



**SUBJECT: 2017 Emerald Ash Borer Action Plan**

**TO: Committee of the Whole**

**FROM: Roads and Parks Maintenance**

Report Number: RPM-02-17

Wards Affected: All

File Numbers: 820-01

Date to Committee: February 27, 2017

Date to Council: March 27, 2017

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**Recommendation:**

Approve adjustments to the city's Emerald Ash Borer Action Plan, described in report RPM-02-17; and

Approve one-time funding of \$300,000 from the tax rate stabilization reserve fund to assist in the delivery of the 2017 program; and

Direct the Director of Roads and Parks Maintenance to provide Council with a further review of the City's Emerald Ash Borer Management Strategy and a 2018 Action Plan in Q4, 2017.

**Purpose:**

A Healthy and Greener City

- Healthy Lifestyles
- Environmental and Energy Leadership

**Executive Summary:**

New information and lessons learned from other municipalities warrants a shift in direction for EAB management in Burlington. The major program changes are:

- Tighter criteria to determine which trees to be treated
- Treatment of trees greater than 50cm dbh (diameter at breast height), plus streets that are primarily ash where trees greater than 40cm dbh will be treated

- Annual treatment of trees, vs. bi-annual treatment
- Proactive rather than reactive program
- Prioritization of street and park trees; focus on public safety
- Systematic, planned removals
- Comprehensive communications program

Ash tree mortality in Burlington is now rapidly accelerating, due to high levels of EAB infestation, combined with the impact of the severe 2016 drought. 3,296 trees are recommended to be removed in 2017. As public safety remains the highest priority, street and park trees will be the focus of removals.

Nursery stock supply for the next couple years is challenging, given unprecedented demand for trees across Ontario, Quebec and the United States. 715 trees are planned for 2017 planting.

Staff recommend \$1.40M be allocated to the EAB program for 2017, including the approval of one-time funding of \$300,000 from the tax rate stabilization reserve fund.

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## **Background and Discussion:**

City staff has been actively engaged in planning and management of Emerald Ash Borer (EAB) since 2009, as the invasive pest continues to create devastating forestry losses in excess of hundreds of millions of trees to date throughout Ontario, Quebec and the United States.

Many advances have been made in the management of EAB since the insect was first detected in Canada in 2002. Extensive research has resulted in new control products, changes in urban forestry planning & methodology, and best management practices. The City of Burlington was impacted by EAB later than some other municipalities. As a result we are now in the position to learn from the experiences of other municipalities managing similar challenges.

In 2010, Burlington contracted the services of a well-regarded Forestry consultant who recommended the injections of ash trees with TreeAzin®, a systemic pesticide approved by the Pesticide Management Regulatory Agency (PMRA) for use in Canada. Research data indicated good efficacy for control of EAB.

Report to Council (RPM-3-10) in 2010 noted the issue of treatment uncertainty, and recommended strict criteria including tree health and structural soundness to warrant the ongoing investment of a multi-year treatment program; approximately 500 trees were estimated as treatment candidates. In 2011, City Council voted to extend the treatment to all ash trees with a dbh greater than 20cm, in an effort to retain ash trees due to the extensive environmental benefits the trees give to our community. These

benefits include stormwater uptake, air quality improvements, carbon uptake, energy savings, aesthetics, as well as providing habitat for wildlife and shade from the sun's UV rays.

It is important to note that the previous program approved by Council did not include the treatment of woodlot trees however removals were performed when trees posed a potential hazard.

### **Strategy/process**

In recent years lessons have been learned from other municipalities as well as the City's compiled treatment data. This new information suggests a shift in the direction of the EAB management program for the City. Successful EAB management includes active assessment of tree condition over several years; a strong communications program to inform and educate residents; and ongoing customer service and program management to ensure cost-effective delivery. Increased focus on all these actions will continue to deliver progress in the components of treatments; street and park tree removals & stumping; replanting; and woodlot management.

The major changes to the program include:

- Tighter criteria to determine which trees to be treated, including good structure & location
- Treatment of trees greater than 50cm dbh, plus selected streets that are primarily ash where trees greater than 40cm dbh will be treated
- Annual treatment vs. bi-annual treatment of trees
- Proactive rather than reactive program
- Prioritization of street and park trees to focus on public safety
- Systematic, planned removals
- Comprehensive communications program

### **Tree Injections**

Evolving research has recently determined that for areas of high infestation, annual injections of TreeAzin®, a treatment option approved by the Pesticide Management Regulatory Agency (PMRA) of Canada, will provide improved efficacy than the previously recommended bi-annual injections.

In 2016, 3016 trees were treated, significantly down from the 3525 trees previously treated in 2014, due to decline in tree health over the 2 year period. Burlington data gathered indicates that larger trees remain the most eligible for continued treatment.

4848 trees over 20cm dbh were treated at a cost of \$753,095 over the two year period (2015 – 2016) City wide.

Treatment criteria for 2017 are recommended to take into consideration the following factors:

- trees greater than 50cm dbh plus selected streets that are primarily ash over 40cm dbh will be treated
- good location eg. not near hydro
- good structure
- less than 20% canopy loss
- absence of watersprouts / suckers / bark cracks / woodpecker damage

Street and park ash trees will require re-assessment every spring after leaf out to determine which trees will be eligible for treatment. The revised eligibility criteria, in addition to the assessment of trees by City staff rather than contracted injection staff, will result in a more consistent and cost-effective treatment program. Savings resulting from not treating smaller diameter trees or those with poor structure or location will offset the cost of increased frequency of treating larger trees. Trees that do not meet the treatment criteria are anticipated to decline quickly and will need to be removed. The revised criteria are estimated to yield approximately 700 eligible trees (60% meeting the eligibility criteria) as injection candidates for 2017. Continued enhanced annual treatment of larger trees which provide the most environmental benefits to the community is recommended.

At the end of year 2024, further decisions will need to be made regarding continuing treatments of surviving trees.

### **Street and Park Tree Removals & Stumping**

Industry research across municipalities shows an exponential increase in tree mortality typically experienced 6-8 years after initial infestation. Burlington has now entered the period of dramatically accelerated tree mortality. The record 2016 drought has further compounded the situation as trees already weakened by EAB are further stressed. Ash tree losses are expected to be extensive over the next few years and prioritization must turn to removals of trees which pose the highest risk to the public.

It is important to note that:

- Infested trees become brittle; limb or trunk failure could result in injury to people or damage to property
- In 2016, 1,020 trees were removed from City street boulevards and parks.
- Planned, proactive removals are now required to mitigate public risks
- Trees that do not meet the 2016 injection criteria will be removed
- In 2017, approximately 3,296 trees are recommended for removal due to poor health and potential risk

Stumping of street trees in preparation for replanting experienced significant challenges in 2016, as City staff dealt with contractor performance issues. Staff is working to secure a stumping contractor who is experienced with successfully delivering a large scale municipal stumping program of the magnitude needed. Approximately 700 stumps are recommended to be grinded in 2017 in preparation for replanting.

### **Replanting**

The focus on accelerated tree removals in 2017 to protect public safety will result in an extensive program of stumping and replanting across the City. The goal is that trees removed will be replanted with a 1:1 ratio. Budget constraints, combined with nursery stock shortages will prove challenging, and replanting the following year will not happen city-wide. Recent landscape industry communications advise that nurseries are now experiencing significant problems with tree species availability, due to high demand for trees by municipalities across Ontario and Quebec. Further compounding the issue is the extreme demand for trees for the United States market, combined with the favourable US-Canada dollar exchange rate. The resulting unprecedented shipments of nursery stock to the United States have created shortages of many species preferred due to tolerance of urban conditions. Landscape Ontario advises that “Beginning in the spring of 2016, the marketplace has seen a critical shortage of caliper trees. While there is little doubt the pendulum will eventually swing the other way, current indicators all point to a continued caliper tree shortage into 2017 and 2018 and perhaps beyond.” As diversification of Burlington’s tree population is critical to urban forestry planning to mitigate future potential invasive threats, patience is needed as nurseries respond to the supply issues. Prudent investment in green infrastructure able to survive the stresses of tough urban conditions requires expertise in planting the right tree, in the right place. City staff will continue to be involved in the Cooperative Pilot Project Initiative spearheaded by Landscape Ontario to find solutions to widespread urban tree planting issues.

In 2016, 670 street and park trees were replanted. The 2017 plan is for replacement plantings of 715 street trees, subject to suitable species availability.

### **Woodlot Management**

In 2016, over 4,100 trees were removed from woodlands and ravines, buffer areas of trails and manicured areas of parks, as well as in close proximity to private properties in response to resident complaints. This was the first year of an extensive woodlot removal program. Moving forward, staff recommends a planned focus on areas of highest likelihood of tree failure and resulting risk to the public in determining work prioritization as well as a systematic approach to optimize costs.

Hazardous tree removals along trails, and in buffer zones of manicured areas of parks, as well as woodlots adjacent to private properties will continue in 2017. \$100,000 is

recommended for removals of approximately 1,000 woodlot trees in 2017. Monitoring and prioritization of removals to promote public safety continues. Logs & branches will be left in place to decompose and return organic material and nutrients to the soil, thus promoting woodland regeneration. Additionally, some trees trunks will be left standing as wildlife trees to provide natural habitat & food sources for birds, mammals & other species in our woodlands. Occasionally staff received complaints from residents that the cut wood left in natural areas appears “messy”. It is important to remember that these are natural areas that routinely experience dieback and subsequent regeneration of species, as part of ecosystems which adapt and change over time. Staff does not recommend the removal of wood from woodlands as fragile ecosystems of woodlands can be badly damaged during unnecessary cutting, hauling and chipping operations.

### **Corporate Communications**

A strong communications strategy is underway for 2017, to provide information to the community regarding the impact of the Emerald Ash Borer and the City’s action plan. Communications will help to manage residents’ expectations, and facilitate an understanding and appreciation of the multi-year, staged approach needed to manage tree removals and re-planting for such an extensive project.

The communications plan includes:

- “Burlington Talks Trees” – booths set up at festivals, events & community centres to provide residents with the opportunity to discuss tree concerns with City arborists in an approachable, friendly atmosphere
- Key messages updated on the City website
- Media releases including social media
- Door hangers conveying information about removals, stumping and replanting programs
- EAB updates to Councillors and City staff to facilitate clear, concise and consistent information to residents
- Public information sessions
- Continued encouragement of residents as partners including community tree plantings planned for each ward

### **Private Trees**

Widespread public messaging by Corporate Communications will continue to provide information to residents to encourage them to take action in a timely manner to remove private trees which pose risks to people or property. It is the responsibility of the private property owners to manage trees on their own properties.

### **2017 – 2024 EAB Management Plan**

Appendix A provides a summary of recommended changes to the Management Plan.

Monitoring and re-assessing the condition of Burlington’s trees will continue to be an ongoing process to determine candidates for treatment or prioritization for removals.

The results of 2017 spring assessment of street and park ash trees will be critical in setting the foundation for the plan moving forward, given the recommended change to new treatment eligibility criteria, and assessment of trees after the 2016 drought.

Staff will provide an update to Council in Q4, 2017 regarding the health of the ash trees, as well as EAB Plan for 2018 and beyond. At this time, the following Plan is proposed:

**EAB Program Summary – Street and Park Trees**

	To Date	2017 Estimated	2018 Estimated	2019 Estimated	2020- 2024 Estimated	Total Estimated
<b>Injections (# trees City-wide)</b>	4,848 over 2 years	700	630	567	2090 over 5 years	
<b>Removals (# trees)</b>	2,080	3,296	1,086	1,479	1,293	9,234
<b>Stumping</b>	1,713	700	3,296	1,086	2,439 over 5 years	9,234
<b>Replanting (# trees)</b>	859	715	1,286	1,286	5,088	9,234

**Options considered**

**Option 1: Continue Current EAB Management Strategy**

This option is not recommended due to information gathered regarding the effectiveness of current bi-annual treatments, as well as new industry research indicating improved efficacy of annual injections and the increased costs to do so. In addition, the 2016 drought is expected to contribute to increased ash tree mortality over the next few years.

**Option 2 (Recommended): Annual injections of street and park ash trees >50cm dbh plus >40cm dbh on selected streets that are primarily ash; and planned removals of smaller trees**

This option will focus on preserving larger ash trees that provide the most ecological benefits while removing smaller trees and replanting to restore & diversify our urban forest.

### Financial Matters:

The total expenditures to date for the EAB Management Strategy is \$4.184M including \$1.291M spent in 2016. Report RPM-02-15 approved by Council March 23, 2015 provided a 10 year forecast of \$9.45M. While spending to date totals 44% of the 10 year plan, less than a quarter of the ash trees on streets and in parks have been removed. The annual budget is currently \$850,000 for the EAB Management Strategy. Given the accelerated decline of ash trees, increased funding is needed in the short term to remove and replace trees. The proposed total program costs of \$13.46M through 2024 takes into account removals for public safety; treatments to optimize environmental benefits; replacements to diversify the urban forest; and woodlot removals. It includes a 15% contingency for current and future years.

### Total Financial Impact

	To Date	2017 Costs Estimated	2018 Costs Estimated	2019 Costs Estimated	2020-2024 Costs Estimated	Total Program Costs
Injections		\$0.16M	\$0.144M	\$0.13M	\$0.478M	
Removals /Stumping		\$0.89M	\$0.695M	\$0.80M	\$1.618M	
Replanting		\$0.25M	\$0.45M	\$0.45M	\$1.65M	
Woodlots		\$0.10M	\$0.10M	\$0.10M	\$0.05M	
<b>Total</b>	\$4.184M	\$1.40M	\$1.389M	\$1.48M	\$3.796M	\$12.25M*

\* Including contingency, total program costs are \$13.46M.

### Source of Funding

The 2017 operating budget approved \$850,000 of ongoing funding. The retained savings report F-11-17 recommends \$250,000 to the Forestry Reserve Fund. This results in a \$300,000 shortfall to deliver the proposed 2017 program.

### Other Resource Impacts

The addition of two new Forestry crew staff approved in the 2017 budget will assist in the delivery of the 2017 EAB program.

### Connections:

Burlington's urban forest contributes over \$3.5M annually of benefits to the community, as reported by the 2010 Urban Forest Management Plan. These benefits include stormwater management, carbon uptake, air quality improvements, and reduction of building energy use.

Ash trees comprise approximately 13% of Burlington's street and park tree population; with maple being the primary species (25%) and ash the secondary tree species.

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### **Public Engagement Matters:**

As outlined in the Communications Strategy above, a series of sessions will be scheduled to provide information to community members, and a comprehensive communications plan will be implemented to educate and inform residents.

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### **Conclusion:**

As EAB infestation continues to increase in Burlington, evolution of the EAB Management Strategy will shift to focus on public safety through tree removals, and preserving the health of the ash trees which provide the most ecological benefits to our community. Replanting to rebuild the urban canopy and diversify the tree population will help mitigate potential threats posed by future invasive pests.

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Respectfully submitted,

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### **Appendices:**

- A. Summary of Recommended Program Changes

### **Report Approval:**

All reports are reviewed and/or approved by Department Director, Director of Finance and Director of Legal. Final approval is by the City Manager.