City of Watertown
Emerald Ash Borer Management Plan (Draft)

Prepared by Tree Watertown,
the City's Street Tree Advisory Board

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Purpose and Plan History

By drafting this Emerald Ash Borer Management Plan, Tree Watertown hopes to outline policies and procedures that the City of Watertown may potentially use for dealing with the destructive effects of the Emerald Ash Borer (EAB) on our urban forest. The EAB is a non-native wood-boring pest of North American ash trees that will soon cause the destruction of hundreds of trees City wide. This will not only have a profound impact on home values, quality of life and the environment; it will also impact future budgets as well as staff time. Tree Watertown, the City's Street Tree Advisory Board, has prepared this plan over the course of the last three years. The impetus for writing the plan was based on the impending EAB threat, inquiries by the City Council in 2012 and numerous discussions at Tree Watertown meetings during the last few years. This draft plan will enable the City to take a proactive approach in dealing with the negative effects of the EAB and will allow the City Council to spread future costs associated with it over time, while minimizing the impact of the tree loss.

Since there are many unknowns about the EAB, such as when it will arrive and how long it will take to spread throughout the City, this plan is by no means intended to commit the City Council to any particular course of action or specific funding levels for tree replacements, treatments, etc. The plan is primarily intended to inform the City Council and community about the EAB, to provide a road map for dealing with it and to estimate future costs.

Scope and Applicability

This plan deals primarily with City owned ash trees located within city street rights-of-way and parks. Although much of the technical information in this plan is also applicable to privately owned trees, Tree Watertown intends to develop a plan to inform, educate and support citizens who have ash trees on their private property.

Administration

The plan will be administered by the Planning Office in conjunction with the Department of Public Works (DPW) and Tree Watertown.

What is EAB?

Emerald Ash Borer, *Agrilus planipennis (Fairmaire)*, or EAB, is a non-native wood-boring pest of North American ash trees. This devastating pest was first found in 2002 in North America where it was discovered in southeastern Michigan and adjacent areas in Windsor, Ontario, Canada. It is thought to have

been introduced in the 1990's on solid wood packing material originating from Asia. This extremely destructive beetle poses an enormous threat to all of North America's rural and urban ash resources. Unlike many other wood boring beetles, EAB aggressively kills stressed and healthy ash trees; most dying within two to three years of becoming infested. Currently, EAB has no known natural enemies in North America, no effective control options over the forested landscape, and only a few options for protecting individual, high-value specimen trees. If EAB is not contained or its population growth and spread are not slowed, this pest will continue to infest and kill all species of trees in the genus Fraxinus (ash). The impact on ash in North America has been compared to the effects of chestnut blight and Dutch elm disease, which devastated rural and urban forests in the 20th century.

The insect exists in two mobile forms: the adults are a 3/8 to 5/8 inch fly with metallic green wing covers and a red or purple abdomen; the larvae are white with a segmented, worm-like body and can reach lengths of 2.5 inches—they live under the ash bark and are unlikely to be spotted unless the tree is destroyed. The presence of larvae in an ash will often result in increased woodpecker activity.

EAB in New York State

EAB has been present in New York State since the summer of 2009 at the latest. Much of the western, central, and eastern portions of the state are under quarantine to prevent the human-assisted spread of the insect. This quarantine places legal limits on the transportation of ash trees, ash wood products, and firewood of any species. There is a statewide ban on the transportation of firewood more than 50 miles from its source. Despite the fact that Jefferson County has not been designated a quarantine zone by State of New York authorities, EAB is very close. It has been identified in eastern Ontario, just across the St. Lawrence River. See Appendix A for a copy of the DEC's current quarantine area map for New York State.

EAB in Jefferson County and the City of Watertown

In addition to the quarantine areas mentioned above, EAB is also present in Mallorytown, Ontario a community along the St. Lawrence River just downriver from Alexandria Bay, NY – only 35 miles from Watertown, as the crow flies. There is a pre-existing ban on the import of firewood from Canada (since 2008) and the adult EAB is not a strong flier. Although the presence of the EAB in Ontario is of great concern, the greatest threat to Jefferson County is through human transport, such as by moving firewood into area parks and campgrounds. EAB's arrival in Jefferson County should be considered imminent, if it has not already happened.

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Watertown currently lies in a Third Management Response Area which is defined by the Department of Environmental Conservation (DEC) as those areas > 10 miles from an infested area. Based on the distance to the nearest infested area, Watertown is considered to be at the lowest risk of imminent infestation and barring additional human assisted spread, the City will likely have the most time to plan and prepare for EAB's arrival. DEC anticipates at least 5-10 years before EAB is detected in the Level 3 regions of the State. DEC's recommended actions for areas with this threat level consist of early detection surveying, public outreach and education, and planning for direct response when EAB is detected much closer to our community. See Appendix B for a copy of a map showing the EAB risk areas in NYS.

Ash Trees in New York State

Ash is a very common street tree in many New York communities. It was widely planted to replace native elms lost to Dutch elm disease. In Michigan, the first infested state in the U.S., the greatest economic impact has been on communities faced with removal of thousands of dead ash on streets and in yards. Many of these dead trees pose significant public safety hazards and liability problems for municipalities.

Ash is also a common and important forest species. Ash seeds are a food source for birds and mammals. Ash species (white, green and black) comprise almost 8% of all trees in NY State. Ash is a commercially-valuable species, and is used for baseball bats, flooring, furniture, lumber, and pallet manufacture. Black ash is also prized by Native American tribes for traditional basket making. The estimated annual contribution of forest-based manufacturing and forest related recreation and tourism to the New York State economy is over $9 billion.

Ash Tree Inventory in Watertown

Although they do not dominate the Watertown landscape, ash trees are a fairly common street tree in the City, comprising about 8% of the total number of street and park trees. Street trees are defined as those trees located within the public right-of-way, most typically in the "margin" area in between the sidewalk and the edge of the road. Private trees are those trees located on private property, just behind the sidewalk or those located in side and rear yards.

While drafting this plan, it became immediately evident that an accurate accounting of the existing ash tree population would be needed to correctly assess existing conditions and plan a methodology for addressing the imminent arrival of the EAB. As a starting point, committee members reviewed the City's existing street tree inventory. The existing inventory, completed in 1999, has been kept up to date in terms of the physical tree locations, but it contains diameter measurements that are outdated. For example, a 2" tree planted in 2003 was still listed in the inventory as 2", but it is likely to be in the range of at least 8"-10" in 2013. This is a significant

difference as we begin to analyze any required maintenance or removal as shown by the intended plan. It was therefore decided to update the inventory to reflect the current stock of ash trees in the city. This required re-measuring and re-assessing the health of known ash trees on city property, as well as locating and assessing any ash trees on private property that may pose a hazard to the public.

The inventory of the existing ash trees began in May 2011 and was conducted by Master Gardeners from Cornell Cooperative Extension, under the leadership of Susan Gwise, Horticultural Educator, and members of Tree Watertown. The inventory was completed in December of 2011. The survey was fairly general in nature and included confirming the presence of an ash tree on a particular site, measuring the new diameter at breast height (DBH) in inches and assessing the overall condition of the tree.

The results of the survey indicate that there are approximately 406 known ash trees on City owned property. This includes 270 trees within street rights-of-way and 136 park trees. Sizes of the ash trees vary from as small as 2” up to 40” in diameter. However, the average diameter of the ash trees surveyed was 8”. This relatively small average size is due to the fact that American Elm, Sugar Maple, Norway Maple and Silver Maple dominated the City’s urban forest for decades prior to the ice storms and microburst of the 1990’s. It wasn’t until after these storms that the City’s plant palette became more diversified and ash trees were planted in larger numbers. Most of the ash trees planted in the City were planted as 2” saplings between 1997 and 2006 and have obviously not had time to grow into large full grown trees.

In addition to the 406 City owned ash trees, the survey identified 207 privately owned ash trees located just behind the sidewalk. The average diameter of the privately owned ash trees is 9”, with a diameter range of 2” to 40”. See Appendix C for a copy of a map showing the approximate locations of all of the known ash trees throughout the City.

The following table shows a summary of the ash inventory by various size classifications as of December 2011:

Tree Diameter at Breast Height (In Inches)	City Owned Ash Trees Street and Park Trees	Privately Owned Ash Trees Near City Property
2” to 6” DBH	138	54
7” to 12” DBH	253	125
Greater than 12” DBH	15	28
Total	406	207

The survey depicts a fairly accurate accounting of the existing ash trees within the street right-of-way and areas along the street between the sidewalk and the house fronts. What is unclear is the number of ash trees located in side and rear yards around resident’s homes as well as the number of ash trees in forested areas of City owned property. While these trees will not significantly affect the scope of the City’s tree removal efforts, they will have an effect on certain property owners as well as the overall forest health of the City’s wooded areas. The full inventory is available from the City Planning Office.

Monitoring

Local ash trees have been and will continue to be observed periodically for signs of EAB infestation, including characteristic D-shaped exit holes, wilting or discolored foliage, growth of new shoots on the lower portion of the trunk and increased woodpecker activity. Dead ash trees should have their bark stripped and be examined for the presence of EAB galleries.

If and when EAB is discovered in the Watertown area, a significant increase in attention from State and Federal authorities can be expected. The City will work in cooperation with the NYS DEC and the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) to control the spread and effects of EAB.

Education and Outreach

Tree Watertown, in conjunction with the City, has already begun educational and outreach efforts regarding the Emerald Ash Borer. In 2008, Tree Watertown hosted an EAB seminar sponsored by the NYS Department of Agriculture and Markets (DAM) and the USDA APHIS. The seminar targeted local officials, public works personnel, arborists, tree care professionals and citizens and provided an introduction of the EAB to the local area. In 2011, Cornell Cooperative Extension in conjunction with their Master Gardeners and members of Tree Watertown participated in a statewide initiative to spread the word about the EAB. Purple ribbons and yellow identification tags were placed on select ash trees throughout the City with the hopes of identifying trees that will be threatened by the EAB and to direct people to sources of information about the EAB. A 2013 training session offered by Cornell Cooperative

Extension of Jefferson County and the NYS DEC was also attended by City Planning and DPW staff.

Future educational initiatives will be planned in conjunction with NYS DEC and Cornell Cooperative Extension and our staff will participate in these sessions. The City and Tree Watertown will also provide guidance to the public on contacting tree removal professionals in case they wish to treat or remove an ash tree on their property.

EAB Policy

Tree Watertown is proposing that the City of Watertown's EAB Policy mirror that of the NYS DEC's Bureau of Private Land Services as outlined in their Emerald Ash Borer Management Response Plan. *That is, the City's goal in responding to EAB is to keep as many ash trees alive as possible, in as much of the City as possible, for as long as possible*. In order to do so, the City will adopt the concept of Slow Ash Mortality or SLAM. The SLAM approach involves the early detection, surveying and monitoring of the EAB along with employing appropriate control measures to reduce the pest's population, minimize the population's growth and limit its natural spread to adjacent areas. This approach will help to achieve a variety of benefits for the City including:

- Saving street and yard ash trees for as long as possible to provide continued benefits to homeowners and the City.
- Delay the time when ash street trees are killed by the EAB and become hazards requiring removals, costing the City and homeowners thousands of dollars.
- Allow time for researchers to develop better chemical and biological control measures to preserve ash trees.
- Allow the City to spread removal, disposal, treatment and replanting costs over the course of many years, minimizing impacts on its budget.

Proposed Plan

Tree Watertown is proposing the following plan for City of Watertown. Once the Emerald Ash Borer has been positively identified in Jefferson County and/or the City of Watertown, the area will likely see a significant increase in attention from the NYS DEC, USDA APHIS, NYS DAM and Cornell to survey the area for EAB, monitor the outbreak, track EAB movement and expansion of infested areas and assess population changes, determine the extent of the infestation and provide continued monitoring and evaluation of the infestation. These

groups will also work with the City to help us manage the infestation and plan appropriate response measures.

Survey and Detection. For several years, the use of purple prism traps by DEC to detect new infestations of EAB has been utilized throughout the State, including Jefferson County and the City of Watertown. Once an initial EAB detection is confirmed in the area, the DEC, USDA APHIS and NYS DAM may begin an expanded survey to determine the limits of the infestation. The survey would include ground based visual inspections, inspection of high risk ash trees using bucket trucks, destructive sampling of symptomatic ash trees, aerial surveying and remote sensing. The City's role in the survey will be to provide our updated ash tree location and condition data, continue the monitoring of our own ash resources throughout the City and allow and possibly assist with the installation of additional purple prism traps for monitoring purposes.

Reduce Known EAB Populations Through Tree Removals. Once a City owned street tree becomes infested with the EAB, the City will remove and dispose of it, preferably prior to the emergence of the adult beetle and its flight season or after the adults have mated and laid their eggs on host trees. Emergence typically occurs in late May or early June, mating follows soon after with the flight season concluding by August. Proper removal and disposal protocols will be followed, as described in the "Removals and Disposal Protocols" section of this plan. Priority will be placed on removing larger diameter trees known to be infested around the perimeter of the delimited core as larger trees have a greater potential to harbor EAB larvae and will consequently produce more adults. With the exception of creating select trap trees or sentinel trees as described below or removing trees that are in decline, the City will not preemptively remove any healthy ash trees.

Although there is no exact way of knowing how quickly the EAB will spread throughout the City and the number of trees that will succumb per year, we are estimating that as many as 75-100 trees will require removal per year once the EAB infestation is fully established in the City. The ash mortality curve shown in Appendix D indicates relatively low rates of ash mortality during the first 5 years after the initial infestation. However, 4-5 years after establishment, ash mortality rises dramatically and all untreated ash trees will have to be removed from City owned property.

Create Trap Trees. In an effort to attract EAB adults and hold populations within a known infested area as long as possible, the DEC annually creates clusters of trap trees. The City will work with the DEC as appropriate to girdle, inspect and eventually remove trap trees, according to the most current research based protocols. In essence, the City would allow DEC to girdle select trees in an effort to attract and trap the EAB to prevent it from spreading quickly across the City and/or region. Girdled trees would be removed prior to the next flight season.

Establish Sentinel Trees. Similar to creating trap trees, sentinel trees are created by girdling select ash trees that are located just outside of a delimited infestation area. This is done to assess the effectiveness of previous efforts and to detect the spread of EAB outside of the core area. Sentinel trees are selected if they have attractive features to the EAB including a large diameter, open or edge grown and have a dominant canopy position. Since most of the City owned ash population is less than 12" in diameter, it is unlikely that this particular technique will be employed very often within the City limits. Nonetheless, the City will work with the DEC as appropriate in this regard.

Removal and Disposal Protocols. As noted above, preemptive removal of healthy ash trees will not be completed by the City and ash trees will only be removed once a City owned street tree becomes infested with the EAB. The City will remove and dispose of it following the procedures outlined below. With the exception of a removal required to protect against an imminent threat to life or property, removal of infested ash trees will only occur between October 1 and April 30. These timeframes will be prior to the emergence of the adult beetle in the spring and after the adults have mated and laid their eggs on host trees in the late summer.

The October 1 to April 30 time frame is also favorable with regard to the summer roosting patterns of the Indiana Brown Bat and the Northern Long Eared Bat. During this time period the bats are not likely to be roosting in the ash trees and the removal of them will not affect their habitat. The City should continue to consult with the United States Fish and Wildlife Service to ensure compliance with the Endangered Species Act.

An important aspect of reducing and slowing the spread of the EAB is properly managing the wood, brush and stump grindings generated by the removal of infested trees. In order to kill any EAB larvae present in ash trees that are removed, all wood and brush must be chipped to a maximum size of no more than 1" in two dimensions (two of the three measurements – length, width and depth – must be 1" or smaller). The City's existing chipper, stump grinder and contracted grinding equipment will meet these requirements and will be utilized in our street tree removal operations.

Where practical, all processing of ash tree wood, including the branches, limbs, leaves, trunk, stump, etc. will occur on site at the time of removal. After chipping and grinding, the resulting wood material will be taken to either to the City's abandoned quarry facility or another local facility for composting, recycling or reuse. In instances where larger pieces of wood are not able to be processed on site by our chipper, the wood will be transported to the City's abandoned quarry facility where it will be ground with a large tub grinder to the size specifications noted above.

Treatment. As is noted above, EAB has no known natural enemies in North America and no effective control options over the forested landscape. However, there is a very effective

treatment option for protecting individual specimen trees or groupings of high value trees located in an urban environment. The product is the insecticide emamectin benzoate or Treeäge. This product is applied as a trunk injection and is nearly 100% effective in controlling the EAB. By administering the insecticide via a trunk injection, there is almost no exposure to the public or environment as would be the case with foliar sprays or soil drenches. Additionally, Treeäge has been proven effective for 2 to 3 years with one dose unlike other insecticide options that only last 1 year and are not nearly as effective.

There are a variety of other insecticides that purport to effectively control EAB through a variety of methods such as soil injections, soil drenches, trunk sprays, cover sprays and trunk injections. Most of them are only 50% effective and are not environmentally friendly. These other products are not recommended as part of any treatment option the City may consider or recommend to private property owners.

The cost of injecting ash trees with Treeäge, however, can be significant. At an approximate treatment cost of $9 per diameter inch, an ongoing treatment program for all 406 of the City's ash trees is likely unsustainable.

Despite the cost associated with treatment, this plan does recommend the treatment of a total of sixty (60) specimen ash trees, spread out over the course of three years, to begin once the EAB is discovered in the City or is within 10 miles of the City.

These sixty trees would represent approximately 15% of the City's ash tree population. The plan would treat 20 trees per year over the course of three years. Assuming an effective treatment duration of 3 years, the plan would likely need to be repeated beginning in year four. Treatment costs are identified later in this plan. The location of the exact trees to be treated has yet to be determined, however, the locations to be selected will likely be a combination of <u>high profile</u> and <u>strategically selected</u> locations aimed at prolonging the tree canopy within a certain neighborhood or district.

An example of a <u>high profile area</u> that would be recommended for treatment would be in the 200 Block of Washington Street where ash trees line both sides of the street. The tree canopy in this area is important to the overall aesthetics of the corridor, is important for shading the farmer's market and is important since it is one of the busiest thoroughfares in the downtown area. Preserving the tree canopy and thus the character of the area would be a high priority.

Two examples of <u>strategically selected</u> locations that would be recommended for treatment would be the 100 Block of Flower Avenue West and the 200 Block of Francis Street. In these areas, ash trees tend to dominate the streetscape and the loss of all of them due to EAB would have a significant impact on the tree cover in the neighborhood. In fact, with the lack of

many other older trees of different species, the loss of the ash trees would leave these neighborhoods barren. The plan for treating trees in these types of neighborhoods would be to treat 2-3 trees per block which would partially preserve the tree canopy and allow the City to phase in the tree loss and associated impacts over time and give other replacements trees time to grow and reestablish.

There are many neighborhoods like these two examples throughout the City and the treatment program would be primarily aimed at preserving a portion of the tree canopy in them. There may also be a few older and larger "heritage" trees in some of the City's park areas like Thompson Park, which could also be considered for treatment.

While treatment may seem like it is a battle that is never likely to be won, it does provide several options and benefits for the City. First, treating selected ash trees will prolong the life of the treated tree. That tree in turn will continue to provide the tangible benefits that trees provide such as shade, increased property values, stormwater absorption, etc. An 8" Green Ash tree, located near a single family residential home, provides a $93 benefit per year according to the National Tree Benefit Calculator (http://www.treebenefits.com/calculator/index.cfm). These benefits include absorption and reduction of stormwater runoff which lowers demands on treatment systems. Shade provided by trees results in energy savings through lower cooling costs while tree canopies can slow down winds, thereby reducing the amount of heat lost from a home, resulting in lower heating bills. Trees can increase the curb appeal of properties and increase sale prices and property values. Trees absorb pollutants like ozone, nitrogen dioxide and sulfur dioxide through leaves and release oxygen through photosynthesis. In one year, an average 8" Green Ash tree will reduce atmospheric carbon by 189 pounds.

Secondly, prolonging the life of select ash trees gives scientists and researchers additional time to find and develop better biological and chemical protection and control measures. If a successful biological control is found, it may permanently save any ash trees that the City chooses to save during the interim. Finally, treatment costs are significantly less than removal costs and treating these trees can reduce overall costs. It will also provide the City additional time and will allow the City to better budget and prepare for future removal and replanting costs. This will enable the City to remove and replace trees on our schedule, rather than all at once.

As part of the proposed treatment plan, the City and Tree Watertown would make available to residents information on treatment options for privately owned trees. This could be done through mailings, having information available at City Hall and providing information on the City's web site.

Tree Replacement. Tree replacement will obviously be needed as the EAB attacks and destroys street and park trees throughout the City. Planning for the EAB with regard to new tree plantings has been underway for the last several years. Beginning in 2007, the City suspended

the planting of all ash trees as part of annual tree planting efforts. Beginning in the fall of 2011 and continuing with subsequent tree planting projects, the City has implemented a policy to plant replacement trees in close proximity to existing ash trees wherever space allows giving the new trees a chance to start to grow prior to the removal of the ash. The new plantings will have several years to grow, lessening the impact of the eventual removals in the neighborhood. To date, the City and Tree Watertown have planted 49 new trees near existing ash tree at locations in several neighborhoods and parks throughout the City. All future tree planting projects should take a similar approach wherever possible so that new trees can be started prior to the removal of the ash trees.

There are a variety of funding sources that the City utilizes each year to fund our normal City wide tree planting efforts. For 2014, the tree planting funding that the City has available includes monies from the 2013-2014 City budget, a grant from the Watertown Rotary Club and potential grants from the Northern New York Community Foundation and the NYS DEC. These amounts can vary from year to year depending on amounts allocated in budgets and whether or not grant funding is available and/or awarded. The City, with help from its partners such as the NYSDEC, Tree Watertown, the Rotary Club, the Watertown City School District and the Northern New York Community Foundation, plants approximately 200 trees per year throughout the City (5 year average). One approach would be to replace the ash trees lost to the EAB through our normal planting program. This could work in isolated areas, but given the density of ash trees in some areas, the loss of all the trees in certain neighborhoods will have a significant impact on the streetscape and this plan therefore proposes an increase in the tree planting line item in the annual budget.

Assuming a minimum of a one for one replacement, a total of just over 340 new trees will have to be planted to replace those that are lost as a result of the infestation. (this number is less than the total number of ash trees because the trees proposed for treatment have been removed from the total) Once the EAB infestation is established in the City, we are estimating that after 4 years, all untreated ash trees will have been removed or will be infested and ready for removal. Although there is no exact way on knowing the number of trees that will succumb per year, we are estimating that 85 trees will require removal and replacement per year. This plan therefore recommends an increase in funding for 4 years, once the EAB arrives, for the planting of an additional 85 trees per year over normal levels. The costs for additional planting are identified below.

-Current Projected Costs

The City of Watertown is fortunate in many ways in that our ash tree population is relatively small, comprising only 8% of the City's street tree population. Additionally, many of the ash trees have been planted in the last 15 years meaning that their average size is fairly small

and more manageable when it comes to potential removals. Regardless, the City will still be faced with the removal and the replanting of at least 340 street and park trees and the thousands of dollars in costs associated with it. The paragraphs below attempt to quantify the costs using the best data currently available.

The first costs to be incurred once the EAB arrives in this area will be for increased survey, monitoring and trapping costs along with costs to research, study and track the movement of the EAB the outbreak, etc. These costs will be incurred by State and Federal Agencies and the City's only cost will be very minor in nature. There may be some minimal costs associated with attending meetings and project coordination by the City Planning Office, but no major costs.

Tree Removal. The first cost will be associated with the removal of infested ash trees. These costs will primarily consist of Staff time; however, there will be miscellaneous costs for supplies and disposal associated with the removals. While not discounting the Staff and equipment costs associated with the removals, a majority of the removals could be completed by City crews during the winter or early spring months in between snow events, thereby limiting any direct cash outlay. Based on 2012 figures, the removal of 340 ash trees from the City will cost an estimated $153,000 in labor, equipment and materials or $38,250 per year over the course of 4 years. The removal will include cutting down the trees, chipping it as noted above and disposing of it at a local green waste disposal facility. The cost to remove each tree is $450 and is broken down as follows:

Labor	$240
Equipment	$192
Materials/Disposal	$18
Total per tree	$450

The total annual cost of $38,250 is based on the removal of approximately 85 trees per season. The removals would be completed during the late fall through early spring in between snow events. Removals would average approximately 6 per day or 30 per week and the total operation would take about 3 weeks.

Tree Replacement. The next costs will be associated with the replacement of the trees. For this estimate it was assumed that the City would hire a landscape contractor to complete the planting. The reason for hiring a contractor is primarily a function of time available to dedicate to the tree planting program. Our DPW crews do an excellent job with the annual tree planting program but can only afford to dedicate approximately 5-7 days of crew time in the spring to plant trees. This time allows us to prepare holes for the Rotary Club and to plant 90-100 trees.

Any tree planting above that amount begins to infringe upon other spring time activities, most notably lawn mowing. If the planting extends more than 5-7 days, crews can get quickly behind in mowing efforts and it is often difficult to catch up. This plan therefore proposes to hire a contractor for the replacement trees. Based on recent contractor tree planting figures, the replacement of 340 ash trees in the City will cost an estimated $47,600. The cost to replant each tree is approximately $140 and is broken down as follows:

Contractor Planting Cost	$70
Bare Root Tree Purchase	$70
Total per tree	$140

Replacement costs may be able to be offset by as much as 50% if the City is successful in obtaining grant funding through the NYS Department of Environmental Conservation or other sources. The City has been successful with tree planting grants from DEC in the past and could definitely apply for additional funding in future grant rounds for replacement trees. The cost of the tree removals or our normal tree planting allocation could be used to meet the required match for the grant(s).

Tree Injections (Treatment). The final proposed cost of this plan will be associated with the treatment or injection of 60 ash trees with the insecticide emamectin benzoate or Treeäge. For this estimate, a price quote was obtained from a local contractor. The approximate price quoted for the treatment of an 8" diameter tree is $9 per inch, or a total of $72 per 8" tree. This assumes a minimum of 50 trees being treated. Since the average size of the City's ash trees are 8" in diameter, the treatment of the 60 trees would cost about $4,320 or $1,440 per year for three years.

Emerald Ash Borer Management Plan – Summary of Costs

	Tree Removal	Tree Replacement	Tree Treatment	Total
In- Kind Labor	$81,600	-	-	$81,600.00
In Kind Equipment	$65,280	-	-	$65,280.00
Materials	$6,120	$23,800	-	$29,920.00
Contracted	-	$23,800	$4,320	$28,120.00
Total	$153,000	$47,600	$4,320	
			Grand Total	**$204,920.00**

Total In-Kind - $146,880.00
Total Cash - $58,040.00

-Summary

Most experts believe that it is just a matter of time before the Emerald Ash Borer arrives in our area. When it does, there will be a significant impact on the City's street tree resources. As many as 406 known City owned street and park trees will be killed by the EAB. Although ash trees make up only 8% of the City's street and park tree population, the impact on certain neighborhoods lined with ash trees will be significant.

The plan outlined above proposes a proactive approach to dealing with and solving the EAB problem that the City will be facing. From new tree plantings near existing trees to injection treatments to removals and replacements, this plan offers a variety of options to deal with the impacts of the EAB and spreading the costs and impacts out over time.

As proposed above, the EAB infestation will cost the City a total of $204,920. This includes $146,880 in labor and equipment costs and $58,040 for replacement trees, injection treatments and miscellaneous costs. The additional labor and equipment costs are not expected to have a large impact on the City's operation or budget as much of the removal work can be done over the course of the winter months during breaks in the winter weather. The actual cash costs that will affect the operating budget are anticipated to be spread out over four years, meaning the impact to the City's budget over that four year time period would be $14,510 per year.

Since there are many unknowns about the EAB, such as when it will arrive and how long it will take to infest the City, this plan is not intended to commit the City Council to any particular funding levels for any specific fiscal year(s) at this point in time. The plan is intended to provide a blueprint for dealing with the effects of the EAB and to estimate proposed costs associated with implementing the plan. All proposed expenditures required to implement the plan for a given fiscal year will follow the standard budgeting process for ultimate approval by the City Council.

This draft plan, written by members of Tree Watertown, outlines a proactive, multi-faceted approach for dealing with the EAB. After additional discussions with the City Council, Tree Watertown and City DPW Staff, it can be modified accordingly to address different desired approaches or needs.

The arrival of the EAB will certainly bring challenges to the City in terms of Staff availability for tree removals and funding for replacement trees and treatments, but with a clear plan and goals, the City of Watertown will be able to meet the challenge and minimize the impact to our streets, neighborhoods and parks.

DRAFT

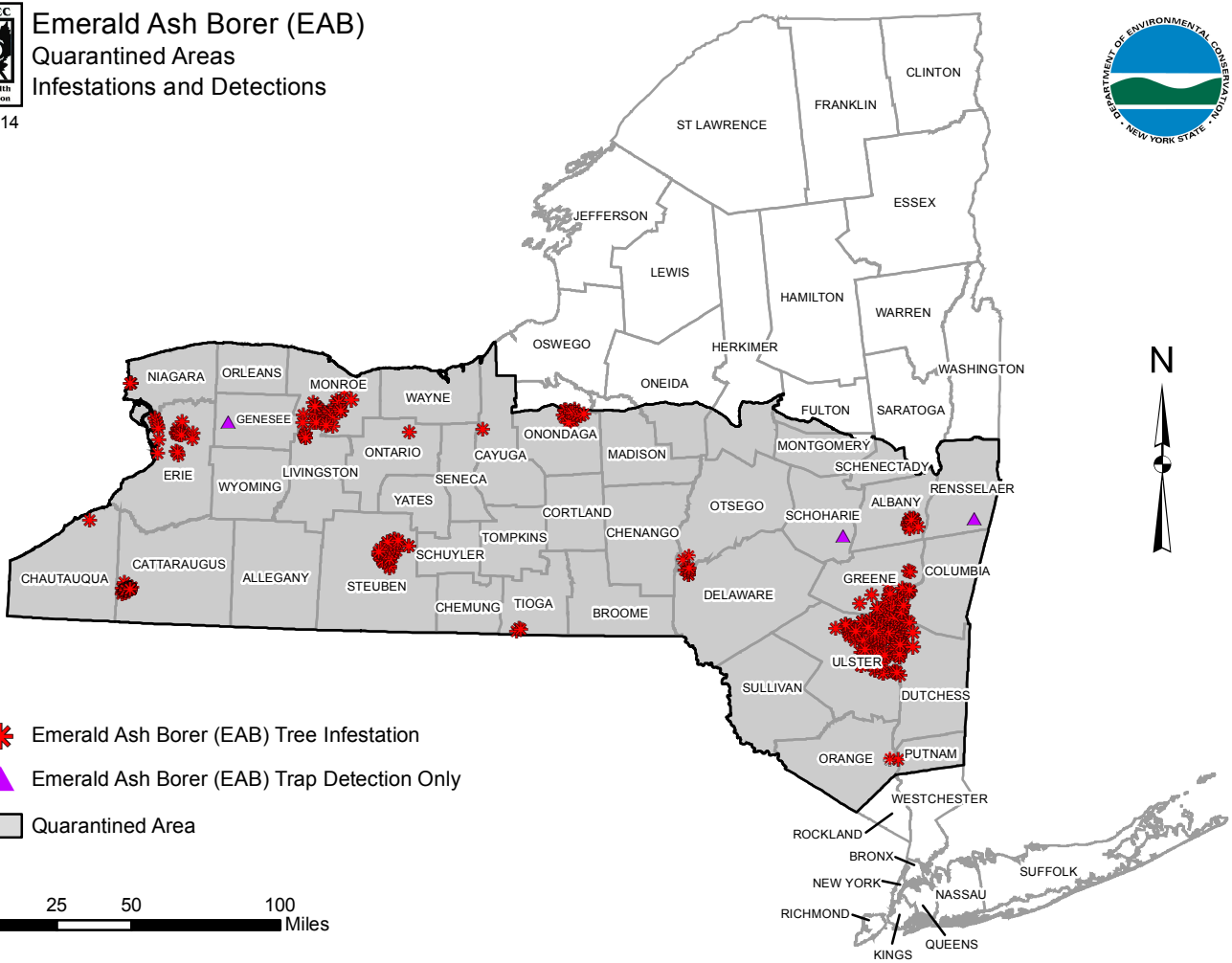
Appendix A

DRAFT

Emerald Ash Borer (EAB)

Quarantined Areas
Infestations and Detections

03/11/14



Appendix B

DRAFT

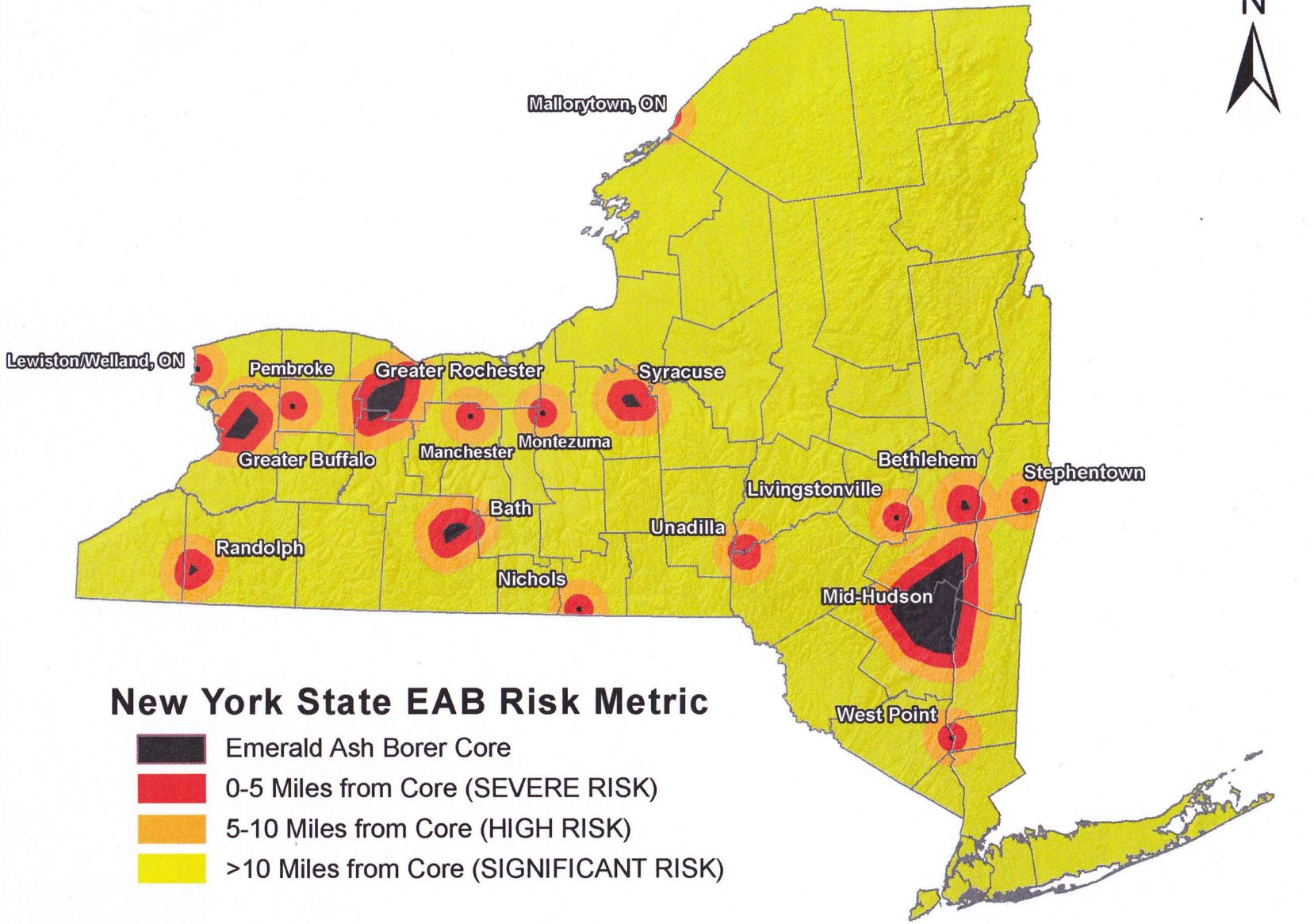
Emerald Ash Borer (EAB)
Management Response Plan 2013

Bath, Bethlehem, Greater Buffalo, Greater Rochester, Lewiston/Welland, Livingstonville, Mallorytown, Manchester, Mid-Hudson, Montezuma, Nichols, Pembroke, Randolph, Syracuse, Stephentown, Unadilla, West Point

Last Updated 10/23/2013

RESPONSE PLAN

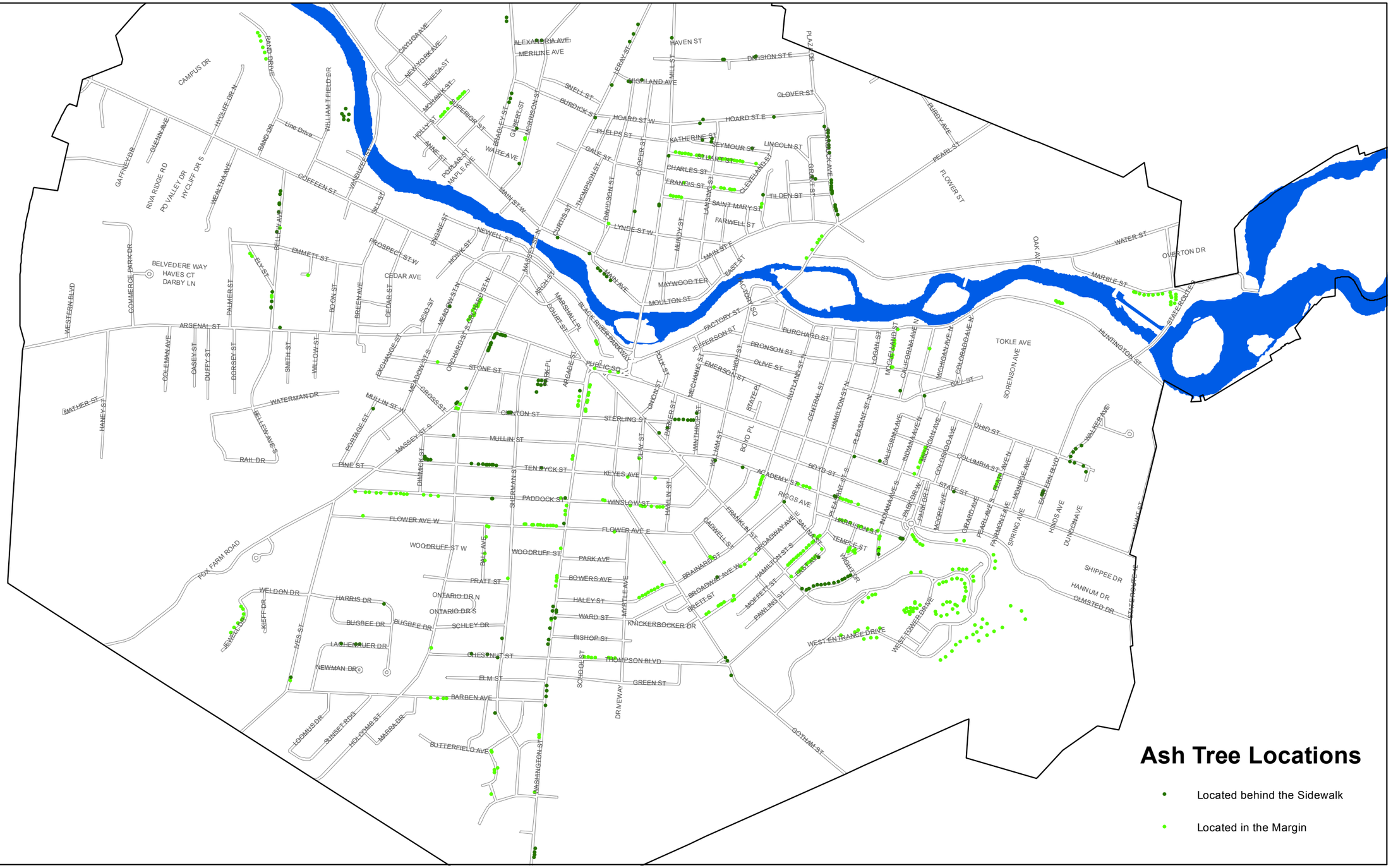
Emerald Ash Borer RISK



S. McDonnell
New York State Department of Environmental Conservation
Division of Lands and Forests
Forest Health Unit
October 23rd, 2013

Appendix C

DRAFT



Ash Tree Locations

- Located behind the Sidewalk
- Located in the Margin

Revision:	Description of Revision:	Date:	By:

Project:

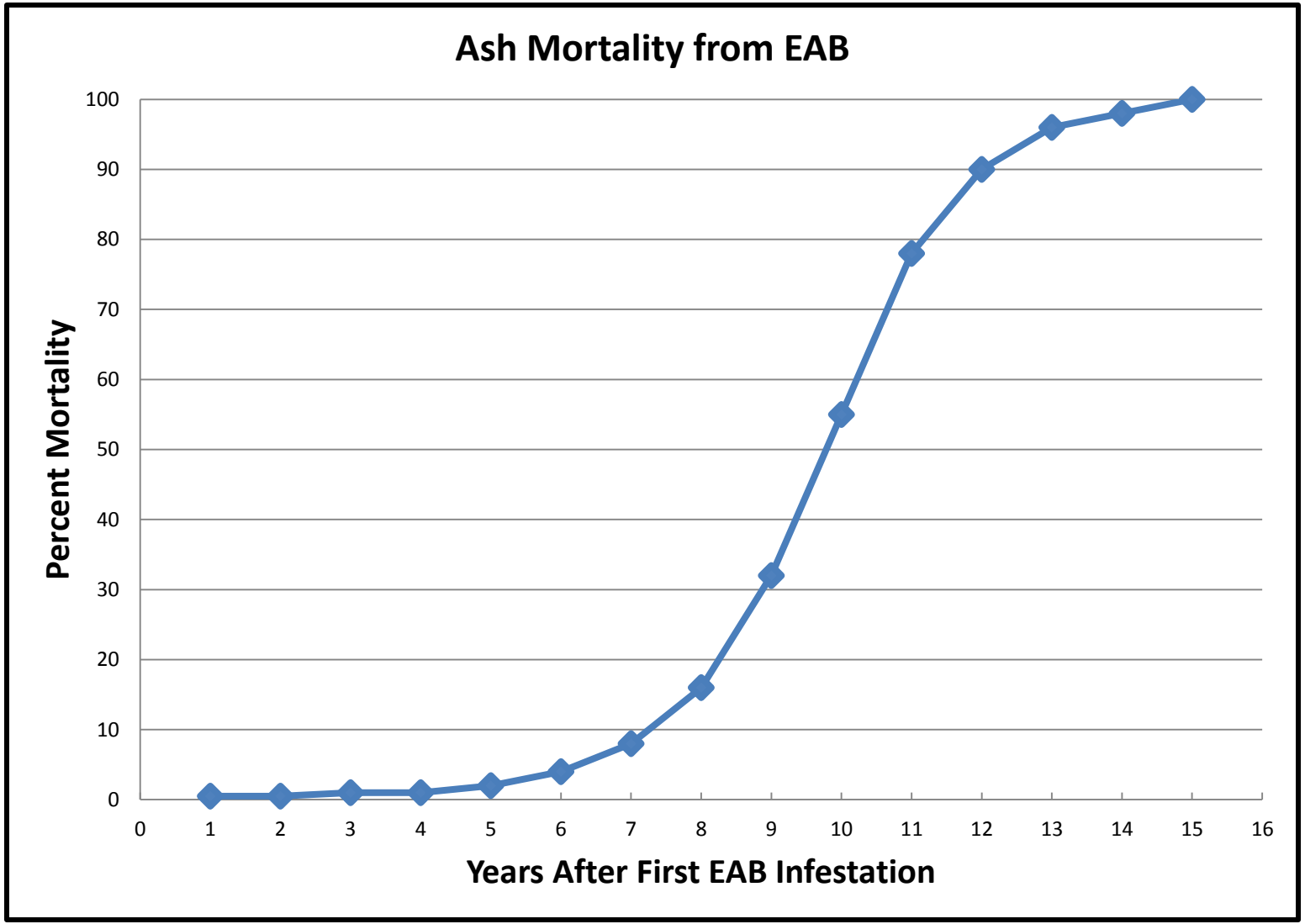
Title: City of Watertown Ash Tree Locations

CITY OF WATERTOWN, NEW YORK
GIS DEPARTMENT
ROOM 305B, MUNICIPAL BUILDING
245 WASHINGTON STREET
WATERTOWN, NEW YORK 13601
TEL: (315) 785-7793

Project:	
Designed By:	
Drawn By:	Approved By:
Date: 3/31/2014	Date:
Scale:	
Title:	

Appendix D

DRAFT


Ash Mortality from EAB
Percent Mortality
100
90
80
70
60
50
40
30
20
10
0
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Years After First EAB Infestation

DAVEY