



City of  
**Peterborough**

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**To:** **Members of the General Committee**

**From:** **W.H. Jackson, Director of Utility Services**

**Meeting Date:** **April 16, 2018**

**Subject:** **Report USDIR18-005  
Emerald Ash Borer Update 2018 and Revision to Emerald Ash  
Borer Management Plan**

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## **Purpose**

A report to provide an update on the Emerald Ash Borer situation as of March 2018 and to propose some amendments to the 2013 Emerald Ash Borer Management Plan.

## **Recommendations**

That Council approve the recommendations outlined in Report USDIR18-005 dated April 16, 2018, of the Director of Utility Services, as follows:

- a) That Report USDIR18-005 dated April 16, 2018 be received for information and the Emerald Ash Borer Management Plan be updated as indicated in the Report;
- b) That the Emerald Ash Borer Management Plan be extended to 2025 with yearly proposed funding as detailed in Appendix A of Report USDIR18-005; and
- c) That an additional 0.25 FTE be included as part of the EAB budget for consideration during the 2019 draft budget discussion, funds for which will come from the yearly proposed funding detailed in Appendix A of Report USDIR18-005.

## **Budget and Financial Implications**

The 10-year cost (2014-2023) to implement the Emerald Ash Borer (EAB) Management Plan was \$3.9 million. Continuing inventory collection, adding to the numbers of Ash trees to be managed, together with new treatment recommendations are likely to add to the overall management costs going forward but, with a reduced cost of treatment, the new longer range budget (12 years from 2014-2025) is only slightly more at \$4.0 million.

The most significant difference between the two budget estimates is the distribution of funds. The new budget as depicted in Appendix A shows reduced spending during the first five years (2014-2018) but increased spending for the remaining years (2019-2025). These adjustments are because of the slower than anticipated speed of the EAB infestation throughout the City.

Depending on the extent of new Ash trees added to the inventory and treatment plan, additional budget adjustments may be required in the years 2020 and beyond.

## **Background**

City Council at its meeting of April 8, 2013 in reviewing Report USDIR13-004 entitled The Emerald Ash Borer (EAB) Management Plan, adopted an EAB Management Plan consisting of a hybrid solution of treatment and removal of Ash Trees (described as Option 3). The Report established a 2013 Budget for the EAB Management Plan which was revised by a later Update Report USDIR13-012 dated September 23, 2013 outlining further progress and revised costs to implement the EAB Management Plan.

### **1. Progress to date**

Significant progress has been made since the September 23, 2013 City Council meeting and the review of EAB Management Plan in the update report of May 11, 2015. Tree inventory and Ash reassessment across the City continues, together with widespread insect trap deployments, which are the principal mechanisms of monitoring the progress of EAB in the City. Communications, outreach, and increased stakeholder involvement continue to educate and involve the entire community in the fight against EAB and to add to our knowledge about the movements of EAB and effective management strategies. The following sections provide more details on progress to date in these matters.

#### **1.1 Inventory and Reassessment**

Work commenced on the tree inventory July 2, 2013 and has continued since that time.

On-going tree inventory and re-assessment of Ash trees continue to be undertaken by staff and has been broadened to include Ash trees in parks and woodlots. The work

continues to identify new Ash trees and revise the condition grading of existing Ash trees on record, all of which will likely impact budgets from 2020 onwards.

The Cityworks® software component of the City ESRI GIS system has been implemented and is used to manage all aspects of forestry work and update existing inventory. Building on this, 2018 will see the introduction of the Mobilworkx component of Cityworks® to enable staff and contractors to update and add new tree information as work takes place in the field, reducing paperwork and providing more accurate EAB management data.

## 1.2 Trapping and Monitoring

Insect trapping has been on-going since 2014 with the following results:

Year	Total # of Traps Deployed	Total # of Sites confirmed with EAB	Total # of Insects collected	% of traps Positive for EAB
2014	19	4	5	21%
2015	30	4	25	13%
2016	40	14	95	35%
2017	43	36	652	84%

The number of traps deployed was increased over time to reduce the variation in results. Data from 2017 confirm the start of an exponential rise in numbers of EAB as expected.

Visual surveys of City-owned Ash trees and private trees have shown that the number of trees killed outright by the EAB is still very low throughout the City.

This allows staff to determine, with a high degree of confidence, that the strategy of proactive treatments and removals has had the effect of delaying the build-up of EAB by one or two years which has served to spread the costs over a longer period of time than originally envisioned.

## 1.3 Treatments and Future Controls

Treatment of specific Ash trees designated for treatment in the right-of-way started in 2014 in the south of the City using the bio-insecticide TreeAzin™. Treatments are biennial (once every two years) and have proceeded on approximately half of the designated Ash trees every year in a repeating cycle.

To date, no treated City-owned Ash trees have been killed by the EAB, demonstrating the effectiveness of starting pro-active treatment when a known infestation is within 25km of the target Ash trees.

At the current time around 1500 City-owned Ash trees are in the treatment program, primarily in the road allowance, but including trees in the Riverview Park and Zoo, the Naval Association Club and the Kennedy Road woodlot.

Although treatment costs have been relatively stable for the past 3 years, the unit price per centimeter of trunk diameter is expected to increase moderately over the term of the EAB plan.

Monitoring and assessment of the two wasp parasitoids released in Canada that feed exclusively on EAB larvae continues. Staff attended an informational workshop in 2017 run by the Canadian Forest Service examining the trials of parasitoid wasps released at selected sites in Ontario. The first stages of the trials have been looking at release and recapture of the wasps, to determine the species ability to survive in Ontario. This has been very positive and the trials will move forward looking at the impact of the wasps on EAB populations.

It is hoped that when the wasps are widely distributed and established throughout Ontario they will be effective in controlling numbers of EAB after the first wave of the insect has passed.

Alternative treatments to TreeAzin™ that are registered for use in Canada are formulations that contain Neonicotinoids and are considered to be more environmentally toxic than TreeAzin™. Staff will continue to examine alternative treatments as they become available in terms of environmental toxicity, sustainability and cost.

#### **1.4 Public Awareness, Communications and Outreach**

In late 2015 Ash trees within the City were mapped using photo interpretation from digitized 3D imagery to identify and geo-locate all private and publicly-owned Ash trees to an 80% degree of confidence.

Using this method approximately 72,000 private and public Ash trees were identified throughout the City, either as individual trees or in groups of trees.

The geo-location of private Ash trees enabled a mail out of EAB information in June 2016 to over 3600 owners of private Ash trees.

The EAB message will continue to be reinforced with all the necessary current data going forward, using mechanisms such as the City's waste management calendar, tagging onto other City Public Information Centers (PICs) and through the Peterborough Regional Envirothon.

## 1.5 Collaborative Working

Staff is actively involved in a regional EAB working group (based in York Region) and is sharing the latest research and information on the EAB.

In March 2017 Staff presented the City of Peterborough's EAB management plan and the City's proactive approach to EAB management at a workshop in Thunder Bay, funded by the Ministry of Natural Resources and Forestry and the Ontario Invasive Species Center.

As an endorsement of the City's management of the EAB it was awarded a subsidy to treat private Ash trees in 2015 and again in 2016, by TreeCanada.

This subsidy to the owners of Ash trees (the only one in Canada) resulted in approximately 450 trees being treated at up to 50% less than the normal cost. In tandem with the City's actions this has had a significant effect on slowing the buildup of the insect and has secured the future of many more Ash trees in the urban forest.

The City's approach to EAB management continues to be held as an example of the most cost-effective and successful way to manage EAB and as a guide to municipalities who are preparing for the arrival of EAB.

## 1.6 Wood Utilization and Disposal

The secure compound for marshalling City Ash tree removals and prunings was relocated in late 2017 due to the construction of the new road layout on Crawford Drive. Processing of wood unsuitable for sawmilling continues and, after mixing 50:50 with City green waste compost, is used as mulch for Ash tree replacement planting.

It has been possible to reclaim a large proportion of the removed Ash trees by sawmilling and offering the lumber for sale to the public. Sales have taken place in October 2016 and 2017 and have proved increasingly popular, proving a desire from the community to see urban wood repurposed and used locally as shown in Figure 1.

**Figure 1: Examples of Re-used Ash Wood**



## **2. Findings**

Constant review of the latest science, consultation with staff from other jurisdictions (Municipal, Provincial and Federal) involved in EAB management, and the on-going collection of data within the City has allowed staff to continue to develop and refine the City's EAB Management Plan.

### **2.1 EAB Progression**

EAB is now confirmed to be widespread throughout most of the City, with perhaps only the north end at the relatively low levels of infestation level.

The dramatic buildup of EAB populations followed by tree death 1-2 years later follows a consistent pattern. Insect trap data now confirms the exponential increase of EAB with widespread death of untreated Ash trees predicted to follow within 1-2 years. The strategic actions of the EAB management plan have slowed the spread of EAB within the City by 1 or possibly 2 years, allowing for proactive removals and replacements to take place and reduce the visual impact of the EAB.

Staff anticipates significant numbers of untreated City-owned Ash trees will require removal in 2019.

### **2.2 EAB Regulated Areas in 2018**

Canadian Food Inspection Agency (CFIA) EAB regulated Areas as of February 2018 are shown in Appendix B. This represents a continuing enlargement of the regulated area from 2015. Notably, Thunder Bay and Winnipeg are now confirmed positive for the EAB, demonstrating that the principal mechanism of spread is human movement of wood products, particularly firewood.

### **2.3 Inventory Results to Date**

The data collected on the location, size and condition of Ash trees in the right-of-way in the outer City forestry management zones still requires completion.

There are still some significant areas such as Guthrie Road, Old Norwood Road and the north east end of Cumberland Avenue that need to be surveyed.

Ash trees in these and other areas not yet assessed, together with many Parks and other City-owned open space, are not yet included in the existing EAB budget and may incur costly reactive management when Ash trees die in the coming years.

Inventory and assessment of these areas is now a priority going forward with the plan.

## **3. Strategic Revisions to the EAB Management Plan**

With all of the new information available through continuing tree inventory, communication with other jurisdictions and trapping/monitoring, it is important that the

EAB Management Plan as presented in Report USDIR13-004 dated April 2, 2013 and updated in Reports USDIR13-012 dated September 23, 2013 and USDIR15-002 dated May 11, 2015 be revisited and adjusted where necessary. The sections below describe proposed amendments to various areas of the Management Plan.

### **3.1 Term of the EAB Management Plan**

The strategic actions of the EAB Management Plan since 2013 have resulted in a slowing of the spread and population buildup of the EAB. Because of this, tree removals and replanting have not progressed at the anticipated rate and therefore it is proposed to extend the plan by 2 years to 2025, at approximately the same total cost (see Appendix A).

### **3.2 Monitoring**

Monitoring will continue throughout the term of the plan, principally through insect trapping and Ash tree reassessment. This is necessary to determine the extent and intensity of the EAB infestation and identifying when the numbers of EAB peak and start to decline.

### **3.3 Ash Tree Re-Assessment**

A critical part of the EAB Management Plan is to identify any change in treatment category brought about by declining condition, either through EAB or other conditions. This prevents unnecessary treatments and updates the condition of both treated and untreated Ash Trees as the plan progresses. Many smaller healthy Ash trees, previously excluded from treatment because of their size, are now included for treatment over the term of the plan. Re-assessment of Ash trees immediately prior to treatment to record any change in management is carried out every two years in line with biennial treatments. Ash tree re-assessment is also an essential tool to monitor EAB damage and record when trees die. Current research work suggests an acceptable time of 12-18 months to remove trees killed by EAB, which will effectively prioritize tree removals as widespread tree death occurs. Re-assessment of Ash trees is likely to be required annually as significant numbers of trees decline and die over increasingly shorter periods of time.

Inventory will continue utilizing existing staffing but may require additional resources as needed to complete the data set.

Small increases in the EAB Management Plan funding are anticipated for this element from 2019 onwards.

### **3.4 Tree Removals**

Removals and pruning of Ash for non-EAB reasons (dead, dying or dangerous) have been on-going since 2013. Pre-emptive removals commenced in late 2015, removing the poorest quality Ash Trees first. This strategy has played a vital role in the

effectiveness of the Management Plan by removing trees moderately infested with EAB and thus slowing the buildup of the insect population.

Removal costs included in the EAB Plan are based upon the anticipated inventoried numbers of Ash trees dying over the term of the plan. There are potentially still many Ash trees not yet included in the inventory that will impact the budget in future years.

### **3.5 Treatments**

Treatments will continue in 2018. Small increases in overall treatment numbers are expected in 2018 and 2019, but these will be the last years that untreated trees are likely to be in a condition suitable for treatment.

### **3.6 Replacement Planting**

Replacement planting has taken place following contracts for removals in 2015, 2016 and 2017. Replacement planting has generally achieved a 3: 1 ratio, planting where Ash trees were removed or close by. Where this has not been possible, replacement planting is being used to provide environmental benefit and beautify areas that are presently un-treed.

In a number of instances, property owners have requested that replanting not take place on City property in front of their house to replace a removed tree. This is at odds with the EAB plan and the Urban Forest Strategic Plan and these replacement trees must continue to be planted in designated locations if the objectives of both plans are to be achieved.

The costs of tree planting are increasing because the demand for new trees to replace removed Ash has increased throughout the Golden Horseshoe area. This is likely to impact budgets and/or replanting ratios in future budget years. Staff will report back on this at a later time.

### **3.7 Wood Disposal and Utilization**

Costs to process infested Ash wood have incurred since the commencement of tree removals in 2015. The public sales of ash lumber in 2016 and 2017 just covered the cost to sawmill the wood. Staff will continue to look into new and innovative ways to offset the costs of wood processing and repurpose wood to benefit the local community.

## **4. Budget Implications**

Appendix A presents the proposed change in budget allocation as a result of the slowing of the EAB infestation and the extension of the EAB plan until 2025. The budget is dynamic in nature and subject to many variables including local EAB populations and ash tree condition.



Staff continuously monitor and reassess all of the factors likely to impact the budget. It is anticipated that small to moderate increases may be likely going forward as Ash inventory increases and the full effect of the EAB is realized.

## **5. Staffing Considerations**

The City of Peterborough is now well established as a leader in planning and dealing with the Emerald Ash Borer throughout Ontario. The proactive approach to EAB management approved by Council in 2013 has produced significant benefits in dealing with EAB and saved many hundreds of Ash trees for future generations.

This success relies for the greater part with collection of inventory and constant reassessment of Ash trees, and, as the EAB progresses and trees start to die this becomes ever more important from a health and safety viewpoint.

A temporary position of 0.25 FTE is proposed be created to assist with data gathering and tree assessment covering the peak period of May to September.

To ensure the continued assessment as described above, the funds for this position have been included in the updated budget scenario depicted in Appendix A..

## **Summary**

Since the commencement of the approved EAB Management Plan, the City's management of EAB has been a strategy of Ash tree treatments, pro-active removals and replanting.

Already this approach has produced significant benefits for the City. Four years into the plan and there is strong evidence that these strategic actions have slowed the spread and buildup of the insect by as much as two years and secured the future of at least 1500 Ash trees in the streets and green spaces of the City.

The worst is still yet to come and 2018 and 2019 are likely to be the first years where widespread Ash tree death throughout the City is evident to the public at large. Nevertheless, the strategic actions of the City will lessen this impact and measures are in place to replace losses of City-owned Ash trees as quickly as possible.

Much still remains to be done in preparation for the first widespread deaths of Ash trees, especially with the many publicly-owned Ash trees that need to be inventoried and assessed and accounted for in the outer areas of the City before the worst effects of EAB. This report has identified additional resources that are required to speed up this process.

Staff continues to work alongside other urban forest professionals and government agencies to review and apply the best science and strategic management practices to limit the visual and financial impact of EAB and preserve the benefits of the urban forest.

Submitted by,

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Attachments:  
Appendix A: Proposed Emerald Ash Borer Budget 2014-2025  
Appendix B: Emerald Ash Borer Regulated Areas February 2018

**Appendix A: Proposed EAB Budget 2014-2025**

<b>Year</b>	<b>Allocated 10 Year Budget (\$000s)</b>	<b>Spent Budget (\$000s)</b>	<b>New 12 Year Budget (\$000s)</b>
2014	237	233.1	233.1
2015	310	249.4	249.4
2016	284	265.8	265.8
2017	618.9	243.8	243.8
2018	649.9		200
2019	594.8		630
2020	594.8		695
2021	265.8		680
2022	157		267
2023	157		185
2024			173
2025			173
<b>Total</b>	<b>3.9M</b>		<b>4.0M</b>

Appendix B: Emerald Ash Borer Regulated Areas February 2018

