



City of
Peterborough

To: Members of the Committee of the Whole

From: Blair Nelson, Acting Director of Utility Services

Meeting Date: May 11, 2015

**Subject: Report USDIR15-002
Emerald Ash Borer Update 2015 and Revision to Emerald Ash
Borer Management Plan**

Purpose

A report to provide an update on the Emerald Ash Borer situation, as of spring 2015 and to propose some amendments to the 2013 Emerald Ash Borer Management Plan.

Recommendations

That Council approve the recommendations outlined in Report USDIR15-002 dated May 11, 2015, of the Acting Director of Utility Services, as follows:

- a) That Report USDIR15-002 dated May 11, 2015 be received for information and the Emerald Ash Borer Management Plan be updated as indicated in the Report; and
- b) That staff be requested to continue to update Council on the status of the Emerald Ash Borer Management Plan as appropriate.

Budget and Financial Implications

The current 10-year cost to implement the Emerald Ash Borer Management Plan as detailed in report USDIR13-012 is projected at \$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 2016 management costs going forward, particularly increased treatment costs during years 7-9 (2019-2021) of the plan.

Future budgets for the EAB Management Plan remain as detailed in Report USDIR13-012, but will be revised following the reassessment of ash trees in 2015 and submitted in a further update report and through the budget process.

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. Tree inventory across the City continues, together with insect trap deployment and ash tree branch sampling, which are the foundation of the monitoring and assessment part of the EAB Management Plan. Continuing communications and outreach, and increased stakeholder involvement continue as key elements in efforts to involve the entire community in the fight against EAB and to broaden our knowledge about the movements of EAB and effective management strategies. The following sections provide more details on these matters.

1.1 Inventory

Work commenced on the tree inventory July 2, 2013 and has continued throughout 2014 and 2015. To date, the inventory has utilized the efforts of consultants and staff to complete an all-species assessment of trees located in the right of way and around the periphery of parks and trails for 21 of the 30 forestry management zones in the City.

The on-going tree inventory and re-assessment of trees undertaken by staff and consultants continues to identify new ash trees and revise the grading of existing ash trees on record, all of which will impact future budgets from 2017 onwards.

During 2014 it became apparent to staff that inventory that was collected as part of the EAB Management Plan would quite quickly become out of date, both through changes in tree growth and condition and by the maintenance actions to trees by Public Works. In tandem with this, software would be required to manage the logistics of the entire EAB program and keep a historical record of ash tree condition over the term of the plan.

The software selected is the Cityworks® component of the City ESRI GIS system. Cityworks® will provide inventory, work order and asset management tools in order to keep tree inventory up to date and facilitate the strategic actions of the EAB management Plan. There will also be significant benefits for Public Works and Urban Forest Management when the system is implemented in late April 2015.

1.2 Trapping and Monitoring

During 2014 a total of 19 baited insect traps were deployed in Ash Trees at strategic and high risk locations within the City. The traps were regularly checked during June, July and August of that year.

For the first time in 2014 the traps were “double-baited” in accord with emerging Natural Resources Canada research which concludes that using a green leaf alcohol and pheromone bait together in a trap increases the chance of finding the EAB at low levels of infestation.

Throughout the 2014 season regular scouting of nearby Ash Trees during trap checking together with assessment during inventory and response to public calls and enquiries was undertaken as part of the monitoring strategy of the EAB Management Plan.

In Late August 2014 a total of 5 EAB were found in 4 different traps in locations in the south and west of the City, making these the first confirmed finds of EAB in the City. It is hoped that the new trapping recommendations resulted in early detection of the insect. For 2015 up to 40 traps are planned as part of a survey to define the limits of the EAB (delimitation survey).

1.3 Treatment

Treatment of approximately half of the ash trees designated for treatment in the right of way started in 2014 in the south of the City using the bio-insecticide TreeAzin™. The treatments pre-empted the finds of EAB and any visible EAB damage to ash trees. The timing of the treatments in the south of the City will have saved over 500 trees from damage and eventual death from the EAB and will have helped to suppress EAB population build up and slow the spread of the insect.

Treatment of trees was accompanied by placing a door hanger on the nearby property as part of the public education and awareness strategy. Residents who contacted the City were very positive about treatment of City ash trees and, in turn, were encouraged to consider informed management of any ash trees that they might own.

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.

Monitoring and assessment of the two wasp parasitoids released in Canada that feed exclusively on EAB larvae continues. It is recognized that this will be a long-term process where wasp populations need to acclimate and build in number to have an effect on EAB populations.

A number of release sites in Ontario were chosen in 2013-14 and scientific work is on-going at present. It is hoped that these parasitoid wasps will become established and exercise control over EAB in the future but they are not expected to assist with EAB management in the first 10-year wave of EAB.

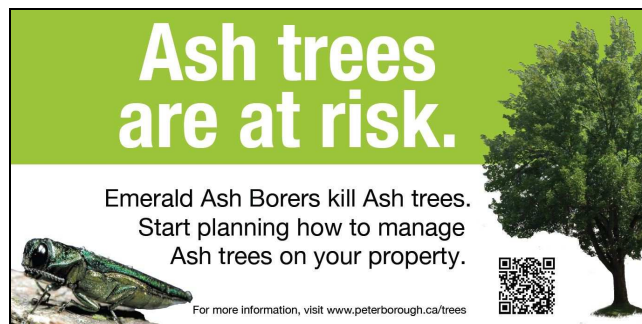
The trials of parasitoid wasps look promising and at the least may offer a viable long-term solution for control of EAB for the next generation of ash trees.

1.4 EAB Awareness Signs

In partnership with Peterborough County the “Don’t Move Firewood” signs that are positioned at gateway entrances to the City and strategic locations for movement into and through the region have been reported as a great success. Feedback at Public Information Centre’s in 2013 and 2014 all pointed to awareness of the signs as the first introduction to EAB for many residents. Staff continues to reinforce the importance of not moving firewood as a principal means of slowing the spread of EAB.

Building upon this success, EAB awareness signs were installed beneath the park signs at 19 locations throughout the City in 2014, highlighting the need for residents to consider management of ash trees over the coming years. The same sign design has also been used for Public Works vehicle decals.

These signs raise awareness of EAB and seek to remind residents of the role they play in the coming years of the EAB infestation.



The EAB message will continue to be reinforced with all the necessary current detail during the public awareness campaign in 2015 and onwards.

1.5 Public Awareness, Communications and Outreach

Public awareness has been addressed through a number of mechanisms during 2013 and 2014.

The City media maintains a strong interest in EAB resulting in a number of press, radio and TV articles and features throughout 2013-2014. Media releases were issued in 2014 at key milestones in the EAB Management Plan; inviting private ash tree owners to let City staff know of their trees, the start of ash tree treatments and the first finds of EAB in the City.

Eight Public Information Centres (PICs) have taken place since September 2013 including 3 PICs at Lansdowne Place Mall and 4 PICs at local schools in the City.

Outreach continued in 2014 with presentations to Peterborough Housing and Housing Service Providers with more planned for 2015.



The City of Peterborough EAB Management Plan continues to be highly regarded throughout the province and beyond, with a presentation given at the provincial level to the International Society of Arboriculture Ontario conference in 2014. A press article in Quebec Vert in May 2014 detailed Peterborough's EAB Management Plan as a recommended approach to dealing with the provinces emerging EAB problem.

In April 2015 staff presented details of the City of Peterborough EAB Management Plan during a live webinar on EAB for the Invasive Species Centre, who are based in Sault Ste. Marie. The webinar was recorded and will be linked on the City EAB web pages when available.

In 2013/14 web pages for Urban Forestry on the City of Peterborough website were developed to provide the most relevant information on the urban forest and EAB. They also contain guidance for the public on replacement species selection, planting and aftercare during the period of the management plan and beyond.

In 2014 the community was asked to report their own ash trees to the City as a means of obtaining advice and further information and to assist City staff in planning strategic management of ash trees. Staff has also responded to concerns from a number of individual Ash Tree owners in the City.

The use of social media as a dynamic information resource has been, and continues to be, used to promote EAB events and discussion.

1.6 Stakeholder Involvement

Dialogue continues with principal Urban Forest Stakeholders, notably in 2014 with a co-operative treatment and removals program at Fleming College and Parks Canada immediately following the discovery of EAB in August 2014. Scheduling conflicts, mainly resulting from the winter 2013/14 ice storm, made it difficult to establish broader stakeholder groups during that time, but discussions continue with individuals and it is hoped to bring together larger groups late in 2015.

In order to learn more about the location and extent of private ash tree ownership the potential use of hyperspectral imaging is being investigated as part of the forthcoming RFP for 2015 City aerial photography. This type of imaging is able to identify ash as distinct from other species and will facilitate outreach to owners of private ash trees and further refine the actions of the EAB Management Plan.

1.7 Collaborative Working

Staff continued to work with representatives of the Ministry of Natural Resources and Forestry (MNR) and Natural Resources Canada (Canadian Forest Service) in 2014. Valuable guidance and assistance was given in the aftermath of the EAB finds in August of 2014 by MNR staff. City staff are currently looking at assisting with insect trapping research being conducted by Natural Resources Canada in 2015.

The City continues to be involved in regional stakeholder meetings coordinated by York Region to discuss experiences in EAB developments and collaborative management options.

1.8 In-House Training

A pesticide licensing course was arranged by the City in April 2014 for local and regional staff to obtain the pesticide licenses required to perform ash tree treatments. Three staff from Public Works attended, enabling treatments to be carried out in-house as and when required.

Staff also arranged tree injection training at the Peterborough Zoo for staff and local companies with Bioforest, providers of TreeAzin™, prior to the 2014 ash tree treatment season.



In-house training continued through 2014 with a staff visit to Golden Beach Resort (Rice Lake) to survey the EAB infestation (left) and with MNR holding a refresher on branch sampling to detect EAB (below).



1.9 Wood Utilization and Disposal

A secure compound for the marshalling of City ash tree removals and prunings was constructed in spring 2014. All ash tree materials from removals and pruning (including 2014 road construction) was transported to the site and subsequently processed to Canadian Food Inspection Agency Specification in March of 2015 (below).



The processed wood will be mixed 50:50 with City green waste compost and used as mulch for existing and new tree planting.

The majority of the wood collected to date has all been low grade trees in poor condition, subsequently there is very little wood suitable for milling. Nevertheless, some lengths of tree were salvaged (below) and will be processed in the spring of 2015 as a pilot project to determine the viability of sawmilling some of the removed ash trees.



Future years are expected to produce better quality trees for milling

2. Findings

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

2.1 2014 EAB Outbreaks

EAB finds have now been confirmed (by MNRF) in the City at 4 separate locations. The distance from other confirmed finds of EAB outside the City indicate that transportation of EAB into the City, probably from infested ash wood, has occurred rather than the natural spread of the insect. The 2014 finds were all in areas of high traffic numbers and people movements and were in areas where EAB was expected to be first identified.

Management actions following the confirmed finds included a mixture of treatment and removals within a 500m radius of the positive trap tree and intensive scouting and surveying to locate any symptomatic ash trees

2.2 Results of 2014 Monitoring and Trapping

Nineteen double-baited traps deployed by the City in 2014 produced 4 finds of EAB. The traps were positioned high in the trees (on the south side where possible) in late June/early July to optimize the chances of a find if EAB were emerging and feeding on the upper leaves of the tree. Strip branch surveying (branch sampling) was undertaken on both the trees where the EAB were found in August 2014 and many adjacent trees. Surprisingly, no EAB larvae or feeding galleries were found under the bark of sampled branches. Branch sampling continues to be carried out on ash tree removals and suspect trees. In 2015 it is hoped to undertake grid-based strategic branch sampling across the City in an increased effort to locate the origins of the 2014 confirmed finds and any pockets of infestation.

In tandem with branch sampling, regular scouting and monitoring has taken place throughout the year on suspect trees as a planned exercise, together with assessment during the 2013-14 tree inventory and, additionally in response to public enquiry.

An EAB killed tree in the City has yet to be identified.

2.3 EAB Regulated Areas in 2014

Current (December 2014) Canadian Food Inspection Agency EAB regulated Areas are shown in Appendix A. This represents a significant enlargement of the regulation from 2013.

Most of Ontario has now become one large area of regulation even though this is not representative of confirmed finds; i.e. prior to 2014, one positive find required regulation of the entire County or Region. Further, in April 2014, areas that had no confirmed finds south of a line between Manitoulin Island and the St Lawrence River became included within one larger area of regulation.

Thus it is important to recognize that Canadian Food Inspection Agency regulation does not necessarily represent the location of confirmed EAB finds in Ontario.

Regardless of the revised regulation in 2014, collaboration and cooperation between local municipalities and regions has continued in order to suppress the human movement of EAB and “slow the spread” particularly benefitting early infested and unaffected areas.

2.4 Inventory Results to Date

The data collected on the location, size and condition of Ash Trees in the right-of-way and park and trail peripheries is constantly used to update the EAB Management Plan.

Data has now been collected for all tree species in the right-of-way and around the periphery of park and park trails in 21 of 30 forestry management zones. The remaining 9 zones have significantly less right-of-way, parks or park trails within them and substantial increases to ash numbers in right-of-way, parks or park trails in these zones is not anticipated as inventory progresses toward completion.

Inventory progression into the internal areas of parks in 2014 and onward is adding to City ash tree totals and although the EAB Management Plan details a different type of management in these areas, an impact on future EAB budgets is anticipated.

Inventory is currently in the process of being transferred to the new computer system and, together with the spring 2015 re-assessment of ash trees, a review of numbers within each ash tree management category will be carried out to assess the impact on future EAB budgetary requirements during the fall of 2015.

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 Report USDIR13-012 dated September 23, 2013 be revisited and adjusted where necessary. The sections below describe proposed amendments to various areas of the Management Plan.

3.1 Monitoring

Monitoring will continue through 2015 utilizing revised practices of double-baiting for insect trapping and the existing branch sampling protocols to enhance the detection of low levels of EAB infestation and delimit the EAB finds of 2014.

3.2 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. It may also allow smaller healthy trees, presently excluded, to be 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 at least 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 to removal of 12-18 months for trees killed by EAB which will effectively prioritize tree removals as the EAB takes hold. 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 through 2015 utilizing existing staffing and allocating resources as needed for enlarging the data set to include parks and open spaces and re-assessing previously inventoried ash. Small increases in the EAB Management Plan funding are anticipated for this element from 2016 onwards.

3.3 Removals and Stumping

Removals and pruning of ash for non-EAB reasons (dead, dying or dangerous) have been on-going since 2013 and carried out by Public Works. Pre-emptive removals are expected to begin late 2015, removing the poorest quality Ash Trees identified in the May 2015 ash re-assessment. This strategy plays a vital role in the effectiveness of the Management Plan by staging the removals workload resulting from EAB. The removal of what may appear to the public to be “apparently healthy” trees will be addressed through the public awareness campaign, in order to get public buy-in.

A tender for ash tree removals will be issued in late summer of 2015.

Removal costs in the EAB Plan are based upon the anticipated numbers of ash trees dying over the term of the plan. A combination of treatments and pre-emptive removals seek to reduce resource demands in the mid-late period of the infestation by reducing the number of trees dying within a short time frame. Nevertheless, it is likely that some funds allocated for future budget years may need to be brought forward to reduce this peak demand and spread the financial impact more evenly over the term of the plan.

In addition, continuing inventory has added to the total number of ash trees requiring removal with increases in future budgets being likely.

3.4 Treatments

Treatments in the south of the City commenced during 2014 in-house and pre-empted the first finds of EAB. However in-house treatments had a negative impact on the existing forestry workload and treatments will be contracted for 2015.

Chemical costs have not risen but an anticipated cost reduction has been lost in the current lower value of the Canadian Dollar.

At present, there remain two alternative (and arguably less desirable) chemical treatments registered for use in Canada. Staff continues to investigate alternative, environmentally acceptable methods to reduce costs.

3.5 Timing of Replacement Planting

In the April 2013 EAB Management Plan, it was anticipated that replacement planting of Ash Trees would follow the removal of those Ash Trees in poor condition or categorized as not suitable for treatment. Recognizing that, in many cases, replacement planting could be carried out in preferable locations following or even prior to, tree removal, a number of forestry zones were assessed in 2014 for potential planting sites. This assessment remains on-going for 2015 to provide a database of planting locations for each forestry management zone. Depending upon budget requirement for removals and stumping, replanting will commence in spring 2016.

However, similar to the original removals and stumping strategy detailed above, costs for replanting in the EAB Plan were based upon the anticipated numbers of ash trees dying over the term of the plan and thus the budget for replacement planting was not anticipated until trees had actually died and been removed. Having a “bank” of available planting sites in each forestry zone provides an opportunity to bring forward replacement planting in advance of removal.

The benefits of this approach reduce the environmental and visual impact of adjacent ash tree removals and give the replanted trees additional time to become established and grow. This will not increase the overall replanting budget requirements but will require that replanting budget allocation be brought forward into earlier years of the plan.

3.6 Extent of Replacement Planting

Based on the results of the tree inventory, it can now be confirmed that the loss of Ash Trees in the urban forest will have a profound impact in terms of a reduction in canopy cover and a corresponding loss of environmental benefits. Ultimately 10% of the urban forest is likely to be lost within the next 5-10 years.

Recent assessments of urban tree benefits and value by City staff confirm that equivalency of lost tree canopy can be achieved within a 25 year period by replanting 3 new trees for each tree lost. The replacement trees will be selected from the City list of recommended species to accord with the biodiversity targets identified in the Urban Forest Strategic Plan.

The impact on future budgets of this strategy will become clearer when a tender for tree removals gives a better guide to the true costs of removal and stumping, and thus available funds to pursue this strategy.

In implementing such a large replanting program, public support remains key to its long-term success, particularly through watering during the first years after planting.

3.7 Entry into Private Property

Following the confirmed finds of EAB in August 2014, a local program of treatment and removals was instigated with cooperation and assistance from adjacent private landowners, proving the value of public outreach and stakeholder involvement right from the start of the plan.

As EAB finds increase and public and private trees start to die, there will be a significant demand placed upon the building service to ensure public safety through property standards enforcement.

3.8 Wood Disposal

An estimation of the quantity of wood from publicly-owned Ash Trees requiring storage and/or disposal was part of the information gathered during the tree inventory. Disposal of all ash tree wood has now been excluded from the current urban wood disposal contract for public works.

At this stage it is not thought likely that wood chipping and grinding costs will be recovered through the sale of milled lumber or wood products. The current budget anticipated some net revenue through the sale of lumber which is not likely until the EAB infestation is widespread such that the local movement of potentially infested ash wood has little or no effect upon the spread of EAB in the City.

The current situation requires that additional budget for wood processing will be needed in the short to medium term.

4. Budget Implications

The EAB Management Plan of April 2, 2013 was revised by the September 23, 2013 update Report USDIR13-012.

The September report revised numbers and costs downward in the light of the more precise figures from the surveyed areas. However inventory at that time remained incomplete for the City and as data collection has progressed since that time the numbers of inventoried ash trees are increasing.

At the present time it has been possible to absorb that portion of additional ash trees identified for treatment through reduced costs. However as the portion of additional ash trees that require removal and replacement start to die, budget increases are likely.

5. Additional Areas of Ash Trees

Two additional areas that are likely to impact upon future EAB budgets have become known to staff since the report of September 23, 2013.

5.1 Waste Water Treatment Plant

During local surveying and assessment of Ash Trees it was discovered that a strategically important woodlot screening the Waste Water Treatment Plant and Snow Dump at Kennedy Road contained a high percentage of ash trees. Many of these Ash Trees provide a visually important screen and also provide benefits to local water quality. It is anticipated that a structure of Ash Trees in this area will need to be preserved through treatment to preserve these recognized benefits.

5.2 Naval Association

The recent agreement to purchase of the Peterborough Naval Association has highlighted the inclusion of an unusually high number of mature ash trees included as part of the property.

Staff are presently engaged in assessing the total number and condition of these Ash Trees and are anticipating a significant EAB management costs for this property, particularly treatment which needs addressing without further delay.

6. Private Property Ash Tree Treatment

A recent approach has been made to the City by TreeCanada concerning an initiative to subsidize the treatment of privately owned Ash Trees. This is an exciting and unique opportunity and the first of its kind in Ontario. The City of Peterborough has been identified because of its advanced and proactive approach to EAB management.

Although the details have yet to be agreed upon, it is anticipated that owners of private Ash Trees will be offered a subsidy to help defer the cost of treating these trees. City Staff may participate by administering the program.

7. Staffing Considerations

The City of Peterborough is becoming known as a leader in planning and dealing with the Emerald Ash Borer. The driving force behind the development and implementation of the City's EAB Management Program is the Urban Forest Specialist. This position was established in April 2013 as a three-year contract position.

Through the work that has been done to date, it has become apparent that dealing with the EAB requires a long term effort. Accordingly, it would be prudent to convert the Urban Forest Specialist position into a full-time position to ensure the continued implementation, updating and administration of the EAB Management Plan and the emerging management of the Urban Forest. The 2016 budget will reflect this change with funding (minimal additional costs) provided through the EAB Management program.

Summary

The Ash Tree component of the urban forest of the City is estimated at 10%. Work continues on inventory and analysis to confirm this figure and more accurately determine the potential loss of canopy cover resulting from EAB.

Treatments of trees in the south of the City pre-empted the first confirmed finds of EAB in August of 2014, supporting the decision to adopt the EAB plan well in advance of any recognized ash tree damage or losses due to EAB in the City.

The report advises of the likelihood of some budget increases in future years due to the identification of additional municipal ash trees.

Staff continue to work alongside other urban forest professionals and government agencies in order to apply the best science and strategic management practices and limit the impact of EAB expenditure and preserve the benefits of the urban forest.

Submitted by,

Blair Nelson, P. Eng.
Acting Director, Utility Services

Contact Name:
Paul Hambidge
Urban Forestry Specialist
Phone: 705-742-7777 Ext. 1813
Toll Free: 1-855-738-3755
Fax: 705-876-4621
E-Mail: phambidge@peterborough.ca

Attachment:
Appendix A: Emerald Ash Borer Regulated Areas December 2014

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