

Town of Yarmouth, Maine
Emerald Ash Borer Management Plan

Executive Summary

The Emerald Ash Borer (EAB) is an exotic wood-boring beetle that was discovered in the mid-west in 2002 and feeds exclusively on Ash trees. Native to Asia and Eastern Russia, this tiny feen beetle has killed hundreds of millions of Ash trees in 35 states and in 5 Canadian provinces, causing devastation rivaling that of Dutch Elm Disease. This insect will inevitably destroy most Ash trees left untreated by insecticides and will pose significant human health and safety risks.

Ash is a common species in Yarmouth with an estimate of 20-30% Ash trees throughout the town. In Maine, EAB infestations have been discovered in York County (2018), Cumberland County (2019) and as close as Falmouth (2020) and we can only assume EAB is moving closer to Yarmouth's borders, if not already present.

Trees continue to be an important legacy for Yarmouth which has been a recognized Tree City for over 40 years. Tree City USA© is a program carried out by the Arbor Day Foundation. Yarmouth's tree canopy is an important part of the town's history, character, and culture. Because of this importance to the community, Yarmouth has formalized a Tree Committee and has individuals working as part of an EAB task force to support the Town with this plan.

Town employees and task force volunteers will work on the following:

- Finalize, manage, and execute an EAB strategic plan for the Town of Yarmouth.
- Develop a detailed decision matrix as part of the plan to assess Town Ash trees for appropriate treatment or removal.
- Launch a broad community outreach effort to educate and enlist residents in implementing this plan for both public and private ash trees.

Purpose

By implementing the provisions in the management plan, the Town of Yarmouth ("the Town") will mitigate the disruption to its tree streetscape and public trees caused by the pending infestation of EAB. Taking proactive and reactive approaches to this invasion will enable the Town to address public and private needs in an efficient and effective manner.

As Ash trees die due to the damage caused by EAB infestation, gaps form in the street tree canopy and properties are put at risk for possible damage. Properties with dead or dying Ash trees become liabilities with limbs and trunks susceptible to falling thereby causing property or personal damage. Properties with dead or dying Ash trees will also see decreases in property values. As a river and coastal town, the importance of trees to prevent erosion and to control stormwater is vital.

The Yarmouth Emerald Ash Borer Management Plan will serve as a framework to manage Ash trees by reducing the overall Ash population throughout the town-owned lands, protecting select high-value Ash trees, replanting trees in high public-use areas, and maintaining public safety. This plan will be updated intermittently by Town staff and volunteers as information becomes available or updated.

Scope

This plan applies throughout the Town on all public properties where Ash trees are currently growing, as well as on private properties where such trees may negatively impact public rights-of-ways or other streetscape amenities. This plan does not apply to Ash trees located on federal, state, or private property within Yarmouth.

Administration

Yarmouth Community Services, through its director and assigned staff or contractors, will be responsible for implementing this plan and seeing that its provisions are carried out. The Yarmouth Community Services Director, or other assigned staff, will manage all contracted work for the Town.

Definitions / Acronyms

Compliance Agreement: Official Maine Department of Agriculture, Conservation, and Forestry and USDA Animal Plant and Health Inspection Service (APHIS) approval for moving regulated materials outside of a quarantine zone.

Department of Agriculture, Conservation, and Forestry (DACF): The State of Maine agency for many land-based, natural resource interests. The DACF balances for and develops the state's various land-based, natural resources including Maine agriculture, forests, outdoor recreation, and public access. They can be contacted by email at dacf@maine.gov or by phone at (207) 287-3200.

Diameter at Breast Height (DBH): The diameter (inches) of a trunk cross section measured at 4.5 feet above the ground.

Emerald Ash Borer (EAB): A metallic green beetle native to Asia. EAB bores into the wood of Ash trees, eventually causing death of tree.

Host species: All native North American Ash trees of the *Fraxinus* genus and white fringetree.

Non-host species: All tree species other than Ash trees and white fringetree.

Quarantine Zone: A Department of Agriculture, Conservation and Forestry designated area restricting the movement of regulated materials, including materials that may have EAB and may increase the area of infestation.

Regulated Materials: All Ash wood and non-coniferous firewood.

Right-Of-Way (ROW): Publicly held land dedicated to public usage for roads, sidewalks, trails, and/or utilities. The width is defined by deed or historic usage.

Street Tree: A tree planted in a sidewalk or in a public right-of-way. In some cases, the property lines lie several feet behind a sidewalk or edge of road. The Town of Yarmouth has jurisdiction over the street trees, but the trees are owned by the property owner.

Yarmouth Community Services (YCS): The Town of Yarmouth department responsible for coordinating and managing municipal recreation, parks, open spaces, trees, trails, and other amenities. YCS provides and maintains responsive leisure and educational opportunities, facilities and services that enhance and improve the quality of life for residents and guests.

Ash Treatment and Removal

The Town conducted an inventory of many Ash trees growing on its rights-of-way, in parks, and on other municipal properties. For each Ash tree, details on its location, size, and condition are collected. An

estimated budget and timeframe will be generated for the desired treatment and removal regime, based on the inventory data. The Town will systematically treat and/or remove all its Ash trees that will potentially impact public ways or properties. Tree removal will be prioritized with hazardous trees removed first, followed by those that are no longer assets to the community (e.g. dead, dying, diseased, or poorly sited). Valuable and vigorous trees greater than 20 inches DBH will be treated with approved insecticide to treat existing infestations. Ongoing treatment will be necessary to protect trees for multiple years. Utility contractors will be encouraged to remove all Ash trees within their easements as part of their normal line clearance activities. An Ash tree inventory spreadsheet will be updated and used to prioritize and record the removal treatment or status of each tree. *Refer to Appendix A for the Managing Emerald Ash Borer: Decision Guide.*

Monitoring

Strategically located non-asset Ash trees will be annually selected and prepared as detection trees. These trees will be set up before May 1st and removed for examination in September or October. If an EAB infestation is discovered, a delimitation survey of the surrounding area will be made and acted upon. All Ash wood from pruning or removals shall be inspected for EAB by looking for D-shaped exit holes and removing the bark to look for larval galleries. All possible sources of artificial EAB importation into the community such as garden centers, nurseries, firewood dealers, and others will be monitored. *Refer to Appendix B for a List of Possible Importation Sources.*

Wood Utilization and Disposal

The Town will develop a plan to use the wood generated during the removal program. The plan must comply with DACF regulations for handling regulated materials. Wood that cannot be used for lumber, turning, firewood, chips, or mulch will be disposed of according to DACF specifications. *Refer to Appendix C for a List of Companies with DACF Compliance Agreements. Refer to Appendix D for the Town Wood Utilization and Disposal Strategy.*

Communications

The Town Manager, Town Council, Yarmouth Community Services, Department of Public Works, other Town departments' staff, and related volunteer committees will receive periodic briefings through the Town's normal communication channels. All media relations will also follow normal municipal protocols. Town of Yarmouth-based websites and social media outlets will be used to pass along updated messages regarding EAB.

Education

Training for Town staff, contractors, volunteer committee members, and residents will be held to discuss the pending infestation and to provide Ash tree and EAB identification tips. A page on the Yarmouth Community Services' website will be dedicated to municipal response and include resources for homeowners and businesses. This will link to the Town's home page and website.

Canopy Replacement and Care

As the budget and location permits, removed public Ash trees will be replaced with non-host species that are appropriate for the setting and add to the diversity and general health of the town's public spaces. Trees will be planted in accordance with ANSI A300 Tree Care Operations: Planting Specifications, the

Urban Tree Foundation: Planting Specifications Cue Card (*refer to Appendix E*), or USDA’s Forest Service Tree Owner’s Manual (www.treeownersmanual.info), be in the 1-1/2 to 2-1/2 caliper range, and obtained from Maine licensed producers and/or dealers of nursery stock items. Plantings will be budget-based and prioritized by canopy cover goals as identified by the Town through the efforts of Yarmouth Community Services staff. Those areas needing the most trees to reach their goal will be planted first such as streetscapes, recent construction, public grounds, and town-owned parks. No plantings will be made that cannot be adequately maintained. All new plantings will conform to the “10-20-30” tree species diversity rule. Refer to Yarmouth Community Services and EAB webpages for a *List of Recommended Replacement Species and Prohibited Plant List*.

Postponed Work

While financial, staff, and equipment resources are focused on the EAB Management Plan, some usual services will either be delayed or put on hold indefinitely. For example, the five-year pruning cycles may be put on hold, as may previously defined planting projects not related to canopy restoration as a result of EAB removals.

Other Departments

The Yarmouth Community Services Director will provide monthly briefings to the Town Manager, Finance and Public Works Departments. Yarmouth Community Services will support contractors or employees by coordinating and supplying equipment, field support, and personnel, as available.

Private Ash Trees

The Town will create and maintain an EAB Informational page on the Yarmouth Community Services’ website with links to the Town’s website. The Town will provide information regarding removing dead and dying Ash trees. In the spring and fall, the Town will coordinate a non-EAB host, diverse species, replacement tree effort including, but not limited to residents and businesses interested in acquiring trees at wholesale prices. The Town will provide site selection, planting, and maintenance information, or contract to provide these services, to each participating location in this program.

Contact List

Town of Yarmouth

www.yarmouth.me.us

www.yarmouthcommunityservices.org/emerald-ash-borer-info

Karyn MacNeill, Director of Yarmouth Community Services, kmacneill@yarmouth.me.us

[Yarmouth Community Services, 200 Main Street, \(207\) 846-2406](mailto:kmacneill@yarmouth.me.us)

Maine Department of Agriculture, Conservation, and Forestry

www.maine.gov/dacf then search “EAB”

Jan Santerre, Maine Forest Service Urban Forestry Coordinator, Jan.Santerre@maine.gov

Allison Kanoti, State Entomologist, Allison.M.Kanoti@maine.gov

Gary Fish, State Horticulturist, Gary.Fish@maine.gov

Karen Coluzzi, State Pest Survey Coordinator, Karen.L.Coluzzi@maine.gov

Shane Duigan, District Forester, Cumberland County, Shane.P.Duigan@maine.gov

Maine Arborist Association

www.MaineArborist.org

Licensed Arborists

www.maine.gov/dacf/php/arborist/ArboristList.shtml

US Forest Service

Nate Siegert, Entomologist, Nathan.W.Siegert@usga.gov

John Parry, Urban Forestry Specialist, John.Parry@usda.gov

Hiring an Arborist

In cases where the public wants to find certified arborists, contact information will be posted on the Yarmouth Community Services' EAB webpage with links to the Town's website. Hardcopies will be available at the Town Hall and Yarmouth Community Services buildings.

Approved Contractor List

All commercial companies involved in tree pruning, removal, installation, and wood disposal will require licensing and minimum insurance with the State of Maine. A list of locally licensed and operating firms will be maintained on the EAB webpage and made available through the Town Hall and Yarmouth Community Services buildings.

Cost Considerations

Based on street tree inventory evaluations, over 200 Ash trees are identified and have recent cost estimates individually applied. To summarize the overall inventory and potential budget needs, a spreadsheet lists estimated costs associated with treatment, removal, disposal costs, and annual benefits. Each column is broken down into "tree condition" groupings (e.g. Future Concern, Imminent Concern, and OK).

Estimates for planting replacement trees are calculated at \$800-\$1,000 per tree to ensure there is enough funding to use contractors for the replanting program. This projection considers all materials (tree, fertilizer, mulch, etc), labor, and equipment needed (truck, trailer, excavator, etc).

The following table reflects original estimates for treatment, removals, and replanting efforts.

	Year 1	Year 2	Year 3	Year 4
Treatment	\$59,642	\$23,822	\$60,000	\$25,000
Removals	\$13,564	\$15,000	\$15,000	\$15,000
Replanting	\$15,000	\$8,000	\$16,000	\$8,000
Grand Total	\$88,206	\$184,657	\$34,522	\$48,000

Additionally, these budget numbers do not reflect disposal costs or possible biocontrols.

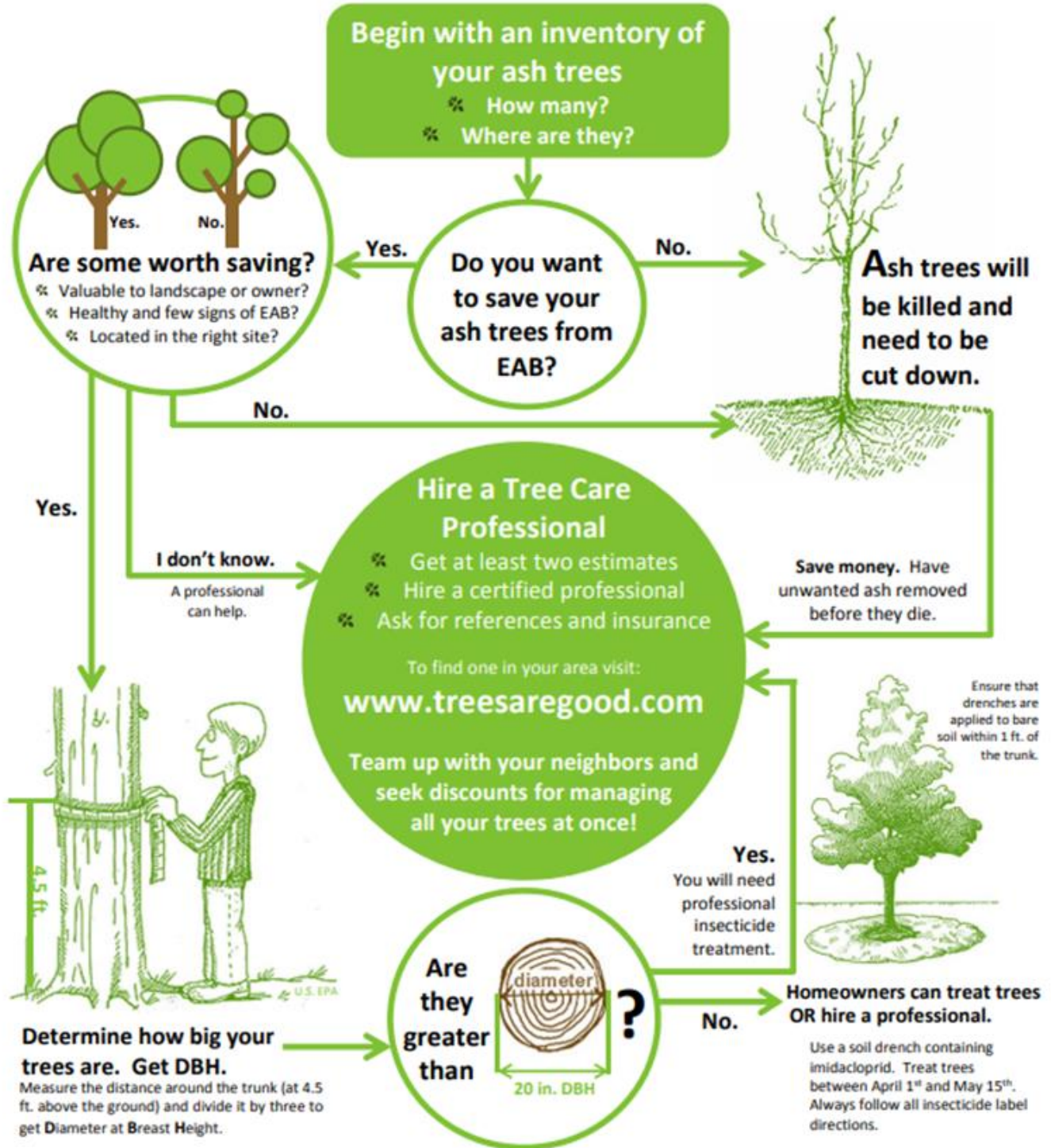
Disposal costs for brush and trees with a diameter up to 12" are not anticipated to significantly increase. Currently, there is no cost to the Town for contractors to perform chipping and removal when the

product can be reused. The Town of Yarmouth currently contracts this type of service and will work with contractors to assist with additional needs and as guidelines or usability change.

Biocontrols are managed by the Maine Forest Service, Forest Health and Monitoring Division as a cooperative effort with USDA Animal and Plant Health Inspection Service (APHIS). USDA provides parasitoids, stingless wasps *Oobius agrili*, *Tetrastichus planipennisi*, and *Spathius galinae* as they specialize in attacking EAB to help reduce their numbers. Additional information can be found by contacting Maine Forest Service.

While the Town of Yarmouth does not currently have EAB impacts factored into the overall budget, potential funding options for an EAB effort are the Environmental Health & Hazards capital budget, the Tree Program fund, the Tree Care general fund budget, and possible grants, partnerships, or fundraising opportunities.

Managing Emerald Ash Borer: Decision Guide



Protect your urban forest. Act Now. Save Trees. Save \$!

Which trees can be saved?

Trees CAN be saved if they are:

- **Healthy** and vigorously growing, with more than half their leaves.
- Enhancing the landscape.
- Valuable to the owner.
- Showing only few outward signs of EAB infestation.



These ash trees are healthy, have all of their leaves, and provide shade and beauty to the landscape. They would be good treatment candidates.

Trees should NOT be saved if they are:

- **Unhealthy**, with more than half of their leaves missing.
- Planted in poor sites or are not important to the landscape.
- Showing many outward signs of EAB infestation, such as woodpecker damage, bark splits, and water sprouts at the tree base.



These ash trees are too unhealthy to be effectively treated.

This ash tree is not planted on the right site. It will require maintenance to keep it clear of power lines.

Contact your city forester about local ordinances before performing any tree work!

What are the treatment options?

Homeowners can protect healthy ash trees:

- With a trunk **less than 20 in. Diameter** at Breast Height (see reverse for DBH measurement).
- With over the counter soil drench products containing 1.47% imidacloprid. These products are most effective when applied between April 1st and May 15th.

Professionals can protect ash trees:

- With a trunk DBH of **up to 20 inches or greater**
- Later in the year, and/or by using specialized equipment to apply pesticides that contain imidacloprid, dinotefuran, azadirachtin, or emamectin benzoate.

Looking for More about Treatment Options and Tools to Manage Costs?

Visit: www.eabindiana.info

USE OUR FREE ONLINE TOOL
 The Emerald Ash Borer
 Cost Calculator



Which new trees should be planted?

Choose a tree that can thrive in your site conditions. Remember that some trees can become very large. Contact your city forester, or local garden center or nursery for advice on choosing the best species to replace your ash. Also look for ideas at our link to replacement species on <www.eabindiana.info> .

REMEMBER: Choose Diversity!

Replant with several different tree species to increase your neighborhood's resilience to future pest problems.

APPENDIX B

List of Possible Importation Sources

1. Ash logs with bark
2. Firewood
3. Nursery stock
4. Garden centers
5. Subdivision or homeowner plantings
6. Natural spread

APPENDIX C

List of companies with DACF compliance agreements

Please note: This list is not a validation for the arborist's or company's legitimacy. This is a local list and while it is provided as a courtesy, it may be incomplete; other companies in Maine may employ licensed arborists. The DACF licenses individuals, not companies. The licensed individual must be onsite when arboriculture work is conducted. For an updated list through the State of Maine, please check on their website at: <https://www.maine.gov/dacf/php/arborist/ArboristList.shtml> or by calling: (207) 287-3891.

List is provided alphabetically by Town/City.

dba Winter Greens	PO Box 589	Bath	(207) 894-8444
Driscoll Tree Experts	PO Box 670	Bath	(207) 504-6284
Above and Beyond Tree Solutions, LLC	85 Lunt Rd	Brunswick	n/a
Bartlett Flanagan	300A Old Portland Rd	Brunswick	(207) 841-2477
Fagan Tree Service	71 Lisbon Rd	Brunswick	(207) 615-4254
Travis Leeman	17 Rocky Hill Dr.	Brunswick	(207) 729-2997
Vannah Logging	8 Oakwood Terrace	Brunswick	(207) 631-2475
Well Tree, Inc.	3 MacMillan Drive	Brunswick	(207) 721-9210
Christopher Forbes	PO Box 502	Cumberland	(207) 749-1137
Curtis Property Maintenance	183 Middle Rd	Cumberland	(207) 831-8065
David Lebel	15 Pine Lane	Cumberland Foreside	(207) 781-4282
Balfour Landscape Tree and Lawn Service	980 Pinkham Brook Rd	Durham	(207) 721-1548
Rare Earth		Falmouth	(207) 879-1610
Dirigo Tree Service LLC	3 Scribner Dr	Freeport	(207) 272-7430
Maine Tree Company LLC	17 Lindy Lane	Freeport	(207) 653-9943
Maines Tree Works, Inc.	368 Mayall Rd	Gray	(207) 657-4425
TimberWorx	PO Box 237	Gray	(207) 653-9624
James Carville	8 Western Ave	Lisbon	(207) 312-3768
Erik Stoesser-Casad	394 Main St	Lisbon Falls	(512) 665-6235
Tip Line Tree Services	33 Rockwood Dr	New Gloucester	(207) 657-3256

Whitney Tree (David W. MacDonald, Inc)	58 MacDonald Dr.	New Gloucester	(207) 657-3256
Austin Spencer	4 Farms Edge Rd	North Yarmouth	(207) 699-9987
Gilligans Gardens LLC	33 Chandler Brook Rd	North Yarmouth	(207) 939-9953
Jim's Tree Service	51 Memorial Highway	North Yarmouth	(207) 431-3273
Meehan Landscaping	#2 Dragon Fly Lane	North Yarmouth	(207) 615-7916
Dan Gurney	30 Fuller Mountain Rd	Phippsburg	(207) 522-5757
Hawkes Tree Service, Inc.	78 Main Rd	Phippsburg	(207) 442-7444
Arborist Tree Services LLC	119 Summit St	Portland	(512) 550-5270
Blue Ox LLC	17 Victoria St.	Portland	(207) 749-4258
Kelly Palomera	54 Lexington Ave	Portland	(207) 408-2312
Keystone Horticulturists LLC	PO Box 1910	Portland	(207) 468-8873
LST Landscaping, Inc.	144 Hutchins Drive	Portland	(207) 878-1578
Lucas Tree Experts	PO Box 958	Portland	(207) 797-7294
Lukas Brenard	101 Pleasant Ave	Portland	(415) 710-3811
Maxwell Bragg	1 Holbrook St.	Portland	(207) 691-6419
McCarthy Tree Service, Inc.	46 Columbia Rd	Portland	(207) 232-9828
On Sight Tree Service	130 Spring St.	Portland	(970) 708-5187
Seabreeze Property Services	415 Presumpscot St	Portland	(207) 775-3454
The Davey Tree Expert Company	789 Warren Ave	Portland	(207) 828-0110
TMR Property Services, LLC	179 Christy Rd	Portland	(207) 756-4113
Bartlett Tree Experts	PO Box 6828	Scarborough	(207) 883-3340
John Beyer	83 Beech Ridge Rd	Scarborough	(207) 883-6000
Richard's Landscaping Service	16 Mast Rd	Scarborough	(207) 883-9055
Southern Maine Tree LLC	35 New Rd	Scarborough	(207) 303-5567
Tree and Stone LLC	3 Katies Ln	Scarborough	(207) 219-8775
Aspiras Tree Care	11 Bonnybriar Rd	South Portland	(207) 767-7273
Atlantic Tree Solutions	376 Preble St	South Portland	(207) 409-4629
Farrar Tree Service	364 Broadway	South Portland	(207) 671-8320
Forrest Hagerman	860 Broadway	South Portland	(207) 615-8925
Morong & Sons	40 Washington Avenue	South Portland	(207) 799-5275
Affordable Tree Service	198 Ward Rd	Topsham	(207) 240-4601

Barton Construction	184 Meadow Cross Rd	Topsham	(207) 841-7718
Bryan Budd	489 Meadow Rd	Topsham	n/a
Elm Island Tree LLC	495 Cathance Rd	Topsham	(207) 841-4840
Merrill Earth LLC	3 Spruce Lane	Topsham	(207) 837-7545
Tim's Creative Landscaping	142 Meadow Cross Rd	Topsham	(207) 725-5030
Timber Tree Service and Landscaping	432 Middlesex Rd	Topsham	(207) 725-4763

APPENDIX D

Town Wood Utilization and Disposal Strategy (per Town of Yarmouth Transfer Station Operation Manual)

Leaf and Yard Waste (pg. 18)

The Town of Yarmouth operated a licensed compost facility located at its Transfer Station complex. Residents can deposit leaf & yard waste free of charge in the designated collection area. The material is then blended and placed in windrows for composting. The finished product is available to the residents free of charge. Note: In 2007 part of the storage pad for this material was excavated and re-graveled to provide a firm base.

Brush (pg. 19)

Brush, up to 12” diameter is accepted at this facility free of charge. The material is stockpiled and ground twice a year. The chips are used in processed mulch or for bio-mass fuel. Excess chips are made available to the public or used in PW projects.

Material larger than 12” will also be accepted on a limited basis, but will be subject to disposal fees. This material will be ground and used for erosion control on PW projects.

APPENDIX E

Urban Tree Foundation: Planting Specifications Cue Card

Source: International Society of Arboriculture, ISA-Arbor.com

Tree Planting Cue Card

Selecting quality trees: Planting quality trees begins by choosing vigorous, structurally sound trees from the nursery. Strong trees have straight roots, a thick trunk with taper, and a good branch structure appropriate for the species (Fig. 1). The root collar (the uppermost roots) should be in the top 2 inches of the root ball.



Figure 1. Quality tree ready for planting.

Digging the hole: A firm, flat-bottomed hole will prevent trees from sinking. Dig the hole only deep enough to position the root collar even with the landscape soil surface (Fig. 2). Use a rototiller or shovel to loosen soil in an area three times the size of the root ball. This loose soil promotes rapid root growth and quick establishment.



Figure 2. Loosening soil in a large area around the root ball allows for rapid root growth and quick establishment.

Installing the tree:

Remove soil and roots from the top of the root ball to expose the root collar; cut away any roots that grow over the collar (Fig. 3). Also cut any roots that circle or mat along the sides and bottom of the root ball (Fig. 4). The root collar should be even with the landscape soil after planting (see Fig. 3). Backfill with soil removed from the hole. Minimize air pockets by packing gently and applying water. Build a berm 4 inches tall around the rootball to help force water through the root ball. Enlarge the berm as the tree establishes.

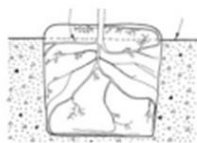


Figure 3. Remove soil and roots growing over the root collar (A) and place collar level with soil surface (B).

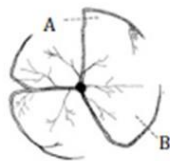


Figure 4. Cut roots at (A) to form new roots that grow away from the trunk. Do not cut roots at (B), since the root defects will regrow.

Staking: Staking holds trees erect and allows the root ball to anchor. Secure the trunk at the point where the tree stands straight. A second stake tied directly to the trunk made of bamboo may be required to straighten the upper trunk.

Mulching: A layer of organic mulch, such as leaf litter, shredded bark, or wood chips, helps protect tree roots from temperature extremes and conserves soil moisture. Mulch also helps prevent grass from competing with the tree for water and nutrients. The mulched area makes it easier to operate mowers and weed eaters without hitting the trunk and compacting soil. Apply mulch to a depth of 3 to 4 inches (slightly thinner on top of the root ball).



Irrigating: Consistent irrigation is critical for establishment.

1. Apply about 3 gallons irrigation per inch of trunk diameter to the root ball 2 or 3 times a week for the first growing season.
2. Increase volume and decrease frequency as the tree becomes established.
3. Weekly irrigation the second year and bimonthly irrigation the third year should be sufficient for establishment.
4. Once established irrigation requirements depend on species, climate and soil conditions.
5. Irrigation devices should be regularly checked for breaks and leaks.

Pruning: Training young trees promotes structurally sound growth and overall tree health. Cut back or remove codominant stems (stems that compete with the central leader) to encourage growth in the central leader (below).

Before Pruning



After Pruning

