

# Ash Utilization Options: An Urban Wood Recycling Demonstration Project in Southeast Michigan

Submitted by Southeast Michigan RC&D Council  
September, 2003 – September, 2005

## Introduction

The emerald ash borer is a destructive, exotic pest of ash (*Fraxinus* species) in the United States. Ash is an economically important tree species in the eastern U.S. It is a major component of hardwood forests in the region and is also a predominant urban street tree species. An Emerald Ash Borer infestation is underway in southeastern Michigan. Significant ash mortality is occurring. The Michigan Department of Agriculture (MDA) in cooperation with the USDA Animal and Plant Inspection Service (USDA APHIS) initially quarantined a six-county area in southeast Michigan. The Emerald Ash Borer was initially discovered in the summer of 2002 in six southeast Michigan counties (Livingston, Macomb, Monroe, Oakland, Washtenaw and Wayne). Discovery of additional infestations has expanded quarantined area. To date, EAB has killed or damaged almost six million ash trees in this six-county area.

MDA is planning to remove dead, dying and healthy ash within a 2,500 square mile area in order to eradicate this pest. As a result of this eradication process, significant volumes of wood fiber will be created. This pilot project is an attempt to create economic benefits by recycling this harvested material into value added products.

## Current Situation

MDA is operating six ash disposal sites. At these sites infested and non-infested ash are processed to eliminate potential breeding and feeding material for the emerald ash borer. Ash that does not reach a value-added market will be sent to a landfill.

There are several existing markets for material harvested during the eradication process. The major markets for this material in the Detroit area are industrial biomass fuel and landfill cover. Smaller markets exist for commercial landscape mulch, wood pulp chips and solid wood products. These solid wood products can be items such as lumber or railroad ties. More information about these markets is needed.

The State Forester's office has information regarding the location of biomass fuel users, firewood processors, tree care firms and sawmills. MDA has information regarding the location of mulch manufacturers. Landfill locations are also widely known. Additional information about other potential users of this processed material is needed.

New markets may also be available. Chips can be used as a bulking agent for sewage sludge composting, or as feedstock for creation of pyrolysis oils. Pyrolysis oils can be used as heating oil, a carrier for creosote treating, or as a feedstock for the production of various wood chemicals. All of these uses need to be demonstrated in this area.

## Proposal Goal and Objectives

The short-term goal of this proposal is to demonstrate how the woody material (logs, limbs and bark) created in implementing the quarantine can be recycled into products, thus reducing the amount of material requiring disposal. This will reduce local disposal costs and in turn reduce the costs of quarantine implementation. The long-range goal is to develop local infrastructure that enables the recycling of all woody material created in caring for the urban and suburban forests of the region. Developing this system will create both economic and environmental benefits in the region.

In order to accomplish these goals the following activities will be conducted:

- **Resource and Market Characterization**

There is limited knowledge about the ash resource in the quarantine area. Although assumptions can be made about forest-grown trees in the area, street tree quality is more problematic. Estimates of volume by size class are available from a survey done in the summer of 2002. Additional information on log quality is

needed to determine the best economic options for processing this material. Once the resource is characterized this information will be publicized and disseminated to potential users such as mill operators, timber buyers, business development experts, entrepreneurs, and other interested parties.

There is limited knowledge of the markets for this material in the Detroit area. Identification of potential users, the prices per ton or cubic yard that they are willing to pay, and the quality/quantity of new material they can use is needed.

- **Training**

This value-added recovery system includes several major training opportunities. First is the training of city foresters, tree service companies, city maintenance staff, park superintendents, road commission tree crews, and arborists in tree grading, log grading, log bucking and transportation. The second training opportunity is for the chipping site managers regarding log storage, log processing options, and markets. The third opportunity is for local sawmill operators to better understand this resource. This would include information on log quality, metal detection technologies; log processing systems and the subsequent lumber recovery. Additional training opportunities may arise based on project development.

- **Value-Added Manufacturing Demonstrations**

Potential products include landscape materials (chips, mulch), and solid wood items (lumber, timbers, and railroad ties). Some of these products are valued at \$200 to \$1000 per thousand board feet (Mbf). As an example, an 11-inch log contains about 42 bd. ft. of lumber. This log might be worth \$16.00 as a railroad tie (\$380/Mbf) or \$18.00 as factory grade lumber. New products include use as a carbon source for compost and as a feedstock for bio-oil production. Each of these products can be manufactured from a portion of the fiber resource that is removed during implementation of the quarantine strategy. Full utilization of this material will also provide both economic benefits and good public relations opportunities.

The value-added manufacturing component will be done in cooperation with the ash disposal site contractors, communities, tree services and other private businesses in the affected counties. Specific manufacturing demonstrations of these products will be conducted in cooperation with industry partners.

## **Methods and Procedures:**

- **Inventory** – Project cooperators will demonstrate a stratified sampling system in two counties to characterize the street, yard, and woodlot tree volume, quality, and estimated value. At the same time a mail survey will be conducted throughout the RC&D area to determine the current volume of material being removed on a yearly basis as well as the costs associated with these removals. This inventory and mail survey will be conducted by a contractor.
- **Training** – Project cooperators will conduct a variety of training sessions to improve local understanding of the local tree resource, recycling this resource into useable products, manufacturing such products, marketing these products and developing businesses that can use these products. Training will be provided to city foresters, tree service companies, city maintenance staff, park superintendents, road commission tree crews, arborists, city planners, economic developers, and entrepreneurs.
- **Value-Added Manufacturing and Business Development** – Project cooperators will develop a Request for Proposals (RFP) to invite communities, non-profits, businesses and entrepreneurs to be involved in the demonstration of recycling and value-added opportunities. The RC&D Council will conduct the outreach process for this RFP throughout the RC&D Area. Applicants will be asked to provide matching funds or in-kind contributions of at least 2:1. Proposed projects will demonstrate how woody material generated in southeast Michigan can be recycled into useable products in order to reduce the volume of material going to landfills.

## Appendix A

**Primary Goal:** Businesses recycle ash removals into useable products.

### **Assumptions:**

1. Typical ash log is low to medium quality.
2. Primary products produced are for industrial products such as wood packaging materials, railroad ties, etc.
3. Logs processed are at least 6 inches (DIB) at the small end.
4. Smaller material is chipped. Chips are used for mulch, compost, or energy purposes.
5. All slabs from converted logs are chipped.
6. Work initially with existing mills in local area.

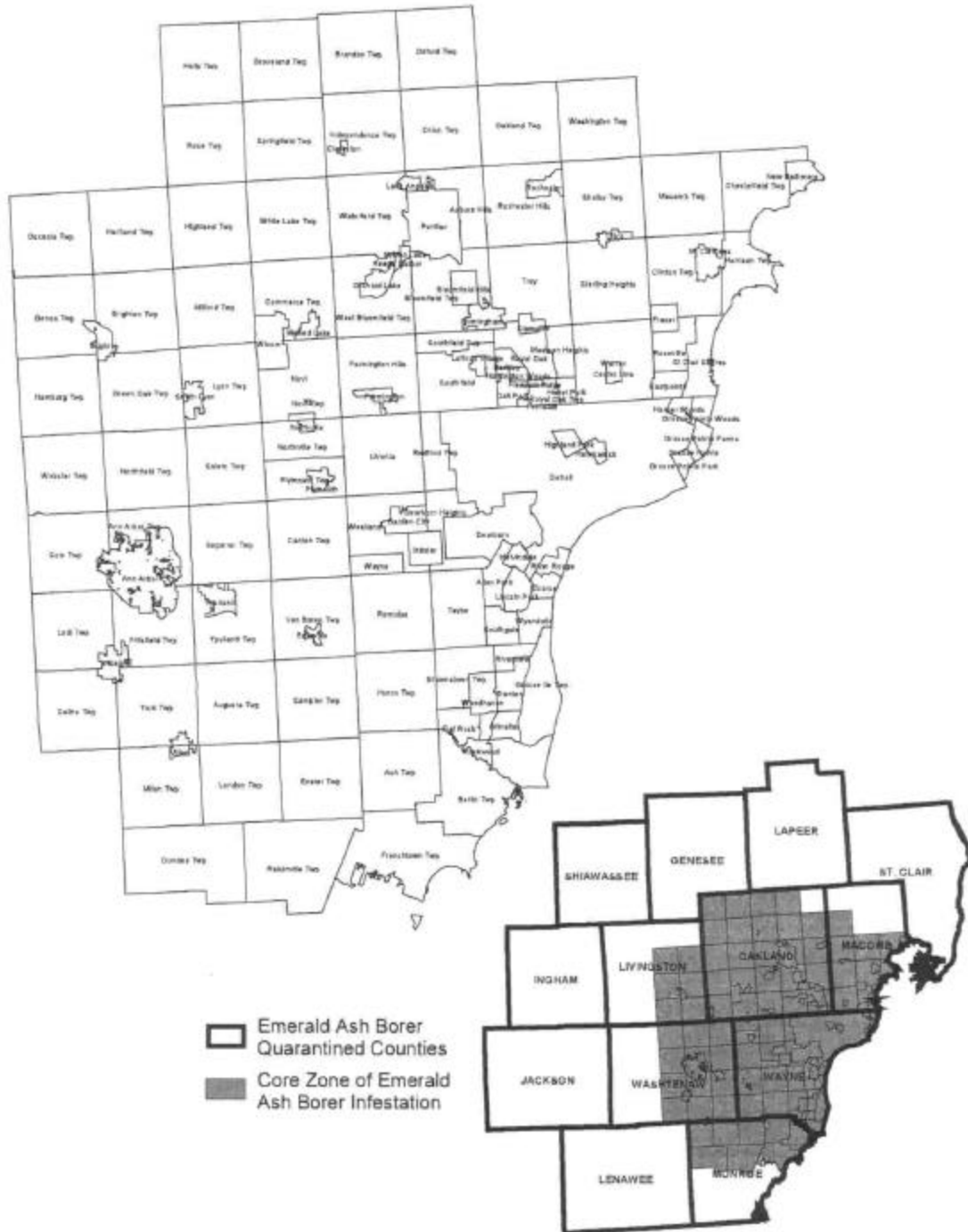
### **Steps to Achieve Primary Goal:**

1. Identify all existing primary processing facilities within the surrounding area.
  - Identify production capabilities,
  - raw material requirement,
  - willingness to purchase ash removals, log specifications, and price
2. Obtain clear specifications on APHIS sanitation definitions/requirements.
3. Assess the types of ash removals that will be generated in terms of diameters, lengths, quality, foreign material, rot, etc.
4. Identify organizations that will be involved with ash removals, what their knowledge level is in regards to manufacturing saw log materials, transportation capabilities, training needs.
5. Identify most interested businesses and provide economic incentives for processing this material.
6. Provide appropriate training.

# Appendix B

## Quarantine Area Map

### Core Zone of Emerald Ash Borer Infestation



## APPENDIX C

### MICHIGAN DEPARTMENT OF AGRICULTURE PESTICIDE AND PLANT PEST MANAGEMENT DIVISION EMERALD ASH BORER INTERIOR QUARANTINE

(Revised August 5, 2003)

**WHEREAS**, the Director, Michigan Department of Agriculture, having found that an exotic pest, known as the emerald ash borer, Coleoptera: Buprestidae: *Agrilus planipennis*, has been detected in this state and has a limited distribution at this time; and

**WHEREAS** the emerald ash borer has been found infesting and killing ash, *Fraxinus* spp. trees in certain counties and townships, and

**WHEREAS**, ash trees are a valuable resource for the nursery, landscaping and timber industries in Michigan; and

**WHEREAS**, the Secretary of Agriculture of the United States has not issued a quarantine regulating this pest;

**NOW, THEREFORE**, the Director of the Michigan Department of Agriculture by the authority of Section 6 of Act No. 72 of the Public Acts of 1945, as amended, and Quarantine Regulation No. 620, does promulgate this quarantine to prevent the further spread of this pest and sets forth: definitions, regulated articles, regulated areas, conditions of movement, violations and penalties, and special exemptions. This revised quarantine shall become effective immediately and will remain in effect until rescinded by the Director.

#### I. DEFINITIONS.

The following terms shall be construed to mean:

- (A) DIRECTOR means the Director of the Michigan Department of Agriculture or his or her authorized representative.
- (B) INSPECTOR means an employee of the Department of Agriculture authorized to enforce the provisions of this quarantine
- (C) INFESTATION means the presence of the ash borer or the existence of the circumstances that make it reasonable to believe that the ash borer is present.
- (D) CERTIFICATE and CERTIFICATE OF INSPECTION mean a document issued or authorized to be issued by the Director, including state-issued certificates of quarantine compliance, state phytosanitary certificates and multiple-use quarantine certificates, to allow the movement of regulated articles to any destination.
- (E) COMPLIANCE AGREEMENT means a written agreement between a person moving regulated articles and the Department of Agriculture wherein the former agrees to comply with the requirements of the agreement
- (F) PERSON means an individual, society, association, partnership, corporation or other organized entities.
- (G) MOVED (MOVE, MOVEMENT) means shipped, offered for shipment, received for transportation, transported, carried, or allowed to be moved or shipped.

#### II. REGULATED ARTICLES.

- (A) The emerald ash borer, Coleoptera: Buprestidae: *Agrilus planipennis*, in any living stage of development.
- (B) Entire ash (*Fraxinus* spp.) trees.
- (C) Ash limbs and branches.
- (D) Ash logs or untreated ash lumber with bark attached.
- (E) Uncomposted ash chips and uncomposted ash bark chips larger than 1 inch in diameter.

- (F) Any article, product or means of conveyance when it is determined by the Director to present the risk of spread of the emerald ash borer, Coleoptera: Buprestidae: *Agrilus planipennis*.
- (G) Any cut firewood of any species originating from regulated areas

### III. REGULATED AREAS.

The following counties are designated as regulated areas: Genesee, Ingham, Jackson, Lapeer, Lenawee, Livingston, Macomb, Monroe, Oakland, Saint Clair, Shiawassee, Washtenaw and Wayne Counties.

### IV. CONDITIONS OF MOVEMENT OF REGULATED ARTICLES.

- (A) Movement of the regulated articles from any regulated area to any destination outside the regulated area is prohibited, except under the following conditions:
  - 1. A thorough examination of all regulated articles and treatment methods must take place. A certificate of inspection may be issued based upon the determination by the inspector, grower, or shipper authorized to conduct such inspection under a Compliance Agreement, that no life stages of emerald ash borer, Coleoptera: Buprestidae: *Agrilus planipennis* are present; based on conditions or treatments administered in accordance with methods approved by the Director.
  - 2. The certificate of inspection shall be attached to the regulated articles, and shall remain on the regulated articles until such articles reach their final destination, except when the certificate of inspection is attached to the shipping document and the regulated article is adequately described on the shipping document or on the certificate of inspection.
- (B) All regulated articles originating outside the regulated area may move through the regulated area without a certificate of inspection for this pest, under the following conditions:
  - 1. Passage through the regulated area is made during the period of Sept 1 through April 30 or when the ambient air temperature is below 40 degrees F. and passage is made without stopping except to refuel or for traffic conditions; or during the period of May 1 through August 31 when the temperature is 40 degrees F. or higher if the articles are shipped in an enclosed vehicle or is completely enclosed by a covering adequate to prevent access by the emerald ash borer, Coleoptera: Buprestidae: *Agrilus planipennis*.
  - 2. The point of origin of the regulated article must be indicated on the bill of lading or shipping documents.
- (C) Regulated articles originating outside any regulated area which are moved into the regulated area and exposed to potential infestation by emerald ash borer, Coleoptera: Buprestidae: *Agrilus planipennis*, shall be considered to have originated from a regulated area. These regulated articles may only be moved from the regulated area under the conditions noted in IV (A) above.
- (D) Movement of regulated articles from any regulated area through any non-regulated area to a regulated destination is prohibited without a certificate of inspection for this pest, except under the following conditions:
  - 1. Passage through a non-regulated area is made during the period of Sept. 1 through April 30 and the passage is made without stopping except for refueling or for traffic conditions; or during the period of May 1 through August 31 if the articles are shipped in an enclosed vehicle or completely enclosed by a covering adequate to prevent the escape of any emerald ash borer, Coleoptera: Buprestidae: *Agrilus planipennis*

2. The county and state of origin and the final destination of the regulated articles must be indicated on the bill of lading or shipping documents.
- (E) The bill of lading or shipping documents accompanying any shipment of regulated articles within or through Michigan shall indicate the county and state of origin of the regulated articles.
- (F) The sale and movement of all ash nursery stock within or into Michigan's Lower Peninsula is prohibited until August 1, 2004. This area consists of those 68 contiguous Michigan counties lying between the Michigan-Indiana/Ohio state line to the south and the northernmost point of Emmett County to the north.
- (G) There exists a core area, which as the result of survey information, is considered generally infested with emerald ash borer. Movement of regulated articles from areas within the core area into any other area is prohibited, except as noted in section IV (A) above.

The following counties, townships and municipalities define this core area:

**Livingston County:** Brighton, Brighton Twp., Genoa Twp., Green Oak Twp., Hamburg Twp., Hartland Twp. and Osceola Twp.;

**Macomb County:** Center Line, Chesterfield Twp., Clinton Twp., East Detroit, (Eastpointe), Fraser, Harrison Twp., Macomb Twp., New Baltimore Twp., Roseville Twp., Saint Clair Shores, Shelby Twp., Sterling Heights, Utica, Warren and Washington Twp.;

**Monroe County:** Ash Twp., Berlin Twp., Dundee Twp., Exeter Twp., Frenchtown Twp., London Twp., Milan, Milan Twp., and Raisinville Twp.;

**Oakland County:** all townships and municipalities in Oakland County except Addison Twp.;

**Washtenaw County:** Ann Arbor, Ann Arbor Twp., Augusta Twp., Lodi Twp., Milan, Northfield Twp., Pittsfield Twp., Salem, Salem Twp., Saline, Saline Twp., Scio Twp., Superior Twp., Webster Twp., Ypsilanti, Ypsilanti Twp. and York Twp.;

**Wayne County:** the entire county.

For restriction on the movement of all ash nursery stock see section IV (F) above.

## V. VIOLATIONS AND PENALTIES.

(A) Any regulated article from the quarantined area, moved within Michigan in violation of this quarantine shall be removed from the non-regulated area immediately or destroyed at the expense of the owner or owners, under the direction of the Director.

(B) Any violation of this quarantine is subject to the full authority of Act No. 72, Public Acts of 1945, as amended.

## VI. SPECIAL EXEMPTIONS.

(A) The Director may allow, with written approval, the movement of emerald ash borer, Coleoptera: Buprestidae: *Agilus planipennis*, into or within Michigan for research purposes.

(B) Uncomposted ash chips and uncomposted ash bark chips 1 inch and smaller in diameter are not considered to be regulated articles under this quarantine and therefore are exempt from the conditions of movement prescribed.