

# City of Bayard, NE

## Readiness and Response Plan | Emerald Ash Borer

Plan last updated on: 8/9/2021



## 1. Purpose

Forest management plans provide a proactive strategy for mitigating widespread environmental impacts and unfeasible budgetary scenarios, while also serving as legal documentation of a reasonable and prudent approach to managing public tree canopy.

This readiness and response plan is a guideline for the processes and decisions to be followed in preparing for and responding to the introduction of Emerald Ash Borer or EAB, an invasive and destructive pest of ash trees.

Ash species are a significant component of the urban forest in many Nebraska communities. For communities with a high percentage of ash trees, a reactive approach to EAB can lead to large numbers of dead trees to remove in a short timeframe. This plan outlines the benefits and actions required to proactively manage the ash trees in order to mitigate the impacts to budget and overall canopy health.

## 2. Status of Plan

The EAB Readiness and Response Plan is a dynamic document and, as such, changes over time in response to new information. The most current Readiness and Response Plan for the community of Bayard will be posted at [www.cityofbayard.net](http://www.cityofbayard.net).

CITY OF BAYARD ORDINANCE 846 AN ORDINANCE OF THE CITY OF BAYARD, NEBRASKA AMENDING SECTION 95.05 OF THE CITY CODE OF ORDINANCES CONCERNING CHANGES NECESSARY DUE TO THE SALE OF THE CHIMNEY ROCK GOLF COURSE; PROVIDING FOR REPEAL OF OF CONFLICTING ORDINANCES; AND PROVIDING FOR AN EFFECTIVE DATE OF THIS ORDINANCE. NOW THEREFORE, be it ordained by the Mayor and City Council of the City of Bayard, in the State of Nebraska, as follows: SECTION 1: AMENDMENT "95.05 Duties And Responsibilities" of the City of Bayard Municipal Code is hereby amended as follows: BEF O R E A M E N D M E N T 95.05 Duties And Responsibilities A. Develop tree program. It shall be the responsibility of the Tree Board to develop and administer an active, comprehensive city tree program. B. Special matters relating to trees. The Tree Board, when requested by the City Council, shall consider, investigate, make finding, report and recommend upon any special matter or question relating to trees. C. Jurisdiction. Notwithstanding anything in this chapter to the contrary, the Tree Board shall have no authority, jurisdiction or responsibility over the city municipal golf course also known as Chimney Rock Golf Course. (Prior Code, § 2-3-5) (Ord. 478, passed 1-12-1993; Ord. 481, passed 3-9-1993) A F T E R A M E N D M E N T 95.05 Duties And Responsibilities A. Develop tree program. It shall be the responsibility of the Tree Board to develop and administer an active, comprehensive city tree program. B. Special matters relating to trees. The Tree Board, when requested by the City Council, shall consider, investigate, make finding, report and recommend upon any special matter or question relating to trees. C. Jurisdiction. Notwithstanding anything in this chapter to the contrary, the Tree Board shall have no authority, jurisdiction or responsibility over the city municipal golf course also known as Chimney Rock Golf Course. (Prior Code, § 2-3-5) (Ord. 478, passed 1-12-1993; Ord. 481, passed 3-9-1993)

### 3. Community Forests Are Important

- a. Why is our community creating a readiness and response plan?

In order to protect, restore and utilize forest resources it is in the community's best interest to be informed and prepared to tackle challenges that a community forest may present. One of those challenges can be the introduction of invasive species. Communities strive to stay ahead of this challenge by utilizing management plans and by doing so, they can successfully mitigate potentially detrimental impacts on budget, equipment, and staffing demands.

- b. Canopy importance and the benefits of the community forest.

“Community Tree Canopy” refers to the layer of tree leaves, branches, and stems that provide tree coverage over the ground when viewed from above. Today, many communities are planting trees in an effort to become more sustainable and livable. Improving a community's tree canopy can have numerous benefits, including reducing summer peak temperatures and air pollution, increasing property values, providing wildlife habitat, improving aesthetic benefits, and creating social ties among neighbors. A robust tree canopy can also make the community more livable and economically viable by attracting new businesses and residents.

Tree canopy loss, whether due to human activities (such as construction) or natural events (such as a severe storm or the emergence of an invasive pest), can be instantaneous and dramatic. Increases in the community tree canopy resulting from new plantings, natural regeneration, and growth, are slow processes that take time and commitment. A community tree assessment can help a community measure, monitor, and improve tree cover over time, and combat threats that can lead tree canopy loss.

Source: <https://www.nrs.fs.fed.us/urban/utc/>

## 4. Insect Details

- a. Emerald Ash Borer (*Agrilus planipennis*) is a highly invasive insect, native to east Asia, that has killed millions of ash trees in the US and Canada. EAB was first discovered outside of Detroit, MI in 2002 and quickly began spreading to nearby states.
- b. The movement of EAB across North America has been greatly accelerated by the movement of infested ash material, particularly firewood. The immature larvae of the beetle are able to survive in cut firewood and are then transported long distances where they can emerge as adults the following spring.
- c. Adult beetles emerge beginning in late May and feed on ash leaves. Females lay tiny eggs in bark crevices, and the newly hatched larvae bore into the bark. The larvae feed on tissues just under the bark surface, disrupting water and nutrient flow within the tree and ultimately girdling the tree from the inside. Once EAB has been detected in a tree, death usually occurs within a few years.

## 5. Tree Details

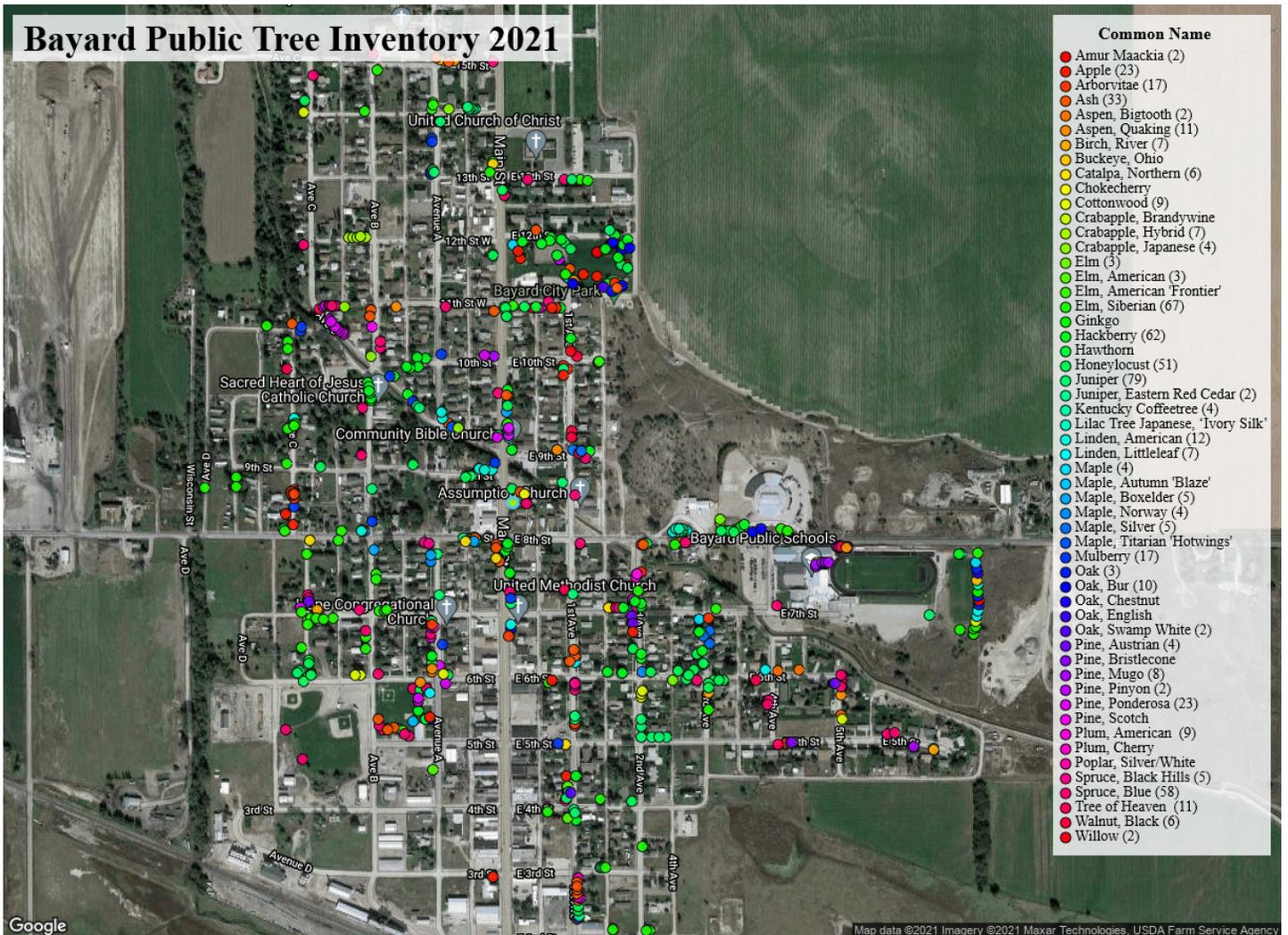
- a. Emerald ash borer is known to attack all species of ash native to North America, including those planted in yards and as street trees. Ash trees belong to the genus *Fraxinus*, and can typically be distinguished by opposite branching patterns, diamond shaped pattern on mature bark, compound leaves, and oar-shaped seeds on female trees. For an ash identification guide go to [www.nfs.unl.edu](http://www.nfs.unl.edu).
- b. Weakened or dying trees are more likely to be impacted first by EAB and will likely die more quickly than healthy trees. However, all unprotected ash trees are vulnerable to EAB, and all will eventually succumb to the insect. Ash trees killed by EAB become brittle extremely quickly, sometimes breaking in as little as one year after death. High winds and weather events can make tree failure even more likely. Thus, unmanaged ash trees become a huge safety risk.
- c. EAB does not attack mountain-ash (this tree belongs to the genus *Sorbus* and is therefore not a true ash species).

## **6. Current Status in Nebraska (as of January 2021)**

- a. For the latest information about the status of EAB in Nebraska please visit:  
<https://nfs.unl.edu/nebraska-eab>
  
- b. EAB infestations have been confirmed in the following Nebraska counties:  
Buffalo, Cass, Dodge, Douglas, Hall, Lancaster, Saunders, Seward and Washington.
  
- c. EAB infestations have been confirmed in neighboring states including Colorado (around Boulder and Fort Collins), South Dakota (Sioux Falls), and in many parts of Iowa, Missouri and eastern Kansas.

# 7. Community Planning Prior to EAB Detection

## a. Public Benefit Tree Inventory Data



### Description:

The Nebraska Forest Service worked with the City of Bayard to complete a public tree inventory. For the purpose of evaluating the public benefits that trees provide, and only for the purpose of this inventory, tree data was collected on any tree on public property and any that stand ten feet from the back of the curb along all streets located within the city limits. These trees are all considered to provide public benefit in some form. This set of data provides a broad understanding of the community tree canopy including, but not limited to, it's age and species distribution.



### Total Tree Value and Savings

Total Monetary Benefit: \$54,315

Benefits are only calculated for trees with defined species, DBH, and land use based on i-Tree research. Totals are annual amounts.



Stormwater Monetary Benefit  
**\$16,971** ?  
Runoff Prevention (Gallons)  
**635,460** ?



Property Value Total  
**\$19,149** ?



Energy Savings  
**\$5,046** ?  
Energy Saved (kWh)  
**66,655** ?  
Natural Gas Savings  
**\$8,984** ?  
Heat Prevention (Therms)  
**9,175** ?



Air Quality Monetary Benefit  
**\$2,457** ?  
Pollutants removed (lb)  
**864** ?



Carbon Monetary Benefit  
**\$1,708** ?  
Carbon Stored (lb)  
**227,746** ?  
Carbon Sequestered (lb)  
**125,232** ?  
Carbon Avoided (lb)  
**112,140** ?

### Description:

By utilizing iTree Eco and iTree Streets, a program developed to quantify forest structure, environmental effects and value to communities. A total of 604 trees were considered to provide some form of public benefit to the City of Bayard. Above is a summary of a few specific benefits which those trees provide on an annual basis. Learn more about iTree Eco and iTree streets here: <https://www.itreetools.org/tools/i-tree-eco/i-tree-eco-acknowledgements>

# Bayard Public Tree Inventory - Ash 2021

Common Name  
● Ash (33)



## Description:

For the purpose of this plan, the focus is on the quantity and location of ash trees which belong to the family *Fraxinus*. Above is a map of the distribution of the inventoried ash trees. Data was collected on a total of 33 ash trees: only 6 are located on property managed by the City of Bayard within the parks. The remaining 27 trees were collected alongside streets and roadways.

Condition	Count	Percent
Good (75% Living)	23	69.70%
Fair (50% Living)	7	21.21%
Poor (25% Living)	3	9.09%

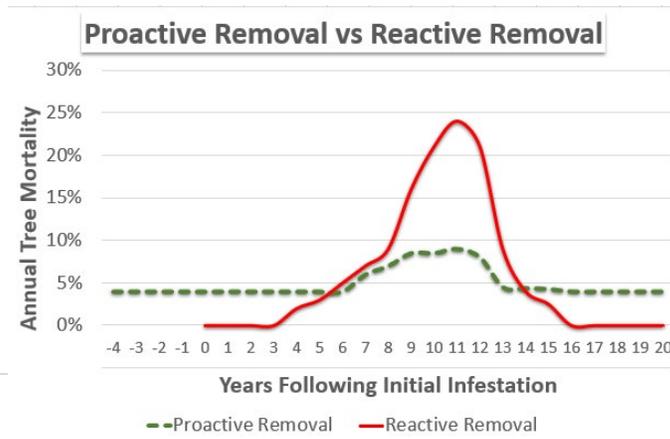
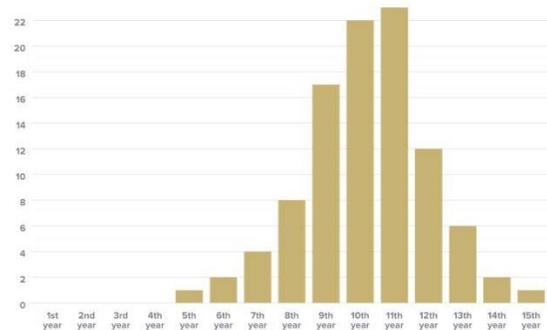
## Description:

The majority of the ash are in good or fair condition. As the condition of these trees decline, it will be in the community’s best interest to address their safety and take necessary action.

- b. The purpose of mitigating community impacts from EAB
  - i. Flattening the Curve – If nothing is done to manage EAB within a community, typically 10% of ash trees are killed in the first 4 years after EAB is discovered; about 70% of ash trees are killed in the next 4 years. This exponential ash mortality can potentially overwhelm municipal personnel and budgets.

Mitigating the cost and labor of removing your ash tree population is an important step in minimizing the fiscal setbacks that EAB poses. There are steps you can take to prepare for EAB even before it has been found in your community. Ash trees that are already in poor condition are a public safety concern and more attractive to EAB than healthy trees, and should be removed soon in order to mitigate future work load.

**Percentage of ash trees killed in the years following an initial EAB infestation if no management action is taken:**



c. What is the future of ash?

- i. The community of Bayard will no longer plant ash species (*Fraxinus*) on public property and will highly discourage ash plantings on private property.
- ii. Planning for replacement
  1. Tree planting efforts take a number of years to begin giving significant benefits to the community, so it is important to proactively plan to replace ash loss in the urban canopy. Some factors to consider when choosing replacement trees include:
    - a. Mature size: Medium to large trees (> 25 feet) provide more community benefits and are better substitutes for ash than small, ornamental trees less than 25 feet tall. See a list of recommended trees here:  
[https://plantnebraska.org/file\\_download/inline/febfb391-db57-4085-bd82-ce3777f5153b](https://plantnebraska.org/file_download/inline/febfb391-db57-4085-bd82-ce3777f5153b)
    - b. Species diversity: When natural disaster strikes, species diversity is an important factor in urban forest resilience. An urban forest with many types of trees reduces the chance of an insect or disease impacting large numbers of trees. Many community foresters are promoting diversity targets of less than 10-20% of a single genus (oak, elm, maple, etc.) and less than 5-10% of a single species (bur oak, red oak, white oak, etc.).
    - c. Age diversity: By planting trees every year, communities can improve age diversity, thereby avoiding the loss of large numbers of trees to old age in a short time frame.

iii. Plant/Remove Ratios

The community of Bayard will adopt a plant/remove ratio of 1:1 and plant a tree for every ash tree removed on public properties as a result of this plan.

b. Training and Outreach

i. Training Municipal Staff:

1. The community of Bayard recognizes the need for specialized training to educate their municipal staff and their community. Training and outreach opportunities alongside wood utilization options will be explored and considered for implementation in our efforts to prepare for EAB.
2. The community of Bayard will consult with a certified arborist to evaluate and monitor all public ash trees and encourage staff to become certified arborists.
3. All City of Bayard workers and community staff will be required to attend an annual job safety training to ensure the highest quality of service to the community.
4. The Tree Board and community staff will investigate and follow all recommended guidelines by the Nebraska Department of Ag and the Nebraska Forest Service for responsible dead wood handling and yard management.

ii. Community Public Outreach Recommendations:

1. The community of Bayard will provide all current status information on the City website at [www.cityofbayard.net](http://www.cityofbayard.net).
2. The Tree Board and community staff will strive to utilize the local green industry to support business and provide adequate recommendations for services such as plantings, removals or management.
3. In the event new information arises, the tree board and community staff will directly notify local media through press releases to ensure the public stays informed.

## 8. EAB Detection

### a. Protocol for reporting new cases:

Maintain confidentiality until a detection has been officially confirmed. Do not contact media or share information.

- i. Many other pests mimic EAB and the damage it causes.
- ii. An insect specimen must be collected by Nebraska Department of Agriculture (NDA) and verified as EAB by the U.S. Department of Agriculture.
- iii. Only after confirmation and an NDA press release, should local officials release information to the public.
- iv. Nebraska Forest Service and NDA will work with the community to prepare for the announcement.

### b. Reporting suspect trees or insects:

- i. Record location of the tree or insect.
- ii. Take pictures of holes in trunk, tunneling, or the insect if possible.
- iii. Collect insect if possible.
- iv. Local county extension educator or forester may be able to prescreen suspect cases.
- v. Contact the city parks department **AND** contact any of the following collaborating agencies:

**Nebraska Department of Agriculture**, 402-471-2351

David Nielsen, State Survey Coordinator, [David.nielsen@nebraska.gov](mailto:David.nielsen@nebraska.gov)

Julie Van Meter, State Entomologist, [Julie.vanmeter@nebraska.gov](mailto:Julie.vanmeter@nebraska.gov)

**Nebraska Forest Service**, 402-472-2944

David Olson, Forest Health Specialist, [Davidolson@unl.edu](mailto:Davidolson@unl.edu)

Laurie Stepanek, Forest Health Specialist, [Lstepanek2@unl.edu](mailto:Lstepanek2@unl.edu)

# 9. Community Response Following EAB Detection

## a. Community Regulations

### **95.01 Definitions**

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

**PARK TREES.** Trees in public parks or other city property.

**PRIVATE TREES.** All trees within municipal boundaries but not owned by the city.

**PUBLIC TREES.** All street and park trees and other trees owned by the city.

**STREET TREES.** Trees on land lying between the property lines on either side of all streets and avenues within the city.

(Prior Code, § 2-3-1) (Ord. 478, passed 1-12-1993)

### **95.07 Tree Species List**

- A. The city shall maintain a list of recommended trees for planting in public areas. The purpose of this listing will be to maintain diversity in the total tree population.
- B. This list shall be available to residents of the city to aid in the selection of trees for private and public properties.
- C. The list of recommended trees shall be updated periodically to reflect new developments or species that will affect the population of the community forest.

(Prior Code, § 2-3-7) (Ord. 478, passed 1-12-1993)

### **95.08 Distances And Clearances For Planting Public Park Trees**

- A. *Tree lawns.* Trees may be planted in the tree lawn where there is at least six feet between the edge of the sidewalk and the curb of the street. Trees shall be planted no closer than three feet from a sidewalk, driveway or street.
- B. *Street corners.* No tree shall be planted closer than 35 feet from any street corner, measured from the point of the nearest intersection of curbs or curb lines.
- C. *Fire plugs.* No tree shall be planted closer than ten feet from any fireplug.
- D. *Utility lines.* No trees other than small trees recommended per the tree species list under § 95.07 above, may be planted under or within ten lateral feet of any overhead utility line; nor over or within five lateral feet of any underground utility line.
- E. *Spacing.* The spacing of trees will be in accordance with the two species size classes recommended per the tree species list under § 95.07 above, and no trees may be planted closer together than 20 feet for small trees and 40 feet for large trees.

(Prior Code, § 2-3-8) (Ord. 478, passed 1-12-1993)

### **95.09 Public Park Tree Care**

- A. The city shall have the right to plant, prune, maintain and remove trees, plants and shrubs within the right-of-way or bounds of all public parks as may be necessary to ensure the public safety.
- B. The city may remove any tree or part thereof which is in an unsafe condition or which by reason of its nature is injurious to electric power lines or other public improvements, or is seriously affected with any fatal disease.

(Prior Code, § 2-3-9) (Ord. 478, passed 1-12-1993)

### **95.10 Tree Topping**

It shall be unlawful for any person, firm or city department to top any public park trees. **TOPPING, ROUNDING OFF** or **POLLARDING** is defined as the systematic cutting back of limbs within the tree's crown to such a degree as to remove the normal canopy and disfigure the tree. This provision shall not apply, when necessary, to trim trees away from electric or utility lines. Private property owners are encouraged to refrain from topping trees on their property.

(Prior Code, § 2-3-10) (Ord. 651, passed 2-5-2003) Penalty, see § 10.99

### **95.11 Street Tree Clearance Over Streets And Walkways; Maintenance; Trimming**

- A. Clearance over streets and walkways shall be the responsibility of the abutting property owner. A clearance of ten feet must be maintained over walkways and a clearance of 15 feet must be maintained over streets and alleys.
- B. Property owners are responsible for trees on their property as well as trees on the public right-of-way where it abuts their property. Property owners who fail to maintain clearance over streets and walkways shall be subject to the nuisance provision § 95.12 below, and assessment of costs.

(Prior Code, § 2-3-11) (Ord. 478, passed 1-12-1993; Ord. 718, passed 9-8-2009)

**95.12 Removal Of Dead Public Trees; Removal Of Branches To Maintain Clearance Over Streets And Walkways; Nuisance; Assessment Of Costs**

*A. Nuisance declared.*

1. It is hereby declared to be a nuisance for the property owners to permit, allow or maintain any dead or diseased trees within a right-of-way of streets or to allow or maintain any live tree with less than the clearance above streets and sidewalks as provided for in § 95.11 above within the city limits. Notice to abate and remove the nuisance and notice of the right to a hearing and the manner in which it may be requested shall be given to each owner or owner's duly authorized agent and to the occupant, if any, by the Tree Board by personal service or certified mail.
2. Within 30 days after the receipt of the notice, if the owner or occupant of the lot or piece of ground does not request a hearing or fails to comply with the order to abate and remove the nuisance, the city may have the work done and may levy and assess all or any portion of the costs and expenses of the work on the lot of piece of ground so benefitted in the same manner as other special taxes for improvement are levied and assessed. There shall be a presumption that any work done by the city crew shall be assessed at the rate of \$500 per hour to adequately compensate the city for the use of men and equipment.

*B. Hearing.*

1. A hearing shall be held by the City Council if a request in writing is delivered to the City Clerk at least ten days before a regular meeting of the City Council.
2. A copy of the notice shall be delivered by the City Clerk to the Chairperson of the Tree Board. The City Council shall consider recommendations from the Tree Board at the hearing. The decision of the City Council shall be considered a final resolution of the appeal.

(Prior Code, § 2-3-12) (Ord. 718, passed 9-8-2009) Penalty, see § 10.99

**95.13 Interference With The Tree Board**

It shall be unlawful for any person to prevent, delay or interfere with the Tree Board or any of its representatives or agents, while engaging in and about the planting, cultivating, mulching, pruning, spraying or removing of any public trees.

(Prior Code, § 2-3-13) (Ord. 478, passed 1-12-1993) Penalty, see § 10.99

**95.14 Access To Private Property**

It shall be unlawful for any person to prevent, delay or interfere with access to private property by the city or its representative in the legal performance of any section of this chapter.

(Prior Code, § 2-3-14) (Ord. 478, passed 1-12-1993) Penalty, see § 10.99

**95.15 Tree Service Registration**

Persons or firms engaged in the business or occupation of pruning, treating or removing any street tree, park tree or other privately owned tree must be registered at the city office. Criteria for registration includes physical evidence of liability insurance, workers' compensation and a valid EPA certified pesticide applicator license number. No registration shall be required by any public employee doing the work in the pursuit of their public service endeavors.

(Prior Code, § 2-3-15) (Ord. 478, passed 1-12-1993)

**b. Removals**

- i. Pre-emptive removal of live ash trees is better than removal of dead trees. Trees that have died from EAB are extremely brittle and unpredictable when removing and are therefore dangerous to remove.
- ii. Removing live trees in summer causes EAB adults in the crown to disperse. To limit EAB spread, remove live trees between October and March. Additionally, soils could be frozen during this time which can help limit soil compaction from heavy equipment.
- iii. Prioritize removals: Ash trees in high traffic areas should be given higher priority.

**c. Managing Wood Waste**

- i. To limit the spread of EAB within a community or quarantine zone, the NDA recommends the following best practices:
  1. Firewood- Firewood should be kept within 10 miles of where the tree was felled. It is best to season the wood for two years prior to moving it to limit the spread of EAB.

2. Woodchips- Should be chipped onsite if the tree was felled between May and September to limit the risk of spread. Woodchips should be checked for larger debris, which should be removed or mulched. Woodchips should be less than 1 inch on two sides in order to kill most of the EAB in the wood.
  3. Debris- Keep all other debris within 15 miles of where the tree was felled. As a general rule, the less movement the better.
    - ii. Debris from EAB infested wood may pile up quickly. Designate a site for the influx of material so that normal operations will not be overrun.
    - iii. Identifying a separate location for an 'Infected by Pest-Do Not Use' pile of waste lumber at the public facility can limit the spread of materials by preventing other persons from transporting the lumber away from the site for their use (ex: Local tree worker takes down pest infected tree, delivers lumber to public facility, woodworker picks up the lumber for milling or other purposes, thus unknowingly spreading the pest).
    - iv. It is important to establish a timetable to ensure each community is able to deal with ash debris in a timely manner. Partnerships with other communities should be communicated with NDA. Since equipment to process large numbers of ash trees can be costly, consider partnering with neighboring communities to share dump sites or equipment such as wood chippers.
    - v. The wood waste facility is located at the City Dump South of East 8<sup>th</sup> Street and is open from 9-noon and 1-3 on Wednesdays and 9-noon on Saturdays. All dumping must be scheduled and approved at the City Offices by appointment.
    - vi. The City of Bayard picks up tree limbs on Fridays and the City of Gering picks up all yard waste once a week.
- d. Treatments
- i. Chemical treatments for EAB, if used, should begin only when EAB has been detected in, or within, 15 miles of the community. This 15-mile recommendation strikes a balance between protecting valuable trees and limiting the negative effects of unnecessary treatments.
  - ii. Soil treatments
    1. Limited effectiveness in large trees (over 15 inches in trunk diameter)
    2. Should not be applied near sources of water or to areas with flowering plants (which could transmit the chemical to honey bees and other pollinators).
    3. Applied once per year in spring.

- iii. Trunk Sprays
  1. Effective on trees up to 22 inches in trunk diameter
  2. Must be applied every year
  3. Active ingredient dinotefuran is more expensive than the soil-applied active ingredient (imidacloprid)
  4. Potential for exposure to **non-target organisms** in the environment
- iv. Trunk Injections (requires licensed pesticide applicator)
  1. Places the pesticide directly in the tree, which limits exposure to non-target organisms.
  2. Causes internal damage to the trunk. Accumulative damage will shorten the life of the tree, even as the treatment is controlling EAB.
  3. Injections of the most effective ingredient, emamectin benzoate, are effective for 2 years.
- v. Utilizing short-term treatments to space removals
  1. Ash tree mortality across an entire urban forest can be slowed (flattening the mortality curve), which can minimize adverse budgetary and safety repercussions.
- vi. Long-term treatments to help protect high-value trees
  1. Good candidates for treatment should be of significant value, be in very good condition (especially have a history of proper care) and be properly sited in the landscape. More information: <https://nfs.unl.edu/publications/selecting-trees-emerald-ash-borer-treatment-0>
- vii. The City of Bayard has no current intentions to treat any publicly managed ash tree in response to Emerald Ash Borer.
- e. Communication of ongoing efforts

Residents of Bayard may contact the City Office at 308-586-1121 for accurate information regarding EAB status and mitigation efforts.

## **10. Disclaimer**

The use of trade, firm, or corporation names in this publication is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval by the Nebraska Forest Service of any product or service to the exclusion of others that may be suitable. (National Framework. Pdf /USDA)

## **Additional Resources:**

Pros and Cons of Emerald Ash Borer Treatment

<https://nfs.unl.edu/publications/pros-and-cons-emerald-ash-borer-treatment>

Trees to Replace Ash

<https://nfs.unl.edu/ash-replacements>

See Primary Processors directory for more information on mills:

<https://nfs.unl.edu/timber-buyers>

<https://nfs.unl.edu/documents/ruralforestry/2013%20primary%20processors%20ENTIRE.pdf>