



Emerald Ash Borer Preparedness and Management Plan

Town of Charlotte, Vermont

Charlotte EAB Preparedness Planning Group

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EXECUTIVE SUMMARY

The purpose of this this plan is to proactively address the threats posed by the emerald ash borer (EAB) to the Town of Charlotte. The plan was developed by the town tree warden and the Emerald Ash Borer Preparedness Plan Group with assistance from the Vermont Urban and Community Forestry Program.

The plan has four main components:

- Detection: identification of initial infestations
- Prevention: slowing the spread and delaying infestation
- Treatment: preservation of specimen trees by chemical treatment
- Removal: preemptive removal of potential hazard trees

The foremost objective of the plan is to responsibly address safety hazards to public property and roads that will be created by the rapid death of a large number of ash trees. The most challenging and most important element of the plan is the preemptive removal of potential hazard trees. The plan aims to accomplish this at least cost to the town's tax payers.

ADMINISTRATION

The town tree warden with the support of the Emerald Ash Borer Preparedness Plan Group have oversight of the plan implementation. The EAB Preparedness Plan group members, in addition to the tree warden, includes the road commissioner, the chair of the conservation commission, a member of the select board, and others chosen for their expertise specific areas such as arboriculture, forestry and public outreach. The tree warden and the EAB Preparedness Plan Group will have responsibility for developing requests for proposals for tree removals and chemical treatment. This group will also review submitted proposals and select contractors to do the work.

The budget for tree removals will be a supplement to the town road commissioner's budget and the road commissioner will oversee tree removals work done by contractors. The EAB Preparedness Plan Group and additional volunteers, with support from the town manager, will be responsible for public outreach. The select board has the ultimate authority to approve budgets related to the program and to approve or modify components of the plan. The active cooperation and collaboration of Charlotte residents will be a key element of the plan's success.

BACKGROUND ELEMENTS

Threat Overview

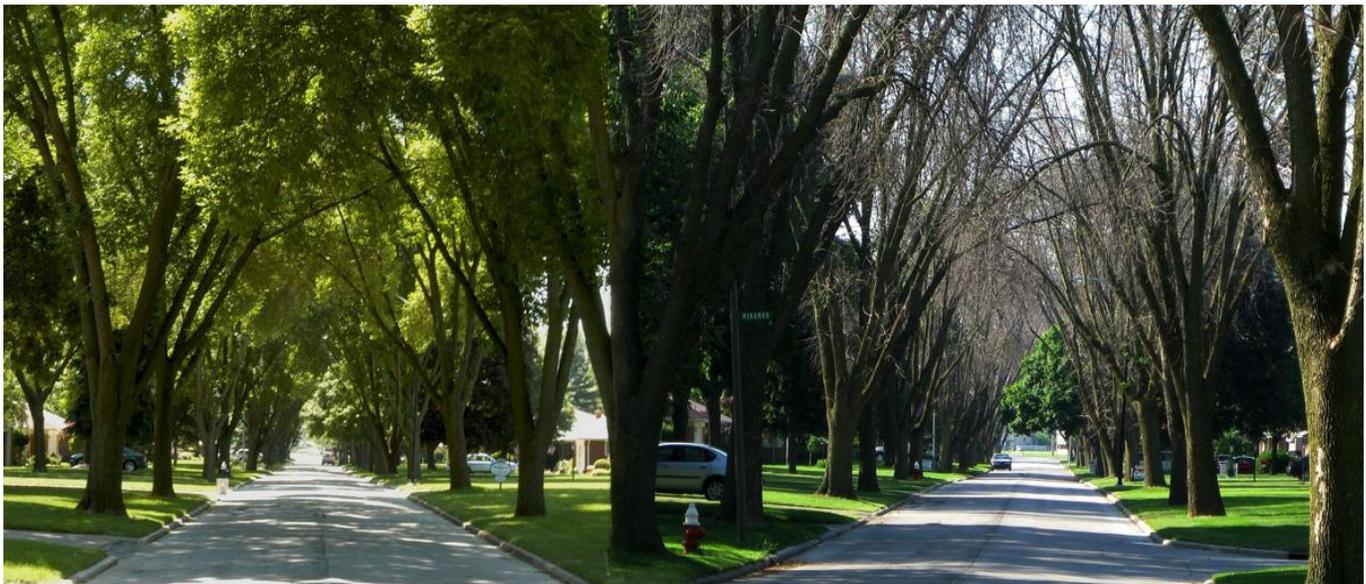
Agrilus planipennis, commonly known as the emerald ash borer or EAB, is an exotic beetle that was discovered in southeastern Michigan in 2002 and feeds exclusively on trees in the genus *Fraxinus*. Native to Asia and eastern Russia, this tiny green beetle has killed hundreds of millions of ash trees in 35 states and five provinces, causing devastation rivaling that of Dutch elm disease and chestnut blight. This insect will inevitably kill almost all ash trees left untreated by insecticides and will pose significant safety hazards. In February of 2018 EAB was first detected in the town of Orange, VT.

It has since been detected in other locations within five EAB Designated Infested Areas. EAB has not yet been detected in Charlotte, but it is only a matter of time before that occurs. Charlotte has an estimated nearly 800 ash trees with diameters greater than six inches within or adjacent to the right-of-way (ROW). When these trees die they will pose a threat to public roads. In addition, there are ash trees in public areas such as the town green, beach, the Charlotte Park and Wildlife Refuge, and Senior Center that need to be addressed either by removal or by chemical treatment.

Emerald Ash Borer Ecology and Spread

The emerald ash borer is a half inch long, bullet-shaped, metallic green beetle that feeds only on ash trees (in the genus *Fraxinus*). Adult beetles lay their eggs in the folds beneath ash bark, where the larvae tunnel through the bark into the cambium and feed on the phloem, which is the vascular tissue responsible for transporting sugar and nutrients throughout the plant. As larvae feed on this vascular tissue, the ash becomes less able to transport nutrients to the top of the tree, killing the tree from the top down in a span of two to five years, depending on the size and health of the tree. Mature larvae emerge in the spring from D-shaped exit holes where the adult beetles feed on foliage in the upper part of the tree.

Tethered flight in laboratory conditions suggests that a mated female may fly more than 20 kilometers (Taylor et al. 2006). Human assisted dispersal of EAB can be much greater and is the primary reason for establishment of satellite populations (USDA). The spread of this population has been facilitated through human transport of firewood and nursery stock. Quarantines extend to dead, cut and living materials, including stumps, logs, roots, branches, and both composted and uncomposted ash chips.



Toledo Street Before and After the Emerald Ash Borer Infestation

Photograph by Daniel A. Herms, The Ohio State University

Firewood quarantines are in effect in most eastern states to try and prevent further spread of EAB. Another factor in facilitating the spread of the EAB has been the lack of natural ash tree resistance and natural predators. Ash trees in Asia have co-evolved natural defenses to deter EAB, and parasitoid wasps kept EAB populations in check.

The USDA Animal and Plant Health Inspection Service (APHIS) is currently rearing and researching the effectiveness of three species of exotic parasitic stingless wasps, *Spathius agrili*, *Tetrastichus planipennis* and *Oobius agri*, as a means of controlling active emerald ash borer infestations. Colonies of these wasps have been established in other areas of the United States infested with EAB, and research and trials are being actively conducted by USDA APHIS. While creating some hope for the long-term future of the genus, the establishment of predator wasp populations will not prevent loss of most ash trees.

Detection: Identifying Ash and Signs of Infestation

Ash trees are most easily identified by their compound leaves (composed of 5 to 11 leaflets) and opposite branching pattern, where twigs and buds grow directly across from each other as opposed to staggered or alternate branching. The bark on mature ash trees is tight with a distinct pattern of diamond-shaped ridges, while the bark on young trees is relatively smooth. The only other tree species with an opposite branching pattern and compound leaves in this area is the boxelder (*Acer negundo*), which almost always has three to five leaflets.



Ash Leaves

Ash Tree Bark

Ash Seeds

Signs of EAB infestation are difficult to detect in the early stages and at low densities, but evidence of increased woodpecker foraging may be an early sign of infestation. Often the first noticeable signs are canopy dieback in the upper 30 percent of the canopy, bark cracking, and epicormic shoots (new growth sprouting at the base of the tree), but these symptoms only become apparent when the beetle has reached moderate to high densities. Serpentine under-bark galleries and D-shaped exit holes are also tell-tale signs of EAB infestation, though other native borers can leave similar tunneling or exit hole patterns.



D-shaped Exit Hole

Crown Dieback

Epicormic Shoots

Serpentine Galleries

Woodpecker Foraging

Affected trees will gradually lose foliage from the top down until they eventually are unable to produce leaves. This is a rapid process and trees that seem to be in decent health going into the winter may be observed not producing any leaves the next spring. Routine tree trunk insecticide injections can increase the longevity of high-value trees for a number of years, but they cannot reverse damage already done.

EAB Traps will be placed in strategic locations in different sections of town to aid in early detection of EAB infestations and to help raise awareness of the EAB threat.

PREVENTION

An important overall objective for the town is to prevent the onset of EAB for as long as possible. This will give the town time to prepare for the inevitable infestation gradually, by removing doomed trees over a longer period of time. Postponing the infestation will also help landowners prepare by planning and budgeting for what in many cases will be a considerable expense of removing trees. The main tactic for prevention is to avoid the importation of infested woody material into Charlotte.

The following prohibitions apply:

- Bringing untreated firewood into Charlotte from outside the state or from Vermont's EAB Designated Infested Areas is strictly prohibited.
- Landowners are asked to purchase firewood from local suppliers.
- The exception to these policies is kiln dried wood which can be moved freely but must be labeled or otherwise documented as being kiln dried.
- Observation of state and federal quarantine rules and guideline is mandated.

INVENTORY

During March of 2018, the tree warden and members of the *Tree Tribe*—with assistance from the Vermont Urban and Community Forestry Program—conducted an inventory of roadside ash trees using Rapid Roadside Assessment methodology.

Fourteen sample plots of half-mile lengths were chosen covering 10 percent of the town's roads. Half of the plots were located on Class 2 roads and half on Class 3 roads. Private roads and Route 7 were excluded. The locations of the sample plots were chosen using a random number generator and a grid system superimposed over a map of Charlotte.

The team drove through the sample plots counting trees and estimating their diameter classes (DBH = diameter at breast height). Occasionally the team members left the vehicle to validate or correct their diameter estimates or to measure the boundary of the right-of-way. In addition to the assigning trees to diameter classes, the team noted whether the trees were within the right-of-way, just outside of the right of way on private property, or within the utility right of way. Saplings and trees less than 6" in diameter were excluded.

The findings from the inventory are shown on the next page.

Size Class	Town	Private	Utility	Totals
6-12	114	53	33	200
12-18	26	18	8	52
18-24	7	1		8
24-30	2		1	3
36-42				0
>42				0
Totals >6	149	72	42	263

There was a total of 263 ash trees greater than 6" DBH in the study area. This converts into the following per mile estimates:

	Total	Estimated Needing Removal (x33%)
Total # > 6" within Town ROW =	1,575	520
Total # > 6" Town ROW + Private =	2,336	771
Total # > 6" Total =	2,780	917

The inventory data indicates that there are on average 38 ash trees greater than 6" per mile on town roads. Of these 21 per mile on average are within the town right-of-way and 32 on average are both either within the right-of-way, or just outside the right of way on private property.

X =	21	> 6"/ mile (within Town RoW)
X =	32	> 6"/ mile (Town RoW + Private)
X =	38	> 6"/ mile (Total including Utility RoW)

Charlotte has 74 miles of roads. Using the numbers from the table above, estimates can be made of the total number of roadside ash trees in Charlotte. There are an estimated 2,780 roadside ash trees in the town. Excluding the trees that are within the utility company right-of-way, there are an estimated 2,336 roadside ash trees that fall within the responsibility of the municipality. Not all of these trees will threaten roads when they die. Some lean away from the road or are otherwise in a location where they will not pose a hazard. As an approximate measure and based on the perceptions of the inventory team, it is estimated that a third of the roadside ash trees pose a potential hazard to Charlotte's roads and will eventually need to be removed.

Using the 33 percent figure, the initial estimate is that the town will need to remove 771 ash trees greater than 6" in diameter. The utility company, it is assumed, will remove an additional 146 trees (917-771=146). The EAB Preparedness Plan Group recommends that the town proactively remove 771 trees on a five-year schedule. This translates to 154 trees per year.

AUTHORITY

Trees in the town right-of-ways and town-owned public lands—including the Charlotte Park and Wildlife Area and the town beach recreational area—are covered by this plan. Trees on private lands are the responsibility of landowners. One exception are the trees on leased properties at Thompson’s Point which are the responsibility of leaseholders. Trees within the state right-of-way along Route 7 are the responsibility of the State of Vermont. In addition, trees within the utility right-of-way will be the responsibility of Green Mountain Power and VELCO. Trees within the two conservation areas owned and managed by The Nature Conservancy (TNC), Williams Woods and Raven Ridge, are the responsibility of TNC.

Work within the town right-of-way is governed by the relevant town ordinances and state regulations. The authority and responsibilities of the tree warden are defined under 19 V.S.A. §904, 24 V.S.A. §2291 (3), and 24 V.S.A §2502-2511. State and federal quarantine regulations and guidelines regarding movement if EAB infested material apply as well.

MANAGEMENT STRATEGY

Ash Tree Removal

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 three to five 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 two to three years, at which point they often become unacceptable hazards to property, infrastructure and to the public. 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.

The two main types of management strategies are proactive and reactive removal of ash trees. Proactive removal involves cutting down ash trees prior to the discovery of infestation. This allows for greater flexibility in the tree budget and can potentially diminish the movement of EAB across the landscape as it limits host trees. Reactive removal typically involves cutting down trees after 50 percent of the canopy has died and they pose a public safety risk. One issue with reactive removal is that it condenses almost all removals into a two to three-year period. If not properly planned for, the burden of dealing with all trees in such a short period of time can leave the town

without the proper finances or manpower to remove them, leaving the streets lined with hundreds of potentially dangerous trees.

Another issue with reactive removals has to do with the nature of ash wood and its cellular structure. When ash trees die they tend to crumble and fall apart very quickly. Ash trees are different in this respect from other dead trees such as elms which persist for a long time dropping their limbs over a period of several years. Arborists refer to this characteristic as *ash snaps*. It can pose challenges and hazards for chainsaw operators, and therefore tends to be more expensive to remove ash trees when dead rather than when they are still alive.

One factor favoring a proactive rather than reactive approach is that when EAB mortality is at its peak, the demand for tree removals will also be great and therefore cost of removals will likely be higher due to supply and demand factors.

There is not a *do-nothing* option because the town will need to address the problem of EAB-caused ash tree mortality in any event. If the town were to wait until ash trees are dead before removing them, then road commissioner crews will be called upon to address a large number of one-off emergency calls at any hour to remove trees blocking roadways. Addressing the problem in this manner would be another factor increasing the cost of a do-nothing or reactive approach.

The cost savings resulting from preemptive cutting are not calculated here, but they are substantial enough for the authors of the plan to be confident that this is cost effective course of action. To provide a sense of the magnitude of difference, the City of Rutland in its EAB plan estimated that removing dead ash trees would cost 50 percent more than proactively removing live ash trees.

The EAB plan for Charlotte calls for the removal of approximately 154 trees greater than 6" DBH per year over a five-year period. These would primarily be trees within the public right-of-way or trees that are on private property just beyond the right of way, but pose a potential threat to roads. Class 2 paved roads are the first priority. Class 3 unpaved roads are the second priority. Higher priority will be assigned to the most heavily traveled roads. In general, west Charlotte is a higher priority than east Charlotte because there are more roadside ash trees in the western portion of town. Roads with high concentrations of ash trees will be an initial focus of effort. Specific priorities are:

1. Spear Street, northern section with winding road.
2. Greenbush Road.
3. Lake Road.

Trained volunteers using mobile devices will map the locations and sizes (diameter at breast height, DBH) of trees to be removed. Volunteers will also mark trees with lime green flagging or lime green spray paint. Interested contractors will be provided copies of maps with tree locations. The EAB Preparedness Plan Group will send requests for proposals (RFPs) to interested arborists and tree companies. The group will review bids and approve contracts. All bid solicitation, proposal review, and contract awards will conform to town regulations and requirements.

Roadside ash tree logs will be initially left by the roadside, outside the right of way (ROW) where practicable, to enable landowners to utilize felled trees for firewood. Logs that are not removed by landowners or firewood collectors will be removed by the road commissioner and deposited at the site of the former flea market off Route 7. Tree tops will be chipped and the chipped material will be either given to interested nearby landowners or deposited at the former flea market site. The chipping and removal of chips will generally be handled by approved contractors.

Removals of trees within the right-of-way by landowners will not be authorized, except if done by qualified tree service companies contracted by the landowner. The prohibition against private tree removals in the right-of-way is a measure to ensure public safety and to prevent disruption travel due to incorrectly felled trees. The tree warden may grant exceptions to this prohibition on a case by case basis. An example might be tree removal by an experienced chainsaw operator in on a less traveled road. In all instances, however, pre-approval by the tree warden is required.

Wood Disposal Utilization

Landowners will be given the option of keeping felled ash trees. If landowners decline to exercise this option, then logs can be claimed by firewood collectors at the roadside. If logs remain unclaimed, then the road commissioner's crews will transport them to the site of the former Route 7 flea market. Tree tops and smaller branches will be chipped.

There is a high demand for wood chips in Charlotte. Wood chips can be given to nearby landowners for use on farms, landscaping or other purposes. To facilitate connecting the wood chippers to landowner interested in receiving chips, the EAB Preparedness Plan Group will solicit expressions of interest and will maintain a list of names, addresses and contact information, particularly cell phone numbers. If there is no demand for the chips by nearby landowners, the chipped material will be deposited at the site of the former flea market.

The former site of the Charlotte Flea Market will be used as a staging area and interested members of the public will be invited to retrieve material from this site. The town will develop rules governing access to material deposited at the staging area. Transportation of infected wood needs to conform to the federal quarantine regulations Vermont's Slowing the Spread guidelines. The most important element rules that untreated firewood must not be brought into the state and firewood within Vermont should not be sourced from EAB Designated Infested Areas.

Chemical Treatment

Insecticide treatments using injections of systemic insecticides are available and have been found effective in protecting ash trees from EAB. These are only recommended for trees 10" diameter and larger. Chemical soil saturation is an option that has been effective for trees below 10" in diameter. Chemical soil saturation is not an option in the current plan and is not recommended for private landowners. This is because of risk to non-target species and possible contamination of water. These treatments are only effective as a preventive measure and do not reverse harm already done by EAB.

Treatments need to be done every two years by an arborist certified to apply those pesticides. Treatments with systemic insecticides must be started while the tree is still healthy, as the circulatory system of that are already dying cannot adequately distribute the insecticide throughout the tree's tissues. Spring is the most effective time to treat trees. The state forestry authorities are recommending that municipalities and landowners initiate treatment only when EAB has been confirmed to be within 15 miles of the location of the trees to be preserved. The treatments must be maintained throughout the trees' lives although it may be possible to lengthen the spacing to once every three years once EAB levels decrease.

At this time, available chemical treatments are not cost effective for large scale implementation. Therefore, the USDA does not recommend chemical control on a large scale. However, depending on beetle population densities, research suggests individual trees may be effectively treated (Herms et al.2009).

The plan for Charlotte calls for the chemical treatment of one exceptional specimen ash tree located behind the Senior Center, three ash trees in the Charlotte Park and Wildlife Refuge, and three at the town beach. The treatments will be required every two years for the life of the trees. The estimated cost per round of treatment for all nine trees is approximately \$12.50/inch diameter. Following state guidelines, treatments will begin only when EAB has been confirmed within 15 miles of Charlotte. The initial treatments will be paid for from the Rutter Tree Fund with subsequent payments to be drawn from the town budget. This will enable timely response to the EAB threat while avoiding premature allocation of tax payer funds.

Private landowners are encouraged to use state licensed, International Society for Arboriculture (ISA) certified arborists for chemical treatments. A list of companies offering chemical treatment for EAB is available in the tree warden section of the town website. Interested landowners are also encouraged to achieve cost savings by collaborating on soliciting bids for chemical treatments on multiple properties. Contrary to a preliminary concept, the tree warden and the EAB Preparedness Plan Group will not attempt to coordinate and administer this kind of collective undertaking.

The different chemical treatments available for EAB are by Jeffry Hann, et al., including an assessment of their relative effectiveness, cost, and environmental risk are described in publications by Jeffry Hann et al (see citations).

Replacement Tree Planting

The Town of Charlotte does not have a public works department responsible for tree planting and has not had a budget for tree planting. Roadside trees in Charlotte are mostly the result of natural regeneration or to a lesser degree, private plantings. The privately funded Rutter Tree Fund, which operates at the discretion of the tree warden, has planted close to 500 trees along town roads and in public places. As of the writing of this plan most of the money in the fund has been spent, although a small reserve remains. In the last two years available funds have been used to maintain existing plantings, particularly watering newly planted trees.

An effort will be made to raise funds to replenish the Rutter Fund. Some money from the fund will be used for the first chemical treatment of a small number of *keeper* specimen trees as discussed above. Additional money, if available, will be allocated for the replacement of ash trees removed from public spaces, such as those behind the Town Hall, the Senior Center, the beach park and along Ferry Road in the town center. The tree warden will convene a Tree Planting Working Group to identify priority planting areas, chose species, solicit proposals, and monitor plantings.

Invasive Species Management

When ash trees are removed this will create growing space for new plants. In some locations, invasive species such as honeysuckle, buckthorn, wild parsnip, Asiatic bittersweet, and garlic mustard are likely to establish themselves. The tree warden and the EAB Planning Group will collaborate with the Charlotte Invasive Collaborative (CHIC) to develop a plan and seek funds to address this problem. This planning will tie into ongoing work by the Invasive Species Group already in progress to address the problem of invasive species along town roads.

THOMPSON'S POINT

Thompson's Point is a special case that needs to be considered separately. Camp buildings are privately owned but the land is leased by the town to the camp owners. The lease terms specify that leasers are responsible for removal of trees on leased property, but the town is responsible for trees within the right of way. The existence of a large number of ash trees, many of them very sizable, within close proximity to camps will create a particular challenge both for the town and the lease holders.

As will be the case with all town rights-of-way, the ash trees will be mapped and proposals solicited from contractors for their removal. A significant portion of the ash trees are within the Green Mountain Power right-of-way, and these will be dealt with by the power company.

The trees on leased property outside of the right-of-way will be mapped by the tree warden, trained members of the Tree Tribe, and volunteers from the Thompson's Point Association. Association members will be encouraged to pool resources to contract for tree removal. This will hopefully result in savings to leaseholders compared to the alternative of seeking individual contracts.

Removal of ash trees by Thompson's Point leaseholders is pre-approved, but the tree warden must be notified in advance.

Some lease holders will opt to chemically treat ash trees. These trees will also be mapped and Association members will be encouraged to pool resources—as with tree removals—to contract for chemical treatment of keeper trees.

Because of the large number of people coming into Thompson's point from outside Charlotte and Vermont, this area is a potential hotspot for a primary infestation of EAB. For this reason, Thompson's Point has been and will continue to be a focus of efforts to educate about the dangers of EAB, and to discourage leaseholders and their guests from bringing in firewood that is not locally sourced.

COMMUNITY OUTREACH AND EDUCATION

The removal of street trees and decline of the ash tree population can have a stressful effect on the community. An ongoing effort is being made to inform the people of Charlotte about the EAB threat and the town's plan to address the threat. This general outreach has the following elements:

- Articles in the Charlotte News.
- Notices in Front Porch Forum.
- *Do Not Move Firewood* posters in strategic places.
- Presentations at the Charlotte Library, Senior Center and Central School.
- Presentation at Town Meeting Day.
- An ash tree replacement demo will be conducted in a prominent public place.
- EAB traps placed in public locations with signs will raise awareness of the threat.
- An information booth at the annual town party at the beach.

In addition to general outreach efforts, specific steps will be taken to adequately warn people of planned tree removals including:

- The tree warden will convene public hearings each year prior to tree removals to describe the planned cuttings for that particular cutting year.
- Interested parties will be invited to contest the cuttings, request harvested material, or offer to preserve individual specimens as an alternative to felling.
- Posters will be placed in prominent spots around town including, but not limited to the Charlotte Library, Town Hall, Senior Center, Brick Store, Spear Corner Store, and the town ferry.
- Prior to cutting affected landowners will receive notices in the mail. The notices will be in the form of letters or a lime-green colored post card created for this purpose.

BUDGET

Based on preliminary estimates from two tree companies of the cost of removing 117 trees, the plan calls for \$20,000 to be allocated each year for a five-year period for ash tree removal. It needs to be stated that the actual cost of removing all the potential hazard roadside ash trees will depend on a variety of factors and could vary significantly from the current estimate. For immediate planning purposes, however, the \$20,000/year figure is thought to be reasonable.

CONTACTS

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Vermont Urban & Community Forestry
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Technical Assistance Coordinator
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Vtinvasives.org: hub for EAB
information in Vermont.
Use *Report It* button to report
suspected infestations.

The toll-free National EAB Hotline is
1-866-322-4512. The hotline is staffed by
knowledgeable and trained personnel who
can answer questions about the USDA EAB
Program, and direct callers to appropriate
program personnel.

www.emeraldashborer.info was
developed by the Cooperative EAB
Program and funded by the US
Forest Service as a link to federal
and state information.

APPENDICES

Appendix A: Sample RFP for Tree Removal

TOWN OF CHARLOTTE
REQUEST FOR BIDS and BID FORM
TO REMOVE POTENTIAL HAZARD ROADSIDE ASH TREES
[LOCATION]
Issued: [DATE]

REQUEST FOR BIDS

Project Description: To remove potential hazard ash trees from [LOCATION] (see spreadsheet).

Deadline for Bid Submission: [TIME, DATE]. Please see below for bid submission information.

Bid Opening: [TIME, DATE] at the Charlotte Town Hall

Tax Exempt Status: The Town of Charlotte is exempt from State of Vermont sales tax.

Bid Selection:

- The select board intends to select a contractor at its meeting on [DATE].
- The town reserves the right to select any bid for any reason, and to reject any or all bids wholly or in part, to waive any informalities or immaterial irregularities therein, to accept any proposal even though it may not be the lowest cost, to call for rebids, and to make an award which in its sole and absolute judgement will best serve the town's interest.

Schedule: All cutting and clean-up is to be completed by [DATE].

Payment Schedule: To be paid upon the completion of work and written acceptance of the Town.

Insurance:

Prior to starting work the selected bidder will be required to provide a Certificate of Liability Insurance with liability coverage of no less than \$1,000,000 per occurrence and \$1,000,000 per aggregate, naming the Town of Charlotte as an additional insured. The certificate must also include Workers Compensation Insurance, unless the selected

bidder has no employees, in which case a Non-Employee Work Agreement and a Liability Hold-Harmless Agreement will need to be signed.

Bid and Project Specifications:

The project includes removing and disposing of all ash trees greater than 6” diameter at breast height (DBH) along [LOCATION]:

- The attached spreadsheet (see appendix) shows a tally of trees to be removed [LOCATION].
- Trees will be marked prior to cutting, but not necessarily prior to the deadline for bid submission.
- The following chart shows the number of trees by diameter class that are to be removed:

Size Class	#
6-12"	156
12+"	105
Totals > 6"	261

- Ash trees less than 6” DBH are not part of this contract but may be removed at the discretion of the contractor. This may be desirable to clear a felling area, to clear a zone for chain saw operators, to create space for stacking logs, or other purposes.
- One of the trees to be removed is on private property just outside the right of way. Trees within the electric utility right of way are outside the scope of this project. Some trees that lean away from the road and that will not pose a threat to the road when dead may be omitted from the project and these will not be marked for cutting.
- The contractor will be responsible for traffic control and must have Vermont State certified traffic controllers on duty at the time of cutting.
- The Town of Charlotte will be responsible for contacting landowners and advising them of the cutting.
- Native trees and shrubs in the cutting area must be protected from damage as much as reasonably possible. The town will rely primarily on natural regeneration to replace ash trees. To that end native trees and shrubs within the cutting area will be preserved through directional felling and careful positioning of harvesting equipment. The Town recognizes that some loss of regeneration is unavoidable, but this loss should be minimized.
- Incidental removal of invasive woody plants such as buckthorn and honeysuckle is allowed and encouraged, but not required.
- Tree tops are to be chipped. “Tree tops” are defined by the point on the tree trunk where secondary stems emerge to form the tree crown. Cut and stacked

branches greater than 6” in diameter may be left on site at the discretion of the contractor.

- Stumps must be cut to less than 6” from the ground as a safety measure to minimize damage in case of vehicle collision. Trees in locations where vehicles cannot potentially collide, such as on a hillock, may be left with stumps to 1’.
- The contractor must ensure that no debris is left on site where it might block ditches or in any way impede road crews from regular maintenance practices such as ditch clearing or grading of gravel roads.
- Logs are to be left on site and stacked or placed in an orderly manner outside of the town highway right-of-way where practicable.
- Any logs left on site as part of this contract must not impede passage of motorists, pedestrians or bikes, and must be staged outside of the paved or finished road surface.
- Chipped material will be either taken to nearby landowners if requested or will be deposited at the site of the old flea market off Route 7 just south of the West Charlotte town center. Land owner requests for chips will be processed through the Town Administrator or the Tree Warden and the approved requests will be communicated to the contractor.
- Bids will have two components:
 1. Cost for completing the cuttings within the entire project area.
 2. The area that can be covered with \$10,000 starting from [STARTING POINT]. The bidder will identify the end point as measured in 0.10 mile increments starting from [STARTING POINT] that can be covered with this sum.

Appendix - [MAPS/SPREADSHEET]

BID FORM

Please provide the following information:

Name of Contractor: _____

Contractor’s mailing address: _____

Contractor’s phone number: _____

Contractor’s e-mail address: _____

Quote for entire project area: \$_____

End point achievable with \$10,000: _____

Number of working days required to complete the job: _____

Please provide the name and phone number for three references:

1. _____
2. _____
3. _____

Signature of Contractor: _____

By signing this Bid Form, you are certifying that the bid is made in good faith without fraud, collusion, or connection of any kind with any other bidder for the same work, and that you are competing solely on your or your firm's own behalf without connection with or obligation to any other person or firm.

Signature: _____ Date: _____

Bid Submission: Bids are to be sealed and marked "REMOVAL OF POTENTIAL HAZARD ROADSIDE ASH TREES AT [LOCATION]" and mailed to:

Charlotte Select Board
Attn: Town Administrator
P.O. Box 119
Charlotte, VT 05445

or delivered by hand to:
Town Administrator
Charlotte Town Office
159 Ferry Road
Charlotte, VT 05445

Questions may be directed to the town contact:

Dean Bloch
Town Administrator
425-3071 ext. 5
or dean@townofcharlotte.com

Appendix B: Replacement Tree Guidelines - TBD

Appendix C: Chemical Treatment

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Images:

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