**Model Request For Proposal Components for Emerald Ash Borer Management**

J. Michael Orange, 8/20/18

**Introduction**

The Emerald Ash Borer (EAB) will eventually kill nearly every unprotected ash tree in North America. The infestation can cost an average city close to $1 million over a twenty-year period and destroy a significant percentage of its tree canopy. An earlier natural disaster, the Dutch elm disease (DED), decimated urban forests across the country and few cities dedicated the needed resources to prepare for and manage that scourge. Unprepared cities lost thousands of trees and took decades to replenish their green infrastructure. EAB is poised to destroy more trees than DED in a shorter amount of time.

Left unmanaged, an EAB infestation creates a “death curve” with a substantial peak of ash tree deaths. This peak will strain a city’s budget as well as its capacities for tree removals, replanting, and debris handling and storage. Severely infested trees quickly become hazard trees that create serious liability risks for a city. Management science is continuously evolving and the city that is prepared with a state-of-the art plan can shrink the peak number of dead trees and minimize the economic, environmental, and liability threats. It pays to implement a policy of “save the best and replace the rest.” A city could protect for nearly 20 years 2 average-sized, healthy ash trees for the cost of removing and replacing them.

Part 1 includes components that a city can incorporate into its standard request for proposal (RFP) form to obtain private company bids for preparing an EAB management plan (Plan). The components are based upon the report, *Model Emerald Ash Borer Management Plan*, by Jeffrey M. Hafner and J. Michael Orange[[1]](#footnote-1) and an analysis known as the SLAM study.[[2]](#footnote-2) Since city staff may not have experience developing an RFP for injection services to protect high-value ash trees, Part 2 includes components based on public documents developed by the cities of Lakeville and Champlin, Minnesota. It assumes the city has adopted an EAB management plan that includes the components listed in Part 1. It uses the term *Company* for the selected private contractor.

**Part 1: Model Request For Proposal Components for an Emerald Ash Borer Management Plan**

**1. Public tree inventory data collection:** The Company shall provide a tree inventory that documents the size, species, condition, and location of all public trees. The inventory will not include forested areas that are not mowed or otherwise managed. However, it shall include ash trees near trails and roads through forested areas that may become hazard trees if not removed. Data specifications shall be aligned with the current City tree inventory and can be added to the City’s existing maps. The final results shall be compiled in a technical report delivered to City staff.

**2. Private parcel ash tree survey:** The Company shall provide a survey of ash trees growing on private property within the City. Privately owned forested areas do not need to be included. The results shall have a 95% range of accuracy and shall be delivered in a report that clearly describes the findings and the statistical methods used.

**3. Urban forest goals:** The Company shall collaborate with City staff to develop City goals for canopy cover and urban forest diversity using City tree data. The data will include numerical indicators that can be tracked over time to measure the conditions while dealing with the EAB infestation and beyond.

**4. Legacy tree policy:** The Company shall provide specifications for the indefinite protection of trees on public property and the criteria that would qualify trees for such measures.

**5. Strategies for public trees:** The Company shall provide guidelines that specify which trees are most appropriate for preemptive removed, treatment, or other management strategies. The Company shall include a summary of the environmental, economic, and human health risks involved in treating high-quality trees with the systemic insecticide, Emamectin benzoate (EB). Infested trees must be removed or treated to ensure that developing EAB progeny are not allowed to emerge. Trees with canopy loss that exceeds 50% should be removed as soon as possible because dead ash trees generally deteriorate rapidly and many will become hazardous especially along streets, in yards, and along overhead power lines. The Company will recommend if there are low-quality trees appropriate for girdling to serve two purposes: 1) to assess beetle distribution, as well as larval density and development rates; and 2) to function as beetle population “sinks” to concentrate and eliminate adult beetles before they can disperse and reproduce.

**6. Strategies for private trees:** The Company shall recommend policies for City adoption regarding public services related to private ash tree management. One important component is requiring bulk-rate pricing for the treatment of qualifying ash trees not owned by the City.[[3]](#footnote-3) The greater the percentage of protected trees in an area, the greater the “herd immunity” effect will be to reduce pest pressure on unprotected trees; flatten the EAB “death curve;” and minimize the economic, environmental, and human health effects of the infestation.

**7. Strategies for tree debris disposal:** The Company shall provide strategies for dealing with tree debris generated from both public and private ash tree removals.

**8. Tree replacement:** The Company shall recommend policies to replace trees lost to EAB.

**9. Public education and communication:** The Company shall provide strategies and suggested language to inform citizens about the Plan. Educational and communication tools include the city website, newsletters, utility billings, and press releases. Community meetings are an excellent way to collaborate with those property owners most interested in preserving their ash trees. The strategies shall also address ash tree identification, criteria for treating ash trees, risks from heavily infested trees, and methods used for treatments, including the science-based safety of using the injection pesticide, EB.

**10. Anticipated implementation costs for the City:** The Company shall document the anticipated implementation costs to the City over, at minimum, a 13-year period. Anticipated costs shall include a “do-nothing” Base Case and can include the costs of multiple management options. The anticipated implementation costs will include tree removal and replacement, as well as tree treatments, and public outreach.

**11. Pesticide Safety:** The City recognizes the increasing and well-warranted concerns regarding the overreliance on pesticides. Neonicotinoids and their effects on pollinators, such as bees, and soil-applied products that have the potential to reach stormwater or ground water have all been highly publicized. The pesticide recommended herein, EB, is not a neonicotinoid and is injected into the trunks of the trees. Ash trees are wind pollinated, they are not a substantial nectar source for bees, and they flower early in the growing season and only for a limited number of days. According to scientists, it is highly unlikely that bees would be exposed to systemic insecticides applied to ash.[[4]](#footnote-4)

 The Company shall include information comparing the environmental risks using EB to preserve high-quality trees to the environmental consequences of losing these trees to the infestation. This comparison can rely on the information in the *Minnesota Model Emerald Ash Borer Management Plan* (pp. 18-19, mentioned above), the *Proposal to Create the Minnesota Ash Tree Preservation Program* (pp. 15-16),[[5]](#footnote-5) and the “Emerald Ash Borer Management Statement” by the Coalition for Urban Ash Tree Conservation.[[6]](#footnote-6)

**Part 2: Model Request For Proposal Components for Ash Tree Injection Services**

**Project Goals:** In order to implement the City’s Emerald Ash Borer (EAB) Management Plan, the City seeks a private contractor (Company) to complete two components of the Plan (Project):

* **Injection services:** The City will contract with the Company to protect City-designated ash trees from the EAB infestation on City-owned properties, including the managed areas of parks and open spaces. Ash trees must be injected with Emamectin benzoate (EB) as a preventative or therapeutic treatment for emerald ash borer.[[7]](#footnote-7)
* **Public education campaign and bulk-rate treatment program:** The Company will collaborate with the City in implementing a program that includes public education about the city’s strategy to “save the best and replace the rest,” about the science-based safety of using the injection pesticide EB, and about offering bulk treatment discounts for high-quality ash trees that are privately owned within the City. The Company will share with the City the data collected regarding privately owned ash trees. This component of the Project will have the following benefits:
	+ The public education program will enhance the citywide management of the infestation, which will increase the protection of high-quality ash trees on private property and the removal and replacement of the rest. The greater the percentage of protected trees in an area, the greater the “herd immunity” effect will be to reduce pest pressure on unprotected trees and flatten the EAB “death curve.”
	+ It will help preserve the City’s tree canopy and the accompanying economic, environmental, and human health benefits.
	+ Bulk-rate treatment costs will lessen the costs of protecting high-quality trees on private property and thereby increase participation in the City’s program.
	+ The addition of high-quality data regarding treated trees on private property will improve the City’s ability to evaluate the extent of the infestation and management and the effectiveness of its management efforts.
	+ It will help the City learn where reforestation efforts may be in greater need now and in the future.
	+ The Company’s bulk-rate treatment program will not prevent any other company from providing treatments within the City provided it is licensed to do so within the City.

**Project Scope:**

* **Project management:** The Company will meet with City staff initially to review the Project scope and to determine, to the fullest extent possible:
	+ Locations for City-owned ash trees designated for injection.
	+ Program design for public education and for treating high-quality trees on private property.
	+ Creation and management of tree inventory data and interactive maps of public and private trees that are included in the Project.[[8]](#footnote-8)
	+ Schedules and work flow.
	+ Contact information.
* **Tree injection services:** The Company will inspect and inject trees designated for protection and will tag and track all injected trees with *points* (i.e. data regarding GIS/GPS and contextual information for each tree). Tree points will be added or updated for trees injected by the Company on both City property and private property using the City’s online software. Company data regarding privately owned trees will be considered proprietary information not to be shared with the public. As such, the City will only share static, non-interactive information with the public that does not include any of this proprietary information (e.g. pdf).

The Company must possess one or more mobile devices such as an i-Pad or similar product to use in the field. Each user must attend a short training to ensure their understanding of the software and to avoid any negative impacts on the City’s existing tree inventory. Every effort should be made to collect x-y coordinates within 5 meters of the tree. In the event this accuracy cannot be met, horizontal accuracy of 20 meters will be accepted if verified with aerial photography to ensure the approximate location of the tree on a property. It is the City’s preference that data be collected on-site by the pesticide applicator during injection to ensure the most accurate data.

The Company will provide the appropriate injection equipment, insecticide, and trained personnel to complete the Project by a time to be established at the contract stage of the Project.

The Company shall provide all labor, equipment, and materials necessary for injecting trees, the costs of which shall be included in the quote. The Company will be required to adhere to all specifications. Failure to properly perform work will be considered just cause to terminate the contract and assignment of any further work to the next qualified contractor.

* **Costs:** The Company must itemize the costs for tree injections within each Project Area (refer to next section).
* **Public information campaign and bulk-rate treatment program:** The Company will collaborate with the City in the development and distribution of public information materials regarding the bulk-rate treatment program. The Company will work with the City to enroll the owners of high-quality ash trees located on private property. The City will mail a postcard or letter to all property owners living adjacent to a boulevard ash that is slated for injection well ahead of the time for treatment.

**Project Areas:**

* **Area 1 – City Property (maintained land surrounding facilities, parks, open spaces, utility structures):** There are approximately X ash trees in Area 1 ranging from 10” to X” diameter at breast height (dbh) designated for treatments. Ash tree injections on City property will be split with approximately X completed in Year 1 and the remainder in Year 2. The City reserves the right to increase or decrease listed quantities based on actual field conditions prior to injection. The City forester must approve any variances in dates. Unless City staff direct otherwise, the Company will complete all injections of designated ash trees on City property between June 1st and September 30th of each year or before fall leaf color, whichever occurs sooner. All invoices will be remitted to the City and itemized by property name and unique number assigned to each tree.
* **Area 2 – Boulevard/right-of-way (ROW):** There are approximately X ash trees in Area 2 ranging from 10” to X” dbh designated for treatments. The treatment requirements described above for Area 1 apply to Area 2 as well.
* **Area 3 – Private property:** Based on the City’s statistical survey, there are about X ash trees on non-City land, of which approximately X are 10” dbh or greater. Private property owners will contact the Company directly to initiate an inspection, receive a quote, and provide permission to perform the work. Treatments shall be consistent with the specifications described for Area 1. The City will not be a party to any contract between the private owner and the Company.
* **Area 4 – Private treatment of City-owned trees:** With approval from the City, property owners may hire the Company to treat trees growing in the public right-of-way that are not being treated by the City. In the event that such treatment is undertaken, this circumstance shall meet the requirements of Area 1.

**Company Qualifications:** Minimum Company qualifications are as follows:

1. At a minimum, the Company must be a properly insured, respected, financially viable, MDA Tree Registry-listed company that has been in business for at least five (5) years, with at least three (3) years of experience performing plant health care or injection treatments for local governments or other public agencies.
2. Must be able to provide references that include at least two (2) projects performed for local governments or other public agencies.
3. At least one (1) ISA Certified Arborist must be assigned to supervise the Project and the application crew(s).
4. All members of the application crew must be licensed Minnesota commercial pesticide applicators. Must provide the written training protocol used for applicators.
5. The Company must have at least one person available to GPS each tree injected on private property for inclusion in the City’s tree inventory ideally at the time of treatment.
6. Must have experience with devising marketing/education plans and creating materials to educate the public, and must provide examples.
7. Must have the necessary tools, equipment, staff and expertise to inventory and track injected trees.

**Equipment and Treatment Specifications:**

* **Proficiency demonstration:** Applicators must demonstrate proficiency with the injection equipment and knowledge of the insecticide used to prevent EAB. Assigned applicators may be required to provide an on-site demonstration prior to the start of the Project.
* **Safety standards:** The Company shall use work methods, safety procedures, and personal protective equipment conforming to all ANSI A300, Z133 and OSHA standards in performing the work under this contract. The Company shall supply any Material Safety Data Sheets (MSDS) to the City upon request.
* **Formulation rates:** It is the responsibility of the Company to follow all insecticide label instructions. The City forester must approve any alterations in the formulations or equipment in advance. In order to remain responsive to emerging research, the City reserves the right to request a change in formulation rates or application methods for the duration of the contract. Any such change and additional costs incurred would be agreed to in written correspondence between the Company and the City.
* All injections of ash trees must be with a liquid formulation of 4% EB every two years. The City may give preference to formulations that pose the lowest health risks to applicators as determined by the US EPA signal word listed on the product label. No substitutions of the formulations shall be allowed.
* Injections must be made at the soil line to ensure the best distribution of the insecticide throughout the tree. The Company may have to pull back mulch, grass, or soil.
* **Equipment:** It is the responsibility of the Company to provide all necessary equipment to complete the contract under these specifications.
* Equipment must remain in proper operating condition throughout the term of the contract. The Company is responsible for cleaning and providing upkeep to the injection system on a daily basis. Any maintenance issues or repairs are the sole responsibility of Company.
* The Company must use a high-helix drill bit and must replace the drill bits after every 100 dbh inches to maintain high efficiency. Drilled holes must be the size recommended by the injection equipment manufacturer. The City may give preference for injection systems that require the smallest diameter holes.
* Injection holes on ash must be drilled to a depth of approximately 1 inch below the bark to maximize delivery of EB into ash trees.
* EB must be injected into ash trees using current industry standard injection systems that have efficacy data that supports their use.
* All injected trees must be tagged with the year of injection clearly indicated on the tag. The Company must provide tags for all injected trees. The tags must be of a design and type that can persist on the tree for at least 3 years.

**Guarantee and Warranty:** The Company must offer a clear written guarantee and warranty for tree injections based on Company-dictated criteria if one exists. If a healthy injected tree dies of EAB within the guarantee period, the Company must uphold their agreements with the City and the private property owner.

**Property Access and Notification:** The Company shall not enter private property without having previously obtained permission from the property owner. If Company personnel desire to enter private property to access trees on a City-owned property, it is their responsibility to notify the underlying property owner by knocking on the door at the time of the site visit or making a phone call ahead of time. Every attempt shall be made to contact the City forester to notify the Company’s intent to access a City-owned site through private property.

**Contract Supervision and Form of Order to Proceed:** The City shall refer residents interested in private property tree injections throughout the treatment period of June-September of each year in a format mutually agreed upon prior to the start of the Project.

**Private Property Tree Inspections:** Prior to recommending treatment, all proposed ash trees shall be inspected by a qualified Company employee. There may be instances when a tree is not in suitable health, condition, or location to warrant treatment. The Company shall have an individual experienced in communicating tree information to explain such decisions. The person assigned to inspect the trees shall be, at the very minimum, a Certified Minnesota Tree Inspector, or have a degree in forestry, or be an ISA Certified Arborist. The individual shall be qualified to diagnose EAB and have experience evaluating tree condition. Additionally, the individual shall be able to explain the benefits and risks of all ash protection options with regard to pollinators, water quality, human health, soil health, and tree health and condition.

**Hours of Operations and Company Identifications:** The City reserves the right to set limits on hours of operation for work on Saturdays, Sundays, and holidays. All weekend or holiday work must be approved by the City ahead of time. Certified applicators and GPS staff shall wear Company uniforms and/or a high visibility/safety vest at all times during field operations. Every Company vehicle associated with the Project shall display a Company logo or name.

J. Michael Orange is the Principal of ORANGE Environmental, LLC, an environmental consulting company, St. Paul, Minnesota.

1. <http://www.mnstac.org/uploads/2/0/9/3/20933948/mnstac_model_eab_management_plan.pdf> [↑](#footnote-ref-1)
2. McCullough, Deborah G.; Mercader, Rodrigo J.; “Evaluation of potential strategies to SLow Ash Mortality (SLAM) caused by emerald ash borer (Agrilus *Plan*ipennis): SLAM in an urban forest,” *International Journal of Pest Management*, Vol. 58, No. 1, January–March 2012, 9–23. [↑](#footnote-ref-2)
3. If awarded a contract to implement an EAB management plan or for ash tree injections of city-owned trees, some companies will collaborate with the city to enroll high-quality ash trees not owned by the city and offer discount treatment rates to their owners. [↑](#footnote-ref-3)
4. “Frequently Asked Questions Regarding Potential Side Effects of Systemic Insecticides Used To Control Emerald Ash Borer,” <http://extension.entm.purdue.edu/eab/PDF/potentialSideEffectsofEABInsecticidesFAQ.pdf> [↑](#footnote-ref-4)
5. <http://www.mnstac.org/uploads/2/0/9/3/20933948/statewide_atp_program_summary_083016.pdf> [↑](#footnote-ref-5)
6. <http://www.emeraldashborer.info/files/conserve_ash.pdf> [↑](#footnote-ref-6)
7. Refer to the pesticide safety references in Part 1 of this guidance document, Section 11, Pesticide Safety. [↑](#footnote-ref-7)
8. Refer to restrictions on the public use of proprietary information in the following section. [↑](#footnote-ref-8)