Fitchburg EAB Readiness and Response Plan

Executive Summary

Goal

The goal of the Emerald Ash Borer Readiness and Response Plan is to acknowledge, manage, and minimize the ecological, economic, and aesthetic effects that Emerald Ash Borer will have on public and private lands in the City of Fitchburg.

The objectives are to minimize the impact of the emerald ash borer and the potential loss of ash trees in the urban forest using the best scientific advice and lowest cost to the community; to limit the physical and fiscal liability imposed by an infestation of EAB; to protect the community from hazardous trees and conditions; and to maintain the beauty and efficacy of the urban forest.

EAB

Emerald Ash Borer (EAB) is an invasive wood boring beetle that is feeds on the layer of actively growing tissue of ash trees (Fraxinus). It is 100% fatal to native ash trees regardless of variety, age, size, or site. The beetle is native to East Asia and experts believe is arrived in the United States approximately twelve years ago in solid wood packaging materials.

EAB was first discovered in Detroit in 2002. As of August 2009, the beetle has been found in Ohio, Indiana, Illinois, Maryland, Pennsylvania, West Virginia, Minnesota, Wisconsin, Kentucky, Missouri, New York, and Canada causing the death tens of millions of ash trees, over 15 million in the Detroit area alone. It was most recently found in Franklin, Wisconsin in Milwaukee County. Wisconsin forests contain more than 770 million ash trees, nearly 7 percent of the tree population. In most urban areas, it is estimated that ash makes up, on average, 20 percent of trees.

Assessment of Existing Resources

The City of Fitchburg has a relatively young, healthy urban forest that requires proper management to assure that it remains healthy and to control potentially higher long-term costs. Maintenance needs are currently minimized by the fact that the forest is young, however, as it grows and matures, funding must increase to support regular maintenance and assure a healthy forest into the future. Fitchburg's urban forest will increase in value and reduce public safety risks only if it is managed properly. This proposed plan provides the city with maximum economic, aesthetic and environmental benefits from its urban forest.

The Departments of Parks, Recreation and Forestry is staffed by one permanent part-time urban forester who is an ISA certified arborist, one maintenance supervisor, 3 full time employees, and one limited time employee who works 9 month of the year. The Department of Public Works is staffed by one street maintenance supervisor, 8 full time streets maintenance employees, and 3 full time utility employees. All are trained in tree removal and operating the appropriate equipment.

There are more than 700 ash trees on public tree terraces and in public parks. Approximately 11% of the City's street and park trees are ash. Current crew size and equipment capability is not adequate to handle all EAB related tree work even if distributed over a multi-year plan. Contracting additional crews of insured professional, ISA certified arborists will be necessary to remove trees that are too large, too tall, or too technical and outside of the range of the city owned equipment.

Street Tree Inventory

The city ash inventory is nearing completion. The counts to date in the urban service area are approximately 450 ashes on public streets, approximately 250 in parks and, according to sample plots,

approximately 63 in natural areas and woodlots. Numbers in rural right-of-ways (ROWs) and private property are unknown. The total number of trees of all species on streets and in parks is approximately 6,500. Ash trees represent approximately 11% of inventoried trees.

Operational and Cost Implications

Mitigation costs for removal, stump grinding, site restoration, and replanting ash in the current inventory will vary depending on the amount of time public works employee can devote to the cause and the amount of work that might have to be contracted. The following costs reflect 3 scenarios dealing with all public ash trees in the current inventory:

1. Total Mitigation Cost **Using Only In-House Labor: $287,205.32**
2. Total Mitigation Cost **Using Only Contract Labor: $480,858.00**
3. Total Mitigation Cost **Using 50% In-House Labor and 50% Contract Labor: $384,031.00**

Treating selected trees to delay an infestation is another option. The cost of treating selected trees on municipal property with the injection method is based the DBH of each tree. Available current treatment options must be done annually to have any hope of keeping the trees protected. It is suggested that the goals of insecticide use are to protect selected specimen or heritage trees and slow the spread of EAB to allow the replacement of ash trees to be spread out over a period of up to ten years rather than complete it all in five or fewer. The following estimate is for all municipal trees of 15" DBH (diameter at breast height) and larger (based on the definition of Specimen trees) currently inventoried.

Contractor: $21,994.00
In-house: $7,540.80

Equipment

Operational costs must include additional equipment if the City is to manage EAB using primarily municipal employees. Minimally, the needed equipment includes a 55'-60' bucket truck for larger removals and a second chipper and truck with chip box.

Costs:	
55'-60- bucket truck (used):	$ 40,000
Chipper:	$ 30,000
Chip box and truck:	$ 50,000
Total	**$120,000**

Wood Reutilization and Marshalling Yards

Second Season Recycling will be the primary site for wood reutilization efforts and handling wood debris. When EAB becomes a major issue for all communities in south central Wisconsin, recycling companies such as Second Season are likely to have difficulty handling all the material trucked to them by their contracted municipalities. They are increasing their rates over the next couple of years and might need to again when the wood stream increases.

If Second Season cannot take Fitchburg's ash material or if the county or state imposes tight quarantines, the City might have to set up its own yards. The cost of those yards includes fencing, barrier gates, and signage and depending on the amount of material, the necessity of contracting for a tub grinder.

Costs:

Ash Material Dropped at Second Seasons Recycling:

Cost per ton

2010	$16/ton;
After 2010	$20/ton

Approximate green weight of standing ash trees on public property: 400 ton

Approximate ash tonnage per year: 80

Year 1:	$1280
Year 2:	$1600
Year 3:	$1600
Year 4:	$1600
Year 5:	$1600
Total	**$7680**

Marshalling Yards:

Fencing/ gate:	$18,000
Signage:	$ 1,000
Total	**$19,000**

Tub Grinder:

$2000 /day

Number of days of use depends on amount of material.

Public Education and Communication

An outreach plan has been initiated to help inform residents of Fitchburg about EAB. Presentations regarding EAB have been provided to the Council of the Whole, Parks Commission, and city streets and parks employees. The city streets and parks employees were given of demonstration by DATCP employee to determine if EAB was present and a DNR Forest Pathologist, provided information on how to recognize EAB, and the signs and symptoms of infected trees.

Numerous articles have been published in the Fitchburg STAR and the City's quarterly newsletter to inform and update the public on the status of EAB locally and nationally. Presentations and updates have been made to the Park Commission and recorded by and aired on FACTv, the Urban Forester has made Arbor Day presentations to neighborhood associations and scout troops, training has been provided for the highway and parks maintenance staffs, and an EAB webpage is now active on the city website.

Fitchburg EAB Readiness and Response Plan

Goals

The goal of the Emerald Ash Borer Readiness and Response Plan is to acknowledge, manage, and minimize the ecological, economic, and aesthetic effects that Emerald Ash Borer will have on public and private lands in the City of Fitchburg.

The objectives are to minimize the impact of the emerald ash borer and the potential loss of ash trees in the urban forest using the best scientific advice and lowest cost to the community; to limit the physical and fiscal liability imposed by an infestation of EAB; to protect the community from hazardous trees and conditions; and to maintain the beauty and efficacy of the urban forest.

Mission Statement

The mission of the Urban Forestry Division of the City of Fitchburg is to understand the environment of the urban forest and use best manage practices to assure that the forest is maintained in good health, that risk of injury and property damage is minimized and to maximize the benefits that the urban forest provides to the community and its citizens through diversity and function.

Purpose and Scope

This plan is intended to serve as the guidelines and prescriptions for preparing for and responding to emerald ash borer infestations in the City of Fitchburg. It covers all ash trees in parks, and public open space and municipal properties in the City of Fitchburg. It also addresses strategies for dealing with ash trees on private property and provides residents with information on preparedness and response for trees on their lands.

EAB Background

Emerald ash borer (EAB) (*Agrilus planipennis*) is native to East Asia and is a highly destructive insect that was originally detected in southeastern Michigan during the summer of 2002. Experts believe that the introduction was likely in the early 1990's, twelve years prior to its identification. It is presumed that the insect was introduced into southeastern Michigan unintentionally in solid wood packing materials used in international cargo shipments. EAB was first discovered in North America near Detroit, Michigan in 2002. By the time its presence was confirmed, infestations were well established. EAB is not a threat to human health but it does threaten our forest and urban tree populations. It is 100 percent fatal to our native ash trees of any size, any age, healthy or unhealthy. A tree that has been attacked by EAB will die within 2-4 years.

As of August 2009, the non-native beetle has since been found in Ohio, Indiana, Illinois, Maryland, Pennsylvania, West Virginia, Minnesota, Wisconsin, Kentucky, Missouri, New York, and Canada causing the death tens of millions of ash trees, over 15 million in the Detroit area alone. Wisconsin forests contain more than 770 million ash trees, nearly 7 percent of the tree population. In urban areas, it is estimated that ash makes up, on average, 20 percent of trees.

The larva (the immature stage of EAB) spends its life inside ash trees, feeding on the inner bark where it cannot be detected without removing the outer bark. This feeding disrupts the trees' ability to transport water and nutrients, causing the tree to starve and eventually die. The emerald ash borer can expand its range up to several miles per year during the adult beetles' June to August flight period. Human activities, however, have led to the spread of the EAB over much greater distances. Shipments of nursery stock and firewood have been inadvertently responsible for the majority of new EAB introductions.

Natural predators and pathogens keep EAB population in check in its natural habitat; in addition, there is some indication of actual resistance in ash trees from EAB's native range. EAB has few predators

in North America and ash trees have no natural resistance. North American Woodpeckers and other insectivores have been observed eating EAB larvae but this predation has not had a significant impact on EAB populations. There is one native and 3 introduced wasps that are natural predators of EAB that have shown promise in helping with control efforts. Trial introductions of the introduced species have been made in 2008 and 2009 in Michigan, Ohio, and Indiana.

The cost of mitigation to affected communities has been considerable since removal and replacement or treatment is necessary. Nurseries, sawmills, and firewood producers have felt the insect's impact through quarantine restrictions established to slow the spread of EAB. Quarantine is a system of rules administered by the USDA Animal and Plant Health Inspection Service and the WI Department of Agriculture, Trade and Consumer Protection. The rules are intended to help prevent the spread of EAB. People moving wood products can inadvertently transport EAB to new areas. When an EAB find is confirmed, the county where the find is located will be quarantined. If the find is located near neighboring counties, those counties also will be quarantined.

Despite quarantines, eradication efforts, and containment efforts by federal, state and local government entities, EAB continues to broaden its range in North America both naturally and unknowingly by the movement of infested firewood and nursery stock. It is illegal to move or transport ash material, the emerald ash borer, and hardwood firewood from EAB quarantined areas to a non-quarantined area without a compliance agreement issued by WI Department of Agriculture, Trade and Consumer Protection. Regulated items include cut hardwood (non-coniferous) firewood, ash logs, ash mulch or bark fragments larger than one inch in diameter, or ash nursery stock (DATCP statute 21).

DNR restricts firewood movement onto DNR managed properties in Wisconsin to prevent the spread of EAB to Wisconsin forests and recreational areas. However, firewood can be transported out of a quarantined area if it is from a firewood vendor certified by the WI Department of Agriculture, Trade and Consumer Protection. Hardwood firewood or ash material such as logs, mulch or nursery stock can be moved into or within the quarantined areas without penalty, but overall, firewood movement is a bad idea. Many invasive forest pests and diseases are inadvertently transported on firewood. Moving firewood can put the trees at your destination at risk.

As of August, 2009, EAB has been found in the following counties in Wisconsin: (in order of discovery) Washington, Ozaukee, Vernon, Crawford, Brown, Kenosha and Milwaukee. Although its arrival date in our area is uncertain, it is highly probable that EAB will impact ash trees and public service capacity in the City of Fitchburg, WI sometime in the near future.

The City has assembled an interdepartmental EAB Readiness team with the goal of developing this plan which details the City's authority to act, identifies assets at risk, examines available resources and makes key recommendations that will allow the City to manage EAB proactively and strategically. Although an impending EAB infestation will cause community tree loss and burden the City's ability to deliver exceptional public services, the City can greatly reduce the risk and the negative impacts associated with EAB by following the guidelines and implementing action items endorsed in this plan.

Monitoring and Detection Methods

Survey Program

Emerald ash borer visual survey and detection efforts in Wisconsin have been carried out cooperatively since 2004 by the Wisconsin Dept. of Agriculture, Trade & Consumer Protection (DATCP), the Wisconsin Dept. of Natural Resources (DNR), USDA APHIS, USDA Forest Service Research and the University of Wisconsin and UW Extension. The emerald ash borer is a serious insect pest that threatens the health of all ash tree species in Wisconsin. With an estimated 770 million forest ash trees at risk in Wisconsin, the state is committed to early detection and thoughtful management of this pest. To date, Wisconsin's survey efforts have included visual, detection tree and

purple panel trap surveys. Surveys have been conducted in high risk areas across the state, including state, federal, municipal and private lands.

Purple Panel Trap
Detection traps are the newest tool to assist with EAB detection. The traps are currently purple, almost three feet tall and one foot wide, and covered with a sticky substance. The adult beetle will stick to the trap if it lands on it. More recent research might influence a change of color for the traps.

Traps are placed in the tree canopy prior to the start of adult EAB emergence and are left hanging through the end of seasonal beetle flight. In 2008, approximately 3,800 traps were installed statewide. EAB was detected on a trap in Washington County in August 2008. During the summer of 2009 approximately 8,000 purple detection traps were deployed statewide for EAB detection purposes.

Visual Survey Methods
Visual detection surveys for emerald ash borer are conducted from the ground. Surveyors determine if trees are infested by visually scanning them for emerald ash borer-like symptoms and signs. Symptoms characteristic, but not definitive, of emerald ash borer include branch dieback, epicormic sprouting at the base or along the trunk, woodpecker feeding, and bark splits. Emerald ash borer signs include metallic green adult beetles, cream colored larvae under the bark, D-shaped emergence holes in the bark and S-shaped larval feeding tunnels under the bark.

Survey work has been conducted at state and private campgrounds in Wisconsin since 2004. Due to the high risk of EAB introduction associated with infested firewood, comprehensive surveillance of areas such as campgrounds, where firewood supplies are generally greater, is viewed as a critical measure.

Although the state has born the responsibility of visual survey throughout the state and has shared results with local officials, however, responsibility is likely to shift to city staff when and if federal budgets for survey efforts are reduced.

Municipal Authority to Control EAB and Designation of Responsibility

The City of Fitchburg has the authority to control EAB through city ordinance Chapter 32 City Parks and Forestry Trees and Shrubbery Ordinance and through federal regulations and state statutes.

It will be the responsibility of the Director of Parks, Recreation and Forestry and the Urban Forester in conjunction with the Director of Public Works and their designees to carry out the provisions of applicable ordinances and plans.

Laws Regarding EAB
The emerald ash borer is regulated by the Wisconsin Department of Natural Resources (DNR) through Chapter NR 40, Wis. Adm. Code and by the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) in Chapter ATCP 21 and 21.17, Wis. Ad. Rules.

Wisconsin Rules Helping Prevent EAB Spread
DATCP revised the rule (DATCP 21), allowing our state to restrict the movement of certain items coming from areas infested with emerald ash borer (EAB quarantined areas). These items include firewood, logs, mulch or nursery stock.
DNR revised the rule NR 45.04 (1) (g) restricting firewood movement onto DNR managed properties in Wisconsin to prevent the spread of EAB to Wisconsin forests and recreational areas.

Assessment of Existing Resources

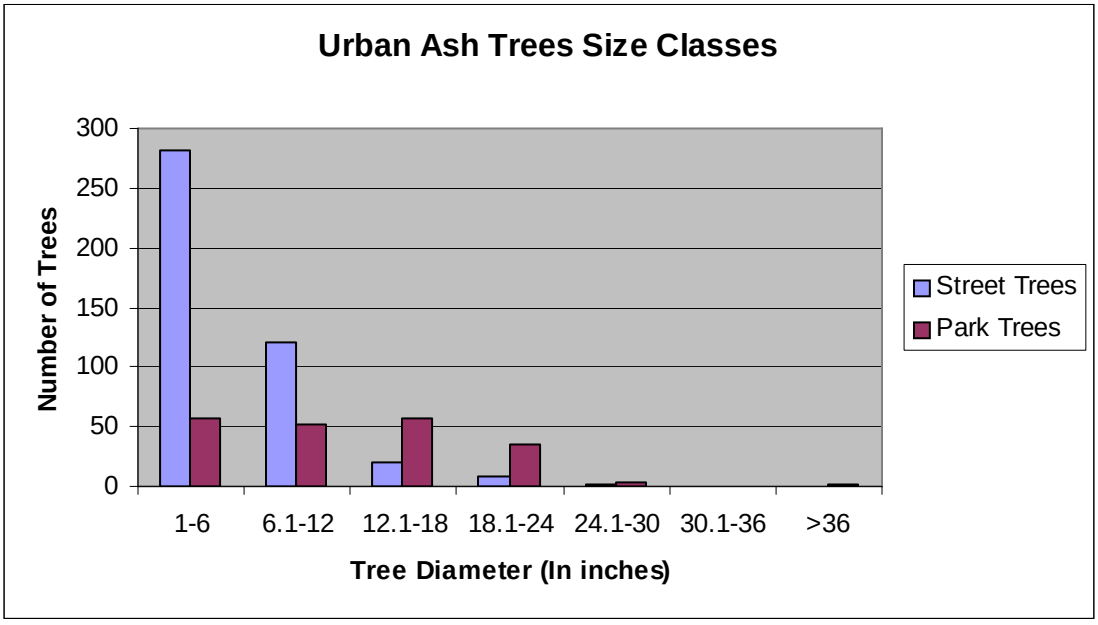
Public Tree Assessment

The City's urban forest is a public asset that appreciates in value over time and provides numerous benefits to residents, visitors and businesses. Community trees help mitigate air pollution, conserve energy, reduce storm water run-off and increase homeowner property values. The impacts of EAB will affect all Fitchburg citizens, businesses and visitors. The City is in the position to prepare and respond strategically to reduce these effects and avoid managing a crisis situation. This EAB Readiness Plan will further detail policy recommendations, budget requirements, maintenance schedules and resource needs to ensure that the City can continue to maximize and maintain the long-term economic, environmental, social and aesthetic benefits of the community forest.

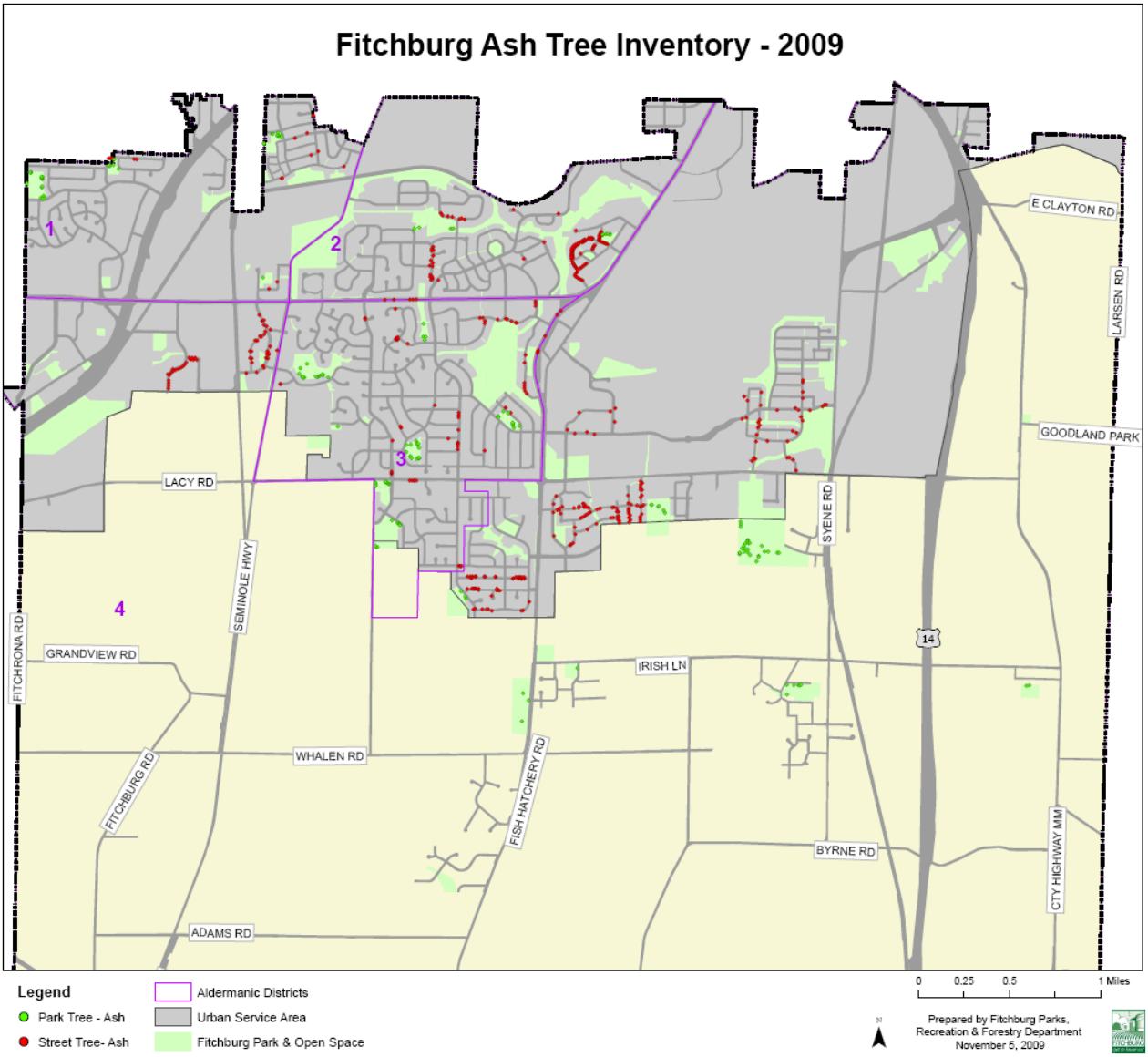
The City of Fitchburg has a relatively young, healthy urban forest that requires proper management to assure that it remains healthy and to control potentially higher long-term costs. Maintenance needs are currently minimized by the fact that the forest is young, however, as it grows and matures, funding must increase to support regular maintenance and assure a healthy forest into the future. Fitchburg's urban forest will increase in value and reduce public safety risks only if it is managed properly. This proposed plan provides the city with maximum economic, aesthetic and environmental benefits from its urban forest.

Inventory

The city ash inventory is nearing completion. The counts to date in the urban service area are approximately 450 ashes on public streets, approximately 250 in parks and, according to sample plots, approximately 63 in natural areas and woodlots. Numbers in rural right-of-ways (ROWs) and private property are unknown. The total number of trees of all species on streets and in parks is approximately 6,500. Ash trees represent approximately 11% of inventoried trees.
See the class size chart below for the numbers of ashes in each size class.



Current Ash Tree Inventory on Municipal Properties



Public Resources

The Departments of Parks, Recreation and Forestry is staffed by one permanent part-time urban forester who is an ISA certified arborist, one maintenance supervisor, 3 full time employees, and one limited time employee who works 9 month of the year. The Department of Public Works is staffed by one street maintenance supervisor, 8 full time streets maintenance employees, and 3 full time utility employees. Although none are certified arborists, all are trained in tree removal and operating the appropriate equipment.

The Public Works employees are responsible for all road and infrastructure maintenance, brush pick up and disposal, and rural and right-of-way tree pruning and removal on municipal properties. Parks workers are responsible for all parks and woodlot maintenance, including tree pruning and removal, and maintenance of recreation facilities. The Utilities employees are responsible for municipal water delivery and infrastructure. The streets and parks employees have been trained to recognize the signs and symptoms of trees that could be infested with EAB.

The City has one thirty (30) foot bucket truck and one (1) chipper. There are currently enough chainsaws and hand tools to meet the needs of the city crews however, backup chainsaws should be purchased to prevent unscheduled down time due to wear and tear.

The crew size and equipment capability is not adequate to handle all EAB related tree work even if distributed over a multi-year plan. Contracting additional crews of insured professional, ISA certified arborists will be necessary to remove trees that are too large, too tall, or too technical and outside of the range of the city owned equipment.

Pre-contracts with certified tree companies to lock in prices prior to an infestation will be investigated in an attempt to avoid higher prices in the event that many municipalities are hiring simultaneously. Such contracts could also cover potential storm damage and be revisited annually.

Ash Management Recommendations

The following elements of the City's EAB management plan are suggested, and are subject to approval and periodic revision as new information about the borer is available. This plan is also subject to change should state or federal policies dictate. The City of Fitchburg Department of Parks, Recreation, & Forestry is the lead agency responsible for plan implementation. Working with the Park Commission, the Department will provide public education/information regarding EAB as a routine service, and prepare an annual report for the Common Council.

Treatment options are available for slowing if not entirely preventing the spread of EAB. Tests of the insecticide treatments currently available found them to be about 95% effective, which means that although a tree is treated there is no guarantee that it will not become infested. Treatments can be cost prohibitive. Treatment costs range from $4.80 per inch diameter at breast height (DBH) if done by staff to $14.00 per inch DBH if done by a contractor. See table below for more information.

The removal, disposal, clean up, stump grinding, and site restoration for over 700 ash trees by city employees is likely to take over 3700 man hours or 154 days for a crew of three workers. For liability reasons, dead trees should not be allowed to remain standing for more than 1 year after succumbing to EAB. Given the staffing and economic conditions, the city's streets and parks staff would find it difficult to absorb the entire additional workload created by an EAB infestation without additional funding, assistance from contractors, and or preemptive removals of selected ash trees or a significant reduction in services to Fitchburg residents.

Most tree planting is contracted on an annual basis in the spring through the bid process. The maximum number of trees that are replaced each spring due to disease, decline, or abiotic damage is approximately 100. This number is based on an annual tree planting budget of approximately $19,000 and contract tree planting at an average cost of $190 per tree. If all city-owned ash trees were replaced using this budget, it would take 7 years to complete the planting. This would not include replacing other dead or declining trees in any given year.

Plan Recommendations

Budget and Resources

- Establish budget for EAB related activities. Although EAB timelines are uncertain, funding used to implement this plan will greatly increase the City's capacity to respond to current demands and to address future threats to the community forest.

- A key weakness is the lack of a second, taller bucket truck and a second chipper and chipper box. Purchasing these over the next two to three years will allow the City's crews to be more efficient and reduce the need to contract the work.

Public Education and Communication

- Encourage and facilitate public education on how the EAB is spread, in Partnership with DATCP, DNR, and the Dane County Tree Board. Engage citizens, business owners and decision makers to educate and inform them of EAB. Utilize the City website, newsletter, mailings, and public meetings will help prevent early EAB introduction and help garner public support.

- Notify neighborhoods of removals with postings on the City website, on FACTv, on the STAR on-line, in Terra Firma, and/or in the quarterly newsletter. A special letter of notification might be necessary in neighborhoods with ash populations over 20%.

Municipal Trees -- Treatment

- Treat selected trees. It is the staff's recommendation to chemically treat selected heritage or specimen ash trees to reduce the impact of EAB and manage the decline of the trees over a longer period of time in order to minimize, to the extent possible, the effects of an EAB infestation on the city's resources, and to protect those trees designated as specimen trees.

- Trees chosen for treatment will be determined based on health, condition, and location.

- The inventory of specimen and heritage trees will take place over the next 1 to 2 years.

Municipal Trees -- Removals

- Implement 5 year management plan beginning in 2010 to reduce the City's ash component.

- The need for removals will be at the discretion of the City's urban forester based on
    - the proximity of EAB infestation(s)
    - the health of the urban forest
    - potentially hazardous conditions

- The city will systematically remove all of its ash trees by first removing trees that are identified as being in poor health, in decline or flagging with at least 10% canopy dieback, diseased, infested or hazardous due to non-EAB related factors by either city employees or contractors after first checking with the city forester to determine whether or not EAB is present. Once the tree has been inspected and removed, the debris should be handled routinely unless the community is under quarantine by the federal or state governing body (DATCP or the DNR).

- Removals will be dispersed over neighborhoods to lessen impact on residents, aesthetics, and property values. Requests from adjacent residents will be honored when possible. This includes residents who request removal of trees, as well as those who request that ashes be retained (in expectation that protective treatments will be applied by the resident).
    - **First priority:** trees on public property that show any sign of decline, flagging, disease, or infestation should be removed but only after first checking with the city forester
    - **Second priority:** trees with a DBH of less than 8" in city parks and those less than 6" in tree terraces.
    - **Third priority:** trees in tree terraces more than 6" DBH and the remaining park trees except those that have been treated. Utility contractors will be encouraged to remove all ash trees within their easements.

- There are many specimen ash trees in City parks. Selected specimen trees will be treated and monitored based on individual tree health, condition and location. Treated trees will be removed if they become infested, diseased, or hazardous.

- Ash trees in wooded areas will be left alone. These trees will die once EAB arrives, but will be left in the woods to fall and decompose unless they present a hazard, in which case they will be felled and left in the woods.

Private Trees -- Treatment

- Protective pesticide treatments may be effective, and may be applied at residents' discretion and expense. Treated trees should be removed if treatments fail and are infested with EAB.
- More information for insecticide products available to homeowners go to
  - http://www.entomology.wisc.edu/emeraldashborer/EAB Homeowner Insecticide Guide Final 2008.pdf
- Material safety data sheet for homeowner Bayer and Fertilome soil drench insecticides (imidacloprid)
  - http://www.bayeradvanced.com/media/msdssheet/Tree&Shrub_Insect_Control_Concentrate_01Mar20.pdf
  - http://www.fertilome.com/products/ProductLabels/10207.pdf

Private Trees -- Removals

- There are many hundreds of ash trees large and small on private property in Fitchburg. No reliable inventory exists and ash density varies by neighborhood.

- Property owners are urged to monitor the EAB's movements. The decisions to treat, remove, or preserve private trees rests with the property owner. Residents should consider many variables when evaluating options, including tree size, location, and condition; access to the tree; potential targets should the tree fail; property value; shade, heating, and cooling values; treatment techniques, efficacy, and costs; proximity of EAB infestation; and intangible values.

- The City will enforce the relevant sections of City Ordinance Chapter 32 should it receive complaints about hazardous private trees. Staff is always vigilant for private trees that threaten the public or the street right of way, and this will not change. Private trees that are a threat to private property will be inspected only as complaints are received. We strongly recommend that private owners remove ash trees on their property. We will not order any private property owner to remove their ash trees unless it becomes infected. Once infected City Ordinance Chapter 32 will be in affect.

City Ordinance Chapter 32

32.04 Authority of City Forester

2. Over Private Trees and Shrub

(A) Whenever any tree or shrub, or part thereof, growing upon private property constitutes a public nuisance because it (i) interferes with the use of public areas, (ii) is infected with a plant disease, insect or pest, or (iii) endangers life, health, safety or welfare of persons or property, the City forester shall notify the record owner of the parcel or lot upon which such tree or shrub is located. The notice shall be in writing, shall identify the nuisance, shall specify the treatment or abatement required, and shall state the time within which the owner must abate the nuisance. The owner shall be afforded at least thirty (30) days to abate the nuisance unless the City Forester determines that immediate action is necessary for public safety. If the owner fails to abate the nuisance within the specified time, the City Forester shall do so forthwith at the owner's expense and

shall then give the owner written notice of the charge for doing so. If such charge is neither paid nor appealed with thirty days of the date of such notice, it shall be entered on the tax roll, pursuant to Wis. Stat. 66.60 (16), as a special charge against the parcel on which the tree or shrub was growing.

(B) The City Forester shall maintain a record and accounting of any work done pursuant to this section for which an assessment may be made. Such record shall include a description of the lot or parcel of land affected, the name and address of the owner of record, as shown on the tax rolls, a description of the nuisance and of the steps taken to abate it. And an itemization of the charges or expenses incurred by the City to abate the nuisance.

32.09 Interference with City Forester Prohibited

No person shall prevent, delay or interfere with the City Forester or with any agent or employee of the City in their performance of any duties imposed by this ordinance. Upon prior notification to the owner or occupant, the City Forester shall be permitted to enter upon private property during normal business hours (7:30 A.M. to 4:00 P.M., Monday through Friday) to carry out such duties.

- It would be prudent for residents to establish a relationship with an ISA Certified Arborist now in the event that ash evaluation, treatment, or removal is desired in the future. Contractors should be able to provide proof of liability insurance and worker's compensation coverage. The City also encourages residents to replace trees lost with species appropriate for the site, or to plant new trees in advance of EAB infestation and ash removal as a way of preserving the tree lined streets and beautiful neighborhoods that typify Fitchburg.

Debris Handling and Utilization Yards

- The debris from removals will be hauled to the Second Season Recycling site unless the federal or state officials dictate otherwise. If quarantine is instated, the community might be required to establish utilization yards. Suggested primary sites are: Irish Lane Open Space (5564/5554 Irish Lane), 4 acres, and Quarry Ridge Recreation Area, 4 acres, and Public Works Facility yard, 4 acres. Suggested secondary sites include Wendt Road ROW (Old Fitchburg), 6 acres, 1527 W Clayton Road (formerly Sodfather Sod Farm), 13 acres, and the McCoy/West Clayton Open Space, 30 acres of public property just east of 5062 W. Clayton Road, adjacent to the abandoned rail corridor. Emergency overflow sites could include other public lands within in the city.

- The McCoy/West Clayton Open Space site could be advantageous if an arrangement is made with the University of Wisconsin – Madison's Charter Street Heating Plant to purchase biomass to fuel their boilers. The rail line might provide an efficient option for transporting the biomass.

- Multiple utilization yards will be designated as sites for chipping, storing, and perhaps managing the reutilization of the debris. They should be opened to the public and contractors who remove ash trees that cannot be transported outside of a given area.
    - Multiple sites will allow the City to manage the wood resource and restrict the movement of ash wood products until EAB is no longer present if the need arises.
    - If chips are to be transported out of a quarantine area they must comply with chip size regulation of no larger that 1" in two dimensions.

- All selected sites will be fenced and gated as necessary and have restricted hours of operation.

- Ash wood and debris will not be disposed outside quarantine area except at approved sites

and, with a DATCP compliance agreement in place.

- Anyone accepting wood will be notified of the quarantine area. Wood should be used as firewood within quarantine area and should not be moved, sold or transported outside of that area.

- The ash wood utilization yard and City's yard waste recycling site will be posted with information on recognizing and reporting possible EAB infestations and regulations regarding EAB infested wood.

Restoration and Replanting

- The stumps of the trees removed will be ground or grubbed out by city employees or contractors. Site restoration will be handled similarly. Replanting will be managed through the regular spring or fall planting plans unless a special program is approved by the city council. The funding for all will come from the parks budget or the capital fund.

- As budget permits, all removed ash trees will be replaced with non-host species that will enhance the planting site, are appropriate for the planting site and add diversity. No plantings will be made that cannot be adequately maintained. All new plantings will conform to the "10-20-30" tree Species diversity rule.
    - As generally stated, this rule implies that the urban forest should not be made up more than 10% of the same species (macrocarpa), 20% of the same genera (Quercus), and 30% of the same family (Fagaceae).

- Specimen ash trees that die will be replaced. In wooded areas, natural regeneration will play a significant role in reforesting parkland, but invasive/non-native plants will create challenges.

- See Suggested Tree List attached.

Operational and Cost Implications

The city forester is monitoring the status of EAB in the state and region. He will continue to update the appropriate departments and city commissions with breaking news. Proposed funding for managing an infestation was submitted for the 2010 budget. In the proposal, the cost for mitigation and recovery was spread over 5 years. See the tables below for the proposed costs and budget for treatment and mitigation.

Cost Estimates for Treating Selected Trees

The treatment of ash with systemic insecticides has been shown to be effective in research and field studies. The two methods of application are trunk injection and soil drench. The trunk injection method applies the insecticide directly into the tree's vascular system as opposed to the soil drench method, which is applied to the critical root zone of the tree. The trunk injection method is a closed system with no aerial spraying reducing the likelihood of pesticide exposure to the public, applicators, pets and other animals, or potential for surface or groundwater contamination.
The treatments are estimated to be approximately 95% effective, which means there are no guarantees that a tree will not be infested and eventually die.

The cost of treating selected trees on municipal property with the injection method is based the DBH of each tree. Available current treatment options must be done annually to have any hope of keeping the trees protected. It is suggested that the goals of insecticide use are to protect selected specimen or heritage trees and slow the spread of EAB to allow the replacement of ash trees to be spread out over a period of up to ten years rather than complete it all in five or fewer. The following estimate is for all

municipal trees of 15” DBH and larger (based on the definition of Specimen trees) currently inventoried.

Estimated Ash Tree Trunk Injection Costs on All Trees 15" or Larger

Work Completed By	Material Cost per DBH	Labor Cost per DBH*	Total Cost per DBH	Total DBH Inches Treated**	Total Annual Cost
Contractor	$14.00		$14.00	1,571	**$21,994.00**
Staff	$3.05	$1.75	$4.80	1,571	**$7,540.80**

*Labor costs are based on 1 hour at a 16" DBH tree (Average DBH of all ash trees over 15" in inventory is 19.4".)
****Total DBH Inches Treated** includes all municipal trees 15" or larger DBH, which are 81 trees.

EAB Mitigation Cost Analysis

In-House Mitigation Costs Associated with the Fitchburg EAB Readiness Plan

Class Size (DBH)	Number of Trees	Estimated Average Man Hours to Remove Tree, Grind Stump, and Restore Site	Crew Size	Total Hours Per Class Size	Hourly Rate	Total Billable Hour Cost
1-3	106	0.33	3	104.94	$28.00	$2,938.32
3-6	243	0.5	3	364.50	$28.00	$10,206.00
6-12	180	2.5	3	1350.00	$28.00	$37,800.00
12-18	82	4	3	984.00	$28.00	$27,552.00
18-24	44	6	3	792.00	$28.00	$22,176.00
>24	7	8	3	168.00	$28.00	$4,704.00
Totals	**662**			**3763.44**		**$105,376.32**

Number of 8 hour work days per crew	470.43
Number of 40 hour weeks per crew	94.09

Contract Mitigation Costs Associated with the Fitchburg EAB Readiness Plan

Class Size (DBH)	Number of Trees	Estimated Average Man Hours to Remove Tree, Grind Stump, and Restore Site	Crew Size	Total Hours Per Class Size	Hourly Rate*	Total Billable Hour Cost
1-3	106	0.33	3	104.94	$75.00	$7,870.50
3.1-6	243	0.5	3	364.50	$75.00	$27,337.50
6.1-12	180	2.5	3	1350.00	$75.00	$101,250.00
12.1-18	82	4	3	984.00	$75.00	$73,800.00
18.1-24	44	6	3	792.00	$75.00	$59,400.00
>24	7	8	3	168.00	$75.00	$12,600.00
Totals	**662**			**3763.44**		**$282,258.00**

*Hourly rate is calculated based on a daily rate of $1800 for a three man crew.

Contract Tree Replacement Costs			Estimated In-House Tree Replacement Costs			
Cost of Tree	Number of Trees	Total Cost of Replacing All Removed Ash Trees	Cost of Tree	Number of Trees	4 Man Crew Labor Cost at 40 Minutes/ Tree	Total Cost of Replacing All Removed Ash Trees
$300.00	662	**$198,600.00**	$200.00	662	$37,072	**$181,829.00**

Total Mitigation Cost **Using Only In-House Labor** for Removal, Stump Grinding, Site Restoration, and Planting	**$287,205.32**

Total Mitigation Cost **Using Only Contract Labor** for Removal, Stump Grinding, Site Restoration, and Planting	**$480,858.00**

Total Mitigation Cost **Using 50% In-House Labor and 50% Contract Labor** for Removal, Stump Grinding, Site Restoration, and Planting	**$384,031.00**

Equipment

Operational costs must include additional equipment if the City is to manage EAB using primarily municipal employees. Minimally, the needed equipment includes a 55'-60' bucket truck for larger removals and a second chipper and truck with chip box.

Costs:

55'-60- bucket truck (used):	$ 40,000
Chipper:	$ 30,000
Chip box and truck:	$ 50,000
Total	**$120,000**

Wood Reutilization and Marshalling Yards

Second Season Recycling will be the primary site for wood reutilization efforts and handling wood debris. When EAB becomes a major issue for all communities in south central Wisconsin, recycling companies such as Second Season are likely to have difficulty handling all the material trucked to them by their contracted municipalities. They are increasing their rates over the next couple of years and might need to again when the wood stream increases.

If Second Season cannot take Fitchburg's ash material or if the county or state imposes tight quarantines, the City might have to set up its own yards. The cost of those yards includes fencing, barrier gates, and signage and depending on the amount of material, the necessity of contracting for a tub grinder.

Costs:

Ash Material Dropped at Second Seasons Recycling:

Cost per ton

2010	$16/ton;
After 2010	$20/ton

Approximate green weight of standing ash trees on public property: 400 ton
Approximate ash tonnage per year: 80

Year 1:	$1280
Year 2:	$1600
Year 3:	$1600
Year 4:	$1600
Year 5:	$1600
Total	**$7680**

Marshalling Yards:

Fencing/ gate:	$18,000
Signage:	$ 1,000
Total	**$19,000**

Tub Grinder:
$2000 /day
Number of days of use depends on amount of material.

Public Education and Communication

With the assistance of the Wisconsin DNR, an outreach plan has been initiated to help inform residents of Fitchburg about EAB. To date presentations regarding the background and status of EAB have been provided to the Council of the Whole, Parks Commission, and city streets and parks employees. An early draft of this plan was presented to the Council of the Whole and Parks Commission.

The city streets and parks employees were given of demonstration by DATCP employee, Becky Grey, of log peeling to determine if EAB was present. Kyoko Scanlon, WDNR Forest Pathologist, provided information on how to recognize EAB, and the signs and symptoms of infected trees. She also provided shirt pocket cards that compared EAB to other non-invasive or less destructive native borers.

Numerous articles have been published in the Fitchburg STAR and the City's quarterly newsletter to inform and update the public on the status of EAB locally and nationally. Presentations and updates have been made to the Park Commission and recorded by and aired on FACTv, the Urban Forester has made Arbor Day presentations to neighborhood associations and scout troops, training has been provided for the highway and parks maintenance staffs, and an EAB webpage is now active on the city website.

Reporting Protocol and Contacts

Reporting & Submitting EAB Suspects & Samples

To help ensure that suspect samples are resolved as quickly and thoroughly as possible, all samples are to be sent to the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP). Please call or contact DATCP using the toll-free hotline or the e-mail address:

HOTLINE: 1-800-462-2803
E-MAIL: eab@datcp.state.wi.us

All insect samples should be forwarded to DATCP, with a phone call to the hotline in advance to let DATCP staff know that a sample is being delivered. Please use the following address:

Becky Gray
WI Dept. of Agriculture, Trade and Consumer Protection
2811 Agriculture Drive
Madison WI 53718-6777

City Contact Information

Local EAB Team and Officials

- **Edward Bartell, Urban Forester 270-4289**
- Scott Endl, Director of Parks, Forestry, and Recreation 270-4288
- Tony Roach, City Administrator 270-4209
- Jay Allen, Mayor 270-4215
- City Alderpersons
  - Alder District #1
    - Andrew Potts 310-4173
    - Carol Poole 273-3168
  - Alder District #2
    - Swami Swaminathan 274-3168
    - Darren Stucker 280-8300
  - Alder District #3
    - Richard Bloomquist 274-8326
    - William Horns 276-8594
  - Alder District #4
    - Steve Arnold 278-7700
    - Shawn Pfaff 278-8344
- Paul Woodard, Director of Public Works 270-4261
- Dan Cimino, Parks Maintenance Supervisor 575-2918
- Mark Hodel, Street Maintenance Supervisor 444-6322
- Rick Eilertson, Environmental Engineer 270-4264

- **DNR Liaison**
  - **Jeff Roe, Regional Urban Forestry Coordinator 275-3256**

- Media
  - FACTv

- Organizations
  - Fitchburg Parks Commission
  - Fitchburg Conservation Resource Commission

Definitions

dbh – diameter at breast height; represents the diameter in inches of a trunk cross-section measured at 4½' above ground level; a basis for estimating or identifying tree volume, value, management needs and costs, utilization options, etc.

delimit – to establish geographic limits or boundaries; emerald ash borer quarantine areas are determined after ***delimiting*** or determining the extent of area infested by EAB.

EAB – the emerald ash borer insect; as an adult it measures approximately ½" in length by 1/8" wide, is metallic green in color and somewhat bullet shaped. The larvae can reach a length of a little more than 1" in length, are white to cream colored, have a 10 segmented abdomen with a pair of brown, pincer-like appendages on the last segment.

EAB readiness team – a group of people responsible for all aspects of preparing for emerald ash borer within a particular jurisdiction/municipality; team members have specific roles and tasks.

EAB readiness and response plan – a document delineating local EAB readiness activities and processes; includes scope & purpose, authority, responsibility, policies & procedures, actions/tasks, available resources, forms & contracts, technical references & support information (such as surveying and reporting protocols), and similar content.

eradication – total elimination of ash trees within a specified geography area where EAB has been verified. This was the initial and only thought process when the DNR EAB Toolkit for Wisconsin Communities was initially developed (February, 2007). With the advent of new information and experiences throughout the nation, other management controls are now being considered as well.

infestation – refers to an area where the ash trees have been positively identified as having a sustained population of EAB.

marshalling or wood utilization yard – a fenced-in location within a quarantine area where infested or quarantine-area trees are collected and held for further handling.

preemptive removal - in the case of EAB it refers to removing live trees prior to them becoming infested with EAB.

quarantine area – a defined geographic area from which goods may not be transported; ***quarantines*** will be established by federal or state agencies to restrict ash wood movement out of infested areas to avoid emerald ash borer infestation of new areas; ***quarantines*** can be applied to an individual property, township, county or entire state.

Information Section

Frequently Asked Questions

1. Where did the Emerald Ash Borer (EAB) come from?
The native range of EAB is eastern Russia, northern China, Japan and Korea.

2. When was EAB fi rst discovered in North America?
EAB was fi rst identified in southeast Michigan in 2002. It likely arrived several years earlier.

3. How did it get to North America?
We don't know exactly, but it most likely traveled in ash wood used for stabilizing cargo in ships or for packing consumer products.

4. Where is EAB now?
As of August 2009, the non-native beetle has since been found in Ohio, Indiana, Illinois, Maryland, Pennsylvania, West Virginia, Minnesota, Wisconsin, Kentucky, Missouri, New York, and Canada. Small infestations have also been eradicated from Virginia. A federal quarantine is in place for all hardwood firewood, ash logs and trimmings, and ash nursery stock in Illinois, Indiana, Ohio, and Lower Michigan. Anyone moving firewood or ash products from these states is subject to state and federal fines starting at $250.00.

5. How does EAB harm ash trees?
The larval stage of EAB feeds under the bark of trees, cutting off the flow of water and nutrients. Infested trees gradually die over a 2-4 year period.

6. Which trees are susceptible?
All sizes and even very healthy ash trees can be killed. All of Wisconsin's native ash trees (green, white, blue and black ash), as well as many horticultural cultivars (cultivated varieties of ash or hybrids between species of ash), are susceptible to EAB infestation. Research studies are ongoing to test for resistance in various cultivars with the hope that some may survive an infestation in Wisconsin, areas close to infestations (but outside of eradication areas) may benefit from accelerating ash harvest activities to reduce the amount of food or host material available for the insect. Management options are currently being developed; check with your DNR forest health specialist for the most up-to-date information.

7. How important are ash trees to Wisconsin?
There are approximately 727 million ash trees scattered throughout Wisconsin's forests. Ash also comprises 20% of Wisconsin's street trees. Ash serves as an important species in our northern and southern forests and is a key component of forests growing in wet areas including swamps and along river ways. Wisconsin's forest industry also relies on ash for paper, furniture, millwork and dozens of other forest products.

8. What does EAB look like?
The adult beetle is dark metallic green and about one-half inch long.

9. How does EAB spread?
EAB moves short distances by flying and longer distances through movement of infested ash. Adults typically do not fly far from where they emerge, but this depends on the availability of food (ash trees). In Michigan, studies have shown that the vast majority of insects fly only several hundred yards from where they emerge. EAB has moved on nursery stock or logs in the past, but ***movement of firewood is the most common way EAB is being spread today.***

10. What is being done about EAB?
There is a national effort to limit the spread and impact of EAB. A national plan, coordinated by the United States Department of Agriculture, Animal Plant Health Inspection Service (APHIS), helps guide what federal, state and local officials must do to manage this insect. Infested areas are quarantined, which means that selected materials such as firewood, ash nursery stock and ash logs may not be moved out of infested areas. Many states are educating the public on the dangers of moving firewood; the primary way EAB and many other invasive pests and diseases of trees are spreading.

11. What is being done in Wisconsin?
The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) are currently leading efforts to detect, prepare for and regulate the movement of EAB into and within Wisconsin. The Department of Natural Resources (DNR), U.S. Forest Service, DATCP and the University of Wisconsin have conducted detection surveys of areas deemed high risk for introduction of EAB. These include camping areas and locations where ash trees may have been planted within the last 10 years. Public information and education efforts are focusing on reporting possible sightings of EAB and limiting movement of firewood. If EAB is found in Wisconsin, each infestation will be evaluated carefully to determine the most appropriate management action among a range of options. Decisions on whether or not to remove trees from an area will be made on a case by case basis depending on the site, the extent of the infestation, and the likely source. ***The state strategy is guided by the national EAB Science AdvisoryPanel and its success relies heavily on federal funds. The state's strategy will be constantly evaluated and may change based on new science-based management options, available funding, and any national strategic changes.***

12. Is there anything I can do now to protect the ash trees in my yard from EAB?
There are systemic insecticides on the market, but their effectiveness varies. The decision to treat is a personal preference, but consumers should educate themselves and use caution when purchasing products that claim to protect trees against EAB. Also, if treated trees occur within an area where removal has been determined to be a viable option, they may not be given special consideration.

13. If I have ash in my woods, should I be doing anything?
Areas close to infestations may benefit from accelerating ash harvest activities to reduce the amount of food or host material available for the insect. Management options are currently being developed; check with your DNR forest health specialist for the most up-to-date information.

14. Should I still consider planting ash in hardwood forest plantations?
Consider limiting ash to 10 percent of the total species mix. Diversity is the key.

15. Is ash still a viable choice when considering what to plant in my yard?
In general, having a diversity of species in your yard, on your street or in your community is your best defense against all tree health problems. If ash comprises 10 percent or more of the tree species in your local area, it would be best to choose an alternative. Ongoing studies are testing native ash and cultivars for resistance to EAB feeding injury. Results are preliminary; resistant cultivars may be available at a future date. Check with your state or county horticultural extension agent for the latest information.

16. What can I do to help?
Do not move firewood. Purchase or cut all firewood from the same general location where you plan to use it. When camping or at a cabin, do not take any leftover firewood home with you. Educate yourself on how to recognize signs and symptoms of EAB. Excellent sources of online information

are: emeraldashborer.info, dnr.wi.gov/invasives, emeraldashborer.wi.gov. Report possible sightings of EAB by calling 1-800-462-2803.

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