



Town of East Gwillimbury

COMMUNITY PARKS RECREATION AND CULTURE REPORT CPRC-2015-01

To: Committee of the Whole Council

Date: January 19, 2015

Subject: Emerald Ash Borer (EAB) Management Plan

Origin: Community Parks, Recreation and Culture Department

RECOMMENDATIONS

1. THAT Community Parks, Recreation and Culture Report CPRC-2015-01 regarding Emerald Ash Borer (EAB) Management Plan be received; and
2. THAT Council approve year one of Option 2 of the proposed EAB Management Plans in response to the Emerald Ash Borer infestation.

PURPOSE

The purpose of this Report is to provide and update Council on the status and impacts of emerald ash borer and seek Council endorsement of an Emerald Ash Borer Management Plan for the Town of East Gwillimbury.

BACKGROUND

“Emerald Ash Borer (EAB) is extremely invasive to our Ash tree population”

EAB is a destructive wood boring insect that prefers all Ash tree species as its host to complete its life cycle. The EAB completes its most destructive period of its life cycle in its larval stage, between August and October of each year. These larvae feed on the inner bark and sap wood of the host tree creating galleries in the main trunk and larger branches that prohibit movement of water and nutrients from the roots of the tree to the leaves.

The adult borer is an emerald green-winged beetle that has the capability of moving rapidly across the landscape in its quest of finding new host trees within which to complete its life cycle. Depending on the level of infestation, repeated life cycles of this insect will eventually kill the tree typically within 4-6 years from time of initial infestation.

“Emerald Ash Borer officially confirmed in East Gwillimbury”

On August 8, 2012 York Region issued a press release confirming the presence of EAB in all nine local municipalities. Staff continues to monitor the issue, network with neighbouring municipalities and look for new developments.

TOWN OF EAST GWILLIMBURY STRATEGY UPDATE

As identified in the Community Programs and Infrastructure Report CPI-2012-49, the Town’s proposed EAB strategy focuses on a 4 step plan in managing the effects of this infestation with the current ash tree populations.

Step 1 – Public Awareness Campaign (On Going)

With the assistance of the Town’s Communication Department, the Town is currently using several communication tools to ensure an effective awareness campaign provides information and education to the public on the effects of EAB and what proactive steps the Town is taking to deal with the pest:

- a) **Interactive Webpage:** Residents have been provided several useful internet links of various organizations which provide information and expertise on EAB. Internet links include York Region, Canadian Food Inspection Agency and a direct link to East Gwillimbury’s EAB strategy have been provided to the general public.

In addition to this, private land owners have been directed to information on Organizations such as LEAF (Local Enhancement and Appreciation of Forests) which can assist private land owners on how they can manage ash tree populations within their own land.

- b) **Community Consultations:** The Town has been actively involved in providing representation at one York Region EAB information sessions in 2014. The forum provided residents the opportunity to ask questions and discuss the current status of each Municipalities EAB management plan and learn how York Region is working with each Municipality to manage the threat.

The Town will continue to be part of all York Region information sessions in the future and engage residents at these public meetings to ensure relevant and up-to-date information can be provided to residents.

- c) **Community Tree Planting Days:** As a component of the EAB strategy, the Town currently takes part in several community tree planting events with local conservation authorities and community groups. Brief public presentations have been made at the beginning of each event to help educate the public about EAB.

d) **Door Hangers:** Where ash trees will require removal, Town staff has designed and printed door hangers to communicate to homeowners the need for the tree's treat, removal and replacement and provides information on EAB to educate them on the invasive pest. (Attachment #1) The town of East Gwillimbury has had great success with the use of door hangers as a component of the area street tree maintenance program.

Step 2 – Park & Streetscape Tree Inventory (Completed)

In summer of 2013, Davey Resource Group conducted an inventory of public park and streetscape trees. Among the 7,485 trees inventoried, 528 were ash trees in the *Fraxinus* genus, comprising 7.1% of the inventoried population. The vast majority (90.3%) of ash trees are in good to excellent condition with 6.6% fair, 2.5% poor, and 0.6% dead.

The population is evenly distributed in relative age with 63.4% under 30 cm DBH (Figure 1). This information has assisted in calculating the costs of treatment and removal strategies with great accuracy.

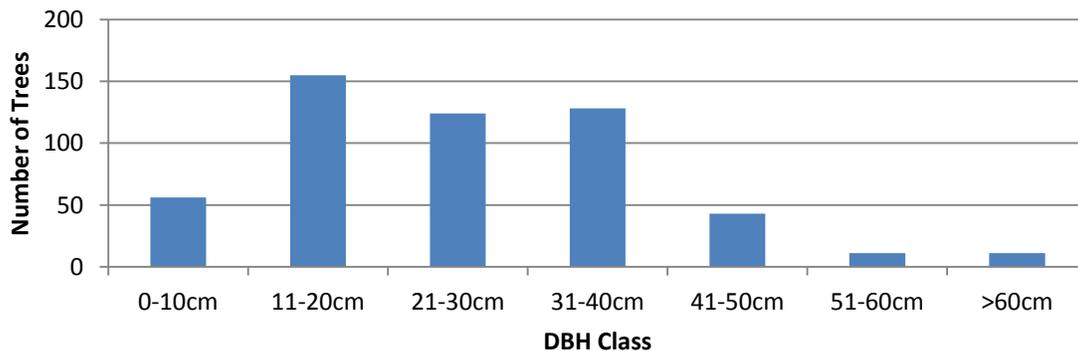


Figure 1. Relative Age Distribution of Ash (*Fraxinus*)

ANALYSIS AND OPTIONS

The Town's proposed EAB strategy identified a 4 step plan in managing the effects of EAB. To date, Steps 1 and 2 have been completed and in particular the proposed tree inventory has been used to establish various management options and rationale to complete Step 3 Preventative Treatment and Step 4 Removal and Replacement.

Step 3 – Preventative Treatment

The only known method to protect ash trees from EAB infestation is a product called TreeAzin, a pesticide approved for use in Canada to prevent ash tree damage. This method of protection is being used by other municipalities as an interim measure for protecting Ash trees of significant value (eg. large canopy trees, trees of cultural significance) from EAB infestation.

Chemical treatment may be used to temporarily retain trees so as to spread removal costs over time. This short term treatment option is used to keep trees alive for a few years to defer their eventual removal. This treatment will not provide a cure for the infestation. The treatment will reduce the number of dead or dying trees over time and lighten the impacts on resources needed to perform removals and replacement. Chemical treatment can also be applied long-term to retain trees for the remainder of their serviceable lives. However treatment costs will far exceed those of removal and replacement.

The proposed management plan options within this Report identify three strategies which include “no treatment”, “short-term treatment”, and “long-term treatment”. Each one of these strategies has financial implications on each of the management options which will be detailed.

It is important to note that if a treatment program is to be effective, trees should be maintained at their highest possible level of health. The town should consider all the traditional elements of plant health care to keep the trees vigorous. Trees identified in the treatment program should be regularly pruned to remove dead wood and crossing or rubbing branches. Irrigation should be provided after injection to ensure movement of phloem fluids. A regular fertilization program will maintain vigor and reduce nutrient-based stress. Finally, in some areas, soil remediation may be considered. This can include aeration with an air spade, or applications of mulch to increase soil organic content and microbial activity.

Step 4 – Removal or Replacement

For street trees and most park trees that are of a smaller caliper trunk size, the most cost effective management tool is to remove infested ash trees under 20 cm Diameter at Breast Height (DBH) including all ash trees that are in poor or dead condition. Small trees are easy to replace and this strategy is more cost-effective than scheduling treatment. Establishing new, healthy trees from a list of suitable species will provide the town with the greatest benefit. Poor and dead trees currently provide few benefits to the town, and are good candidates for replacement. Replacement trees will typically be 6 cm DBH. A variety of species will be planted to replace the ash inventory. A variety of species will benefit the town by safeguarding against any future infestations or diseases specific to any one species.

Removal and replacement of any ash trees will only focus on inventoried park and streetscape trees that pose a high risk to property or health. Unfortunately there are no effective or efficient measures available in controlling the spread of this insect or controlling the damage that the insect causes in our open spaces. Because of this, we are expecting to see mortality in our inventory of ash species both in open spaces, and in wood lots. For these areas, relying on natural regeneration for replacement is the generally accepted approach.

NEED FOR PUBLIC CONSULTATION

Staff will continue to work with both our Communications Department as well as the Region of York to ensure that there are sufficient resources and contact information available to property owners to educate residents on the ramifications of this infestation and for concerned residents who wish to obtain more information. Staff will also continue to explore and research any additional opportunities that may become available in dealing with this most difficult and unfortunate problem.

FINANCIAL IMPLICATIONS

Various management options investigated are based on the Davey Resource Group inventory of public park and streetscape trees completed in 2013. Among the 7,485 trees inventoried, 528 were ash trees in the *Fraxinus* genus, comprising 7.1% of the inventoried population, size and condition shown in Figure 2.

Figure 2

Overall ASH Condition	0-10cm	11-20cm	21-30cm	31-40cm	41-50cm	51-60cm	>60cm	Subtotal	Grand Total
Excellent	20	71	23	3	0	0	0	117	306
Very Good	24	37	36	36	25	5	5	168	
Good	9	38	54	69	15	4	3	192	
Fair	3	4	9	16	1	1	1	35	
Poor	0	3	1	4	2	1	2	13	222
Dead	0	2	1	0	0	0	0	3	
TOTAL	56	155	124	128	43	11	11	528	528

Figure 2. Condition and Size Distribution of Ash (*Fraxinus*)

The management options identified focuses on; removal and replacement of dead or dying trees, removal and replacement of smaller (<20 cm) trees and treatment of only healthy well-structured ash trees that are of high value to the community and canopy cover for the “short term”. The shaded area listed in the above Figure 2. indicates the tree inventory that is higher risk for earlier infestation and initial removal and replacement. All other trees noted in Figure 2., in particular those in good condition or better would be candidates for potential treatment to prolong the lifespan of the tree. Routine maintenance of treated trees will continue with each strategy providing regular plant health care to maximize vigor, including pruning, irrigation, fertilization and mulching.

“Currently Removal and replacement is inevitable”

It is uncertain at this point the exact time a tree will fail due to EAB, but research suggests that 99.9% do fail within 6 years of infection (Knight et al., 2012). As a result removal and replacement and associated costs and assignment of resources must be considered with each option.

“Flexibility must be employed with each option”

It is critical that each tree is assessed on a per case basis for overall health when either treatment or removal or replacement is considered. As a result each option presented are best plans and must have some flexibility to ensure the appropriate action is applied based on the health of the tree as assessed by Parks staff and professional consultants where required.

Each option identified provides timeframes, cost implications and community impacts. Under each option some removal work and routine tree maintenance can be performed by Town parks staff. The majority of the work required for treatment, removal and replacement will be required through contracted services. For comparison purposes the cost for contracted chemical treatment is approximately \$180 per treatment and the cost for tree removal and replacement of a tree will vary based on DBH from \$400 to \$1200.

OPTION #1

Option Summary: This option focuses on complete removal and replacement of the ash tree park and streetscape inventory over a three year period. This option does not include chemical treatment.

	2015	2016	2017	Total
Number of Trees				
Remove & Replace	222	153	153	528
Cost				
Remove	\$54,560	\$92,053	\$92,053	\$238,666
Replace	\$103,770	\$103,770	\$103,770	\$311,310
Total Cost	\$158,330	\$195,823	\$195,823	\$549,976

Table1. Cost of Three-Year Plan

This option has the lowest total cost at \$549,976, but may have a significant impact on public perception and will result in the fastest and greatest loss of economic and societal benefits from the tree population. This option also concentrates the costs in a short timeframe and does the least to maintain canopy cover and results in a limited time for public education and dialogue. By scheduling the trees’ removals before the end of their useful life, the town is forgoing the benefits the trees may provide over the next few years. It should also be noted that all municipalities within the Region of York are scheduling for some type of treatment activity, with the exception of Vaughan.

Benefits and Impacts:

Benefits
Low cost within short time-frame
Minimal community exposure to dead or dying trees
No costs for treatment

Impacts
Does least to maintain existing mature canopy cover
Foregoes benefits provided over short term
High impacts on public perception
Provides a compressed and limited window of time for public education and consultation

OPTION #2

Option Summary: This option provides a balance of both treatment applied to those larger (>20cm) trees that are in good to excellent health and replacement and removal over a mid-term of five years. This balance makes best efforts to provide benefit to the community amongst the existing larger and healthier ash inventory while phasing in removal and replacement. This option is a “hybrid” option which combines Option #3 - 6 Year Plan with some parks removal activity. This option is the most cost effective option combining both treatment and removal and replacement.

	2015	2016	2017	2018	2019	Total
Number of Trees						
Remove & Replace	51	47	206	198	26	528
Treat	145	107	26	0	0	278
Cost						
Remove	23,464	0	87,239	64,376	0	175,079
Treat	26,919	19,864	4,826	0	0	51,609
Replace	30,069	27,711	121,457	116,740	30,971	326,948
Annual Cost	\$80,452	\$47,575	\$213,522	\$181,116	\$30,971	\$553,636

Table 3. Cost of Five-Year Plan

It is estimated that removing over 220 smaller infested fair to dead public trees in this category will need to be conducted within 3 years or sooner, or treatment options will have to be considered to maintain public safety.

The remaining 300 trees are currently good candidates for treatment and retention in the landscape on a short term basis. However, they should continue to be evaluated for signs of decline.

Benefits and Impacts:

Benefits
Lowest cost for treatment, removal and replacement
Balanced approach to maintain benefits from good condition trees over the next 5 years
Provides suitable timeframe for public consultation and education
Plans removal in a 5 year timeframe (within the timeframe the tree is infected to potential death of the tree)

Impacts
There may be intensive replacement required in 2017 and 2018 as the infestation progresses

OPTION #3

Option Summary: This strategy uses a combination of chemical treatment and contracted removal and replacement. This option uses intensive chemical treatment as a tool to spread contracted removal costs over a six-year period.

	2015	2016	2017	2018	2019	2020	Total
Number of Trees							
Remove & Replace	111	111	76	76	77	77	528
Treat	306	0	153	0	0	0	459
Cost							
Remove	27,280	27,280	45,726	45,726	46,327	46,327	238,666
Treat	56,810	0	28,405	0	0	0	85,215
Replace	65,446	65,446	44,810	44,810	45,399	45,399	311,309
Annual Cost	\$149,536	\$92,726	\$118,940	\$90,535	\$91,727	\$91,727	\$635,190

Table 4. Cost of Six-Year Plan

The treatment schedule requires treatment of 306 trees in 2015 and 153 trees in 2017, coupled with the removal of 222 small and poor condition trees in 2015 and 2016 (111 trees per year). This allows the removal of 77 – 76 trees each year from 2017 - 2020. This option results in the removal of the entire ash population in a relatively short time frame, but allows for the public to see the trees being replanted and allows a full two years for public outreach and education. This option costs \$635,190, distributed unevenly as shown in Table 4. While it allows the town to continue to realize some economic and societal benefits from the tree population for six years, it will eventually mean the loss of all ash trees and the benefits they provide.

Benefits and Impacts:

Benefits
Balanced approach to maintain benefits from good condition trees over the next 6 years
Provides suitable timeframe for public consultation and education

Impacts
2 nd most costly approach for treatment, removal and replacement
Treatment costs in excess of \$160,000
Due to volume more contracted services will be required

OPTION #4

Option Summary: This strategy provides some ash trees with treatment for the foreseeable future. This option takes an optimistic view that treatment or biological control measures may become more cost effective solutions in the future, and preserves a portion of the ash population for that possibility.

	2015	2016	2017	2018	2019	2020	Six-Year Total
Number of Trees							
Remove & Replace	111	111	15	9	9	8	263
Treat	306	-	291	-	273	-	870
Cost							
Remove	27,280	27,280	9,025	5,415	5,415	4,813	79,228
Treat	56,810	-	54,025	-	50,684	-	161,519
Replace	65,446	65,446	8,844	5,306	5,306	4,717	155,065
Annual Cost							
	149,536	92,726	71,894	10,721	61,405	9,530	\$395,812

	2021	2022	2023	2024	2025	2026	Twelve-Year Total
Number of Trees							
Remove	8	8	8	7	7	7	308
Treat	257	-	241	-	227	-	1,595
Cost							
Remove	4,813	4,813	4,813	4,212	4,212	4,212	106,302
Treat	47,712	-	44,742	-	42,143	-	296,116
Replace	4,717	4,717	4,717	4,127	4,127	4,127	181,597
Annual Cost	\$57,242	\$9,530	\$54,272	\$8,339	\$50,481	\$8,339	\$584,014

Table 5. Cost of Twelve-Year Plan

Should any of the trees treated not survive this option will require additional funds for contracted removal and replacement. This would require a funding amount not to exceed \$263,077 over the total budget costs listed in Table 5 over 12 years.

This option will attempt to maintain 220 trees if they remain in good vigor and condition as shown in Table 5. The plan requires a budget of \$584,014 over 12 years, including the allocation of \$296,116 into treatment costs. There is no guarantee that multiple scheduled treatments will prolong the lifespan of a tree. Over the 12 year timeframe treatment costs under this option will exceed the costs to remove and replace the trees that are treated. Additional and on-going treatment costs are not insubstantial, averaging around \$40,000 every 2 years, though it is likely that treatment costs will decline in the next twelve years.

Because EAB is already established in the area, a 3%-5% attrition rate was applied to the trees designated for treatment. Treatment is only effective on vigorous trees, and should be discontinued when damage has occurred to over 30% of the crown. Trees are also sometimes designated for removal for other issues, such as storm damage, injury, and structural issues. Treatment applicators should evaluate each tree at the time of treatment to ensure it is still a good candidate for the injection.

Benefits and Impacts:

Benefits
Makes effort to maintain existing trees and their benefit over long term
Provides ample timeframe for public consultation and education
Reduced removal and replacement of trees in good condition

Impacts
May be the most costly approach including on-going maintenance costs and replacement costs
Additional removal and replacement costs not to exceed \$263,077 may be required
High risk and no guarantee the trees treated will not succumb to the infestation
Treatment costs will exceed cost to remove and replace tree with other species

The EAB management plan is a best practice plan to address the problem of this infestation. As a result the costs provided are estimates only and the Town will continue to have flexibility from year to year with the plan depending on tree conditions. Town staff will review the plan each year and report to council any adjustments to the timelines and costs based on the condition of the tree inventory.

After careful review, Option 2 will provide the most benefit to the Town considering costs, allocation of resources, public communication and consultation, timelines and community impacts. Staff propose funding the first year of this plan in 2015 from the Parks Capital Reserve with all future funding based on yearly analysis of the tree inventory and yearly capital budget deliberations. At present, funding for the estimated costs for the

proposed plan can be provided from the Parks Capital Reserve for 2015. Additional work under the proposed plan for 2016 and beyond may require tax base support or future contributions to the Parks Capital Reserve to off-set cost impacts in these years.

Staffing Implications

“Staff is preparing for EAB”

With the imminent threat of EAB, implementing any urban tree management plan within the Town of East Gwillimbury will be a challenging task. Parks staffing levels have increased by 3 full-time positions over the past 2 years to address an increase in maintenance volume and to complement existing staff with horticultural expertise.

The current lack of technical qualified forestry staff that can provide expert tree assessments in the field to execute a comprehensive management plan is a current resource gap that will require attention in the immediate future.

This identified resource gap will become further problematic with forecasted development pressures that will require internal staff to manage and execute all development processes for green infrastructure. The technical needs of a qualified forestry expert will be required to review, comment and inspect all plantings within streetscapes, parks, open spaces, trails and storm water management ponds.

The Community Parks, Recreation and Culture staff resource plan presently includes the new position of Forestry Technician for the 2017 budget year as a direct result of the threat of EAB and increased development forecast pressures.

ALIGNMENT WITH STRATEGIC PLAN

Protecting and Enhancing the Environment

CONCLUSION

A council approved EAB Management Plan will:

- Protect public safety and minimize liability
- Plan for a healthy, diverse and sustainable urban forest
- Maintain our urban forest canopy and associated benefits

Staff recommends that Steps 3 and 4 of the previously approved 4 step EAB Strategy be implemented with the 2015 budget approval.

Staff recommends implementing EAB Management Plan, (Option 2) with the 2015 budget approval and will continue to keep Council up to date on the progress. A 2015 capital budget project request form has been prepared proposing the work for 2015 consistent with the proposed EAB Management Plan.

Staff will continue to work closely with the Region of York in their collaborative approach in providing further information, educating the public, and keeping abreast of any new developments.

ATTACHMENTS

Attachment #1 – EAB Public Awareness Campaign - Door Hanger

This report has been reviewed by the Senior Management Team.

Prepared By,

Approved and Recommended By,

Original Signed By

Original Signed By

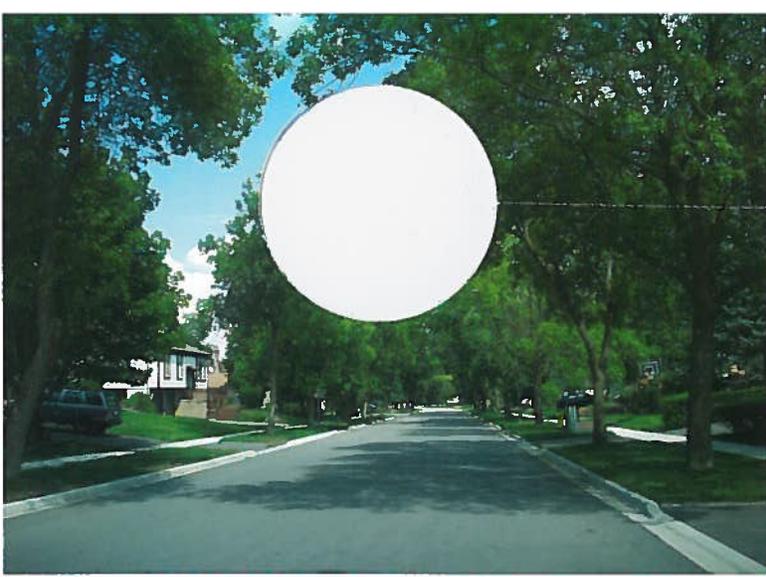
Frank Mazzotta
Manager of Parks Development and Operations

Aaron Karmazyn, Acting General Manager
Community Parks Recreation and Culture

Approved for Submission,

Original Signed By

Thomas R. Webster
Chief Administrative Officer



The Town of East Gwillimbury owned ash trees in your neighbourhood have been infested by Emerald Ash Borer (EAB), an invasive insect that attacks and kills ash trees. New trees of a different species will be planted to replace existing ash trees.

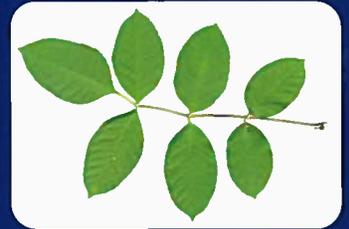
ASH TREE(S) NEAR YOUR PROPERTY WILL BE:

- TREATED
- MONITORED
- REMOVED & REPLACED

For more information, see the back of this hanger.



Town of
East Gwillimbury



WHAT IS EMERALD ASH BORER (EAB)?

EAB is an invasive insect that infests and kills ash trees. It was discovered in southern York Region in 2008 and has now been found throughout the Region and much of southern Ontario. EAB poses no risk to human health.

WILL THE TREE(S) BE REPLACED?

East Gwillimbury will replace town-owned ash trees on town streets with trees of different species that are suitable for the site.

WHY ARE TREES IMPORTANT?

Trees benefit our health, natural environment and economy. They can improve air and water quality, offer shade and habitat for wildlife, reduce the cost of heating and cooling a home and increase property value.

WHAT CAN I DO TO HELP THE URBAN FOREST?

- Share this information with others
- Don't move firewood – larvae of EAB and other wood-boring insects are transported in wood
- Plant a tree in your backyard through our subsidized backyard tree planting program; visit www.yourleaf.org/plant-trees-and-shrubs

WHERE CAN I FIND MORE INFORMATION ABOUT EAB?

To learn more about EAB management in East Gwillimbury, visit www.eastgwillimbury.ca and search "Emerald Ash Borer," or call 905-478-4282

For general information about EAB, visit the Canadian Food Inspection Agency website at www.inspection.gc.ca

