Emerald Ash Borer Preparedness Plan

for

Hyde Park Village and Town

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I. Executive Summary

The Emerald Ash Borer (EAB) is a non-native invasive insect that has killed millions of ash trees throughout the United States and Canada. To date, this insect has not been found in Vermont, however isolated populations of the insect have been found in New York, Quebec, New Hampshire and Massachusetts. At this point it is highly likely that populations of the insect already exist within Vermont, but have been yet to be identified.

Once the insect establishes a population within a region, it spreads from tree to tree causing nearly 100% mortality among the host trees. EAB specifically targets ash trees, including all three Vermont species: white ash (*Fraxinus Americana)*, green ash (*Fraxinus pensylvanica*) and black ash (*Fraxinus nigra*). In Hyde Park, most of our ash trees are white ash and can be found growing along the public Right of Ways and even planted as public shade trees or as ornamentals in residential areas.

Once established, as trees die resulting from the infestation of beetles, the community at large faces potentially serious safety issue resulting from the large number of dead and dying ash along the roadside. Removal of hundreds of hazard trees at one time is a costly financial burden for the town of Hyde Park, however this burden can be avoided with proper planning.

This Emerald Ash Borer preparedness plan incorporates the most current available information from the University of Vermont and the Vermont Department of Forests, Parks and Recreation, to identify a process for the Town and Village of Hyde Park to prepare in advance for the impact of EAB. This advance planning is designed to provide a plan to address the public safety concerns and minimize the impact to the town budget by inventorying the ash on the most traveled town roads in Hyde Park, and provides a plan to preemptively remove the most hazardous roadside ash over a period of ten years. This plan can be changed if research provides a means to effectively control EAB.

This document outlines a detailed plan for the progressive removal of roadside ash trees with two goals:

1) To proactively remove a public safety hazard in a safe way; and
2) Minimize the financial burden to the Village and Town of Hyde Park.

This strategy is very different than what is recommended for forest ash trees. In the case of forest ash trees the Vermont Department of Forests, Parks and Recreation discourages the preemptive salvage of ash in the forest. However, given that roadside ash are the most vulnerable trees to EAB (as EAB is primarily spread by people who travel along roads) and the safety is the primary focus along road corridors, this plan outlines a process for the removal of these trees along the roadsides. Outside of the road corridors, it is suggested that ash trees are maintained for ecological reasons.

The very best way to prevent EAB from entering Hyde Park is to not bring it here. As stated above, EAB is primarily spread through the movement of firewood. The larval stage of the insect is the damaging agent, and this stage remains under the bark of ash for most of the year. If firewood is moved from an infected area, there is a good chance some larvae will move with the food and an adult from the firewood will emerge in the spring, mate, lay eggs in living trees and establish a new population in our community. So the best thing to do is to not move firewood and help remind others to do the same.

II. Introduction

Purpose of Plan

By implementing the provisions in this preparedness plan, the Village and Town of Hyde Park are attempting to mitigate the likely costs to the town road budget in the future for the removal of hazard roadside trees caused by a pending infestation of EAB. Taking a proactive approach to this infestation enables the Town to address public needs in an efficient and effective manner. It will also allow the Town to incorporate the most current scientific findings related to EAB control, and also focus the efforts of the town to targeted areas likely to be most impacted through the use of the roadside ash tree inventory completed in the spring of 2014.

Waiting for the roadside ash trees to become infested would likely result in the need to remove over 600 hazard trees in a small window of time. On the contrary, removing trees before they die has numerous benefits including:

1. It is safer for the individuals felling the trees, as felling dead trees can be extremely dangerous
2. Reduces the removal costs to the town through spreading the removal across a larger period of time
3. Allows flexibility for the timing of the removal, so the town can work on it when time allows; and,
4. Allows for the potential utilization of the trees while the wood is still sound.

In particular, the plan will outline the Town's objectives and the approaches that will be used to meet the anticipated impact of EAB on our roadside trees. In addition the plan will serve as a resource to provide information about EAB to the community, and provide the community with a detailed process and justification for why roadside ash trees are being removed from the Right of Ways throughout the Town.

The plan is based on the most recent scientific studies and recommendations from key partners and multiple state and federal agencies. As this is a living document, updates to this plan will be made as new information and recommendations are released. Any community members interested in learning more about this plan, or with specific questions or comments should contact the Hyde Park Tree Warden.

Applicability

This plan applies throughout the Village and Town of Hyde Park on roads established as priority areas through review of the roadside ash tree inventory (see Section ZZ). This plan is limited to only those trees within the public Right of Way. Any interested landowners with questions about management of ash trees on private land can contact the Town Tree Warden or the Lamoille County Forester for advice at no cost.

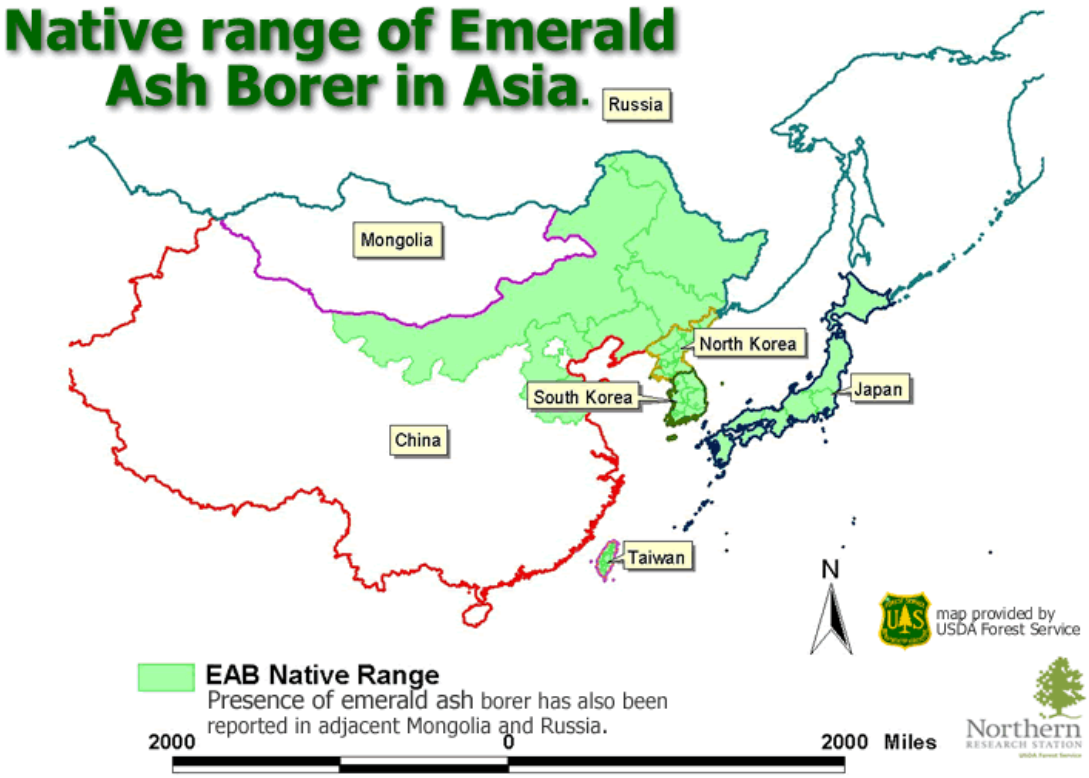
Administration

The Town road foreman through the direction of the Town Selectboard with educational and inventory assistance from the Tree Warden will be responsible for implementing this program.

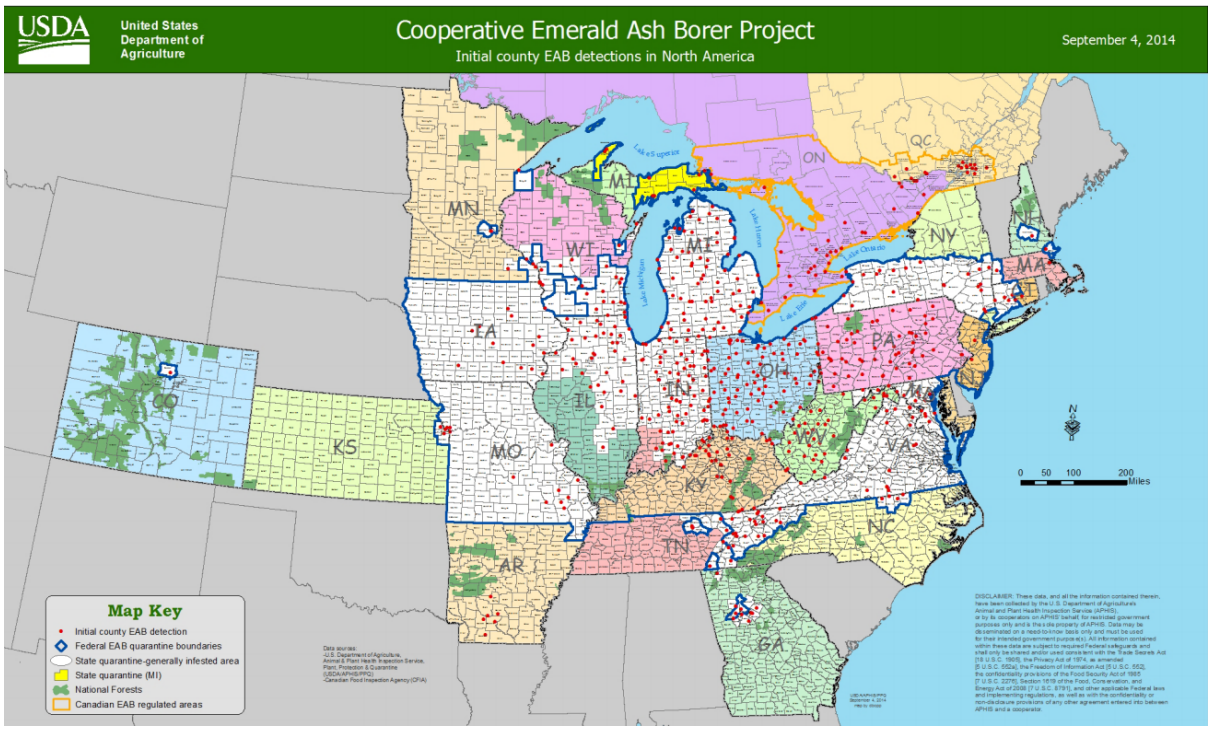
III.Emerald Ash Borer (EAB)

History

Emerald Ash Borer (*Agrilus planipennis*) is a non-native woodboring insect that feeds on North American ash trees. EAB is native to Asia, in particular northeast China, Korea, Japan, Taiwan, and a small area in adjacent Russia and Mongolia. EAB is thought to have been introduced to southeastern Michigan through solid wood packing material, such as crates and pallets, originating from Asia. The insect was found in 2002, but is believed to have arrived in the early 1990's. Experts suspect that the insect was present for 12 years before it was identified. In its native range, EAB feeds on a variety of plant species and is only considered a minor pest. This is partly due to the fact that Asian ash trees have been able to develop co-evolutionary resistant to EAB attacks and populations are also kept in check by predators and pathogens. However, this is not the case in North America where ash trees have no natural resistance and EAB has few predators. In North America, woodpeckers and a native wasp have been shown to attach EAB eggs and larvae, but with little impact on populations. In addition, research is being conducted with three species of wasps from China that show some promise of control.



In North America, EAB attacks all ash trees in the genus *Fraxinus* including: green ash (*F. pennsylvanica*), white ash (*F. americana*), black ash (*F. nigra*), and other native species in the same genus. Mountain ash (*Sorbus* spp.), not a true ash, is unaffected. EAB is known to attack both healthy and declining ash trees and can infest branches as small as one inch in diameter. Left on its own, EAB can travel ½ mile to several miles per year during its flight period. However, due to human activities EAB has spread over much greater distances than it could have moved naturally. The number one human activity that has led to the spread of EAB is the movement of firewood. In addition, the movement of nursery stock has also played a role in its movement. EAB has had a devastating effect on North American forests and has been compared to the effects of chestnut blight and Dutch elm disease. To date, EAB has killed millions of ash trees and has been found in 19 states, and Ontario, Canada. If it is not contained or its effects mitigated, it will continue to infest and kill all species of ash tree in the genus *Fraxinus*.



Source: http://www.savatree.com/eab/eab-2014.png

In addition, if left unchecked, EAB could result in the losses of millions of dollars to the lumber and nursery industries as well as urban communities. Preliminary findings by the USDA Forest Service estimate that EAB's potential impact to the national urban landscape is a potential loss of between 0.5 to 2 percent of the total leaf area (30-90 million trees) and a value loss of between $20-60 billion. In addition, if EAB is not contained or eradicated it could cause approximately $7 billion in additional costs to state and local governments and landowners to remove and replace dead and dying ash trees in urban and suburban areas over the next 25 years. (New Pest Response Guidelines, Emerald Ash Borer *Agrilus planipennis* (Fairmaire), USDA-APHIS 2008.)

Identification and Lifecycle

(Source, http://www.emeraldashborer.wi.gov/index.jsp.)

Photo: Emerald Ash Borer
Source: Wisconsin Emerald Ash Borer Information

Emerald ash borer adults are very small, metallic green beetles. They are only 3/8 -1/2 inch long and 1/16 inch wide (about the size of a cooked grain of rice). Adult emerald ash borers emerge from beneath the bark of ash trees in late May through mid-July, creating a D-shaped exit hole as they chew their way out of the tree. Adult beetles are most active during the day and prefer warm, sunny weather. They never wander far from where they exit a tree (less than one mile) in search of a mate.

Once they find a mate, the female will lay 60 – 90 eggs, one at a time, in the crevices of ash tree bark. The adult beetles will feed lightly on ash tree leaves, but do not cause much harm by doing so. The adult beetles live a total of three to six weeks. Emerald ash borer eggs are very small (1 mm), difficult to find and are rarely seen. Female adult beetles deposit them in the bark crevices and as larvae hatch from the egg, they immediately chew their way into the tree. Emerald ash borer larvae are white and slightly flattened, with a pair of brown pincher-like appendages on the last abdominal segment. Their size varies as they feed under the bark on the ash tree's tissues and grow. Full grown larvae average 1½ inches in length. They wind back and forth as they feed, creating characteristic S-shaped patterns called galleries under the bark (starting in the phloem and extending into the xylem layers). Larvae will feed under the bark for one year and often two years in healthier trees, and can survive in green wood, such as firewood, even if the tree is no longer standing.

Photo: Emerald Ash Borer Larvae
Source: Michigan State University

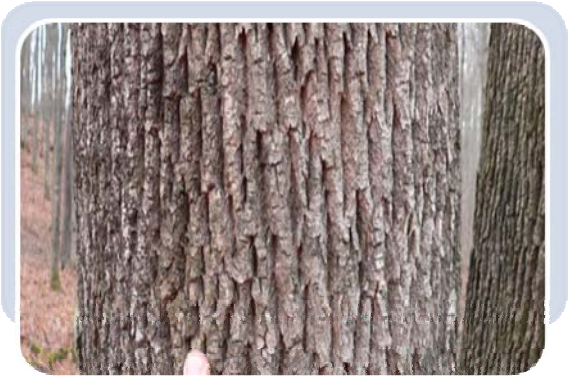
Photo: Emerald Ash Borer Galleries
Source: University of Wisconsin, Department of Entomology

In autumn, after feeding under the bark, larvae will create a chamber for themselves in the tree's sapwood. They stay in this chamber over winter and pupate in the spring, turning into adult beetles. The adults emerge from the pupal chamber and then emerge from the tree through D-shaped exit holes, completing the life cycle. The pupae, like the larvae, cannot be seen unless the bark is pulled away from the tree.

There are numerous metallic green insects common to the northeast that could easily be confused with EAB. In addition, there are several native pests other than EAB that attacks ash trees.

IV. Ash Tree Identification and Symptoms

Since EAB attacks only ash trees, monitoring for its presence means knowing how to identify ash. Ash trees are most easily identified by their compound leafs (leafs are composed of 5-11 leaflets) and opposite branching pattern where branches, buds, and leaves grow directly across from each other not staggered. The only other oppositely branched tree with compound leaves is boxelder (*Acer negundo*), which almost always has three to five leaflets. The bark on mature ash trees is tight with a distinct pattern of diamond-shaped ridges. On young trees, bark is relatively smooth.



Ash bark has ridges with a very unique diamond shaped pattern. It is easily mistaken for boxelder which grows in lowland areas and along river banks. So take a good look when driving along rivers.

Ash leaves are compound leafs (meaning one leaf is made up of 5-11 leafletsThe branches are opposite oneanother, and the twigs are stout and large relative to maples.

Ash trees leaf out later than other hardwoods, so look for smaller leaves, and trees that may not have leaves when others do in early spring

Ash twigs are fat and much thicker than maple and birch twigs. If you can see the smaller **opposite** branches in the crown, and appear to be fat twigs - chances are it's an ash.

It is important to remember that since EAB is a wood-boring insect and spends most of its life under the bark of the tree, it is difficult to detect in ash trees. It is also difficult to detect because the decline of infected ash trees is usually gradual. Looking for visible signs and symptoms is one method for detecting EAB. Symptoms of an infestation might include dead branches near the top of a tree or wild, leafy shoots growing out from its lower trunk. However, D-shaped exit holes and bark splits exposing S-shaped tunnels are significant signs of EAB. One sign that a tree has become infested by EAB is bark with a mottled appearance and/or jagged holes, both caused by woodpeckers looking for pre-pupal larvae. Another sign are the D-shaped exit holes present on the branches and the trunk left by emerging adults. For D-shaped holes to be present a tree has to be infested for at least one year. Since EAB prefers warm sunny areas of the tree the infestation

The exit holes created by the adults as they exist the tree are "D" shapped. This distinctive trait is a good identifier for EAB holes on ash trees.

usually begins in the tops of ash trees making it difficult to find D-shaped holes in the early stages of infestation.

Epicormic branches on a stressed and dying ash tree. Source: WDNR, EAB Field Guide

In addition, if a tree has EAB the bark may split vertically above larval feeding galleries. When the bark is removed from infested trees, the distinct, frass-filled larval tunnels that etch the outer sapwood and phloem are readily visible on the trunk and branches. An elliptical area of discolored sapwood, usually a result of secondary infection by fungal pathogens, sometimes surrounds larval feeding galleries. The S-shaped tunnels excavated by feeding larvae interrupt the transport of nutrients and water within the tree during the summer, causing foliage to wilt and the tree's canopy becomes increasingly thin and sparse as branches die. Many trees appear to lose about 30% to 50% of the canopy after 2 years of infestation and trees often die after 3-4 years of infestation. Often at the margin of live and dead tissue, epicormic shoots may arise on the trunk of the tree. Dense root sprouting sometimes occurs around the base of the tree.

V. Roadside Ash Tree Inventory

Why an inventory

The first and most important step in managing a community's urban forest resource and preparing for EAB is to conduct a tree inventory. A tree inventory is the process or counting, characterizing and recording information about the public and sometimes private trees that make up the urban forest. The inventory is the foundation for planning. It provides a baseline understand of what we have as a resource to work with, and also allows us to tailor management efforts to the specific conditions that exist.

Currently neither the Village nor the Town of Hyde Park has a comprehensive urban tree inventory. This is something to consider in the future, especially in the Village where more public shade trees can be found. Completing a comprehensive tree inventory will allow for a baseline understanding of the types of trees that can be found, the condition and health, and provide the critical information to develop a management plan to maintain the long-term health and vitality of this critical community resource.

Street tree inventories document and help with management of trees along roads and within the public right-of–ways. Park inventories document the publicly owned trees away from streets and right-of-ways. These trees comprise a smaller part of the entire community tree population, but may be the most important part of the urban forest to many residents. They make up the more natural areas of communities and are usually a place of refuge or recreation for residents.

If you see lots of blonde collored patches on the trunk, this is a sign of woodpecker activity which is an exllent indicator of EAB pressence. If you see this notify your County Forester.

Documentation of street and park trees is useful for identifying trees a Town is responsible for maintaining. This information can then be used to identify areas of susceptibility (i.e. high ash component), low species diversity (species and/or age), and future planting opportunities. The information can also be used to document a risk assessment program where trees prone to failure are identified and can be preemptively dealt with. Additionally, in the case of an accident, being able to produce a risk assessment and work history log indicates the community's active role in maintaining safe trees. Finally, all these items from an inventory can be used to develop a community forest management plan that provides direction for urban forestry initiatives.

Roadside Ash Tree Inventory detail

The inventory of roadside ash trees within the Village and Town of Hyde Park was designed and conducted by students from the Lamoille Union High School (LUHS), with the assistance of Chris Whitlock (LUHS Teacher) Fran Sladyk (Private Forester), Jared Nunery (Hyde Park Tree Warden), and Raymond Toolan (Lamoille County Forester). Students used road maps that included all town roads within both the Village and Town of Hyde Park to create 4 different routes to be used in the inventory.

On Arbor Day (April 28) of 2014, the students from Lamoille Union High School implemented the roadside ash inventory. Each of the 4 routes was divided into four different vehicles driven by the assisting adults mentioned above. Each route was driven, and the numbers of ash trees in identified size classes within the Town Right of Way (25 feet from the center line of the road) were tallied. Tallied trees were totaled for specific segments of each route in order to map relative density of ash trees throughout the town. The resulting data is provided in the table below shows the number of ash trees tallied in each size class (the size class is the estimated diameter of the tree at 4 ½ feet from the ground).

Table 1: Results from 2014 Hyde Park Roadside Ash Inventory

0" - 6"	6" - 12"	13" - 18"	19" - 24"	25" - 30"	31" - 36"	> 37"	Total
216	239	98	36	11	1	0	601

Inventory data was then used to generate the map in Appendix A. This map identifies priority areas where ash densities were the greatest. The Town road crew can then use this map to streamline their removal process, making the work much more efficient.

VI. Key Stakeholders and Resource List

Hyde Park Resource List

Resource	Name	Phone	Email
Town Administrator	Ron Rodjenski	888-2300 x2	ron@hydeparkvt.com
Selectboard Chair	David Gagnier	888-7808	Selectboard@hydeparkvt.com
Hyde Park Electric Representative	Carol Robertson	888-2310	carol.robertson@hydeparkvt.com
Planning Commission Chair	Greg Paus	888-5073	GAP8246@aol.com
Road Foreman	Ken Alexander	888-4625	
Town Clerk	Kim Moulton	888-2300	kim@hydeparkvt.com
EAB Preparedness Planner	Fran Sladyk	888-3491	FranS@butternutmountainfarm.com
Forest Pest First Detector	Ray Toolan	888-5733	raymond.toolan@state.vt.us
Tree Warden	Jared Nunery	595-5754	jared.nunery@state.vt.us

Regional Invasive Insect Preparedness Team (RIIPT)

The Regional Invasive Insect Preparedness Team represents a planning effort spanning much of Lamoille County and beyond. With representatives from five towns, four in Lamoille County and one in Franklin County, this team has begun the arduous task of inventorying ash trees throughout the region, as well as the beginning stages of the preparedness planning process. The purpose of a regional preparedness team is to exploit advantages afforded to these communities through collaborative planning efforts and potential cost-sharing opportunities.

Below is a list of the RIIPT members:

Town	Name	Affiliation
Johnson	Sue Lovering	Johnson Conservation Commission
Johnson	Shelby Perry	
Johnson	Lois Frey	Johnson Conservation Commission
Johnson	Nat Kinney	Johnson Selectboard

Hyde Park	Fran Sladyk	Private Forester
Hyde Park	Jared Nunery	Hyde Park Tree Warden
Morristown	Ron Stancliff	Morristown Conservation Commission
Cambridge	Deborah Pomeroy	Cambridge Conservation Commission
Cambridge	Sarah Lourie	Cambridge Conservation Commission
Cambridge	Justin March	Cambridge Conservation Commission
Johnson	Sarah Packer	Vermont Electric Coop
Fletcher	Jeremy Tinker	Vermont Electric Coop
	Taylar Foster	Lamoille County Regional Planning Commission
Johnson	Meghan Rhodier	Lamoille County Regional Planning Commission
Johnson	Phil Wilson	Vermont Cartography

VII. Tree Management Considerations

Monitoring and Detection

One of the first lines of defenses against EAB is to monitor its presence. It has been estimated in many instances where EAB was found, that EAB was usually present in the community for a number of years before it was detected. If a new EAB infestation can be detected while it is still limited in scale, it may be more controllable. In addition, identifying infestations early will give the Town more time to implement management strategies before ash trees in the community are in a late stage of decline and become hazardous, ultimately saving money.

Example of an EAB trap used to monitor presence of EAB..

To date, the State of Vermont is and has been conducting survey and detection efforts across the state in hopes to detect EAB early. Probably the most well know effort is the use of the purple traps, which was used for the first time in 2007. The traps are made of a purple corrugated plastic board that is coated with non-toxic glue. Research shows that EAB is visually attracted to purple

and to increase the attractiveness of the trap to the beetles, it is baited with a lure (Manuka oil). The traps are 24" in length, triangular in shape, and open in the center. Traps are placed in the tree canopy prior to the start of adult EAB emergence and are left hanging through the end of seasonal beetle flight. Residents are encouraged to report any tree suspected of having EAB. Cases can be reported by notifying Vermont Department of Forest, Parks and Recreation or by contacting the Tree Warden.

Removals

To date, communities in North America have not successfully eradicated EAB once detected. Symptoms of EAB are slow to appear, making initial infestations hard to detect. Once EAB is found it is usually estimated that it has been present for 3-5 years. As the population builds, EAB eventually infests and kills all varieties of ash trees in the area. Once ash trees are infested with EAB, they typically decline and die over a period of 2-3 years. The burden of dealing with hundreds of dead and dying trees in a short period of time can place an enormous strain on a Town's budget, personnel, and resources. Management options vary and there is no one all-inclusive method. Management options are typically divided into two categories: preventative (preemptive) or reactive management efforts. Preventative efforts entail education, and preemptive removals. By preemptively treating or removing ash trees before the arrival of EAB in the community, the strains placed on a community can be minimized and provide flexibility in tree budgets. In addition, it can potentially diminish the movement of EAB across the landscape by making it difficult for dispersing beetles to find host trees. Where reactive management, delays actions taken until EAB has arrived. It usually entails removing a tree once it is dead or infested with EAB. With both management options, removal costs are significant. The advantages and disadvantages of conducting preemptive vs. reactive tree removals include the following:

Preemptive Removals: Removing ash trees not infested with EAB

Pros:	**Cons:**
Opportunity to spread removal costs over longer time frame. • Reduces problem of dealing with many dead and/or hazardous ash trees at one time. • Opportunity to start the replanting/recovery process right away. • Greater flexibility in organizing removal and routine work schedules. • Ability to utilize ash wood for products or use it as a local source of firewood.	• Immediate impacts to tree canopy and aesthetics. • Removing healthy ash may create negative feeling in the community. • Does not take into account that research may find an effective control of EAB.

Reactive Removals: Removing ash trees which are either infested with EAB or dead

Pros:	*Cons:*
• Delayed impacts to tree canopy and aesthetics. • No negative public perception of removing healthy trees. • Delayed budgetary impacts until EAB hits. • Further EAB research may offer effective control, minimizing need for removals.	• If no action is taken to control EAB infestations, studies have shown that the rate of spread will be much faster. • Budget impacts can be severe once EAB is in community. • Replanting funds may not be available due to extreme removal costs.

The following elements of the Town's EAB Readiness Plan are suggested and are subject to Periodic revision as new information about EAB is available and as EAB moves across the state. The plan is also subject to change should state and federal policies dictate or as budgets are altered. In order to prevent or slow the spread of EAB, the Town will prioritize the treatment and removal of public ash trees by using data from the tree inventory.

For the Village and Town of Hyde Park, a preemptive management strategy is recommended. It is suggested that this strategy is clearly communicated to the community members through sharing this plan, as well as through multiple presentations to the Town at public meetings such as the Selectboard meetings and/or Town Meeting Day.

Removal Plan

The first step in the removal plan is to develop a town ordinance (Appendix 1) to allow for the removal of ash trees without having a public hearing prior to each removal. Under state statutes the town tree warden may designate trees for removal if posing a hazard. The ash trees have the potential to be infected by EAB but currently are not infected. If the Town waits for the insect to be detected, the cost of removal of hazard trees may become unmanageable. The town Ash Tree Ordinance will allow the ash concentration be lowered slowly over time to minimize the impact to the town for the cost of removing hazardous trees. The ordinance includes the requirement to hold an annual hearing for the removal of ash trees. If conditions change, the ordinance need not be implemented or it can be withdrawn or changed. **This ordinance is necessary to be able to complete the recommended preemptive removal strategy.**

To reduce the impact to the town road budget, a plan to reduce the concentration of ash within the town right of way is designed over a ten year period, removing approximately 10% of the potentially hazardous ash trees (trees >12 inches in diameter) from the 2014 ash inventory each year, or approximately 15 trees per year. Trees smaller than 12 inches in diameter are assumed to be a lower risk and as such will not be targeted for removal at this time. The ten year time frame takes into consideration the possibility that research may find an effective control for the Emerald Ash Borer, and the negative impact that tree removal will have on the overall tree canopy as well as public sentiment. This plan also provides the ability to use the ash wood for local products before a possible quarantine limits movement of the wood.

It is recommended that the roads with the highest concentration of ash as well as the larger trees be targeted first (see Appendix B), but the decision of which roads to prioritize and which trees to be removed is left to the Town Road Commissioner based on planned work load each year. The road crew will be supplied with the inventory maps and as road segments are completed they crossed out on the map. At a designated time each year the road commissioner will communicate with the Tree Warden to identify which trees were removed so the maps can be updated annually.

During the presentation of the initial plan for to the Selectboard at the February 2015 meeting, it was decided that the appropriate cost per tree for removal would be $60/tree. This value was estimated based on the personnel and equipment costs required for each tree removal (if all trees are to be chipped costs will likely be increased). Based on the need to remove approximately 15 trees per year, it

is suggested that the Town include $900 in the annual budget for hazard tree removal as part of the EAB Preparedness Plan.

VI. Community Education and Outreach Strategy

To date education and outreach strategies have been twofold:

1) Collaboration with the Regional Invasives Insect Preparedness Team, and
2) Collaboration with Lamoille Union High School and Lamoille Union Middle School.

LUMS Teacher conducting lesson on EAB

Education is the single strongest tool available when preparing for EAB. Continued work with Lamoille Union is vital to informing our community on the impacts of invasive pests including EAB, Asian Long Horned Beetle (another beetle that impacts most hardwood species including sugar maple) and Hemlock Wooly Adelgid (a pest that kills hemlock trees and has already been identified in southern Vermont). The photo to the right shows 7th/8th grade LUMS Teacher, Ashley Nunery during one of her lessons on EAB with LUMS students.

Beyond collaboration with the schools the Tree Warden will work with the Vermont Department of Forests, Parks and Recreation to obtain supplemental information on EAB and other invasive pests that can be shared with the community at the Town Offices and the Lanpher Library.

Finally a copy of this plan will be presented to the Selectboard, road commissioner, and the planning commission. Additional copies will be placed at the Lanpher Library, Lamoille Union High School, and the Town Office.

VIII. Disposal and Utilization

Disposal of roadside ash trees

Currently the trees to be removed preemptively are free of EAB. Road crews are encouraged to use removed trees whenever possible. It is not expected that many roadside trees will produce viable saw logs, however ash is excellent firewood. If possible it is suggested that the road crews communicate with local community groups to identify either community members in need of firewood, or provide removed trees to community groups to then raffle off as fundraisers (for example the VFW auctions off cordwood as a fundraiser). The Town Tree Warden can facilitate these efforts.

If it is not practice to use an individual roadside trees can be disposed of onsite by either chipping or felling trees and bucking up logs and lopping tops and branches so that they are less than 2 feet in height. Care should be made to avoid filling ditches so as not cause drainage issues.

EAB Regulations for Quarantined Areas

In order to prevent further spread of EAB through artificial (human assisted) means, the following materials are regulated in quarantined areas:

- Ash trees, limbs, branches, and roots
- Ash logs, slabs, or untreated ash lumber with bark attached
- Cut firewood of all non-coniferous species
- Ash chips and ash bark fragments larger than one inch in two dimensions
- Mixed wood residue that may contain ash
- Any wood items which could harbor living EAB eggs, larvae, or adults and thus transmit an infestation.

For practical purposes, the minimum level of quarantine will be at the county level. However, additional surrounding counties may be quarantined because of the possibility of natural EAB spread, and in order to allow for the processing of regulated articles. **At the time this plan was written, Vermont is not under quarantine related to EAB, however this will likely change if EAB is identified within the state.** USDA APHIS will primarily regulate interstate movement of regulated materials. While movement of regulated material anywhere within a quarantine area is legal, caution should be placed on the movement of material across large expanses of the quarantine to limit any further spread of EAB. Quarantines will primarily affect nurseries, firewood dealers and users, and mills. Compliance agreements are the most common tool used to allow industries to conduct business and move affected material while protecting areas of the state not yet affected by EAB. Compliance agreements allow for the movement of regulated material from quarantined areas to non-quarantined areas from October 1 to March 31 and require all material to be processed according to legal specifications by April 30. Under this treatment schedule, all life stages would be destroyed prior to adult emergence. The dates are determined based on the life cycle of EAB. EAB is in its larval stage under the bark of the trees from approximately October 1 to May 1, thus when transporting material during this time spread is minimized. However, due to EAB typically emerging from the trees in its adult “flight” stage between May 1 and September 30, no untreated material can be moved outside quarantine areas during this summer period. Listed below is a summary of EAB regulations by industry

Nurseries

Ash nursery stock is prohibited from being distributed outside of the EAB quarantine area.

Mills & Loggers

Ash logs cannot be moved out of the quarantine area during the adult flight period (roughly April 1 through September 30) unless fumigated or debarked. From October 1 through March 31, untreated ash logs may be allowed to be moved to an approved mill outside of the quarantine area for processing by April 30. Bark and wood waste must be processed by April 30. These processes must be approved by state or federal agriculture agencies.

Firewood Producers & Users

All hardwood firewood is prohibited from distribution outside the EAB quarantine area unless it has been heat treated, fumigated or debarked (plus removal of ½ inch of wood). These processes must be approved by state or federal agriculture agencies. Firewood not for commercial sale (homeowner use) may be moved within the quarantine area but users should avoid moving firewood any distance from the area the wood originated from to reduce further spread of EAB.

Green Lumber Manufacturers

Ash lumber will need to be processed in an approved manner, such as complete removal of bark (plus ½ inch of wood), kiln drying by approved standards, or fumigation prior to distribution out of the quarantine area. All processes will need approval by state or federal agencies. Contact officials for further information.

Pallet Producers

Ash lumber (generated from ash from the quarantine area) used to make pallets will need to be processed in a manner approved by state or federal agencies. Contact officials for further information.

Wood Waste

Wood waste from pruning, storm damage, or removals should not be moved from the point of action in order to reduce the spread of EAB. Locations for wood waste drop-off may be established in the near future. Contact officials for more information.

Disposal Site

One aspect of reducing the spread of forest pests is properly disposing of or utilizing the wood, brush and stump grindings generated by the removal of infested trees. The disposal method and government regulations that apply to the movement, storage and disposal of woody material vary by pest.

Collaborating with adjacent towns on wood disposal areas, chipping equipment, tree care crews, and utilization of ash materials – e.g., chip marketing, will save staff time and resources. Consider how to best utilize the wood to minimize environmental impact, offset disposal costs, or even create a value-added product. RIIPT representatives from Hyde Park have been in communications with members of adjacent towns to identify regional disposal facilities. At the time of writing this plan a regional disposal site has not been identified.

The purpose of a debris disposal yard is to help prevent wood which could potentially house forest pests, such as the emerald ash borer (EAB) or hemlock woolly adelgid (HWA), from being transported out of a quarantined area. They can be used as staging sites for wood processing, such as chipping, grinding, and debarking, and related marketing activities. The yards also serve as temporary or emergency storage sites when trees are removed. They allow municipalities, tree service companies, utilities and individuals to drop off cut material for processing and disposal in a manner to prevent artificial spread of EAB and HWA. In Hyde Park most debris will be utilized as firewood locally (IT SHOULD NOT BE MOVED OUTSIDE OF THE COUNTY LIMITS), additional fine woody material that cannot be utilized as firewood could be left on site. Residents interested in removing material from their land

can bring woody material to the solid waste station in Johnson. However, it should be noted that this is not a viable option if the amount of material is expected to be very high, in which case Hyde Park should identify a location for disposal. The Selectboard is encouraged to consider potential sites within Hyde Park that can be used as a disposal site.

IX. Definitions

ALB—the Asian longhorned beetle insect, as an adult it measures approximately 1-1.5" long, black & white banded antennae longer than the insect's body, black patent leather body with white spots. Host species include maples and other hardwoods.

compliance agreement— means a written agreement between the State of Vermont and any person engaged in growing, handling or moving regulated articles, plant pests, plants, parts of plants, or regulated plant products, where the person agrees to comply with stipulated requirements.

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

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

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

Readiness team – a group of people responsible for all aspects of preparing for forest pests within a particular jurisdiction/municipality; team members have specific roles and tasks.

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

eradication – total elimination of host trees within a specified geography area where specific pest has been verified. This was the initial and only thought process when EAB first became established in the U.S. With the research and lessons learned from the Midwest, other management controls are now being considered.

host – means any plant pest, plant, plant product or other organism upon which a pest or beneficial organism is dependent for completion of any portion of its life cycle.

HWA – hemlock woolly adelgid insect, 1/16" to 1/4" white woolly masses, cotton ball-like texture attached to undersides of twigs at the base of the needles

infestation – refers to an area where the trees have been positively identified as having an established population of a forest pest.

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

preemptive removal - in the case of EAB it refers to removing trees prior to them becoming infested with EAB. At this time (December, 2014) it has not been recommended by either the VT Agency of Agriculture or VT Department of Forests Parks and Recreation to perform this practice, however it is up to each municipality dependent on their fiscal and personnel resources along with the amount of ash trees within their community and the distance from known EAB infestations. It does seem reasonable that if a community has ash trees that are declining or are in conflict with buildings or utilities, that instead of performing a remedial pruning, removal may be a strong option.

Quarantine – means a legal declaration by the Vermont Secretary of Agriculture to prevent the spread of highly injurious plant pests which specifies the plant pest, plants, parts of plants, plant products or the regulated articles, conditions governing movement, the area or areas quarantined, and any exemptions.

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

regulated article – means an article of any character, i.e. logs, firewood, or other plant material, carrying or capable of carrying a plant pest.

Appendix A: Hyde Park Roadside Ash Tree Removal Ordinance

I. Title

The Village and Town of Hyde Park Tree Ordinance

II. Intent and Purpose

The purpose of this tree ordinance is to establish a procedure for addressing the threat of invasive Plant Pests, specifically the emerald ash borer (EAB), and to guide management decisions regarding public trees within the Village and Town of Hyde Park.

III. Definitions

• *Diameter at Breast Height (DBH)*: The diameter of a tree trunk measured at a height of four (4) feet six (6) inches from the finished grade at the base of the tree.

• *Hazard Tree:* Any tree, public or private, with visibly defined structural defects likely to cause failure of all or part of the tree, and be a danger to public safety.

• *Plant Pest*: Any living stage of: insects, mites, nematodes, slugs, snails, protozoa, or any other invertebrate animals; bacteria, fungi, mycoplasma or other parasitic plants, weeds or reproductive parts thereof; viruses of any organisms similar to or allied with any of the foregoing; and any genetically modified organisms or biological control agents that may directly or indirectly injure or cause disease or damage to any beneficial organisms, plants, parts of plants, or plant products.

• *Private Tree*: Any tree whose pith at ground level is in a location not owned or controlled by the Town along a public right-of-way.

• *Public Notice*: A notice submitted to The Transcript, the newspaper that serves Hyde Park.

• *Public Right-of-Way*: Standard right-of-way is three (3) rods or 49.5 feet; the right-of-way is measured as ~25 feet on either side of the center line of the road.

• *Public Tree*: Any tree that is six (6) inches in diameter at breast height and whose pith at ground level is within the Public Right-of-Way or Town-owned land.

• *Residential Road*: A Class 1, Class 2, or Class 3 road within the borders of the Town.

IV. Jurisdiction/Authority

The Select Board shall appoint a Tree Warden, under 24 V.S.A. § 871. The Tree Warden may appoint a Deputy Tree Warden under 24 V.S.A. § 2505. Through its Tree Warden, the Town shall have control of all Public Trees and shall have the authority to plant, maintain, protect, and remove such vegetation subject to state laws.

V. Administrative Responsibilities/Administration

The Hyde Park Selectboard shall be the advisory organization that works with the Tree Warden to promote the improvement and preservation of a healthy environment of the town as it relates to Public Trees.

VI. Provisions for the Management of Public Trees

The Town shall have the right to plant, prune, maintain, and remove Public Trees within the Town Right-of-Way and on Town-owned land, as may be necessary to insure public safety as specified in state statute.

Prior to the initiation of major work to be performed along Residential Roads to reduce the ash component in preparation for the arrival of the emerald ash borer (EAB), the public shall be notified via Selectboard meeting at least two weeks prior to the start of each work season.

VII. Control of Hazard Trees and Public Trees Infested with a Plant Pest along Residential Roads

(a) The Town Tree Warden may remove or cause to be removed any Public Tree or part thereof which is infested with or infected by a recognized Plant Pest or when it constitutes a hazard to public safety. Pursuant to 24 VSA §2509, no public hearing shall be required when a public Shade Tree is infested, infected or when it is a hazard to public safety. Such tree shall be considered a Hazardous Tree.

(b) In the event that a Plant Pest poses an imminent threat to the Public Trees within the Town, the Tree Warden will lead an assessment and planning process in conjunction with the Town staff to develop a Hyde Park Preparedness Plan.

(c) The Tree Warden with assistance from the Town staff, will be responsible for administering any actions set forth in the Hyde Park Preparedness Plan.

(d) A Public Hearing will be held prior to any action along Residential Roads as determined through the assessment and planning process in the Hyde Park Preparedness Plan.

OR

(a) The Town Tree Warden may remove or cause to be removed any Public Tree or part thereof which is infested with or infected by a recognized Plant Pest or when it constitutes a hazard to public safety. Pursuant to 24 VSA §2509, no public hearing shall be required when a public Shade Tree is infested, infected or when it is a hazard to public safety. Such tree shall be considered a Hazardous Tree.

(b) In response to the threat of the invasive Plant Pest the emerald ash borer (EAB) the Town Tree Warden in conjunction with Town staff, will implement all actions set forth in the Hyde Park Emerald Ash Borer (EAB) Preparedness Plan, including:

I. The preemptive removal of Public Trees of the ash (*Fraxinus*) species necessary for safety reasons and to reduce costs to the Town when emerald ash borer (EAB) arrives in Hyde Park, which will cause ash mortality.

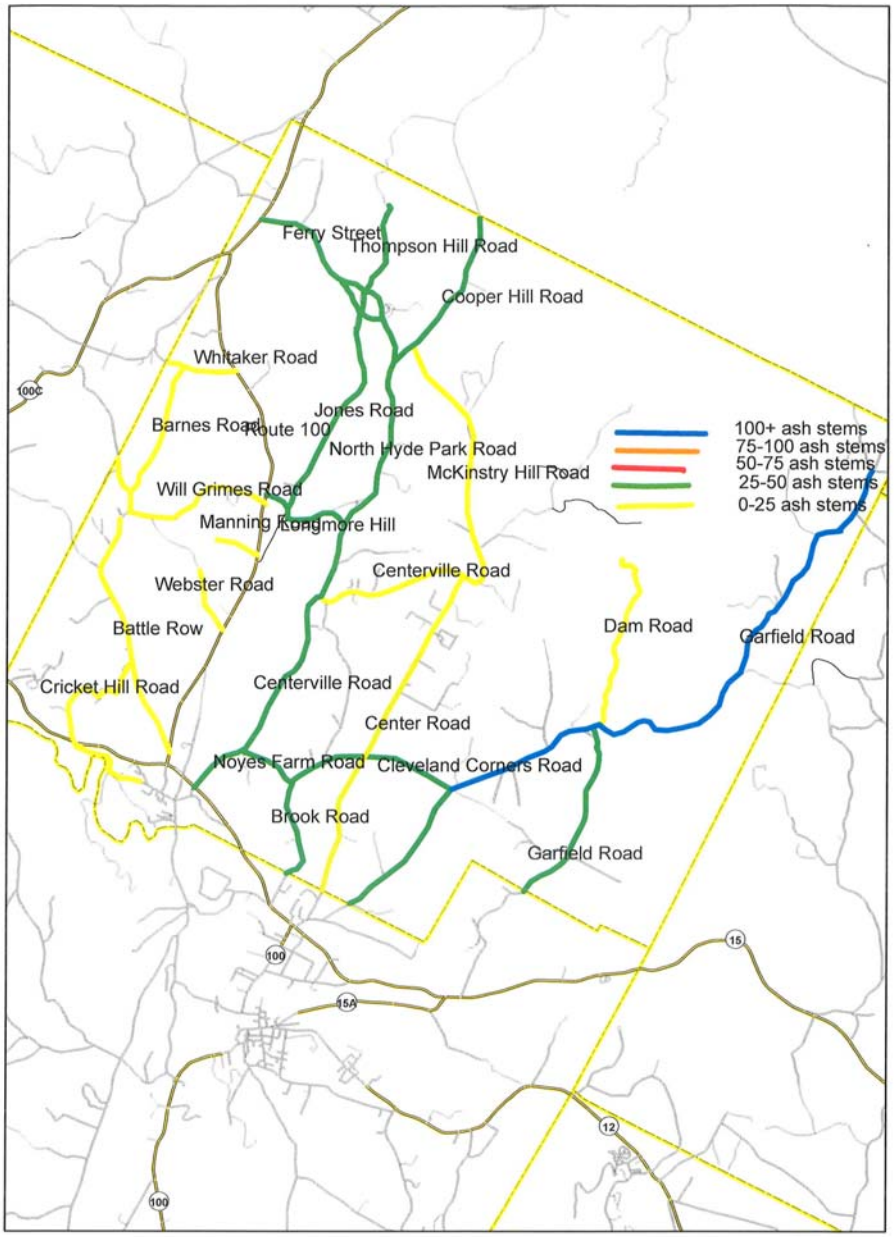
II. The reduction of the ash component along Residential Roads within the Public Right-of-Way and on Town-owned land over a ten (10)-year period, starting in 2015, at approximately 15 (15) Public Trees of the ash (*Fraxinus*) species per year.

III. The road locations of the fifteen (15) Public Trees of the ash (*Fraxinus*) species to be removed each year starting in 2015 will be determined by the Town Road Crew annually prior to any work done.

IV. At the beginning of the ten (10)-year ash reduction period detailed in the Hyde Park Emerald Ash Borer (EAB) Preparedness Plan, one public hearing will be held.

V. Each subsequent year within the ten (10)-year ash reduction period a Public Notice will be posted two weeks prior to any removals of Public Trees of the ash (*Fraxinus*) species.

Adopted this ___ day of DATE

Signatures

Appendix B: Prioritization map for roadside ash tree removal work