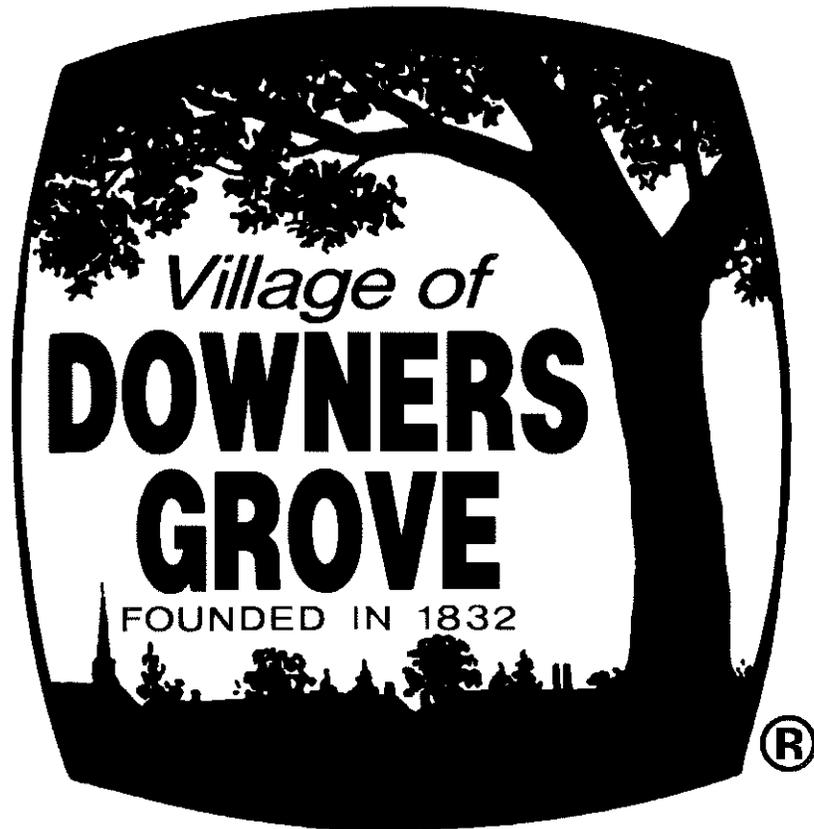


Village of Downers Grove



Emerald Ash Borer Management Plan

Prepared by Downers Grove Public Works Department
Forestry Division - revised February 2017

Introduction

The Emerald Ash Borer (EAB) is an exotic beetle from Asia. It was first discovered in the United States in 2002 in southeast Michigan. Since that time, this destructive beetle has also been found in several states including Illinois, Indiana, Ohio, and Wisconsin. Larvae of EAB beetles bore into native American ash trees and feed in the phloem and outer sapwood. This feeding produces galleries that eventually girdle and kill branches and entire trees. Evidence suggests that EAB had been established in Michigan for at least 6 to 10 years prior to being identified in 2002. Millions of ash trees are dead or dying from this pest, and millions more ash trees have been removed in hopes of containing EAB infestations.



Between 2006 and 2012, infestations have spread in Illinois such that Downers Grove and all surrounding communities have positively confirmed EAB infestations.

The Village of Downers Grove's Emerald Ash Borer Management Plan

Downers Grove has made a continued commitment to preserve and perpetuate trees along Village streets and on Village properties. Evidence of this commitment includes an active urban forestry program for over 4 decades, ordinances protecting trees during construction, and the Village's status as a Tree City USA community since 1984.

This *Emerald Ash Borer Management Plan* is to serve as the Village of Downers Grove's guide to managing the Village's ash trees. The goal of this plan is to take a proactive, methodical, and measured approach to slow the spread of EAB in Downers Grove while attempting to minimize the impact of tree loss to Downers Grove's neighborhoods. This management plan recognizes three important facts:

1. Infested and other distressed ash tree represent a haven for EAB and can promote the spread of the beetle to other healthy trees, therefore these ash trees on public parkways and public property must be removed.
2. Healthy ash trees that are not showing signs or symptoms of EAB infestations are a positive part of Downers Grove's urban forest. These trees will remain until they are no longer healthy or are infested and then will be removed. This will help slow the loss of tree canopy in Downers Grove neighborhoods.
3. The removal of ash trees from the urban forest will change the landscape of the community. Reforestation where ash tree have been removed is essential for maintaining the appeal of the neighborhoods and emphasizing our continued commitment to the environment.

The Emerald Ash Borer Beetle



The EAB adult is a dark green metallic beetle only about ½” in length. EAB adult beetles emerge from infested trees beginning in mid-May, peaking in late June, and continue emerging until late July. Emerging adults make distinctive small D-shaped exit holes on the branches and trunk. EAB beetles feed on ash foliage causing irregularly shaped patches along leaf margins and minor feeding damage. Female EAB beetles lay approximately 75 eggs on the bark of branches and trunks from late May through July with hatching occurring in about one week. Larvae tunnel into the cambium area between the inner bark and outer ring of wood, feed on phloem and outer sapwood, and produce serpentine galleries (tunnels). It is this larval stage that does the major damage by disrupting the flow of water and nutrients to the tree. Feeding is complete in autumn and larvae overwinter in shallow chambers. The following April, larvae begin pupation and then new adults start to emerge in May, starting the lifecycle over again.

All native North American ash trees are susceptible to EAB attack. In Downers Grove, common susceptible ash species include green ash, white ash, and blue ash. This also includes horticultural cultivars of these species such as ‘Autumn Purple’ white ash and ‘Patmore’ green ash. Healthy ash trees as well as declining ash trees are vulnerable. The EAB beetle does not attack mountain-ash, prickly-ash, or wafer-ash because, despite their name, they are not in the Ash Genus (*Fraxinus*).

Early infestations of EAB can be difficult to detect. Initially starting at the top of the tree, a new infestation causes the leaves in the upper third of the tree to thin, and then branches begin to die back. As EAB infestations progress through the entire tree, large numbers of shoots or branches may develop below the dead portions of the crown and trunk. As EAB numbers increase, tiny “D-shaped” exit holes (only 1/8”) where adults emerge from branches and trunks become more apparent. When the bark is peeled back on an EAB infested tree, serpentine shaped EAB larval feeding tunnels are apparent. Increased numbers of EAB larvae may also attract woodpeckers that then peck out the outer tree bark and create large holes while extracting the EAB larvae. Once infested with EAB, ash trees often die within 3-4 years.

Experts believe that the beetle arrived in the US from Asia as far back as the early 1990’s. It is thought that the larvae hitched a ride traveling in wood used to stabilize shipping cargo. The adults are good flyers, so they can move great distances on their own. Also, pockets of EAB outbreaks have been linked to the movement of ash firewood and nursery stock out of infested areas.

State and Federal Response

A coalition of local, state and federal agencies are working together to stop the national spread of EAB. In Illinois, the Illinois Department of Agriculture (IDA) is the lead agency responsible for the control of invasive pests and the state’s EAB program. The federal agency U. S. Department of Agriculture’s Animal and Plant Health Inspection Service (USDA APHIS) assists with the regulatory and control action at the request of the state. The USDA-APHIS has established a federal EAB quarantine to include the entire states of Illinois, Indiana and Ohio, and the entire lower peninsula of Michigan. This federal order restricts the interstate movement of regulated articles that originate within the quarantine area. Regulated articles include ash nursery stock and green lumber; and any other ash material including logs, stumps, roots, branches, as well as composted and uncomposted wood chips. Due to the difficulty in distinguishing between species of hardwood

firewood, all hardwood firewood, including ash, oak, maple and hickory are regulated articles. In addition to identifying Illinois infestations, declaring EAB a Public Nuisance in Illinois, and requiring all firewood importers to annually register, IDA has created a comprehensive EAB website <http://www.illinoiseab.com/> which is now frequently updated with useful information for communities and property owners. This website <http://www.illinoiseab.com/> has maps of the federal quarantine, links to other EAB websites, copies of management plans, and other treatment options.

Downers Grove Contacts and Outreach

Given the complicated nature of EAB, the importance of trees to our community and that ash trees are present on public and private property, the Public Works Department Forestry Division is the contact for Village residents. This includes:

1. Kerstin G. von der Heide, Village Forester, office 630-434-5475, e-mail kvonderheide@downers.us
2. Mike Neumann, Assistant Village Forester, office 630-434-5476, e-mail mneumann@downers.us
3. Public Works Department, 5101 Walnut Avenue, Downers Grove, IL 60515 630-434-5460

Using the Village's communication tools such as the website at www.downers.us and newsletters, a public education campaign has been implemented to notify and educate residents about EAB, plans to remove or treat ash trees, and plans for reforestation. Direct mailings and doorhangers are also used to describe activities for specific individual trees. EAB pamphlets and brochures are available at Public Works Department and Civic Center front lobbies.

Public Works Forestry staff will coordinate with Village Public Relations staff for press releases and other related news items as EAB spreads throughout the Village.

Downers Grove Parkway Ash Tree Population

Forestry staff has a computerized tree inventory of all the public parkway trees and ash at one time represented more than 19% of the public parkway tree population. This percentage has now been reduced to just over 8.6%. The current ash tree inventory can be graphically displayed on the attached map. Each green dot represents an ash tree on the map, and some streets are colored almost a solid green due to the large numbers of ash trees. The majority of the larger size ash trees were planted in the 1970's.

In the Chicagoland area, Downers Grove is not alone in having planted so many ash trees. Previous to EAB, both green and white ash were durable, low cost trees which performed well in all types of soil and landscape conditions. White ash in particular has a pleasing form and beautiful fall color as shown to the right.



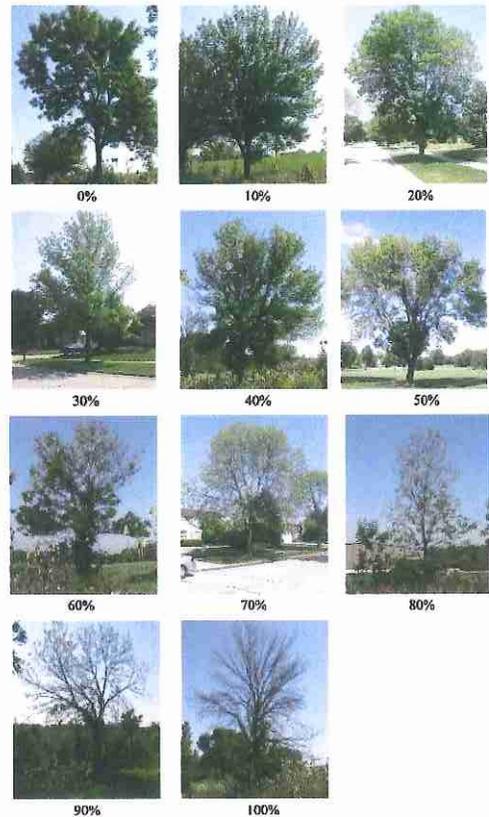
To help slow the spread of EAB, the Village is taking a proactive, multi-faceted approach that includes:

1. Surveying of all Village owned ash trees
2. Treatment of some ash trees with insecticides
3. Removing dead, poor condition, or potentially infested ash trees
4. Replanting trees where ash tree have been removed

Surveying Ash Trees

All parkway trees including ash trees, are surveyed on an annual basis. Once in full leaf by early June, ash trees are rated by the amount of canopy dieback. The pictures to the right illustrate the canopy dieback rating system with 0% for no dieback, and then increments of 10 up to 100% where the entire tree is dead. This information is then recorded on the computer inventory and trees sorted by their rating. Forestry staff is aggressively reviewing those with ratings of 50% or greater and marking removals as appropriate. This also includes removing those ash trees that have continual branch breakage, are misshapen or have poor form, have severe structural defects such as decay or cracks, or are otherwise unhealthy.

Staff is also following up on all calls from the public regarding ash trees on both public and private property. Though there are other insects and environmental factors which may cause ash trees to have holes or decline and deadwood, staff is examining all reported ash trees for EAB.



Treatment of Some Ash Trees

Weighing all pros and cons, several different insecticides are being utilized on select parkway ash trees including soil and trunk injections. Of particular concern are those sections of the Village where green ash and white ash trees are the only tree species on the parkway for the entire block where EAB will cause significant canopy changes.

Between 2008 and 2016, various insecticide treatments have been applied. These include soil applications of imidacloprid products, trunk injections of a products called TreeAge or Boxer, a combination of trunk and soil injections of imidacloprid products, and soil drench treatments with Safari and higher concentrations of imidacloprid. Though results for treatments have not been consistent, the rate of ash tree loss has been reduced to manageable levels. Ash trees are re-evaluated every year and the number which are treated is adjusted based on previous successes and budget.

The table below summaries activities to date.

Date	Company	Service	Product	Unit Price	Tree #
April 29, 2008	Forestry crew	Soil drench	Imidacloprid		31
Sept 22, 2008	Spring Green	Soil injection	Imidacloprid	\$9.00 per tree	378
Sept 24, 2008	Spring Green	Soil injection	Imidacloprid	Homeowners paid	137
Oct 24, 2008	TruGreen	Trunk injection	TREE-age	\$95(10) to \$125(5)	15
April 29, 2009	Spring Green	Soil injection	Imidacloprid	\$10.5 per tree	137
May 11, 2009	Forestry crew	Soil drench	Imidacloprid		31
Sept 22, 2009	Spring Green	Soil injection	Imidacloprid	\$9.00 per tree	673
April 19, 2010	Emerald Tree Care	Soil injection	Imidacloprid + Classic 18-3-6 fertilizer + Essential Plus 1- 0-1	\$1.08 per DBH inch	313*
April 22, 2010	B Haney & Sons	Soil injection	Imidacloprid	\$0.52 per DBH inch	1003
May 14, 2010	Forestry crew	Soil drench	Imidacloprid		31
May 21, 2010	Emerald Tree Care	Trunk injection	Imidacloprid	\$2.69 per DBH inch	313*
April 25, 2011	Emerald Tree Care	Soil injection	Imidacloprid	\$0.49 per DBH inch	981
May 12, 2011	Emerald Tree Care	Soil injection	Imidacloprid + Classic 18-3-6 fertilizer + Essential Plus 1- 0-1	\$0.94 per DBH inch	293*
June 1, 2011	Forestry crew	Soil drench	Imidacloprid		30
June 11, 2011	Emerald Tree Care	Trunk injection	Imidacloprid	\$2.55 per DBH inch	293*
June 14, 2011	TruGreen	Trunk injection	TREE-age	\$4.39 per DBH inch	151
April 20, 2012	Emerald Tree Care	Soil drench	Imidacloprid	\$0.50 per DBH inch	951
April 25, 2012	Emerald Tree Care	Soil drench	Imidacloprid + Classic 18-3-6 fertilizer + Essential Plus 1- 0-1	\$0.96 per DBH inch	290*
May 10, 2012	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1- 0-1	\$0.98 per DBH inch	366
May 18, 2012	Emerald Tree Care	Trunk injection	Imidacloprid	\$2.60 per DBH inch	290*
June 4, 2012	Forestry crew	Soil drench	Imidacloprid		57
June 9, 2012	Forestry crew	Soil drench	Imidacloprid		186
June 12, 2012	TruGreen	Trunk injection	TREE-age	\$4.95 per DBH inch	105
August 3, 2012	Emerald Tree Care	Soil drench	Safari dinotefuran	\$3.75 per DBH inch	143

Date	Company	Service	Product	Unit Price	Tree #
October 31, 2012	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.98 per DBH inch	214
April 26, 2013	Emerald Tree Care	Soil drench	Imidacloprid	\$0.51 per DBH inch	933
April 27, 2013	Emerald Tree Care	Soil drench	Imidacloprid + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.98 per DBH inch	289*
May 6, 2013	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.98 per DBH inch	388
June 3, 2013	Emerald Tree Care	Trunk injection	Imidacloprid	\$2.65 per DBH inch	289*
June 5, 2013	TruGreen	Trunk injection	TREE-age	\$4.95 per DBH inch	144
June 11, 2013	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.98 per DBH inch	417
June 14, 2013	Forestry crew	Soil drench	Imidacloprid		39
June 15, 2013	Forestry crew	Soil drench	Imidacloprid		136
July 10, 2013	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.98 per DBH inch	460
July 11, 2013	Forestry crew	Soil drench	Imidacloprid		21
July 12, 2013	Emerald Tree Care	Soil drench	Safari dinotefuran	Homeowners paid	3
May 1, 2014	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.85 per DBH inch	2179
May 2, 2014	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.85 per DBH inch	286*
June 17, 2014	Emerald Tree Care	Trunk injection	Imidacloprid	\$2.65 per DBH inch	286*
June 18, 2014	TruGreen	Trunk injection	TREE-age	\$4.49 per DBH inch	99
June 25, 2014	Forestry crew	Soil drench	Imidacloprid		102
July 15, 2014	TruGreen	Trunk injection	TREE-age	\$4.49 per DBH inch	4
May 1, 2015	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.87 per DBH inch	1932

Date	Company	Service	Product	Unit Price	Tree #
May 2, 2015	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.87 per DBH inch	284*
June 6, 2015	Emerald Tree Care	Trunk injection	Imidacloprid	\$2.70 per DBH inch	284*
June 9, 2015	Forestry crew	Soil drench	Imidacloprid		40
June 10, 2015	TruGreen	Trunk injection	TREE-age	\$4.49 per DBH inch	118
May 1, 2016	Emerald Tree Care	Soil drench	Imidacloprid 2x rate + Classic 18-3-6 fertilizer + Essential Plus 1-0-1	\$0.89 per DBH inch	1540
May 4, 2016	Forestry crew	Soil drench	Imidacloprid		38
June 18, 2016	Emerald Tree Care	Trunk injection	Boxer	\$3.05 per DBH inch	293
June 26, 2016	TruGreen	Trunk injection	TREE-age	\$4.49 per DBH inch	103

* same group of trees received 2 different treatments in 1 year

Removal of Ash Trees

Removal of ash trees occurs when health and condition are not expected to improve. In general, ash trees marked for removal are dying (50% or greater canopy dieback), have continual branch breakage, have severe structural defects such as decay or cracks, are misshapen or have poor form, are under or near power-lines, or are otherwise unhealthy.

Forestry staff is carefully scrutinizing all ash trees and is looking for any of the eight identifiable signs and symptoms that an ash tree may be infested with EAB:

1. dieback,
2. sprouting,
3. bark splits,
4. D-shaped holes,
5. S-shaped larvae galleries,
6. presence of larvae,
7. woodpecker damage,
8. and presence of adult EAB beetles

If two or more signs and symptoms are present or the ash tree is at least 50% dead, trees will be removed. Signs and symptoms can be seen at <http://www.downers.us/res/forestry/trees-insects-and-diseases>.

Reforestation

If suitable space is available after an ash tree has been removed, replacement tree plantings are scheduled with a diverse variety of tree species. The forestry goal is to not have more than 5% any one species on the parkway. Resident requests and preferences are honored whenever practical. The Village of Downers Grove purchases its trees annually through the Suburban Tree Consortium and utilizes the Consortium's contractor to plant trees. Specifics regarding tree

selection and planting practices are discussed in Downers Grove's *Urban Forestry and Municipal Landscape Maintenance Program* manual which can be viewed online at <http://www.downers.us/res/forestry/urban-forestry-and-municipal-landscape-manual>.

Impact of EAB Management Plan on Downers Grove Tree Inventory

Surveying, treating, removal and replacing ash trees will have an impact on the composition of tree species that comprise the tree inventory. Annual tree inventory counts, treatment records, trees removal activities and new tree planting quantities shall be discussed and updated in the annual version of the Downers Grove's *Urban Forestry and Municipal Landscape Maintenance Program* manual which can be viewed online at <http://www.downers.us/res/forestry/urban-forestry-and-municipal-landscape-manual>.

Since May 2006 when ash trees numbered 4,525 (19.04%), ash tree removals and replacement tree plantings have reduced this number by over 2,550. Only a little over 1,970 parkway ash remain.

Privately Owned Ash Trees

The Village of Downers Grove recognizes that many residences and business may have ash trees on their property. The Village does not treat or remove trees on private property. If a property owner suspects that their ash tree may be infested with EAB, they are asked to contact the Public Works Department. Forestry Staff performs consultations and tree inspections as requested and as time allows.

Property owners are able and welcome to treat their private ash. Owners wishing to treat their private trees should contact a certified arborist to discuss treatment options.

Residents are encouraged to remove dead or declining ash trees. There is no permit required for tree removal on private property.

Updating of this Management Plan

This management plan will be reviewed by Public Works Forestry Division on an annual basis to determine if the plan is commensurate with current EAB infestation levels, new research and technology on EAB treatment options, and budget availability.

More Information

More information on emerald ash borer can be found at:

<http://www.illinoiseab.com>
<http://www.emeraldashborer.info/>
<http://na.fs.fed.us/fhp/eab/index.shtm>
<http://dnr.state.il.us/conservation/forestry/>
<http://www.mortonarb.org/>

Attachments

Ash Trees Map

Ash Trees February 2017

