they are currently treating. If the treatment program is abandoned or reduced, there will be more Ash trees to remove in this time period. The following graph depicts these projections:



In the original EAB Management Plan and each year in the update, we projected the costs of large scale Ash tree removal by providing estimated removal costs on a tree-by-tree basis as data was being collected in the field. Calculations were then made using those estimated removal costs. After having been through the first three years of Ash tree removal, we now have actual costs to more accurately project these costs going forward.

Applying past costs for Forestry Staff Ash tree removals it was determined that the cost for removing 14" diameter trees and smaller averages \$233/Tree. In 2014, there are 76 Ash trees in this category that will be removed. Estimated cost for 2014 = **\$18,407**

Applying the 2014 contractor's price as quoted for Ash tree removal for trees larger than 14" diameter of \$20.00/diameter inch (including stump grinding and hauling out all waste wood), we can determine that the approximate cost of removing 244 Ash trees totaling 4,370 diameter inches = **\$87,400**

Applying the contractor's price as quoted for stump grinding and hauling out waste wood for the Ash trees smaller than 14" diameter removed by the Forestry staff of \$7.25/diameter inch, we can determine that the approximate cost for these services for 845 diameter inches = **\$6,126**

Applying past costs for parkway restoration (installation of dirt and grass seed) it was determined that the cost was an average of \$137/tree removal site. Estimated cost for 2014 = **\$44,388**

TOTAL ESTIMATED COST OF TREE REMOVAL FOR 2014 = \$156,321

This translates to an average removal cost of \$482/Ash tree. Going forward we will use these costs to extrapolate future removal costs.

2011: \$75,070 (actual)

2012: \$100,777 (actual)

2013: \$162,382 (actual) *\$91,021 Contractual, \$26,562 Village In-house crew, \$44,799 parkway restoration

2014: \$156,321 (projected)

2015: \$59,815 (projected)

2016: \$14,460 (projected)

2017: \$3,856 (projected)

TOTAL PROJECTED COST FOR ASH TREE REMOVAL: \$572,681

4. Ash Tree Treatment Update

2011: Year one, Getting Started

Using data collected from the inventory, a treatment set of 638 high quality Ash trees was identified. These Ash trees were confirmed to be in good overall health, with no signs of EAB infestation, and could successfully undergo treatment. Treatment specifications were created and a time frame (seven year treatment plan) was established in order to achieve maximum success. It was recommended that the Ash trees were to be treated in the month of June, just after the Ash trees leafed out and began to draw water up from the ground, but before the EAB adult beetles would be laying eggs and continuing to damage the Ash trees. Once again, the Village met the challenge of coordinating the timing even given the short time constraints. A contractor was hired by the Village to perform these treatments, and the 638 Ash trees were treated by the end of June.

2012: Year Two, Treatments continue

After the first year, 6 Ash trees in the treatment set were removed because of ineffective treatment. Virtually no EAB damage was visible on the treated trees, although it was still too early to draw any conclusions about the relative success of the treatment program. Many of the trees which had been chosen for treatment were in very good condition at the outset, and thus would not be expected to show extensive EAB damage after one year, even if they had not been treated. Eight other Ash trees were removed from the treatment set (6 were removed due to extensive storm damage, and 2 others because of poor form). A total of 14 Ash trees were removed from the treatment set.

Before the 2012 Ash tree treatment program began, 16 additional Ash trees were identified as being high quality/high location value Ash trees and were added to the treatment set to replace the 14 Ash trees that were removed. Thus, the Village treated 640 Ash trees in 2012.

2013: Year Three, Treatment Program Appears to be a Great Success

During the Ash tree re-evaluation in March of 2013, each Ash tree in the treatment set was carefully looked at for signs of EAB damage in order to monitor the effectiveness of the treatments. Overall the treatments appear to be very successful. The difference between the treated Ash trees and the untreated Ash trees was turning out to be quite dramatic.

In the original EAB Management Plan, the treatment set consisted of 638 Ash trees. We had projected 10% failure rate, which was expected to be realized after two years. This was forecasted in order to provide realistic expectation of Ash tree survival. We were pleased to report that during the March 2013 Ash tree reevaluation, not a single Ash tree was found to be declining from failed treatment, and during the 2012 inspection, less than 1% of trees being treated had failed. This had surpassed even our best expectation of the effectiveness of Ash tree treatment. We were of the opinion that having made it through two seasons, it was likely that the treatment set may not experience anywhere near the 10% failure rate originally anticipated, which was excellent news.

Just prior to the treatment season, we were able to add another 56 Ash trees to the treatment set, and 8 Ash trees were removed for other reasons (Storm Damage, Poor form, etc.) for a total of 688 Ash trees. These Ash trees were selected because they were high quality trees and were still showing no signs of EAB.

2014: Year Four, Treated Ash trees are thriving

Again, this year we are pleased to see just how well the treatment set is holding up. This is the case on Heritage Drive, one of Roselle's Ash tree monocultures, as well as the Fordham/Brandywine neighborhood, and Lakeside Drive.

In 2013, 688 Ash trees were treated. During the 2014 Ash tree reevaluation, 37 trees were removed from the treatment set (27 Ash trees for ineffective treatments, and 10 Ash trees for other reasons, such as storm damage, storm damage, lightning strike, etc). This year's treatment set consists of 651 Ash trees.

The average condition rating for the 651 Ash trees on the 2014 treatment set is 2.77, much better than average. At the same time, the average condition rating of untreated Ash trees is 3.87. This is a remarkable difference.



Graf Tree Care, Inc. continues to strongly recommend continuing the treatment program this spring.

Forecast for Future Ash Tree Treatment

Using the actual costs for treatment from 2011-2013, we will now attempt to project treatment cost going over the next four years. 2011 -2014 Ash tree treatment costs average at \$3.80/inch.

The 651 Ash Trees on the treatment set total 8,836 diameter inches. Applying the contractor's 2014 pricing of \$3.85/inch, this year's costs will be \$34,019.

At current pricing here are the projected treatment costs for future years:

2011: \$30,296 (actual)

2012: \$30,940 (actual)

2013: \$33,934 (actual)

2014: \$34,019 (projected)

2015: \$35,353 (projected)

2016: \$36,653 (projected)

2017: \$37,943 (projected)

2018: End of seven year annual treatment plan. Treatment method to be reevaluated in order to determine whether or not surrounding EAB pressure from private property Ash trees and surrounding communities warrant further trunk injections or soil treatment.

TOTAL PROJECTED COST FOR ASH TREE TREATMENT: \$239,138

5. Reforestation Update

2011

The Village allocated significant resources to remove the 124 infested Ash trees and treat the 638 Ash trees. As such, this did not allow for any reforestation efforts to be funded in 2011. Only 5 of the infested Ash trees that were removed had been replaced, as the cost of initiating the treatment and removal programs had absorbed all available budgets. However, the groundwork was being laid at this time to catalogue all available planting spaces, and begin applying for grant money for reforestation efforts to replace trees and diversify the village's tree population.

2012

In the spring, the Village offered a 50% share cost tree planting program to residents who had Ash trees removed from the parkway in front of their homes over the prior two seasons. During the program, 83 trees were planted for residents that participated in the program, and trees of various species were planted in October. The Village's share of this planting was \$10,000. This is an average cost of \$121 per 2 ½" caliper tree. Grant funding efforts were unsuccessful, but efforts continued to pursue funding streams, and to create long-term plans for what the species makeup of Roselle should be over the course of the next 10 years.

2013

In February of 2013, the Village applied for a Reforestation grant from the Metropolitan Mayor's Caucus, and was awarded \$10,000 for planting trees to mitigate the impact of the EAB. In May of 2013, the Village was able to plant 44 trees. The Village's cash match for this grant was \$4,400. The share cost program was offered in the fall which led to the planting of 69 new trees.

2014

At the time of this writing, the Village has budgeted \$20,000 for tree planting this year and is anticipating a share-cost program again this fall. If the Village continues its replacement program it is projected that approximately 70 new trees will be planted in this program at an approximate total of \$17,500. With the remaining funds, the Village could plant more trees.

Forecast for Future Reforestation

As mentioned in last year's report, a great deal of resources, money and staff time have been required in the removal and treatment programs. As such, this has not allowed for reforestation efforts to keep pace with removals.

At the end of this season, the Village will have re-planted approximately 300 trees to replace 963 removed Ash trees. This means that there are 663 open planting spaces where Ash trees have been removed. Considering the 154 future Ash tree removals, there may be 817 open planting spaces to fill in future years from Ash removal alone. This means that the village has lost just short of 10% of its trees, and has only replaced approximately 3%. Trees bring immense value in terms of aesthetics and functionality, and studies have shown that trees have been linked to reduced crime rates, higher rates of home ownership (and greater tax revenue), stormwater benefits, cleaner air, and providing heating and cooling savings. With every untreated, infested Ash tree in the Village removed, the battle is only half over. Replacing the lost Ash trees is just as important as removing the infested ones, and a strategic effort that maximizes tree diversity (both taxonomic AND spatial) should be undertaken in the wake of EAB to ensure that mass tree loss doesn't occur in the future.

Applying the actual full cost per tree pricing from 2012 and 2013 of \$242/tree, this cost is projected to be \$197,714.

At this pricing, here is the projected cost of reforestation over the next several years:

2011:	\$0	(actual)
2012:	\$10,000	(actual)
2013:	\$22,131	(actual)
2014:	\$20,000	(projected)
2015-2017*:	\$197,714	(projected)

TOTAL PROJECTED COST FOR REFORESTATION: \$249,845

*This projection demonstrates a scenario in which the Village has completely re-stocked the open planting spaces created by EAB infested Ash tree removals by the end of 2017, although the reforestation process could be extended over a longer period of time.

6. BUDGET TABLE FOR 2014-2017

The table below shows the projections for the three main components of EAB Management for the next four years.

	2014	2015	2016	2017	TOTAL
Ash Tree Removal	\$156,321	\$59,815	\$14,460	\$3,856	\$234,452
Ash Tree Treatment	\$34,019	\$35,353	\$36,653	\$37,943	\$143,968
Reforestation	\$20,000	\$65,905	\$65,905	\$65,905	\$217,715
TOTAL	\$210,340	\$161,073	\$117,018	\$107,704	\$596,135

7. CONCLUSION

To summarize, the Ash tree population appears to be improving. If the Ash tree treatment program is continued, there will be fewer Ash trees to remove next year. Ash trees that have been treated are responding very well. But as mentioned previously, the removal and treatment efforts will need to be followed up by a comprehensive and targeted reforestation effort, so that a diverse population of trees will take the place of the Ash, and leave Roselle with a resilient tree population that is not subject to mass tree losses due to insect infestation or disease. This will require planting at both a taxonomically diverse level, while also considering spatial diversity, and age-class diversity as well, so that we avoid planting monocultures.

The most significant observation we have made, first with our own eyes, and then by quantifying it by studying the data, is the fact that we are stabilizing the Ash tree population in Roselle. This is truly amazing when one considers the extensive damage observed in surrounding communities. Very few entire streets in Roselle have been completely clear cut, and the condition of the treated Ash trees has been kept up above average at 2.77. As the infested and damaged Ash trees are removed, and the treatments continue to be highly successful, the remaining 651 Ash trees are becoming some of the best trees in town.

This year the Village will remove another 324 infested Ash trees, which will surely have an impact on certain streets and neighborhoods. However, the removal program will be winding down after this season. Only 154 standing untreated Ash trees will remain on Roselle's parkways. These 154 Ash trees are not in good enough condition to treat, or in a good enough location to treat. They are also not ready to be removed, as they are not severely infested and the Village has not extracted its maximum benefit from them yet.

The Ash Tree Treatment component of the plan has been a success. After three years of treatment, the program has had an overall 8.6% failure rate, which is still less than the 10% failure rate that was projected. These treated Ash trees are made up of a wonderful collection of Ash trees that will serve the Village and its residents for years to come, if the treatment plan continues to be followed. These Ash trees may one day be a crown jewel of Roselle, a Village that developed a workable solution when many other communities responded by choosing to remove and replace all of their Ash trees. These Ash trees will continue to deliver the many benefits which only mature trees can provide.

Another interesting exercise has been to examine the cost of removing the treated Ash trees and weighing those costs against the continued cost of their treatment. Let us take a closer look at this. Using actual costs derived from this year's Ash tree removal contractor and last year's tree planting contractor, we have determined that:

- The cost of removing the treatment set of 651 Ash trees, grinding the stumps and restoring the parkway = **\$313,782**
 - The cost of replacing this set of 651 trees = **\$157,542**
- TOTAL** **\$471,324**

As projected on page 13 of this report, the projected cost of the seven year annual treatment plan of these same 651 Ash trees is **\$239,138**

We are now recognizing that treating these Ash trees is significantly less expensive than removal and replacement. Said another way, treating Ash trees could save the Village \$232,186. It continues to appear that the Village has made the right decision by investing in treating its best Ash trees. It is also worthy of note that this comparison quantifies the savings in hard dollars, and still does NOT include the values gained by the intangible benefits that the treated Ash trees will continue to produce for the Village.

The Reforestation component of the Plan has fallen significantly behind, due to the heavy pressure on budgets that tree removal has taken on an annual basis. It is important to realize the importance of this component, and begin planning and budgeting for an increased reforestation effort in 2015. We feel strongly that parkway trees are a very valuable part of municipal infrastructure and add tremendous value to the Village. After this season, the Ash tree removal program will be slowly winding down, and the Village should consider making reforestation a priority. And as mentioned above, simply replacing a tree with another tree isn't enough. Care needs to be taken to select the right tree for the right site, in order to maximize diversity and create a stable and long-living tree population so that Roselle will not have to face this kind of expense due to mass tree loss because of insect or disease.

Overall, our projected total cost of EAB for the Village of Roselle has now dropped to \$1,061,664, a reduction of 10.3% of the original projections from 2011 (\$1,184,000). This can be attributed to proper planning, budgeting, and the excellent relationships that have been created and fostered between the Village, residents, and contractors acting together as one EAB team, working towards a mutual goal.

In addition to the negative financial impact that the EAB has had on the Village, the negative environmental impact of mass tree loss is yet to be seen. These impacts are sometimes difficult to easily recognize and quantify in dollars and cents, however, it is certain that the loss of more than 1,100 trees will take its toll on air quality, heating and cooling costs, and storm water runoff, among other things. But again, the Village is partially mitigating these effects by treating Ash trees to maintain the benefits that only mature tree canopy can provide. This is something for everyone involved to be proud of, and has served as a model project for many other regulatory agencies and communities.

As Roselle looks towards the future of its urban forest, there are positive things to look forward to. Proper planning and response to EAB has put Roselle in a situation where it has begun to reforest and diversify its tree population after this devastating insect invasion. This will help Roselle maintain its urban forest in the wake of EAB. The Village will have an urban forest that is not only aesthetically pleasing, but also resistant to future devastating biological invasion. Most importantly, Roselle will for decades be an island of increasingly rare native living Ash trees.