

Village of Morrill, NE

Readiness and Response Plan | Emerald Ash Borer

*plan last updated on: 5/13/2021



Village of Morrill



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 Morrill will be posted at:

www.villageofmorrill.com

3. Community Forests Are Important

a. Why are we doing this?

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.
- 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 species such as mountain-ash (*Sorbus* species—not a true ash).

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

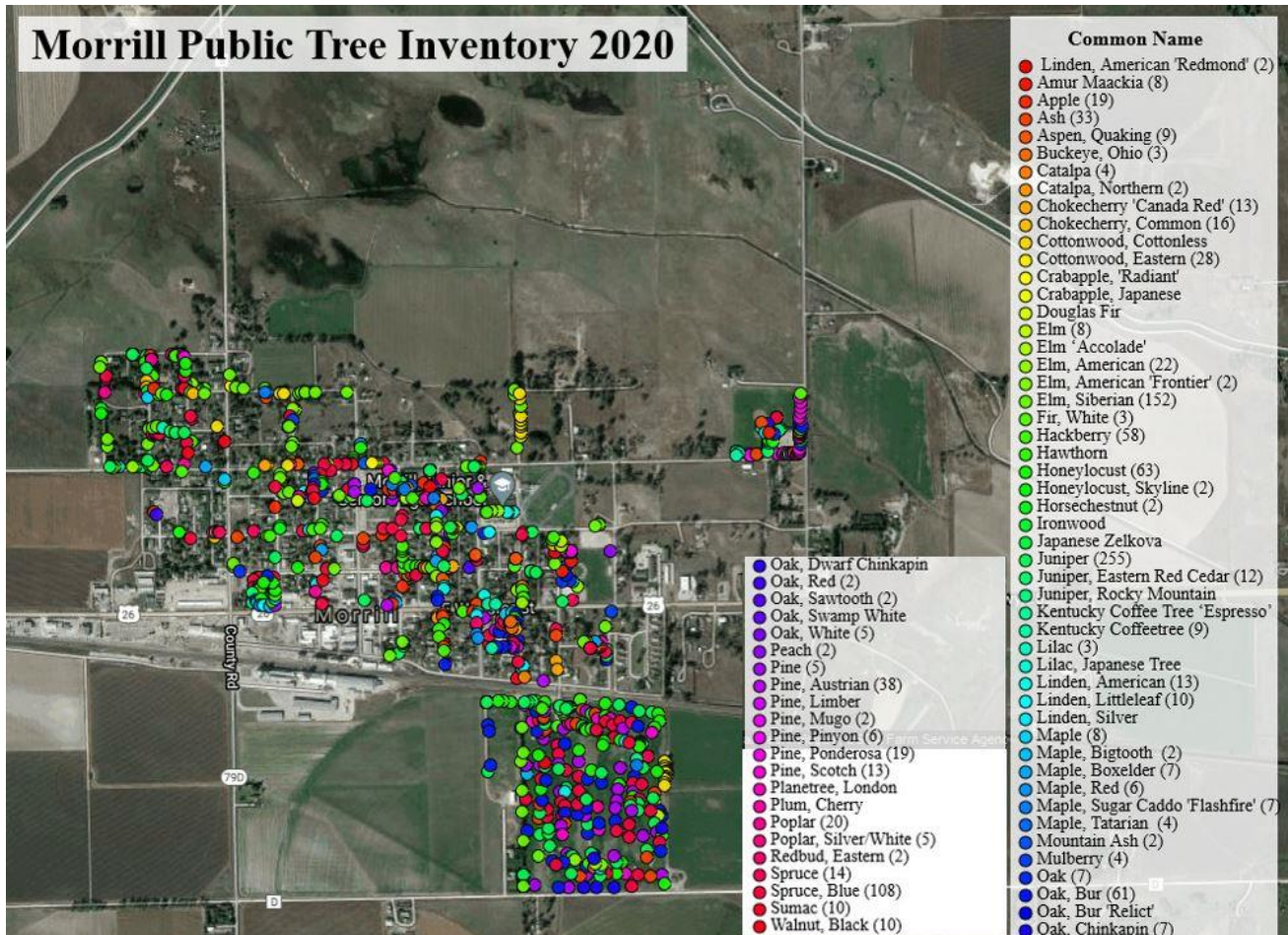
- a. For the latest information about the status of EAB in Nebraska please visit:
<https://nfs.unl.edu/nebraska-eab>

- 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. Inventory of the ash population



Description:

The Nebraska Forest Service worked with the Village of Morrill Tree Board to complete a public tree inventory (pictured above). 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 within fifteen feet from the back of the curb along all streets located within the village 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: \$112,980

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
\$44,883 ?

Runoff Prevention (Gallons)
1,688,130 ?



Property Value Total
\$27,326 ?



Energy Savings
\$11,349 ?

Energy Saved (kWh)
150,112 ?

Natural Gas Savings
\$20,037 ?

Heat Prevention (Therms)
20,473 ?



Air Quality Monetary Benefit
\$5,833 ?

Pollutants removed (lb)
2,049 ?



Carbon Monetary Benefit
\$3,552 ?

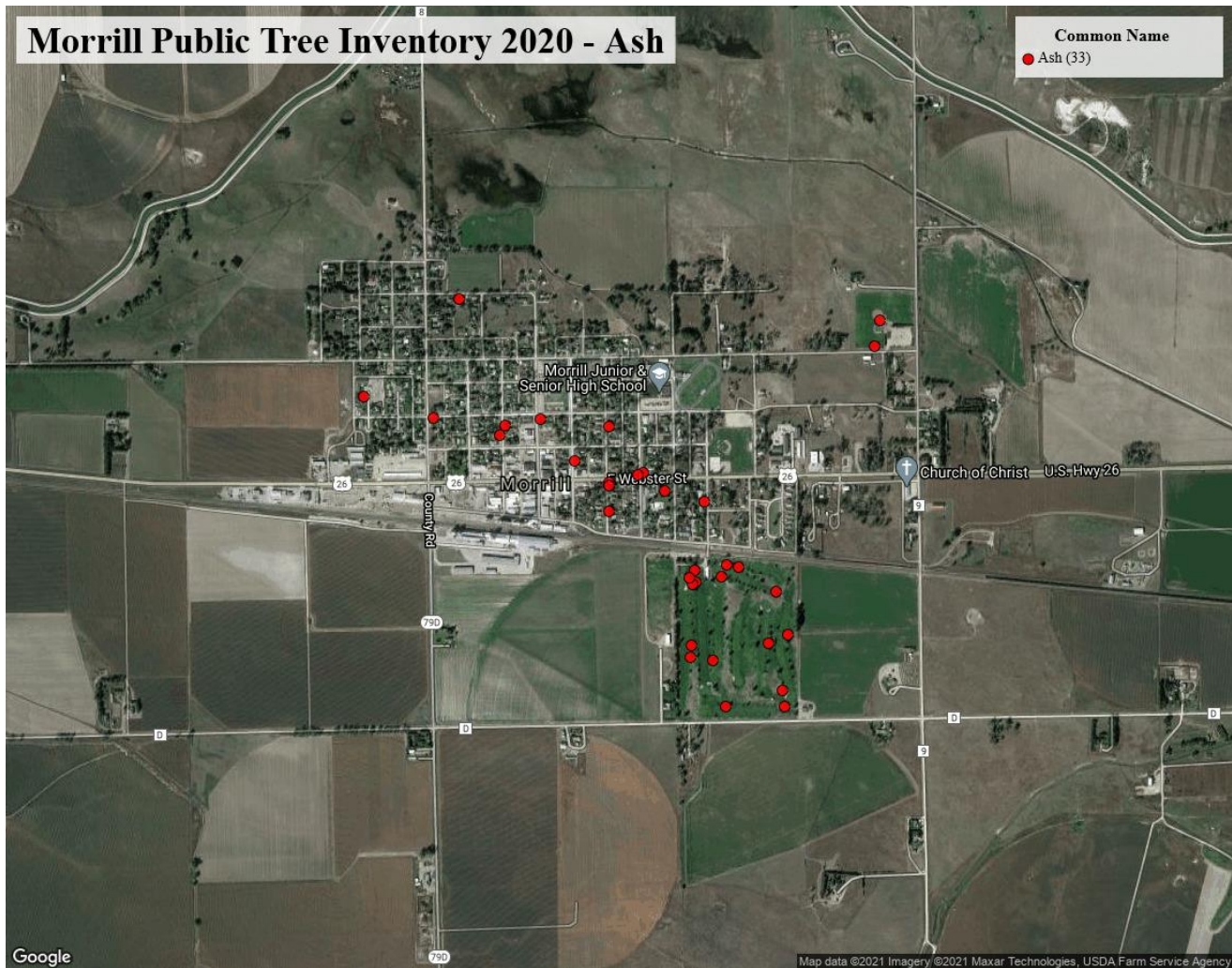
Carbon Stored (lb)
473,763 ?

Carbon Sequestered (lb)
245,896 ?

Carbon Avoided (lb)
253,178 ?

Description:

By utilizing iTree Eco and iTree Streets, a program developed to quantify forest structure, environmental effects and value to communities. A total of 1,147 trees were considered to provide some form of public benefit to the Village of Morrill. 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>



Condition	Count	Percent
Excellent (100% Living)	14	42.42%
Good (75% Living)	9	27.27%
Fair (50% Living)	7	21.21%
Poor (25% Living)	3	9.09%

Description:

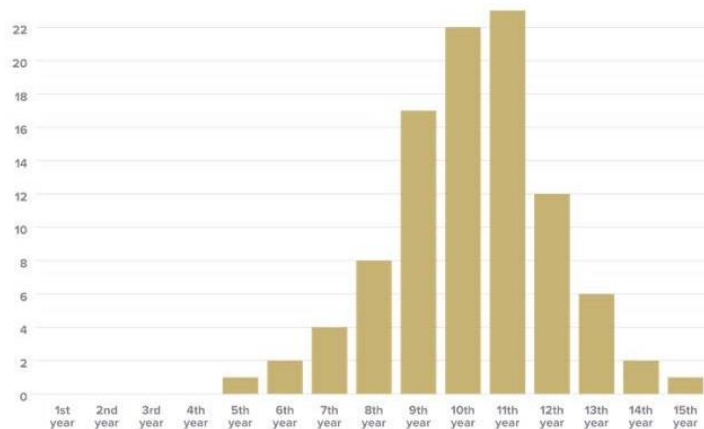
For the purpose of this plan, the focus is on the quantity and location of ash trees which belong to the family *Fraxinus*. Above is a map of the distribution of the inventoried ash trees and a condition report. Data was collected on a total of 33 ash trees: only three are located on property managed by the Village of Morrill in the parks. The Golf Course, which manages their own trees, has 16 ash trees. The remaining 14 trees were collected alongside streets and roadways. The majority of the ash are in excellent or good 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

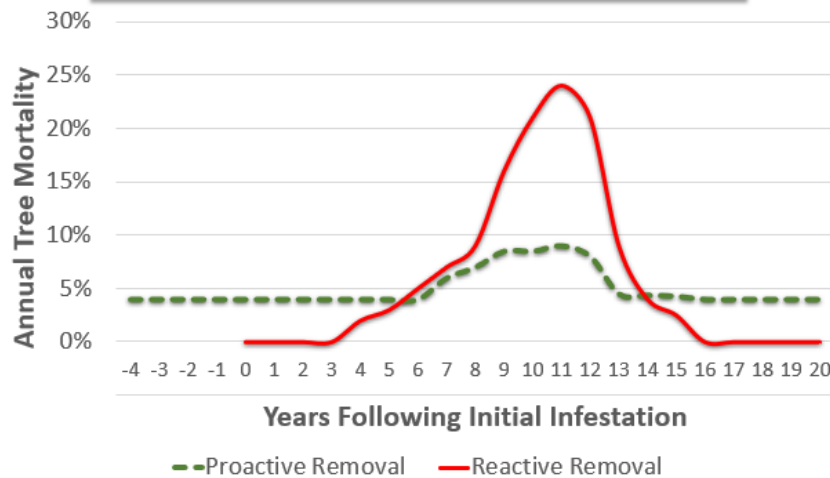
- i. Flattening the Curve – If nothing is done to manage EAB within a community, typically 10% of ash trees are killed in the first 4 years after EAB is discovered; about 70% of ash trees are killed in the next 4 years. This exponential ash mortality can potentially overwhelm municipal personnel and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



Proactive Removal vs Reactive Removal



c. What is the future of ash?

ii. The community of Morrill will no longer plant ash species (*Fraxinus*) on public property and will highly discourage ash plantings on private property.

iii. 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

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.

iv. Plant/Remove Ratios

The community of Morrill 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 Morrill 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 Morrill will consult with certified arborists to evaluate and monitor all public ash trees and encourage village park staff to become certified arborists.
3. 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 Morrill will provide all current status information on the village webpage at: www.villageofmorrill.com
2. 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 USDA APHIS-PPQ.
- 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

Julie Van Meter, State Entomologist, Julie.vanmeter@nebraska.gov

Nebraska Forest Service, 402-472-2944

David Olson, Forest Health Specialist, Davidolson@unl.edu

Laurie Stepanek, Forest Health Specialist, Lstepanek2@unl.edu

9. Community Response Following EAB Detection

a. Community Regulations

ORDINANCE NO. D-354

AN ORDINANCE OF THE VILLAGE OF MORRILL, NEBRASKA (“THE VILLAGE”) ESTABLISHING A TREE BOARD; PROVIDING FOR ADVISORY DUTIES AND SCOPE OF THE TREE BOARD; AMENDING § 92.24 OF THE VILLAGE CODE OR ORDINANCES REGARDING DEAD OR DISEASED TREES; AMENDING § 93.003 OF THE VILLAGE CODE OR ORDINANCES REGARDING OBSTRUCTIONS; AMENDING § 93.006 OF THE VILLAGE CODE OR ORDINANCES REGARDING OVERHANGING BRANCHES; AMENDING § 93.056 OF THE VILLAGE CODE OR ORDINANCES REGARDING TREES, PLANTS, AND SHRUBS IN PUBLIC RIGHTS-OF-WAY; PROVIDING FOR THE REPEAL OF CONFLICTING ORDINANCES AND RESOLUTIONS; AND PROVIDING FOR AN EFFECTIVE DATE OF THIS ORDINANCE.

BE IT ORDAINED BY THE CHAIRMAN AND THE BOARD OF THE VILLAGE OF MORRILL, NEBRASKA:

Section 1. Sections 32.05 of the Village Code of Ordinances is hereby adopted as follows:

“Section 32.05 Tree Board.

(A) There is established a Tree Board (the “Tree Board”), which shall be comprised of not less than three but no greater than five members appointed by a majority vote of the Village Board of Trustees. All Tree Board members shall be persons that receive electrical utility service from the Village while serving as a Tree Board member, and no member may be a member of the Board of Trustees at the time serving on the Tree Board.

(B) Except for initial Members, whose initial terms may be staggered, members of the Tree Board shall serve terms of three years, beginning and ending according to the fiscal year of the Village. Members shall be elected on a staggered basis so that approximately 1/3 of the Members are elected annually. If a vacancy occurs, a new Member of the Tree Board may be appointed to serve the length of the unexpired term.

(C) The Tree Board shall:

(1) advise the Village Board of Trustees and promote the healthy growth and management of all vegetation, trees, plants, and shrubs addressed in §§ 92.24, 93.003, 93.006, or 93.056 of the Village Code of Ordinances;

(2) hold meetings not less than once per year;

(3) classify tree species, and advise the Village Board of Trustees as to the recommended size, classification, spacing, and planting of trees within the areas over which the Tree Board may advise;

(4) advise on the planting and maintenance of all trees, shrubs, and plants in public rights-of-way under § 93.056 of the Village Code or Ordinances;

(5) make regular, periodic inspections of all trees, plants, and shrubs in public rights-of-way under § 93.056, and of all public parks or recreational facilities to maintain a working knowledge of such trees, plants, shrubs;

(6) maintain advisory management plan for all trees, plants, and shrubs planted, maintained, and inspected under subsections (C)(5) and (C)(6) above.

(D) No member of the Tree Board may receive compensation for his or her service on the Tree Board.

Section 2. All other Ordinances or parts of Ordinances in conflict with this Ordinance are repealed as of the effective date of this Ordinance.

Section 3. This Ordinance shall take effect upon its passage, approval, and publication according to law.

PASSED AND APPROVED this 11 day of May, 2021.


John T. Schuler, Chairperson

ATTEST:


Village Clerk/Treasurer



“§ 92.24 Dead or Diseased Trees.

(A) It is hereby declared a nuisance for a property owner to permit, allow, or maintain any dead or diseased trees within the right-of-way of streets within the corporate limits of the Village.

(B) It is hereby declared a nuisance for a property owner to permit, allow, or maintain any dead or diseased trees on private property within the corporate limits of Village that may constitute a health hazard to other property or vegetation. For the purpose of carrying out the provisions of this section, the Village police department shall have the authority to enter upon private property to inspect the trees thereon.

(C) Notice to abate and remove such nuisance and notice of the right to a hearing and the manner in which it may be requested shall be given to each owner by the Village Chief of Police or his or her designee as provided for in § 93.056 of the Village Code or Ordinances. In addition, violation of the section may be considered an offense under § 10.99 of the Village Code of Ordinances.”

Section 3. Section 93.003 of the Village Code of Ordinances is hereby amended as follows:

“Section 93.003 Obstructions.

(A) Trees, plants, or shrubs growing upon or near the lot line of any property and interfering with the use or construction of any public improvements, roads, streets, alleys, or rights of way shall be deemed an obstruction under this section. Such obstructions and their roots may be removed by the Village at the expense of the owner of the property upon which the obstruction is located, should the owner fail, or neglect, after notice, to do so. It shall be unlawful for any person, persons, firm, or corporation to obstruct, or encumber, by fences, gates, buildings, structures, or otherwise, any of the streets, alleys, or sidewalks. The public ways and property shall be considered to be obstructed when the owner or occupant of the adjacent property shall permit or suffer to remain on any premise owned or controlled by him or her any trees, plants, shrubs, or vegetation, or similar growth within two feet adjacent to the lot line whether there is a sidewalk abutting or adjoining such premise or not. It shall be the duty of owners and occupants to at all times keep trimmed and pruned all such similar growth.

(B) If the obstruction is vegetation not concerning encroachment upon utilities, notice to abate and remove such obstruction and notice of the right to a hearing and the manner in which it may be requested shall be given to each owner or occupant by the Chief of Police or his or her designee as provided for in § 93.056 of the Village Code or Ordinances. In addition, violation of the section may be considered an offense under § 10.99 of the Village Code of Ordinances. If the obstruction is non-vegetation, enforcement may be provided for by the Village Chief of Police or his or her designee or the action of the Village Board of Trustees. For the purpose of carrying out the provisions of this section, the Village police department shall have the authority to enter upon private property to inspect the obstructions thereon.

(C) It shall be the duty of an owner or occupant engaged in construction of any building or improvement upon or near the public ways and property to have all excavations or exposures of any kind protected and guarded by suitable guards or barricades by day and by warning lights at night. In the event of failure, neglect, or refusal to comply with the provisions of this subchapter, it shall be the duty of the Village to stop all work upon the buildings and improvements until suitable guards are erected and kept in the manner aforesaid.

(D) Persons engaged in the erection, construction, reconstruction, wrecking, or repairing of any building, or the construction or repair of a sidewalk along any street, may occupy the public street space with such building material and equipment as long as is necessary if such persons shall make application to and receive a permit in writing from such village employee as is designated by the Village Board of Trustees to do so, provided that no permit for the occupancy of the sidewalk space and more than 1/3 of the roadway of the public space adjacent to the real estate on which the building is to be constructed, erected, reconstructed, wrecked, or repaired shall be granted, and provided further that a suitable passageway for pedestrians shall be maintained within the public space included in the permit which shall be protected and lighted in the manner required by such Village employee as is designated by the Village Board of Trustees.

Section 4. Section 93.006 of the Village Code of Ordinances is hereby amended as follows:

“Section 93.006 Overhanging Branches.

The owner or occupant of any lot, piece, or parcel of ground abutting or adjacent to any street or sidewalk of the Village over which there extends the branches of trees, plants, or shrubs shall at all times keep the branches or limbs thereof trimmed to the height of at least eight feet above the surface of the walk and at least 14 feet above the surface of the street or alley. Whenever the limbs or branches of any tree or trees extend over streets or sidewalks contrary to the provisions herein so as to interfere with the lighting of the street from street lights or with the convenience of the public using the street or sidewalk, the Village may enforce this section with notice and right to a hearing in the manner provided for in § 93.056 of the Village Code or Ordinances.”

Section 5. Section 93.056 of the Village Code of Ordinances is hereby amended as follows:

“Section 93.056 Trees and Shrubs.

(A) Planting of cottonwood trees which make or shed cotton at any place within corporate limits of the Village is prohibited.

(B) Public right-of-way is defined as the space between the boundary line of a lot and the curb of the street, or in absence of a curb, the traveled portion of the street.

(C) The owner of every lot shall maintain the public right-of-way free and clear of all weeds and trash and obstruction, provided such area may be planted to trees, plants, shrubs, grass, and flowers as herein provided and as approved Village Board of Trustees. All vegetation planted which is not planted and maintained as herein provided and approved by the Village Board of Trustees shall constitute a violation of this section and shall be removed. Any vegetation existing as of July 1, 2018 that comes into violation of any rule, regulation, or order of the Village may exist so long as it does not interfere with any right-of-way or utility obstruction provisions of the Village Code of Ordinances or any nuisance, dead, or diseased tree provision of the Village Code of Ordinances, but such vegetation may not be replaced, extended, or duplicated without approval of the Village Board of Trustees.

(D) No trees, plants, shrubs, grass, and flowers in the public right-of-way which obstruct the view from the street of the curb, any fire suppression devise, or any intersecting street or driveway shall be planted or allowed to remain in the public right-of-way.

(E) All trees, plants, shrubs, grass, and flowers now or hereafter planted in any public right-of-way shall be maintained in a neat, safe condition by the owner of the abutting lot. All branches extending over the street or sidewalk shall be trimmed to a height of at least eight feet above the sidewalk and 14 feet above the street.

(F) No trees, plants, shrubs, grass, and flowers shall be planted in any public right-of-way closer than three feet to any sidewalk, curb line, or water service.

(G) Tree hazards:

(1) For purposes of this section, the term Tree Hazard shall include:

(a) Any trees, plants, or shrubs in a public right-of-way which are dead;
or

(b) Any trees, plants, or shrubs in a public right-of-way which have any dead branch one inch in diameter or larger; or

(c) Any trees, plants, or shrubs which by reason of disease or other cause create a substantial hazard to persons, property, or other healthy trees, plants, or shrubs; or

(d) Any tree, plants, or shrubs defined as a dead or diseased tree under § 92.24 of the Village Code of Ordinances; or

(e) Any trees, plants, or shrubs failing to comply with this section; or

(2) It shall be the duty of any person who owns and/or occupies any lot or tract of land on which is situated, or which abuts any public right-of-way on which is situated any tree hazard, to promptly abate such hazard. In the case of any trees, plants, or shrubs described in subsections (1)(a), (c), and (d) above, abatement shall be by removal of the tree to ground level and subsequent removal of the tree stump. In the case of any trees, plants, or shrubs described in subsections (1)(b) and (e) abatement shall be by removal of the portion of the tree, plant, or shrub causing the hazard, including the tree stump if necessary.

(3) Removal of all trees, plants, or shrubs in the public right-of-way, and the stump, shall be at the expense of the owner of the abutting private property and removal of all tree hazards and the stump shall be at the expense of the owner of the subject property.

(H) If any branches shall not have been pruned or any trees, plants, or shrubs, and stumps, shall not have been removed as provided subsection (G), the Village Chief of Police or his or her designee shall give notice by certified mail addressed to the owner of the lot or tract and, if the owner is not the occupant, to the lessee or other person having control or management of the property at the last known address of the addressee, to prune such branches or, as the case may be, remove such trees, plants, or shrubs on or before a certain date to be specified in the notice, and that if such branches are not so pruned or, as the case may be, the tree, plant, or shrub is not so removed by that date, the Village may do such work and assess the expense thereof to the property. The date specified in the notice shall be a date that is not less than ten days after the date of mailing of such notice.

(I) Hearing and review:

(1) Not later than ten days after mailing of the notice by the Village Chief of Police or his or her designee, the owner/occupant may file a written request for hearing before the Village Board of Trustees to review the administrative determination as to whether the trees, plants, or shrubs in question constitute a tree hazard as defined in subsection (G) above. The Village Clerk/Treasurer shall fix a date for such hearing and provide notice of the hearing to the requesting party.

(2) Upon the date fixed for the hearing, the Village Board of Trustees shall hear all objections and evidence presented by the owner and/or occupant of the subject property and that presented by the Village Chief of Police or his or her designee. If after consideration of all the evidence the Village Board of Trustees shall find that the condition is a tree hazard, it shall by resolution order and direct the owner and/or occupant to remedy the tree hazard within a specified time and shall identify the acts necessary to remedy the tree hazard.

(3) Should the owner or occupant refuse or neglect to promptly comply with the order of the Village Board of Trustees, the Village Board of Trustees shall proceed to cause the abatement of the described tree hazard. Upon completion of the work by the Village, a statement of the cost of such work shall be transmitted to the Village Board of Trustees, which shall bill the property owner or occupant or levy the cost thereof as a special assessment against the property, or shall collect the same by civil suit brought in the name of the Village against the owner or occupant. The special assessment shall be a lien upon real estate and may be collected in the manner provided for special assessments.

(J) It shall be unlawful for any person or entity to top any trees, plants, or shrubs in a public right-of-way or any other trees, plants, or shrubs on public property. For purpose of this section, topping is defined as the severe cutting back of healthy limbs to stubs larger than three inches in diameter within the crown of the branches to such a degree as to remove the normal canopy and disfigure the tree. Any tree topping shall constitute a tree hazard, subject to removal as provided for in this section.

(K) Nothing in this section shall replace or interfere with the enforcement and trimming of encroaching trees or shrubs on private property as provided for in §§ 93.003 or § 93.006 of the Village Code or Ordinances.

(L) Notwithstanding any provision of this section or other provision of the Village Code or Ordinances, the Village shall have the immediate right and authority, without notice, to trim, remove, or prune any trees, plants, or shrubs extending into a utility easement and endangering or obstructing utility lines and utility services.

(M) Any violation of this section may, in addition to the enforcement provided in this section, be enforced as an offense under § 10.99 of the Village Code of Ordinances.

Section 6. All other Ordinances or parts of Ordinances in conflict with this Ordinance are repealed as of the effective date of this Ordinance.

b. Quarantines

- i. If a quarantine is placed around the infested area, movement of ash materials and hardwood firewood and mulch (chips) out of the quarantined area is prohibited. A compliance agreement with USDA APHIS may be issued to allow movement of materials.

c. 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.

d. 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 even within the quarantine. It is best to season the wood for two years prior to moving it to limit the spread of EAB.
 2. Woodchips- May be used within the quarantine area but 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. As per quarantine regulations, any woodchips that leave the quarantined area must be less than 1 inch on two sides and require a compliance agreement.
 3. Debris- Keep all other debris within 15 miles of where the tree was felled and within the quarantine area. As a general rule, the less movement the better.
- ii. Debris from EAB infested wood will 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 and so that regulated material will not be moving out of quarantine zones. 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 Village of Morrill Dump is located south of Liberty Oil Road, just before the railroad tracks is the entrance on the east side of the road. The dump is open on Saturday's from 8 AM – 4PM. Only persons who pay village utilities has access to the dump. The average cost is \$10 per load, the expense will vary with the size of the load.

e. 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 (Likely must be done by a licensed professional)
 - 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 Village of Morrill golf course and park trees will not be treated. The village will not treat any trees in the Right-of-Way.
- f. Communication of ongoing efforts
- Residents of Morrill may refer to the village website at: www.villageofmorrill.com 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>