

Managing Ash Removals (Road Allowance & Active Parks)



What do you need to do? Think about?



- Assess what you have!
- Have you done a street tree inventory?
- Have you developed a long range EAB Management Plan?
- Branch sampling for early EAB detection?
- Have you developed a criteria for removal vs injection?
- Removal approach – where do you start?
- Rating system for removals – do you have one?
- Communications...



**What approach
should you
take?**

Oakville's EAB Management Strategy



1. Ash tree treatment
2. Ash tree monitoring
3. Ash tree removals
4. Communications
5. Replanting Program

Council – options presented for EAB Management Plan

	Option 1		Option 2		Option 3	
	Impact	Annual Cost (Millions)	Impact	Annual Cost (Millions)	Impact	Annual Cost (Millions)
Municipal ash canopy protected (percent)	0		25%		75%	
Number of ash treated	0	\$0	1,700	\$0.2	5,700	\$0.6
Number of street and park ash removed	14,500	\$3.6	12,800	\$3.2	8,750	\$2.2
Total Annual Cost (first 6 yrs)		\$3.6		\$3.4		\$2.8

Council – options presented for EAB Management Plan

- Option 3 - maximizes municipal **ash canopy** conservation, it would require the annual treatment of ash trees over the expected 10-15 year period of EAB to run its course through the town.
- Option 3 - estimates do not include woodland ash trees that will require removal.
- Option 3 - estimated costs do not also reflect additional staffing and resource costs that will be required to handle the volume of trees to be removed, replanted and coordinate customer service to the community.
- Option 3 - annual consulting fees will also be required to conduct annual monitoring and surveys, and make adjustments to the program.
- 2014 EAB Management Program - Budget - \$3,580,000

Partners

- EAB Management Consultant- BioForest Technologies
- AMEC Earth and Environmental Inc.
- Town's IS+ S Department
- Canadian Forest Service (CFS)
- Williams & Associates Ltd.
- USDAFS – Forest Health Technology Enterprise Team
- All information regarding EAB is evaluated and programs targeted using a EABDSS (Emerald Ash Borer Decision Support System) This has been an important tool in assisting the town in its EAB management program; EAB treatment threshold; EAB delimitation mapping, EAB treatment program
- Hyperspectral Imagery (HSI) Project
- GIS tree layer management and updates & innovative mapping technologies
- EAB population delimitation mapping & early detection survey (branch sampling) for EAB (Dr. K. Ryall), EAB treatment threshold; EAB trap technology
- Inventory assistance
- Research and EAB detection



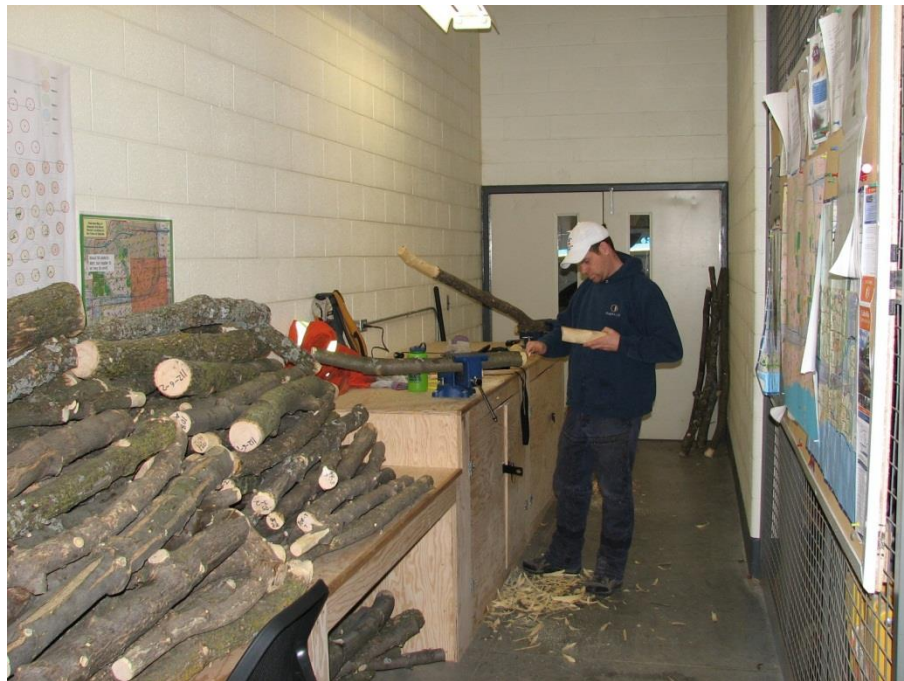
Inventory

- All street (road allowance), and park trees were inventoried
- Various details were collected (species, height, DBH, location, crown height and width, management recommendations etc.)
- 23 attributes were collected in total for each tree inventoried



Early Detection & Densities Monitoring

Branch Sampling



Green Leaf Volatile Trap Monitoring

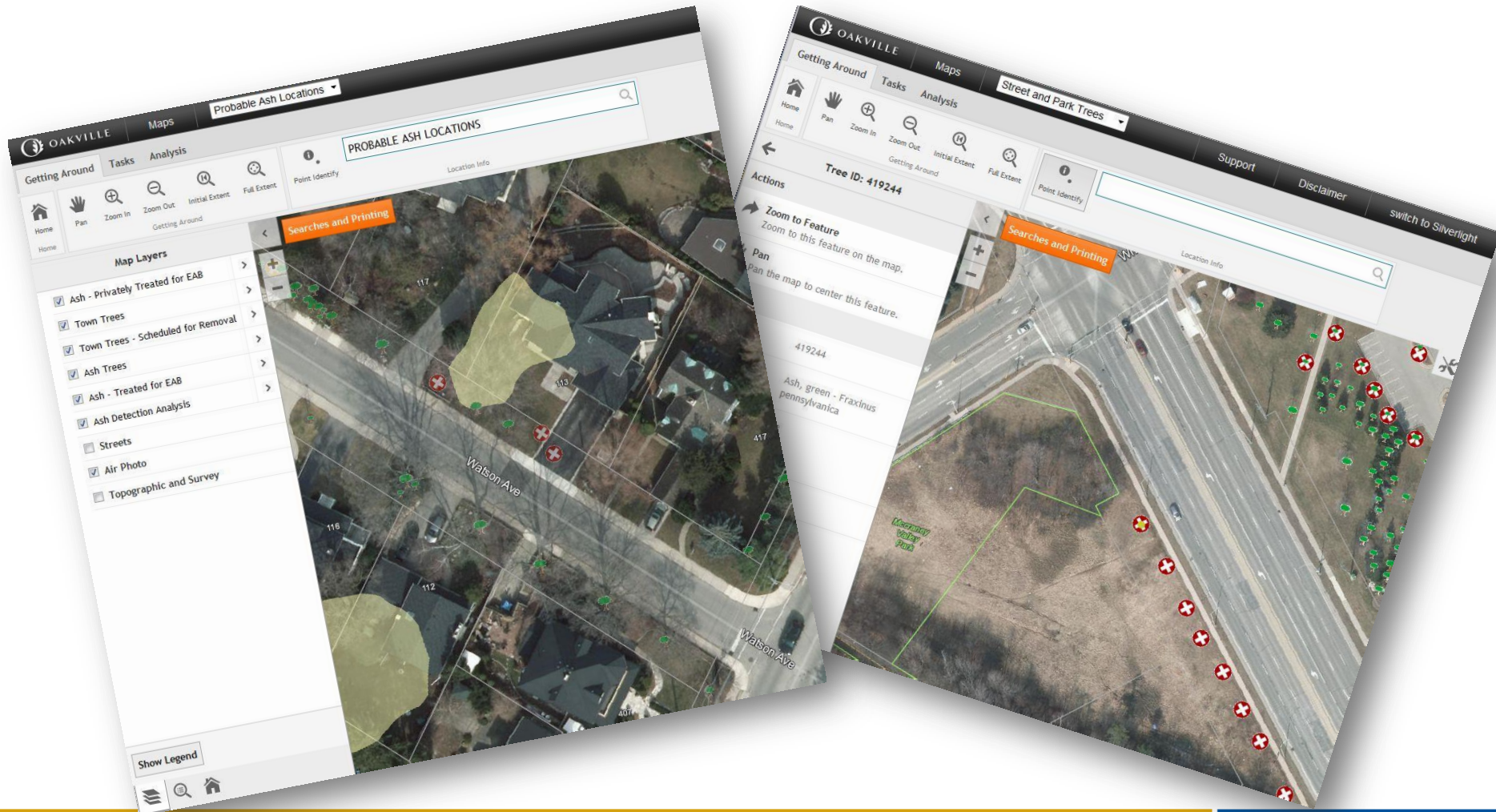


Collected Inventory Data

- Saved into our corporate database
- ArcGIS and map layers created
- Ash in the injection programs (odd and even years) listed
- Ash in removal program (high and low) priority listed
- Simplified version made available to public
- Hyperspectral remote sensing (HIS) technology used to create a layer of ash probabilities on private property - made for public use



Public Inventory Database



Street and Park Tree Inventory (ArcGIS)

Table Of Contents

Layers

- ☒ Parks_Tree_Forestry
 - STATUS
 - EXISTING
 - ON A PLANTING LIST
 - REMOVED
 - SCHEDULED FOR REMOVAL - HIGH PRIORITY
 - SCHEDULED FOR REMOVAL - LOW PRIORITY
- ☒ EAB Treatment Plan
 - ☒ Ash Treatment Cycle
 - Even
 - Odd
 - ☒ Ash - Privately Treated
- ☐ Streets GTA (Major)
- ☐ Location Conflicts
- ☐ TOTMS_Trees
- ☒ Address Points
- ☐ Property - Government Facilities
- ☐ Easement
- ☒ Transport - Roads
- ☒ Trails
- ☐ Sidewalks
- ☐ PROPERTY REGISTERED PLAN
- ☐ Parks - Cemetery
- ☒ Parks
- ☒ Parcel Registered

3

SHELL PARK

ID# 435704

Identify

Identify from: <Top-most layer>

☒ Parks_Tree_Forestry

- AALMAS

Location: 603,758.171 4,803,908.788 Meters

Field	Value
OBJECTID	117719
TreeID	435704
SPECIES	Ash, green - Fraxinus pennsylvanica
DBH	82
HEIGHT	17
CROWN_HEIGHT	12
CROWN_WIDTH	12
STUMP_SIZE	0
CONDWOOD	Fair
CONDCROWN	Fair
WIRE_CONFLICT	
LOCATION	
CROSS_ROADS	
STREET_NUMBER	3307
STREET_NAME	LAKE SHORE RD W
LOCSITE	Other
FORESTRY_ZONE	3
M_PLAN	
PLANTING_DATE	<null>
WARRANTYDATE	<null>
STUMPING_DATE	<null>
STATUS	SCHEDULED FOR REMOVAL - HIGH PRIORITY
WATER_LIST	No
INSECT1	
INSECT1	
INSECT1	
MGT_REC1	Inspect for Deadwood
MNT_REC1	MATURE TREE (ROUTINE)
MGT_REC2	
MNT_REC2	
MGT_REC3	
MNT_REC3	
OWNERSHIP	Town of Oakville
COMMENTS	
SURVEY_DATE	11/30/2009
SURVEYOR_NAME	AALMAS
LAST_MODIFIED	11/30/1999

Removal Program

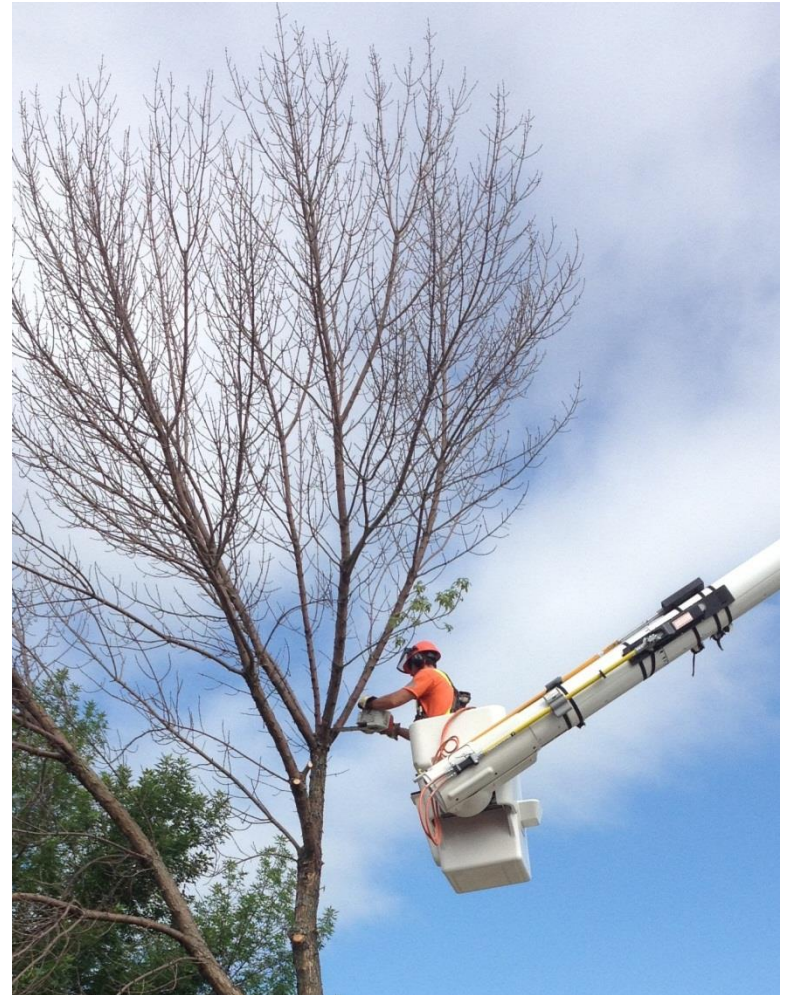
- Oakville has the most aggressive management plan in Canada to combat EAB. Town Council approved a plan to treat 75 per cent of the public **ash canopy** (approximately 5,800 town-owned trees) on streets and in parks with TreeAzin™, a biological insecticide.
- To protect resident safety and property, **the town will remove the remaining 25 per cent of the public ash canopy over the next few years** and replace it with trees of different species

Work Plan for Removals vs Injections

- Removals scheduled to include the 'hot zone' (area of first discovery of EAB), and to include those ash having a DBH of 45 cm or greater
- **Goal – Optimizing Risk Management** (minimize risk associated with declining ash, and/or large diameter ash over road allowance and in parks)

Removal Program

- Of the 137,000 municipal trees, 14,500 street and park trees were recorded ash
- Approximately 5,800 are in the Treatment Program
- Approximately 8,700 are in the Removal Program
- Removals anticipated to be completed over 6 years (2012-2018)
- In 2013 Town removed 2061 ash trees
- NOTE: removal and injection numbers change dynamically due to many factors (e.g. storm damage, failures etc.)



Criteria for Removal



- All ash under 20 cm DBH (not cost effective to treat, more cost effective to remove and replace)
- Poor structural condition and at risk of damage in future wind storms
- Ash Canopy Condition Rating of 4 or 5
- 30 per cent or more of their upper branches are in decline
- Badly infected with EAB, not a candidate for injection
- Wood condition = poor (noted from inventory)
- Crown condition = poor (noted from inventory)

Public ash trees will be removed if they:

- Have cracks or holes in their trunk and if 30 per cent or more of their upper branches are in decline. If a tree is unhealthy or has cracks or holes, treatment is unlikely to prevent it from dying from EAB infestation.
- Are under 20 cm in diameter at the point on their trunk about 1.3 m from the ground (diameter-at-breast-height or DBH). The town has determined that it is more cost-effective to remove and replace ash trees that are under 20 cm DBH than to treat them.



Visual – Criteria for Removal



0%



10%



20%



30%



40%



50%



60%



70%



80%



90%



100%

When treating any tree with
 **$\geq 30\%$ canopy thinning
and/or dieback**
tree condition may compromise
treatment effectiveness

Photos by: Dave Smitley, Michigan State University

Ash Canopy Condition Rating

Source: Kathleen S. Knight

1. HEALTHY, FULL CANOPY

2. THINNING CANOPY

3. DIEBACK

4. >50% DIEBACK

5. DEAD CANOPY

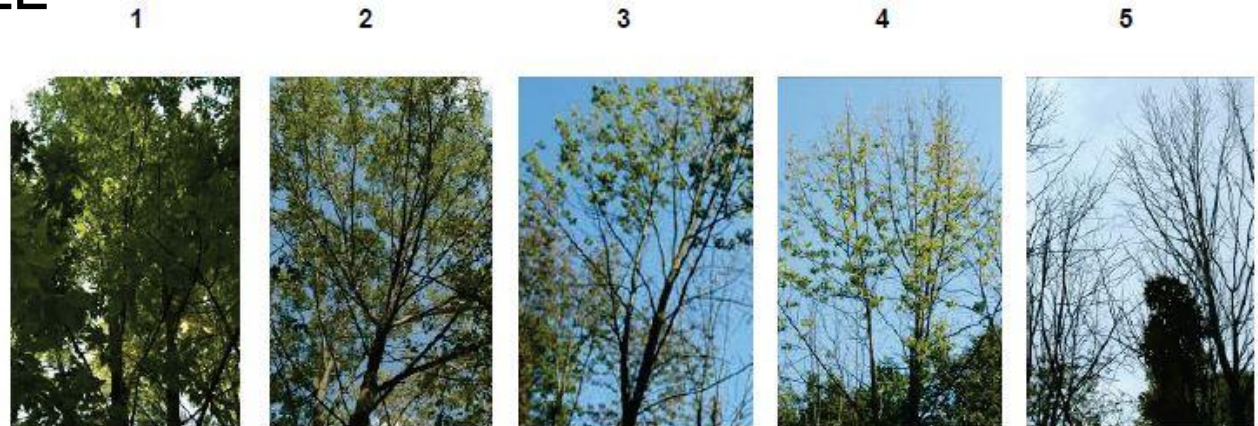


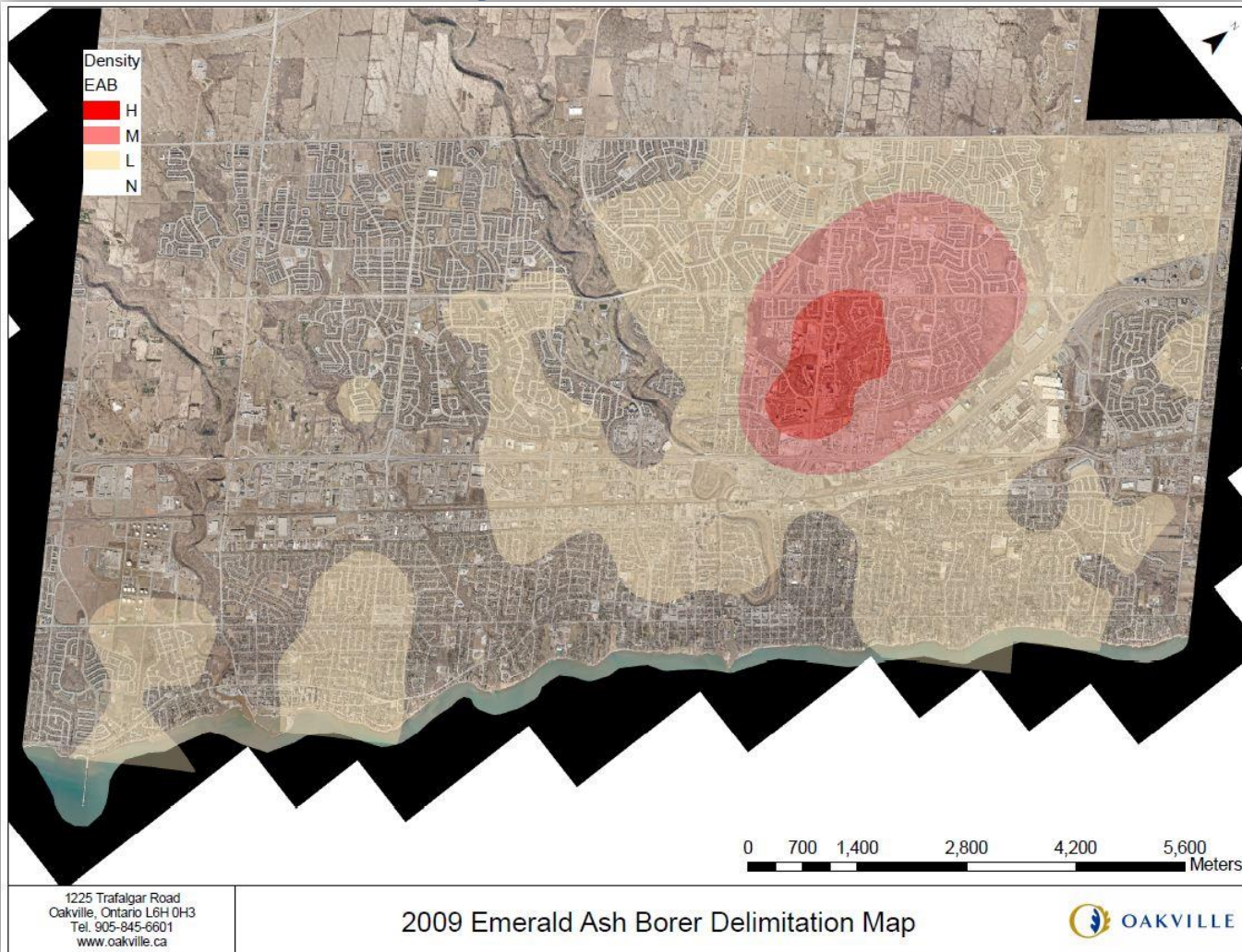
Figure 2—Photos showing ash canopy condition rating scale (Smith 2006). (Photos: D.A. Herms)



Ash marked for removal

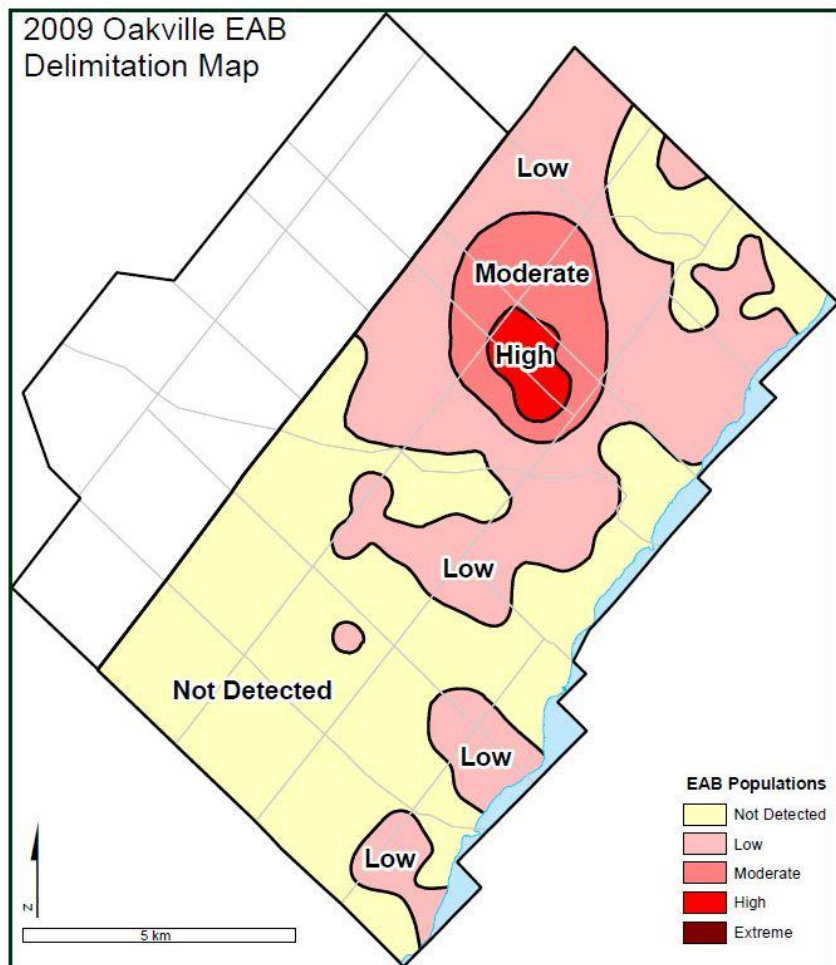
Trees scheduled for removal are marked with an orange X.

EAB Density / Delimitation Map

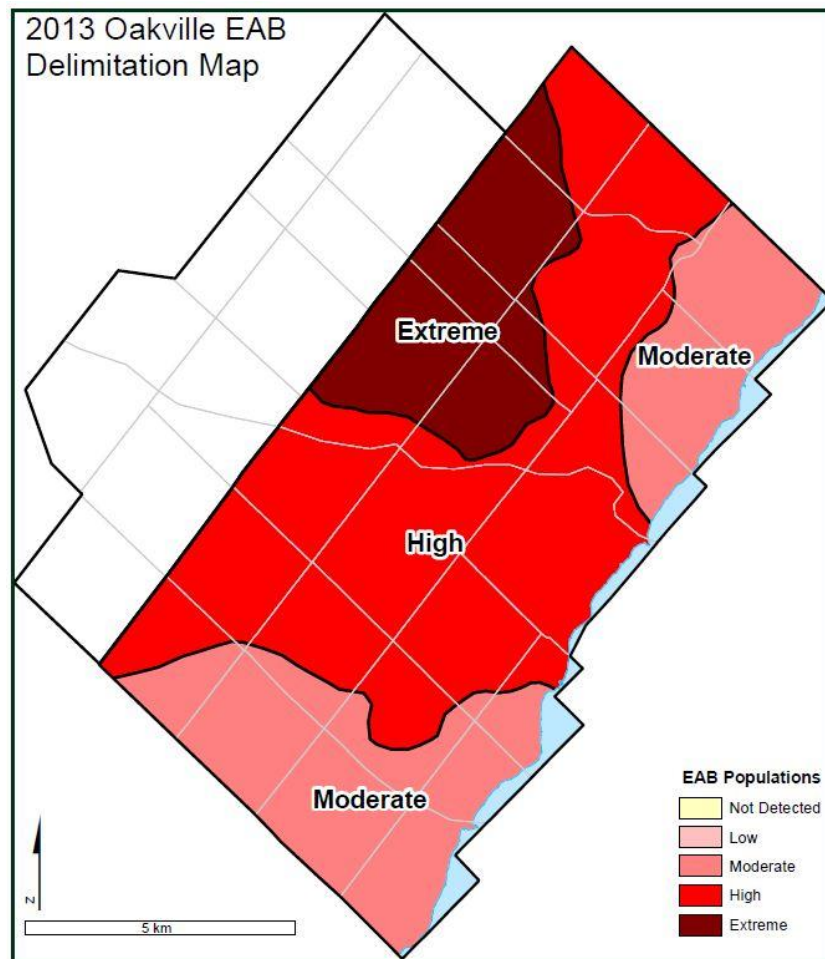


Delimitation Maps

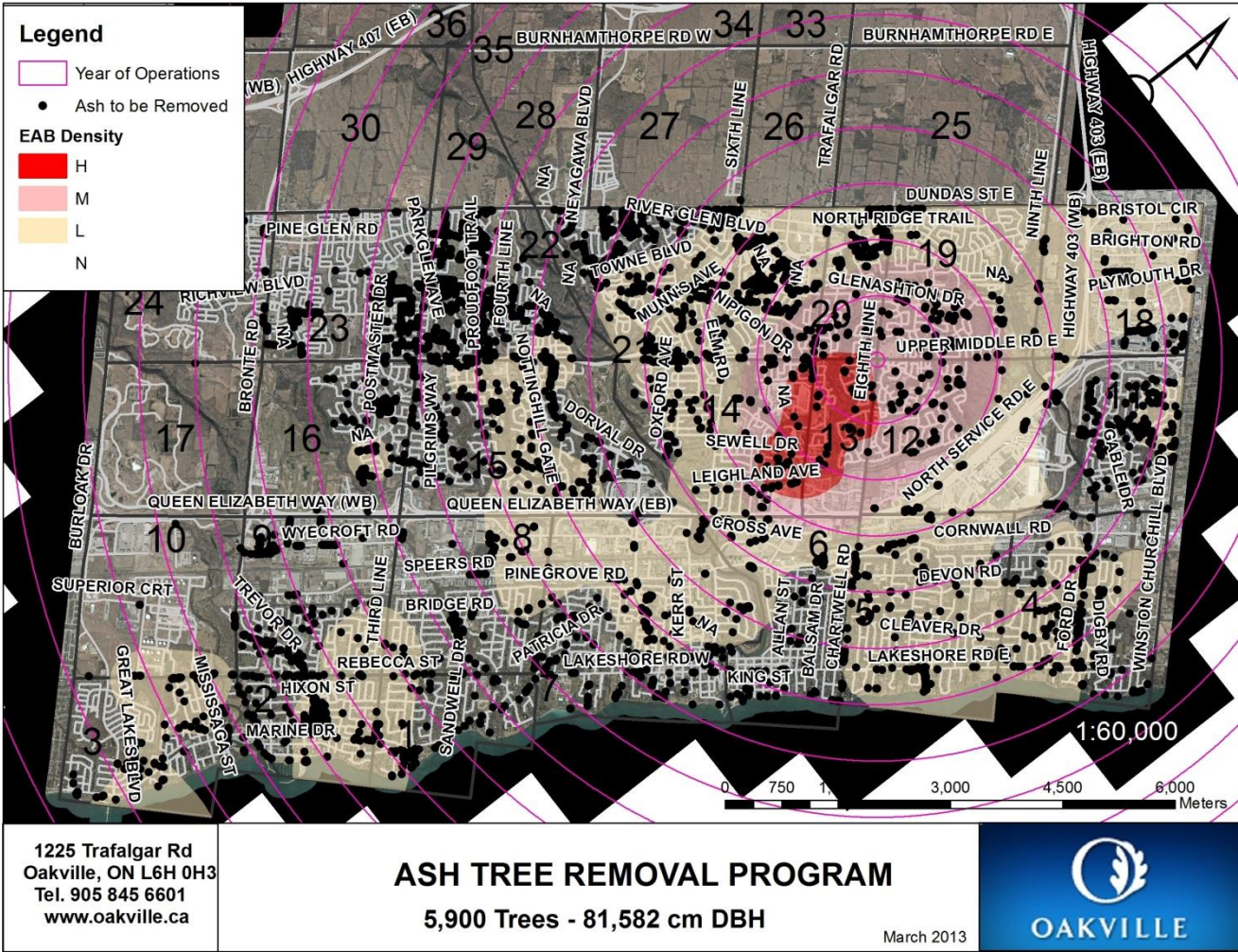
2009



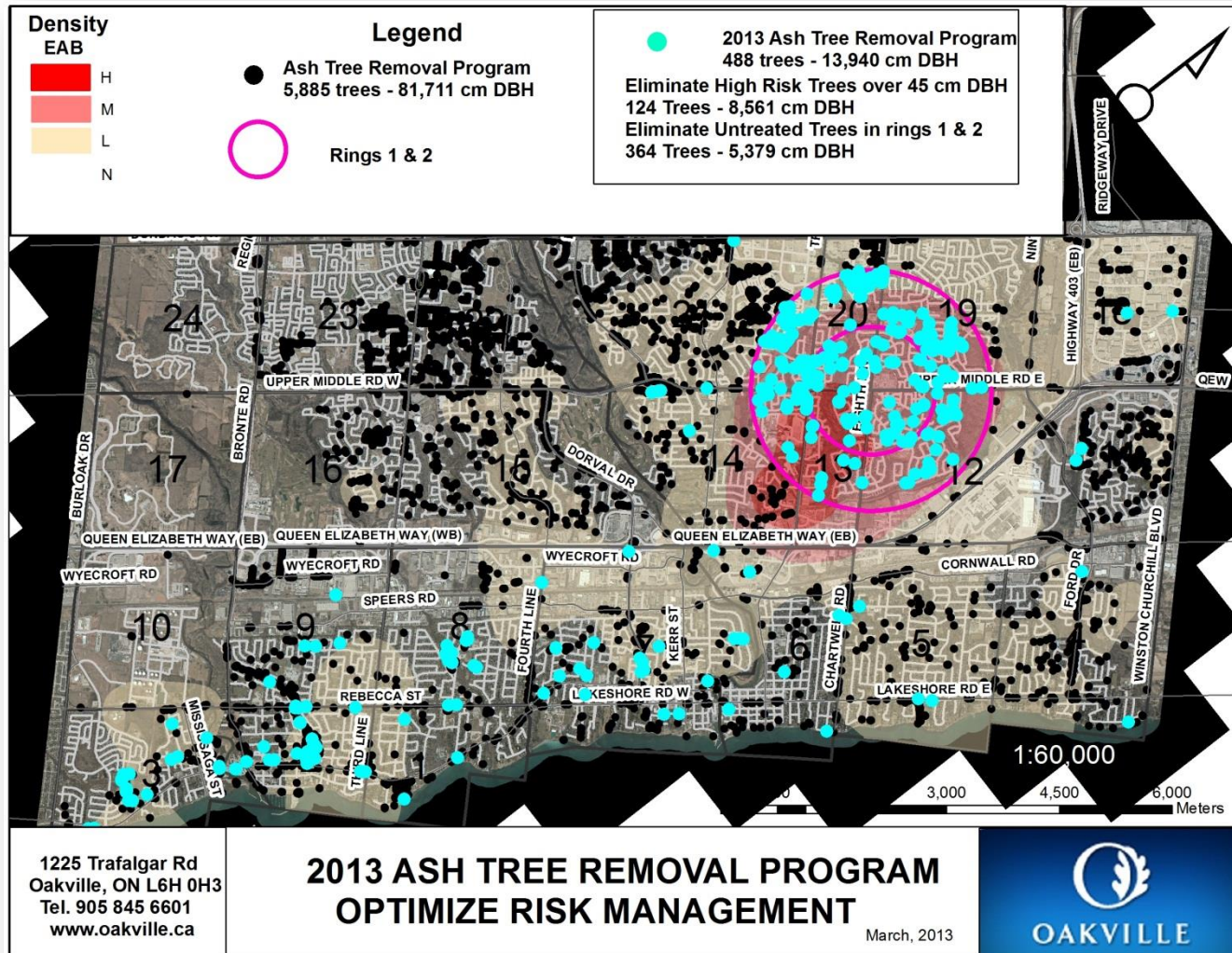
2013



Ash Tree Removal Program



2013 Removal Program





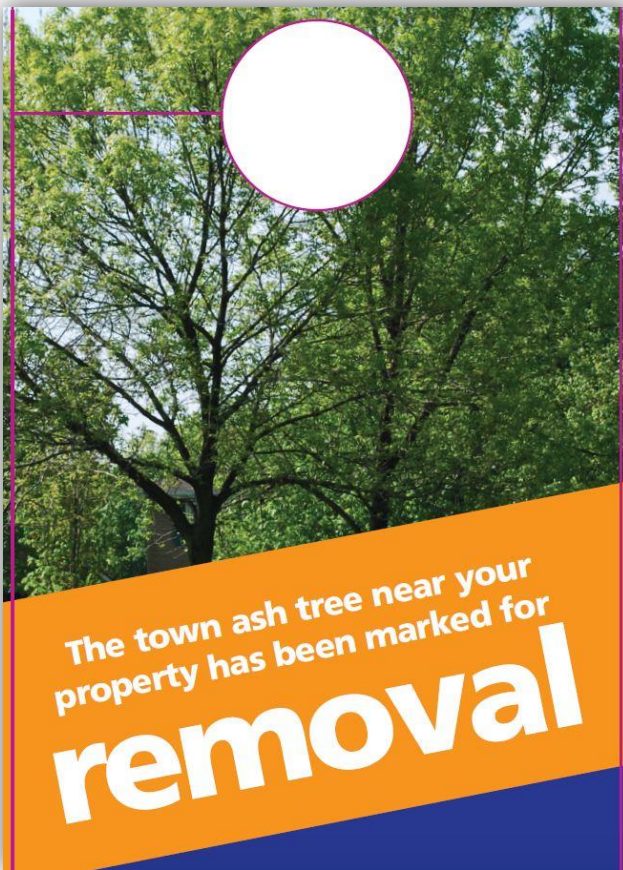
Park Removals



Street Tree Removals

Communications

Door hangers



Date: _____ Ref.: _____

Dear resident:
The town ash tree near your property is infested and will be killed by the Emerald Ash Borer (EAB).

Symptoms:

- ☐ 30% or more crown dieback
- ☐ Bark cracks and galleries
- ☐ Structurally weak
- ☐ "D-shaped" exit holes
- ☐ Woodpecker damage

Tree replacement

☐ Yes
☐ No Reason: _____

Questions?
 Contact ServiceOakville at 905-845-6601
serviceoakville@oakville.ca

For more information visit:
oakville.ca/residents/emerald-ash-borer.html




Date: _____ Ref.: _____

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We love our trees!
 That's why we're working so hard to protect them.

What is the Emerald Ash Borer?
 Communities surrounding the great lakes are dealing with an invasive pest known as the Emerald Ash Borer (EAB). This metallic green-coloured beetle has destroyed tens of millions of ash trees in North America and is threatening Oakville's ash tree canopy. How does it strike? It tunnels its way underneath the bark of ash trees and destroys its vascular system, killing it within a few years of infection if left untreated.

What is Oakville doing to manage the spread of the Emerald Ash Borer?
 We're proud to say that Oakville is leading the way in EAB management and has one of the most aggressive treatment plans in Canada. We are currently treating select municipal trees with the bio-insecticide TreeAzin® and have found success with this natural and safe product derived from seeds of the neem tree. Once a tree is heavily infested it is often unstable and becomes structurally unsound. The town is removing dead and high-risk ash trees from streets, parks and woodlands for public safety and to curb the spread of EAB. Removing just one 20-centimetre DBH (diameter at breast height), nine-metre tall tree eradicates over 570 EAB from the population.

What can you do?
 Eighty per cent of Oakville's treatable ash trees are located on private property. Ash trees that are still healthy and structurally sound can be saved if residents know about them and choose to treat them. Contact a certified arborist to assess whether your tree is suitable for treatment. If your tree does not meet the requirements for treatment, please have it removed and plant a new native tree. Not sure if you have an ash tree? Go to oakville.ca and search EAB resources.

Become a Canopy Club member
 Like us on Facebook! Whether you have an ash tree or not, you can become a Canopy Club member.

Spread the word!
 Facebook: Oakville Canopy Club
 Twitter: OakCanopyClub

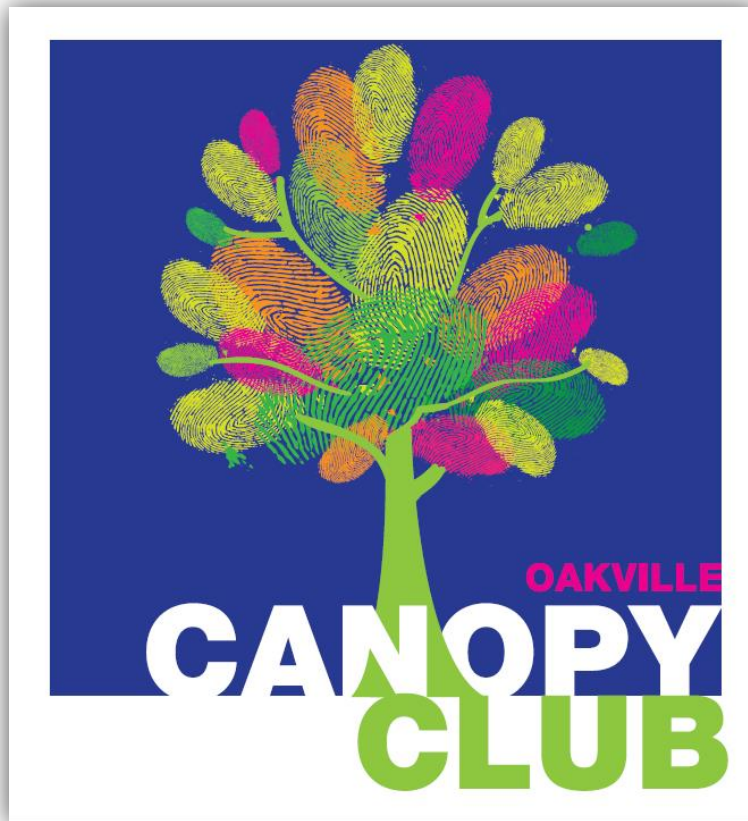




Facebook – Canopy Club

<https://www.facebook.com/OakvilleCanopyClub>



Twitter

<https://twitter.com/OakCanopyClub>

The screenshot shows the Twitter profile of the Oakville Canopy Club. The header includes the Twitter logo, a search bar, and a 'Have an' link. The left sidebar contains navigation links: Tweets, Following, Followers, Favorites, and Lists. Below these is a 'Follow Oakville Canopy Club' section with input fields for 'Full name', 'Email', and 'Password', and a 'Sign up' button. The main content area features a large profile picture of a tree-lined path with a person walking. The profile name is 'Oakville Canopy Club' with the handle '@OakCanopyClub'. The bio states: 'Leading the municipal battle against Emerald Ash Borer infestation. Monitored by the Town of Oakville - Mon-Fri, 8:30am-4:30pm. Oakville, Ontario, Canada · oakville.ca/residents/emerald...'. Statistics show 363 tweets, 306 following, and 353 followers. A 'Follow' button is present. Below the stats is a 'Tweets' section. The first tweet is a retweet from 'Town of Oakville @townofokville' dated Jan 24, with the text: 'Just a reminder, trails and woodlots remain closed due to risk of falling tree limbs. Stay safe!'. The second tweet is from 'Oakville Canopy Club @OakCanopyClub' dated Jan 23, with the text: 'Our Forestry crews rock! MT @bdydbi thx for being so quick in this cold in removing our cracked tree. #oakville pic.twitter.com/RdPg8pWqcc'.

Tweets

Following

Followers

Favorites

Lists

Follow Oakville Canopy Club

Full name

Email

Password

Sign up

Photos and videos

Oakville Canopy Club @OakCanopyClub

Leading the municipal battle against Emerald Ash Borer infestation. Monitored by the Town of Oakville - Mon-Fri, 8:30am-4:30pm. Oakville, Ontario, Canada · oakville.ca/residents/emerald...

TWEETS 363 FOLLOWING 306 FOLLOWERS 353

Follow

Tweets

Retweeted by Oakville Canopy Club

Town of Oakville @townofokville · Jan 24

Just a reminder, trails and woodlots remain closed due to risk of falling tree limbs. Stay safe!

Expand

Reply Retweet Favorite More

Oakville Canopy Club @OakCanopyClub · Jan 23

Our Forestry crews rock! MT @bdydbi thx for being so quick in this cold in removing our cracked tree. #oakville pic.twitter.com/RdPg8pWqcc

Bus shelter and Bus ads



Digital Boards

treat your ash tree



**Take action now to protect our tree canopy
from EAB. Contact a certified arborist to assess
your private ash tree.**



Spread the word! Like Oakville Canopy Club
on Facebook and follow us on Twitter.
Visit www.oakville.ca for details.



Flyers / FAQ Pages

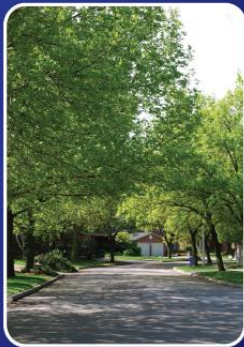
treat your ash tree

Take action now to protect our tree canopy from the Emerald Ash Borer

Untreated ash tree



Treated ash tree



Whether you have an ash tree or not, you can become a Canopy Club Champion.

Find out how at oakville.ca/residents/emerald-ash-borer.html



Oakville Canopy Club



OakCanopyClub



Frequently Asked Questions

FAQs

Emerald Ash Borer and Ash Tree Treatment/Removal

Q: How do I know if I have an ash tree?

A: Check out our interactive map to find out if you have an area likely to contain ash trees at <http://www.oakville.ca/residents/ash-tree-locator-map.html> Please make sure you review our "identifying an ash tree tips" at <http://www.oakville.ca/residents/ash-tree-treatment-options.html> and contact a qualified certified arborist to confirm.

Q: What types of trees are at risk?

A: EAB attacks all ash trees including black, white, blue or green. Mountain-ash is not an ash tree so it remains unaffected.

Join

Oakville Canopy Club

Learn how to care for and protect our urban forest.



@oakcanopyclub



Oakville Canopy Club



oakville.ca

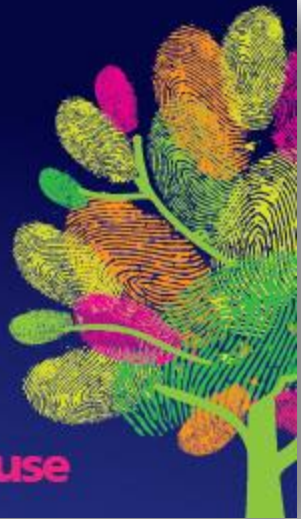


Public Open Houses



**you're
invited!**

Emerald Ash Borer Drop-In Open House



News Releases / Bumper Magnets

Thursday, June 13, 2013 - for immediate release

Town hosts Emerald Ash Borer information open house

Thursday, June 20, 2012 – 7 to 9 p.m.
Queen Elizabeth Park Community and Cultural Centre
2302 Bridge Road

The Town of Oakville is hosting a drop-in open house to educate residents about the Emerald Ash Borer (EAB).

This metallic, green-coloured beetle is a highly invasive pest that can kill ash trees. The town is implementing a treatment system, and killing it within a few years.

Approximately 2,500 healthy mature ash trees will be treated to protect them against infestation.

With 80 per cent of Oakville's ash trees being treated, the town is confident that the EAB will not become a problem.

Forestry staff will be on-site to answer questions and provide information.

For more information contact 905.460.1300 or visit www.oakville.ca


Tuesday, June 12, 2012 - for immediate release

Town treating nearly 3,300 public ash trees this summer to protect against the Emerald Ash Borer


Beginning this month, healthy public ash trees on streets and in parks across Oakville will be injected with TreeAzin™ to protect them against the Emerald Ash Borer (EAB). Approximately 3,300 ash trees will receive the treatment from one of the town's forestry crews.

"Oakville has the most aggressive EAB management program in the country," says Mayor Brenda Drake. "We've been able to take quick action to protect our trees, and we're proud of the work we've done to date."

In total, the town is treating approximately 3,300 ash trees, while 60 per cent of the town's ash trees are being treated.



I treated my ash tree against EAB have you?

www.oakville.ca  OAKVILLE

TreeAzin™ to protect them against the Emerald Ash Borer (EAB) before the end of August.

The town is treating approximately 75 per cent of the town's ash trees through a detection program that enabled us to act quickly.

Approximately 80 per cent receive treatment in odd years, while 20 per cent receive treatment in even years. The seeds of the neem tree. It provides two generations of ash trees in Canada and the United States. Ash trees will begin to decline rapidly if they are not treated.

For more information about what they want to do with their ash trees, residents can call 905.460.1300 or visit www.oakville.ca to learn more about the program and providing helpful tips to determine the best way to protect their ash tree(s).

The town's program educates residents about the EAB and how to protect Oakville's trees.

Arborday / Public Events



Removals Begin



Removals..

- Removals were performed by internal forestry staff and through contracted staff using an 'Arborist Services Tender'
- Full tree removal was completed by contractors including the stump grinding
- Work orders were made for all removals & inventory updated
- Wood movement restrictions, disposal and treatment methods were adhered to through the contract specifications

Wood Treatment Methods CFIA

Appendix 8

CFIA Approved Treatment Methods

The following methods are approved by CFIA for treating regulated articles to generate compliant articles:

- Processing to create bark free wood and removal of underlying sapwood to a depth of at least two and a half (2.5) cm.
- Grinding or chipping to create chips to a size of less than two and a half (2.5) cm in any two (2) dimensions.
- Article exclusion of ash for firewood, wood chips under a compliance program.
- Heat treatment for regulated articles, where specific treatment schedules have been recognized by CFIA.
- Secondary processing to produce wood by-products such as paper, fibre board, or oriented strand board to render the articles free from EAB. The processing facility has to be approved by CFIA.
- Other treatment methods, as approved by CFIA. Contact the local CFIA office for further details.

Wood Disposal Policy

At the direction of the town ash wood may be processed on site or moved to location(s) specified by the town. All movement of ash material must comply with the [Canadian Food Inspection Agency Policy \(D-03-08\)](#) as amended from time to time regarding moving EAB-infested materials. The town reserves the option to have merchantable wood separated



The Town of Oakville
Parks and Open Space Department
Forestry Section
Standard Operating Procedure

Policy/Procedure No: 2012-01 Ash Wood Disposal
Initiated: June, 2012
Approved: John McNeil, Manager of Forestry

At the direction of the town ash wood may be processed on site or moved to location(s) specified by the town. All movement of ash material must comply with the [Canadian Food Inspection Agency Policy \(D-03-08\)](#) as amended from time to time regarding moving EAB-infested materials. The town reserves the option to have merchantable wood separated

Company Name

Name

Signature

Date


Town of Oakville | 1225 Trafalgar Road, Oakville, Ontario L6H 0H3 | 905-845-8801 | www.oakville.ca

Internal wood processing



Picture Credit: <http://www.gro-bark.com/services/grinding.php>

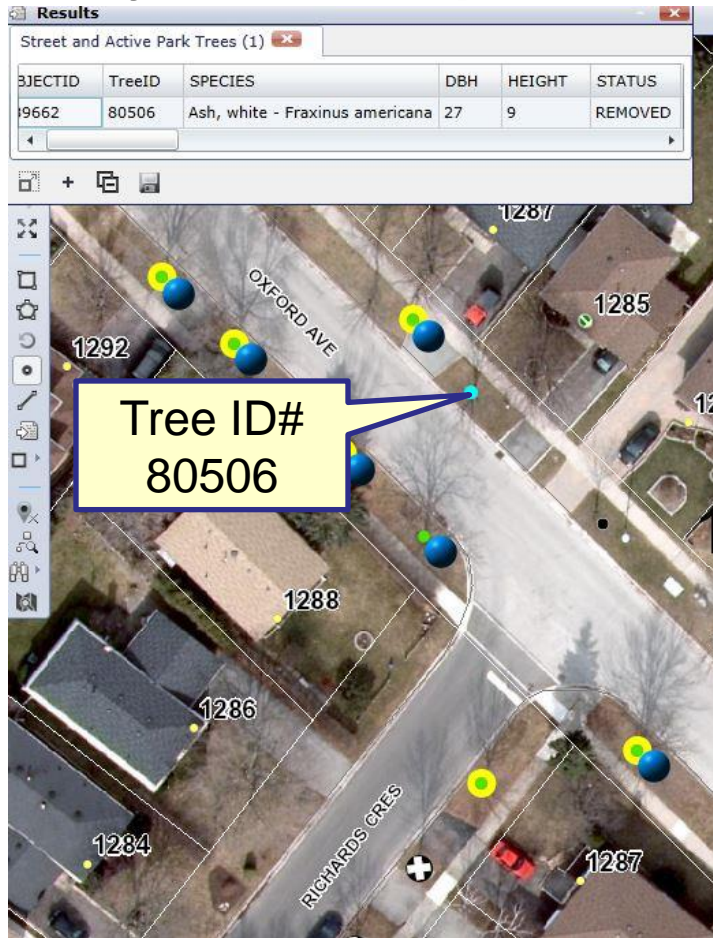
Sample Work Order

 Town of Oakville Tree Management System			
Work Order No: 20121450		Equipment	Priority: Medium
Forestry Zone: 14			
Address: 1285 OXFORD AVE Location: 5m N of d/w in blvd			
Comments: From: Request ID: 8614, 4/12/2012 11:20:26 AM Emerald Ash Borer Emerald Ash Borer insect Problem Details: Tree was removed from the treatment program, over 40% dead, inspect for removal. Tree id 80506 Problem Comments: By HASENHINDL, ERIK: 4/12/2012 2:56:54 PM informed homeowner tree would be removed			
Customer Name and Address		H:	W:
		1285 OXFORD AVE	
Task	Task Status	TreeID	Comments
TAKEDOWN EAB	COMPLETE	80506	white ash 5m N of d/w in blvd
Completed By	Log	Stump	HRS
Initiated by: HASENHINDL, ERIK Instructions:		Date Initiated: 4/12/2012 11:20:28 AM Date Completed: 5/23/2012 12:00:00 AM	
Completed by: COLONIAL TREE SERVICE, Comments:			

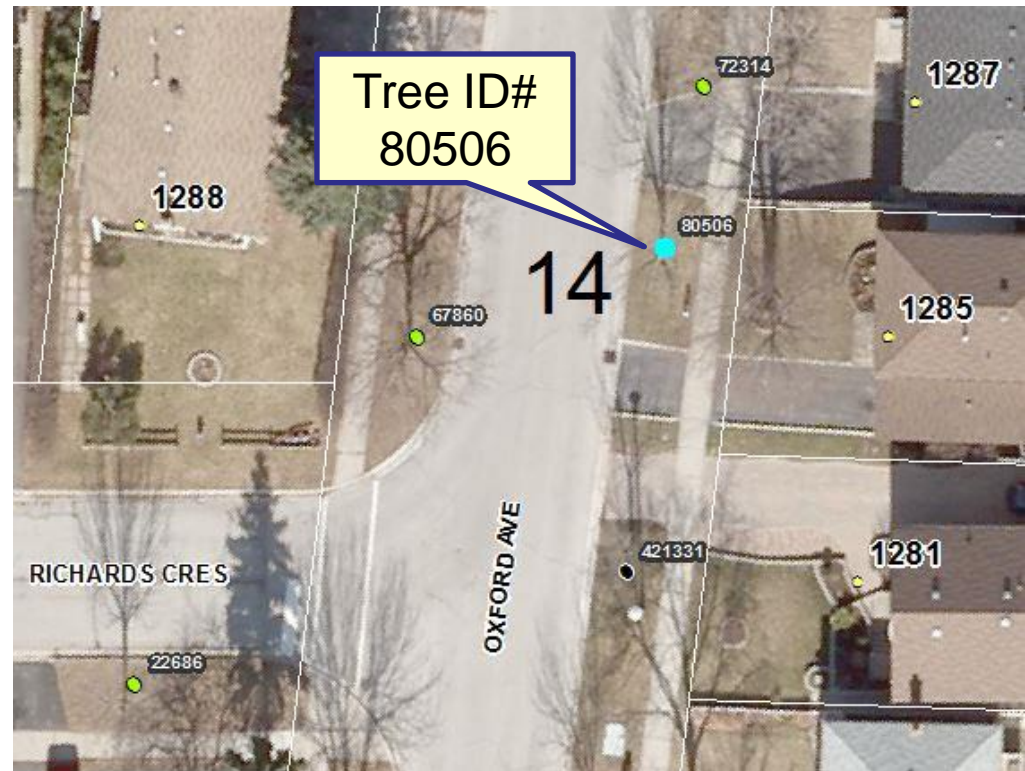
TREE ID# 80506

Work order mapping

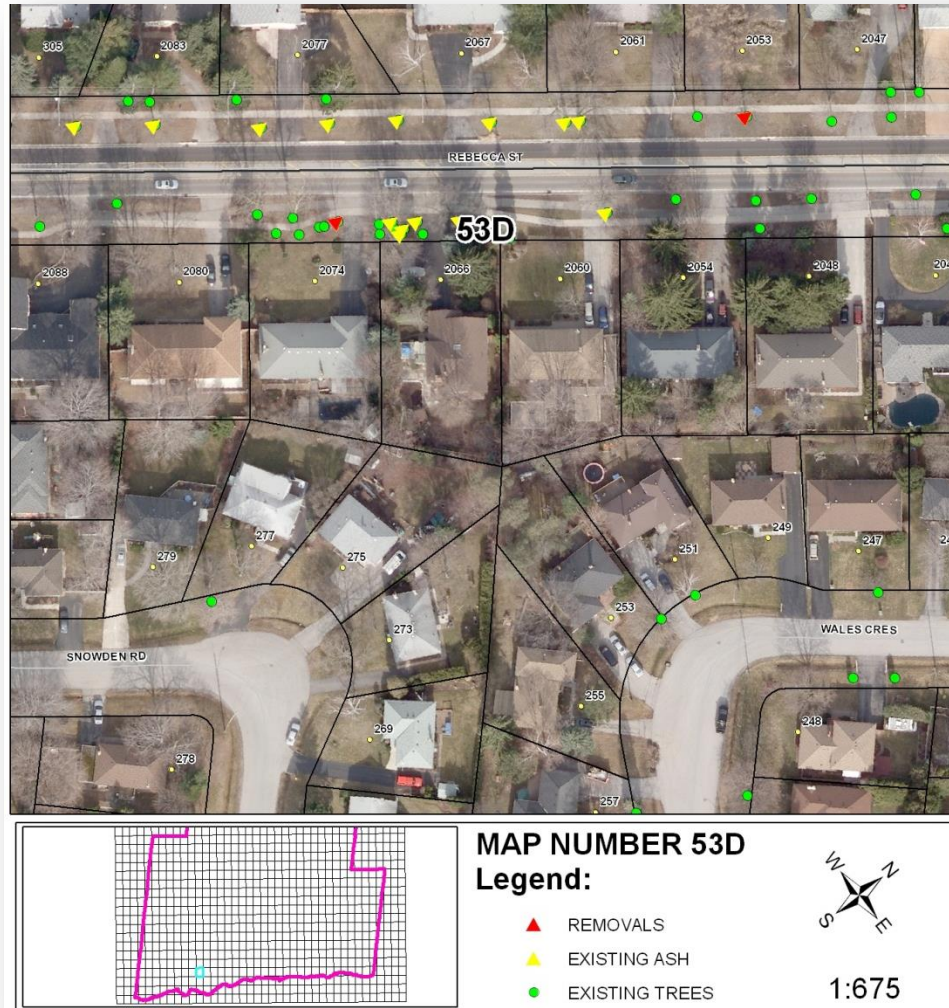
Cityworks Map / Tablet



ArcGIS Map



Removal Atlas for Vendors



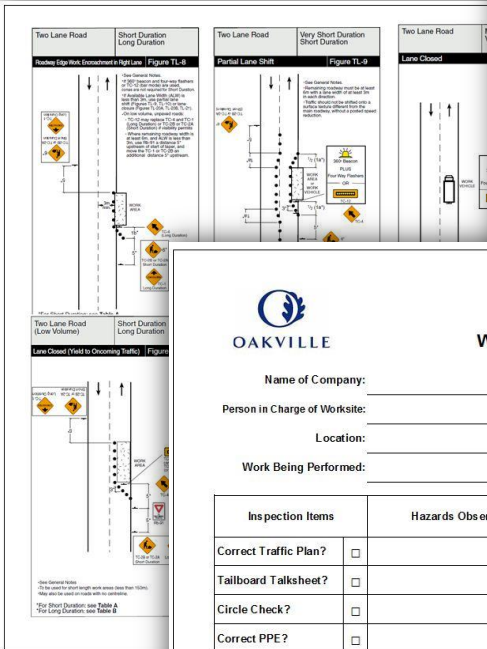
Future of Removals & Tracking work orders...

- Currently the Town is in the process switching over to a tablet computer system
- Will make tracking work completed by internal and external staff easier
- Will be used to continue with future inventories and inspections



Work Order: Safety & Work Audits

- Safety audits performed weekly on vendors & internal staff
- Work audits performed during safety audits & again once stump grinding was completed (vendors)
- Vendors fill out daily work activity report



Two Lane Road Short Duration Long Duration
Reduces Up-Work Encroachment's Light Lane / Figure TL-8

Two Lane Road Very Short Duration Short Duration
Partial Lane Shift / Figure TL-9

Two Lane Road Lane Closed
Ms Ver

Two Lane Road Short Duration Long Volume
Lane Closed (Yield to Oncoming Traffic) / Figure TL-10

OAKVILLE DAILY WORK ACTIVITY REPORT / LOG / RECORD TASK GROUP(S):

FORESTRY ZONE CONTRACT ADMIN:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

CONTRACTOR COMPANY NAME: _____ CONTRACT # _____ CREW TYPE: _____

DATE (see sheet) _____ DAY START: _____ DAY END: _____ WEATHER CONDITIONS: _____

RECORD OF DUTY STATUS - 7 day cycle / 70 hrs / CYCLE #1 _____

MAX # hrs DR - CVGR / day = 13 hrs, Max # hrs - O.D. / day = 14 hrs

NORMAL SHIFT HOURS - MONDAY TO FRIDAY (7:00 AM to 5:30 PM)

LEGEND DR - DRIVING - CVGR EQUIP. O.D. - ON DUTY, NOT DRIVING, CVGR

EMPLOYEE NAME (Last Name, First Name)	TOTAL WORK HOURS	DR # HRS CVGR	O.D. # HRS CVGR	OFF # HRS	O.T. # HRS	COMMENTS
1. _____						
2. _____						
3. _____						
4. _____						
5. _____						
6. _____						

OAKVILLE

Workplace Inspection Report

Name of Company: _____ Inspected By: _____

Person in Charge of Worksite: _____ Date of Inspection: _____

Location: _____ Time: _____

Work Being Performed: _____ Traffic Plan Used: TL

Inspection Items	Hazards Observed / Observations	Repeat Infraction?	Priority (1, 2, 3, 4)	Recommended Action	Person Responsible for Remedial Action
Correct Traffic Plan?	<input type="checkbox"/>				
Tailboard Talksheets?	<input type="checkbox"/>				
Circle Check?	<input type="checkbox"/>				
Correct PPE?	<input type="checkbox"/>				
Proper Equipment?	<input type="checkbox"/>				
Condition of Equipment (acceptable)?	<input type="checkbox"/>				
Quality of Work (acceptable)?	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				

Signature of Inspector: _____ Date: _____

Signature of person in Charge of Worksite: _____ Date: _____

Priority Codes:

1 - Fix Immediately

2 - Fix Within 3 Days

3 - Fix Within 1 Week

4 - Other

Questions?...

