

2018

Emerald Ash Borer Management Plan



Cover Photo: by Duane Stall, emerald ash borer larvae galleries on green ash tree trunk

**City of Aberdeen
Parks, Recreation & Forestry
Department
Forestry Division
May, 2018**

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EMERALD ASH BORER MANAGEMENT PLAN

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EXECUTIVE SUMMARY

Emerald Ash Borer (EAB) is an accidental introduced pest that is currently killing all species of ash trees (*Fraxinus* sp) in 31 states and three Canadian provinces. While no one can accurately determine when the insect will arrive in Aberdeen, our best estimate would be as soon as 2018. Therefore, we should prepare and manage for the arrival of the EAB by adopting and implementing an “Emerald Ash Borer Management Plan.”

The pending arrival of EAB will have a devastating effect on the City’s urban forest. Adopting a management plan now will allow the City to efficiently and effectively respond to EAB and put the City in a better position to mitigate the financial burden and ecological impact of this insect.

Ash tree populations in Aberdeen are significant. There are 4,800 Ash trees located in boulevards, an estimated 750 within the park areas, and an additional estimated 12,000 Ash trees located on private property. That means, an estimated 43% of all trees in Aberdeen are Ash.

This EAB Management Plan directs available resources to use preemptive management strategies, to begin reducing the population of ash trees by 5% per year and to accelerate the planting of new trees to provide species diversification in the urban forest.

Once EAB has been confirmed in the city the management strategies will become more urgent and can easily overwhelm the city’s limited staff and resources.

Costs for addressing a pending EAB infestation is identified in the plan by Street, Park & Private Trees. The direct and indirect cost of an EAB infestation is estimated at \$18.3 million. Private tree owners should be encouraged to plan and save for the cost of either treating or removing their ash trees. The City’s goal is to complete work without supplemental budgetary appropriations.

The community as a whole will be affected by the loss of a large portion of the urban tree canopy. Not since the 1970’s, when Dutch elm disease changed the face of the urban landscape in Aberdeen, will leadership and cooperation in the community be needed to get through this pending crisis.

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City of Aberdeen

Emerald Ash Borer Management Plan

Purpose

By implementing the provisions in this management plan, the City is attempting to mitigate the disruption to its urban forest caused by the pending infestation of the Emerald Ash Borer (EAB).

The City will take a proactive approach and attempt to spread the costs associated with the outbreak of EAB over 10 to 20 years. The loss of most every ash tree in Aberdeen will have a devastating effect on home values, quality of life, and the environment. Our goal is to buffer that impact in advance by implementing current arboricultural best management practices.

Introduction

Emerald Ash Borer is an accidental introduced pest that is currently killing all species of ash trees (*Fraxinus* sp) in 31 states and three Canadian provinces. EAB only kills ash trees and does not attack trees like mountain ash, boxelder (ash leaf maple), or prickly ash.

Since its discovery in Detroit, Michigan in 2002, the insect has spread killing all the ash trees in its path. Currently, the closest proximity of the insect to date is St. Paul/Minneapolis area and NW Iowa. The City of Aberdeen must prepare and manage for the arrival of EAB on three fronts: park property, private property, and public property.

While no one can accurately determine when the insect will arrive in Aberdeen, our best estimate would be as soon as 2018. According to regional experts, EAB could already be here. The biggest cause of new infestations is human activities and most likely will be brought here by firewood or hitchhiking insects on vehicles.

Background

Trees in the City of Aberdeen are managed with direction from Chapters 56 of the Ordinances of the City of Aberdeen. Classification of tree management is broken into three categories: Park Trees, Private Trees, and Street Trees. See Appendix 1.

The Forestry Division of Aberdeen Parks, Recreation & Forestry is responsible for the management of trees on over 1,000 acres of parkland. Trees in this category range from high-profile specimen trees to trees in a natural forest setting. The Forestry Division is responsible for managing and maintaining over 12,900 boulevard/street and park trees.

Management of private trees is the responsibility of the private property owner. Property owners in this category are not restricted to what types of trees are planted on their property. However, some management recommendations are made by following city ordinances in Chapter 56 of the Ordinances of the City of Aberdeen.

Ash Tree Population

The Forestry Division began a street tree inventory in 2014. This inventory collected information on every boulevard/street tree within the city limits of Aberdeen. Data collected includes: Species, size, and condition. The inventory was completed in 2017 and is continually updated as trees are planted and removed.

Our street tree inventory gives us many valuable details about our urban forest. One piece of that shows that our street tree population is unbalanced with a very high percentage of Ash trees, 37%. Although we don't have an accurate inventory of private trees, an educational guess would put the total around 1.5 times that of the boulevard tree population. This leaves us with an urban forest that contains almost 40% of Ash trees.

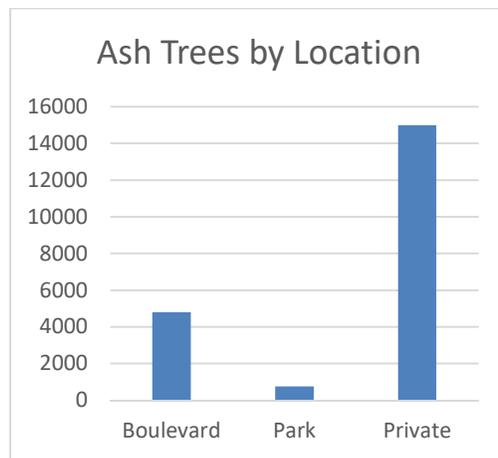


Figure 1. City's Ash Tree Population

The palette of tree species that are planted in the boulevards and park system has grown immensely over the last 15 years. Over 25 different tree species and many more varieties now make up the diverse tree resource in our public areas. Even with the current planting diversity, ash trees were planted heavily up to the year 2003. With the news and spread of EAB, no ash trees have been planted in the public areas since 2006.

Economic Impact

The total direct impact to the City could reach as much as \$2.5 Million, (Appendix 1). This impact is based on the ash tree population on public property and includes replacement costs.

This estimate does not capture the cost of losing the associated benefit of trees, but does include the cost of tree removals, and cost of tree replacement. This estimate does not include any preventative treatment measures for EAB. More importantly, in terms of real estate, this estimate does not include the appraised value these trees have in the landscape.

EAB Management Strategies

There are two management strategies that the Parks, Recreation and Forestry Department is proposing. The first is a proactive preemptive approach of recommending the reduction of ash trees in the city by condition. The second is a reactive position the City will face in the event of an actual EAB infestation.

The following elements of the City's EAB management plan were approved by the Park Board in 2018, and are subject to periodic revision as new information about the EAB becomes available. This plan is also subject to change should state or federal policies dictate.

Preemptive EAB Management Plan

The goal of a preemptive approach is to expedite the conversion of the urban forest canopy in the city to a nearly ash tree-free population, and to spread the associated costs of a pending infestation over a longer period of time.

One advantage the City has to an infestation of EAB, is awareness. Federal, state, and local officials in the country have been on alert to the arrival of EAB in their areas. Since EAB is so hard to detect in the early stages of an infestation, officials are reporting that it generally takes three to four years before new infestations are discovered. Once EAB becomes established in an area, it will become a permanent part of that ecosystem.

Administration

The City Forester, through Parks and Recreation's Forestry Division, will be responsible for implementing and follow up on the provisions of the EAB preemptive plan.

Communication

The City Manager, City Council, Park Board, Parks and Recreation Director will receive periodic updates through normal channels. All media relations will follow normal city protocol.

Information and Education

Parks and Recreation has created an EAB informational page on the City's website. This website will be maintained and updated when necessary and when new information becomes available.

Information is available and targeted to local nurseries, tree services, and the general public to discuss the pending infestation and to provide ash tree and EAB identification tips.

Detection

Early detection is very important in a community so EAB does not have time to become widespread. Parks and Recreation in cooperation with USDA-APHIS (Animal and Plant Health Inspection Service), and the South Dakota Department of Agriculture are placing and

monitoring purple traps for the detection of EAB in Aberdeen. These traps are meant to lure the adult beetles to a sticky trap to monitor if they exist or how many are in a certain area.

The Forestry Division will place and monitor purple traps each spring before the flight period of EAB. Along with detection traps, Forestry Division employees are briefed and trained on symptoms and signs of EAB.

Preventive Treatments

The City of Aberdeen does not recommend chemical treatments for EAB at this time. The City encourages citizens and tree services to wait before deciding to use a preventative treatment for EAB until there is a confirmed infestation within 15 miles of Aberdeen.

Over the long-term, trees can exhibit other pest problems when subjected to chemical treatments that are used to prevent EAB damage. Any pesticide treatment for a pest that is not present, is not advised.

Recommendations for Street, Park & Private Trees

Street Trees

The Forestry Division by best management practices, surveys the city's street trees each year to identify and remove dead, diseased, high-risk, or major storm damaged trees. This program has been very beneficial for public safety and the health of the urban forest. This program not only acts as a sanitation practice for disease and insects, but has reduced the number of tree failures in the city. The number of emergency call-in hours by the Forestry Division has significantly dropped over the last decade.

Priority for tree removals will be given to property owners that agree to replant with an approved tree species. If the 5 percent target is not met, then additional ash trees will need to be identified for removal. It is recommended to select low-quality ash trees to reach this goal.

Park Trees and other public property

There are many specimen ash trees in city parks, as well as hundreds of non-specimen trees. No reliable inventory exists, and ash tree densities vary by park.

The following recommendations are proposed by Parks and Recreation to address EAB with respect to park trees and other public areas.

- It is recommended to set a target of removing 5 percent of existing ash trees per year.

Private Trees

There are thousands of large and small ash trees on private property in Aberdeen. No reliable inventory exists, and ash tree densities vary by neighborhood.

The following recommendations are proposed by Parks, Recreation & Forestry to address EAB with respect to private trees.

- The City has already been recommending that citizens and businesses discontinue the use of ash species in new plantings.
- City of Aberdeen Ordinance 56 Nuisance Declared will be updated to reflect the Emerald Ash Borer threat. The same parameters concerning Dutch elm disease are appropriate measures to slow the spread of EAB.
- It would be prudent for residents to establish a relationship with an arborist in the event that an ash tree evaluation or removal is desired.
- The City encourages residents to begin removing low-quality ash trees on their property and replanting with a different species. Tree diversity should be emphasized.

Post EAB Detection Management Plan

The current evidence from other communities show that once EAB becomes established, it takes about five to ten years to infest and kill the majority of the ash trees in a city. Many of these communities were not aware that an infestation existed until EAB had become widespread.

Administration

The City Forester will be responsible for implementing and follow up on the provisions of this plan.

Communication

The City Manager, City Council, Park Board, Parks and Recreation Director, will receive periodic updates through normal channels. All media relations will follow normal city protocol.

Cooperation

Cooperation with other city departments will be needed to mobilize additional equipment and personnel to address the removal of ash trees. Public Works is a source for additional equipment needed to address transportation of ash tree debris.

Continued relationships with local utilities companies will be important to provide assistance in removing ash trees around power lines to protect regional power systems.

Probable EAB Scenario in Aberdeen

When EAB is first discovered in Aberdeen, there will be a period when outside agencies will provide technical assistance to the city. Federal and state agencies such as APHIS and Department of Agriculture will work together with local governments to confirm an infestation, determine the size of the infestation, and establish quarantine areas. Brown County will be quarantined when EAB is found in Aberdeen.

Federal and state agencies are not equipped to provide long-term technical assistance after the initial detection period of EAB. These agencies have already indicated that no funding is available to address the removal or treatment of infested material from an EAB infestation. The City of Aberdeen will be on its own when it comes to the management and funding of an EAB outbreak.

Management Options

The initial response from federal and state agencies will help identify the extent of infested trees. It is highly likely that the infested trees will need to be removed and destroyed whether they are on public or private property. It is important that all relevant city ordinances are reviewed and modified to support an operation of this nature.

Once an EAB outbreak has been confirmed, there are four basic management options available for public and private property owners.

1. Don't do anything and remove trees as they die. This type of a management option may allow EAB to spread at the fastest rate. Depending on the lag time between an initial attack and the discovery of an infestation, this may not be an option but a reality. It may also put the most strain on the budgets of the city and the private sector.

2. Remove all ash trees. This option is the underlining goal of the preemptive EAB plan. The number of ash trees remaining in the city will depend on what year the initial infestation occurs. Each year the preemptive EAB plan is allowed to work will be one year ahead of dealing with unbudgeted expenses.

This management option is surrendering to the fact that all ash trees will eventually die and removing a healthy tree is no different than removing an infested tree.

3. Treatment. Once EAB is confirmed within 15 miles of the city, treatment is a viable option for property owners. This option keeps improving as researchers have time to work on different insecticide treatments for EAB.

Regardless of the treatment, this is an option that will need to be repeated every 2-3 years and the associated costs will build over time. However, no treatment can guarantee 100 percent protection from EAB, and no tree with more than 50 percent crown thinning should be treated.

While some products can be applied by homeowners, others can only be applied by licensed commercial pesticide applicators. Ash trees greater than 15 inches in diameter are too big for the do-it-yourself treatments and need to be treated by a professional tree care company.

When treating trees on large properties such as a park or golf course, the label rate for a soil drench product restricts the number of trees that can be treated. Tree injection methods do not limit the number of trees that can be treated.

This option would help slow the spread of an infestation while maintaining the beneficial amenities trees provide to the community.

4. Combination. This management option uses some to all of the other options. This option allows property owners the ability to protect high-value trees while removing low-quality trees and waiting until unprotected trees succumb to EAB before removing.

Treatment of Removed Material

Before EAB is found in Aberdeen, there will need to be disposal sites set up to handle and treat large volumes of wood debris. There will also need to be established protocol when transporting and disposing of ash trees and debris.

All ash wood should be disposed at approved disposal sites within the quarantine area.

The contract will need to be reviewed to ensure processing of wood debris is to a minimum specified dimension of one inch or less in any direction, to effectively kill any EAB larvae. This specification will have to be met before any material can leave the quarantined county.

Removal of ash trees should be done between September and May when the adult beetles are not present.

The most critical period for the movement of EAB infested ash trees is the months of June and July. This is the period where adult beetles emerge from trees, begin feeding on foliage, move to even more trees, and lay their eggs. During this period, it is best to leave these trees standing and not chance the possible spread of EAB by transporting beetle infested wood to other areas. If material is removed during this period, it should be chipped on site before transporting.

June and July are times with high potential for storm damage. Ash limbs and other ash tree debris created in a storm situation will need to be transported to a disposal site. To reduce the risk of spreading EAB, it would be best to chip the material on site before transporting to a disposal site.

Trimming ash trees should be delayed or chipped on site and transported to an approved disposal site between May and September. Debris from tree trimming between September and May will need to be transported to an approved disposal site since larvae can be found in very small material. Local tree services and utility line clearance crews will need to dispose of their debris at an approved disposal site.

As EAB becomes well established and spreads throughout the city, the protocol for transporting ash tree debris will be downgraded. At this stage of the infestation, tree removals and tree trimming can be transported to the disposal site year-round without pretreatment.

Recommendations for Street, Park & Private Trees

After the initial detection period, the City of Aberdeen will implement a plan of operations to address the EAB outbreak on all three fronts.

Street Trees

If EAB is found in 2018, there are approximately 4,800 ash trees that potentially will need to be removed along city streets within 5 to 10 years. It is anticipated that approximately 10 percent of the ash tree population (480 trees) may need to be removed per year.

There is concern for public safety with many dead and dying trees standing along our streets. Ash trees degrade very rapidly after death. It is recommended for ash trees to be removed within one year after death.

The estimated cost to remove these trees is \$1.3 million. The estimated cost to replace 100 percent of these trees is \$1.2 million. The City has regulatory responsibility for monitoring, inspecting, and abating nuisance street trees.

The Parks, Recreation and Forestry Department will approach the City Manager and City Council to determine appropriate funding to address this crisis. The direction and amount of funding will determine what alternatives are followed to address the removal of dead and dying ash trees.

There are two possible alternatives available to deal with the responsibility of removing and financing an EAB outbreak with respect to street trees.

Alternative 1: Street Tree Removal by Private Contractor through City Contract

This alternative puts the financial burden on the City for the cost of Street tree removals.

Removing all Ash trees over a period of time is the recommended option if a city contract is used to address an EAB outbreak. This option allows a private contractor to remove dead/dying ash trees and also continue to reduce the ash tree population.

The 2018 budget amount for removing condemned street trees is \$17,500. At this budget amount the City can contract to remove approximately 64 street trees.

The following recommendations are proposed by Parks and Recreation to address EAB with respect to street trees.

- Explore additional funding in the city's budget to proactively remove ash trees growing in the parking strip. It is recommended to set a target of removing 5 percent, (240 trees), of the existing ash tree population per year if trees are removed by a private contractor.

Annual funding needed to remove 240 ash trees per year is estimated at \$66,000. This does not include the cost of replanting. This will be accomplished with existing forestry personnel.

The Forestry Division will continue to conduct an annual citywide survey for dead and diseased trees. Dead and diseased trees will be marked for removal in accordance with current policy and procedures. Depending on funding levels, additional ash trees will be identified for removal. Poor quality ash trees and ash trees with a living crown less than 50 percent will be candidates for removal.

Alternative 2: Street Tree Removal by City Crews

This alternative minimizes the financial burden on the City for the cost of street tree removals due to the fact that trees are removed by city personnel.

Removal of all ash trees over a period of time is an option if city crews are utilized to address an EAB outbreak. This option allows the city to remove dead/dying ash trees and also continue to reduce the ash tree population as time allows.

This alternative may require additional employees and equipment to address the removals. Existing staffing and equipment may be exhausted dealing with tree removals in parks and other city properties, and regulating the removals of dead/dying street trees and private trees.

Park Trees

If EAB is found in 2018, there are approximately 750 ash trees on parkland and other public property.

Removal of all ash over a period of time is recommended for the city when addressing park trees. It is recommended to step up tree removals to 10 percent or 75 ash trees a year.

There will be pressure to treat some high-profile trees in the park system. If it is decided to treat some trees in the park system, a contract will need to be awarded to a licensed commercial pesticide applicator. To reduce pesticide exposure to the public and environment, only trunk injection treatments will be allowed.

A conscious attempt will be made to keep the Park Tree Replacement Program whole by planting trees in the spring.

Private Trees

If EAB is found in 2018, approximately 15,000 ash trees will need to be removed on private property. A combination of treating and removals is recommended for the private property owners. This allows property owners the ability to protect high-value trees with chemical treatments, removing low-quality trees now, and wait until unprotected trees succumb to EAB before the tree is condemned by the City.

The estimated cost to remove these private trees is \$12 million. Although the private property owners are ultimately responsible for paying for the removal of these trees, the City is responsible for monitoring, inspecting, and abating nuisance private trees. This could mean approximately 15,000 additional ash trees could be affected by EAB and become a source of added responsibility for forestry operations. Dead and dying ash trees, not promptly removed by the property owner, may pose a safety concern to adjacent property owners.

To do nothing and remove trees as they die is currently the only option the City has when addressing private trees. The Forestry Division will continue to conduct an annual citywide survey for dead and diseased trees. Dead and diseased trees will be marked for removal with the current operating procedures. Ash trees with a living crown less than 50 percent will also be marked for removal.

As trees become infested the Forestry Division will use the following procedure for condemnation:

- Private trees will be identified by the City and marked for removal as per Section 56-33, Chapter 56 of the Revised Ordinances of the City of Aberdeen.
- A follow-up letter will be sent to the property owner informing them of the need to remove the tree(s) on their property. A removal date will be issued in the letter for all recipients to follow.
- A follow-up inspection of condemned trees will be made after the removal date has expired. A follow-up letter will be sent to the property owner with trees remaining with an **“Order to Remove”** the tree(s) on their property. A removal date will be issued in the letter for the removal and the property owner will have the option to appeal the order to the Park and Recreation Board.
- A follow-up inspection of condemned trees will be made after the removal date has expired. Any trees remaining will be collected and packaged into formal contracts to be

- awarded to arborists in a competitive bid process. Costs for removals will be billed to the respective property owners. Any unpaid invoices will be assessed to the property.

The City encourages residents to replace trees lost to EAB by planting a tree appropriate for the site.

Conclusion

The pending arrival of EAB will have a devastating effect on the City's urban forest. This management plan directs available resources to use preemptive management strategies, secure funding to begin reducing the population of ash trees and to accelerate the planting of new trees to provide species diversification in the urban forest.

Management options have been recommended for addressing EAB on all three fronts: Street trees, Private trees, and Park trees. Costs for addressing an EAB infestation have been identified by Street, Park & Private Trees. The community as a whole will be affected by the loss of a large portion of the urban tree canopy. Not since 1970, when Dutch elm disease changed the face of the urban landscape in Aberdeen, will leadership and cooperation in the community be needed to get through this pending crisis.

Appendix 1.

ARTICLE II. - DISEASED AND HAZARDOUS TREES²

Footnotes:

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Editor's note— Ord. No. 15-10-04, adopted Oct. 26, 2015, renamed Art. II as set out herein. Previous Art. II was entitled Dutch Elm Disease.

Sec. 56-33. - Nuisance.

It shall be unlawful for any person, owner, occupant, or person in charge of any property to create, maintain, commit, or permit to be created, maintained, or committed any public nuisance as defined in this chapter. The following are declared to be public nuisances:

- (1) Any elm tree or part thereof infected with the Dutch elm disease fungus, *Ceratocystis ulmi*, or which harbors the European elm bark beetle, *Scolytus multistriatus* (Marsham) and/or the American elm bark beetle, *Hylurgopinus rufipes* (Eichhoff);
- (2) Any elm wood stored within the jurisdictional limits of the city without the bark removed.
- (3) Any living or dead tree or part thereof which constitutes hazard to life or property.

(Code 1980, § 30-1; Code 2003, § 26-31; Ord. No. 06-05-07, 6-5-2006; Ord. No. 15-10-04, 10-26-2015)

Sec. 56-34. - Prohibited.

No person shall permit any public nuisance as defined in section 56-33 to remain on the premises owned or controlled by him or her within the city.

(Code 1980, § 30-2; Code 2003, § 26-32)

Sec. 56-35. - Inspection.

The parks, recreation and forestry department and/or the person appointed by such department to enforce the provisions of this chapter, shall inspect or cause to be inspected all premises and places within the city at least twice each year to determine whether any public nuisance as defined in section 56-33 exists thereon, and such person so designated shall have the right, privilege and authority to enter upon or cross any privately owned property for the purposes of inspecting, or causing to be inspected any potentially hazardous tree, any elm tree reported or suspected to be infected with the Dutch elm disease, or any elm bark bearing material reported or suspected to be infested with either species of the elm bark beetles named in section 56-33.

(Code 1980, § 30-2.1; Code 2003, § 26-33; Ord. No. 15-10-04, 10-26-2015)

Sec. 56-36. - Abatement and spraying of nuisances—Cost.

The cost of abating any public nuisance as defined in section 56-33 shall be borne as follows:

- (1) The entire cost of any abatement of a public nuisance as defined in this chapter on trees on any public street, alley, park or other public place including the terrace strip between curb and lot line shall be borne by the city.
- (2) The cost of removing elm trees infected with the Dutch elm fungus on private property shall be borne by the property owner. If the owner fails to abate such nuisance by the removal of such tree within the 15-day notice provided for in section 56-39, then in that case such tree shall be removed by an employee of the city or a contractor who has been hired by the parks, recreation and forestry department and such employee of the city or private contractor so hired shall have a right of ingress and egress for removing such tree and the cost of such removal shall either be assessed against the property or the cost thereof may be recovered against the owner in an action in the circuit court of the county.

(Code 1980, § 30-3; Code 2003, § 26-34)

Sec. 56-37. - Same—Financing.

The cost of pruning, treating and/or removing elm trees, or otherwise abating any public nuisance as set forth by this chapter on any street, alley, avenue, boulevard or park, or for the removal of trees on private property harboring the Dutch elm disease fungus, may be financed from general revenue or other special funds, or from any combination of these sources.

(Code 1980, § 30-4; Code 2003, § 26-35)

Sec. 56-38. - Abatement of nuisances—Public places.

If the parks, recreation and forestry department by the designated, qualified person acting for it, shall determine upon inspection or examination that any public nuisance as defined in this chapter exists in or upon any public street, alley, park or public place, including the terrace strip between curb and lot in, within the city, such designated officer shall immediately cause it to be removed and destroyed and properly disposed of or otherwise abate the nuisance.

(Code 1980, § 30-7; Code 2003, § 26-36)

Sec. 56-39. - Same—Private property, notice.

If an owner or occupant does not abate such nuisance as defined by section 56-33(1) and (2) within the time specified in such notice, the department shall cause it to be removed and burned or otherwise abate the nuisance. No damage shall be awarded to the owner for destruction of any elm tree, elm wood or any part thereof pursuant to this section. If the city forester is unable to determine with reasonable certainty whether or not a tree in or upon private premises is infected with Dutch elm disease, he or she is authorized to remove or cut specimens for diagnosis and report to the Plant Pathology Department, South Dakota State University, Brookings, South Dakota, and shall proceed as provided in this section upon receipt of a positive report.

(Code 1980, § 30-8; Code 2003, § 26-37; Ord. No. 15-10-04, 10-26-2015)

Sec. 56-40. - Same—Purpose.

All abatement of public nuisances shall be made in such manner as to destroy or prevent as fully as possible the spread of Dutch elm disease or the insect pests or vectors known to carry such disease fungus.

(Code 1980, § 30-9) Sec. 56-41. - Transporting of elm wood.

It shall be unlawful for any person to transport within the city any bark-bearing elm wood without having obtained a permit from the parks, recreation and forestry department. Permits shall be granted only when the purposes of this chapter shall be served thereby.

(Code 1980, § 30-10; Code 2003, § 26-39

APPENDIX 2. Aberdeen's Tree Infrastructure

	Total all trees	TOTAL ASH
Street trees	12,900	4,800
Park trees & other	2,000	750
SUBTOTAL	14,900	5,550
Private trees*	38,700	15,000
TOTAL	53,600	20,550

*3:1 ratio for private to public tree ratio

Scenarios:

Number of trees (all)	53,600
Estimated percent of ash (all)	38%
Number of ash on Aberdeen ROW	4,800
Estimated number of ash on Aberdeen PUBLIC	750
Estimated number of ash in Aberdeen PRIVATE	15,000
Average tree removal cost	\$275 / tree
Avg. tree planting to establishment (3 years)	\$250 / tree

Estimated EAB Impact to Aberdeen's Urban Forest:

Loss of annual net benefit		
	\$19.52 tree/year**	\$401,136
Removal Costs CITY ROW (Street trees)		
	\$275/tree	\$1,320,000
Replanting Costs CITY ROW for 100% replacement		
	\$250/tree	\$1,200,000
Removal Costs PUBLIC (PARK) PROPERTY		
	\$275/tree	\$206,250
Replanting Costs PUBLIC (PARK) PROPERTY for 100% replacement		
	\$250/tree	\$187,500
Removal Cost PRIVATE (private ash trees)		
	\$800/tree	\$12,000,000
Replanting Costs for 80% replacement		
	\$250/tree	\$3,000,000

Volume estimate for all public and private trees

20,550 est. tree x 5248 lbs/ash/2000 lb/ton	53,923 tons
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****Average annual net benefits calculations based on:**

Midwest Community Tree Guide, PSW-GTR-199, Nov. 2006
 (20 year old medium tree 40' tall x 27' spread)