

<b>DEPARTMENT/ DIVISION</b>	Infrastructure & Operations/ Engineering & Operations	<b>REPORT NO.</b>	R 112/2016
<b>DATE PREPARED</b>	07/06/2016	<b>FILE NO.</b>	
<b>MEETING DATE</b>	07/18/2016		
<b>SUBJECT</b>	Emerald Ash Borer (EAB)		

## **RECOMMENDATION**

With respect to Report No. R 112/2016 (Parks & Open Spaces Section), we recommend that the information presented within relative to treatment options for the Emerald Ash Borer (EAB) be received;

AND THAT Administration be directed to include funding for Active Management at the 50% level as described in the Report in the amount of \$550,000 in the 2017 Capital budget for Council's consideration;

AND THAT Administration be directed to present a detailed implementation plan and proposed cost breakdown with options for treatment start up, phased removals, replanting, etc. over a 5 to 10-year horizon to limit immediate impact on budget.

AND THAT Administration be further directed to continue its efforts to coordinate a regional response to EAB including keeping apprised of changes to treatment options which might affect program delivery options and costs in the future;

AND THAT the Parks & Open Spaces Section provides Council with annual updates on the state of EAB infestation, monitoring and activities in Thunder Bay and region, beginning in the fall of 2016.

## **LINK TO STRATEGIC PLAN**

This report directly supports Goal 9 of the City of Thunder Bay 2015-2018 Corporate Strategic Plan to become "Greener with protected and enhanced natural areas", specifically strategy 9.2 to "Protect, preserve, enhance and expand the City's public forest resources."

This report also supports Goal 8 of the City's Strategic Plan to become a "Leader in climate change adaptation", specifically strategy 8.1 "Plan for climate resilient infrastructure and services".

This report also directly supports Goal 16 to become a “Strong Regional Partner” under strategy 16.1 to “Cultivate regional partnerships.”

## ***EXECUTIVE SUMMARY***

Emerald Ash Borer is an introduced species native to Asia that was discovered in 2002 in the Windsor/Detroit area. Possessing no native biological control mechanisms in North American, this beetle attacks and kills healthy ash trees. EAB was confirmed in Thunder Bay on June 28, 2016 by the Canadian Food Inspection Agency (CFIA). CFIA is responsible for the regulation and management of invasive species in Canada.

In 2014, Parks & Open Spaces Section commissioned preparation of an EAB Strategic Management Plan (Attachment A) to address the enormity of the potential impacts that EAB would have on the City’s urban forest. With about 6000 ash trees growing on City-owned streets and parks, their demise (which comprises 23% of the street-tree inventory) would represent a significant loss of benefits such as stormwater mitigation, carbon dioxide reduction and energy conservation.

The Plan outlined four management options with costs ranging from \$6.3 to \$7.6 million. Options ranged from a passive (do nothing) approach to an aggressive one where both public and private ash trees would be managed (undetermined costs). Two other options were presented that incorporated chemical treatment of selected trees at either the 30% or 50% level. The recommended option is Active Management at a 50% treatment level, where 50% of ash trees would be treated and the remaining ash trees would be removed and replaced as they become infected and die.

This report recommends a 5 to 10 year implementation plan be prepared to manage EAB and starting in 2017, funds to treat and remove ash trees be included in the 2017 Budget for Council’s consideration.

## ***DISCUSSION***

Since the discovery of EAB in North America in 2002, approximately 100 million ash trees have been killed by this pest and another 9 to 10 billion trees are at risk. EAB has been moving slowly closer to Thunder Bay since it was first discovered and, in 2015, it was positively identified in Duluth, Minnesota, which is 300 km away. EAB was found by the City Forester and confirmed in Thunder Bay on June 28, 2016 by the Canadian Food Inspection Agency (CFIA). CFIA is responsible for the regulation and management of invasive species in Canada.

Recognizing the scale of the potential problem for Thunder Bay and region, Parks & Open Spaces Section collaborated with other levels of government and stakeholders in 2011 to develop the EAB Task Force for Northwestern Ontario. Providing a coordinated regional response to the management of EAB, its mission was to prevent the introduction of EAB into the region or, if introduced, slow its spread into both rural and urban forests.

The Task Force was instrumental in increasing awareness of the threat of EAB and for coordinating increased detection surveys in the region.

A recently completed municipal street-tree inventory showed that there are about 6300 ash trees on City-owned streets and parks. There are also an undetermined number of ash trees on private properties, that were not inventoried, which were not included in the management plan for EAB. According to the City’s 2011 Urban Forest Management Plan, ash ranked second behind silver maple in overall benefit to our community in terms of services provided such as stormwater management, energy conservation, and air quality improvement. A 2016 study entitled *The Economic Benefits of Ash as Urban Street Trees in Thunder Bay* that was conducted at Lakehead University provided updated information on the cost-benefit ratio of all varieties of the City’s ash trees. They were determined to contribute \$664,000 annually in economic, social and environmental benefits to the community. This study supported a plan to save a significant portion of the existing ash street trees in order to maintain a portion of their benefits and reduce the associated economic losses.

In 2014, the *City of Thunder Bay: Emerald Ash Borer Strategic Management Plan* was commissioned by the Parks & Open Spaces Section (Attachment A).

In the Plan, four management options for the City’s inventory of street trees were outlined (Table 1), covering a 10-year period, and ranging from passive/minimal management costing \$7.6 million, through a variety of treatment options costing \$6.3 to \$6.8 million, to aggressive management for which costs could not be determined due to its requirement for the City to manage ash trees on both public and private property, for which no data exists.

Table 1: EAB Management Options and Costs

Management Option	% Level of Chemical Treatment for Candidate Trees	Cost (million)
Passive (no treatment, remove trees as they die)	0	\$7.6
Active (remove trees as they die)	30	\$6.8
Active (remove trees as they die)	50	\$6.3
Proactive (remove trees over 5 years once infestation starts)	30	\$6.8
Proactive (remove trees over 5 years once infestation starts)	50	\$6.3
Aggressive (manage both public and private trees)		Unknown

All options (other than Aggressive Management) cost roughly \$6.5M. The cost to treat a tree over ten years is approximately \$1200. The cost of removal, stumping, and replacement of the lost inventory with a 60 mm caliper tree (City standard), wood disposal and grinding, is approximately \$2000. Additional costs of surveying for EAB, communications and outreach, and the hiring of a project coordinator are common to each option and are estimated at \$800,000 over a ten year period.

The most expensive option of \$7.6 million is the Passive approach which is a “do nothing” strategy of waiting for trees to die and then removing and replacing them. This cost is non-discretionary because ash trees killed by EAB become hazardous very quickly and must be removed.

The Active and Proactive Management approaches seek to conserve a percentage of the ash tree population. Each include two chemical treatment levels to protect candidate ash trees and are similarly estimated to cost \$6.8 million and \$6.3 million for 30% and 50% treatment levels, respectively. The difference between the two options is that with Proactive Management all ash trees that are not selected for treatment would be removed pre-emptively over the first five years of infestation rather than gradually as they became infested and died, as with the Active Management option. In other words, the Active Management option would allow the removal costs to be spread out over a longer period of time than would the Proactive Management option.

The Parks & Open Spaces Section took the first steps toward an integrated approach to EAB management beginning with an updated street tree inventory in the fall of 2015 that included a risk assessment of all trees which, among other benefits, helped identify ash trees that should be targeted for either insecticide treatment or eventual removal. A set of criteria was applied to determine which ones are worthy of investment in future treatment based on their size, condition, and contribution to their local environment. About 6,300 ash trees line the City’s boulevards and urban parks and represent nearly one-quarter of the tree inventory. To ensure that this species remains a component of the urban forest cover for the future, a range of sizes/ages will be selected for treatment. Those that do not meet the criteria will inevitably become infested and killed by EAB and require removal and replacement.

The Parks & Open Spaces Section believes that Active Management at the 50% treatment level should be considered for implementation. It is the least expensive of the options, preserves the greatest amount of cover and does not require the fast-track removal and associated up-front expenses of trees that would appear to the public to be healthy and insect free.

Options to assist in reducing EAB management costs will be investigated by the Parks & Open Spaces Section. Programs such “Sponsor an EAB Treatment Application” could be initiated for citizens that are interested in contributing towards chemical treatment costs of candidate boulevard ashes. Replanting efforts could be escalated by expanding the Tree Stewardship Program, which currently partners with citizens who wish to contribute toward the cost of new trees. Funding sources will also be investigated that would

support all phases of the program from surveying and monitoring to treatment, removal and replacement.

### ***LINK TO EARTHCARE SUSTAINABILITY PLAN***

This Report supports Goal 9 of the EarthCare Sustainability Plan 2014-2020 to “protect, maintain and improve the biodiversity, ecosystems and the well-being of the green infrastructure of Thunder Bay.”

### ***FINANCIAL IMPLICATION***

The ash tree in the City’s public tree inventory is estimated to contribute \$664,000 annually in economic, social and environmental benefits to the community, according to the 2016 Lakehead University study. All EAB management options have estimated costs of between \$6.3 million and \$7.6 million, which include treatment if any, tree removal, wood disposal, stump grinding, replacement with trees that meet City specifications, surveying for EAB, communications/outreach, and the hiring of a project coordinator.

It is recommended with the discovery of EAB in Thunder Bay that \$550,000 be included for consideration in the 2017 budget to provide for chemical treatment application for 150 ash trees, as well as costs for removal and replacement of 150 trees, continuing surveying for additional infested areas and education and public outreach.

There is currently no reserve funding in place to offset costs which would have to be factored into annual capital funding programs over a number of years.

It is expected the majority of treatment options would need to be contracted out (chemical treatment, removal, replacement, planting, etc.) and a contract staff person hired to work with the City Forester to administer the program. These costs would be detailed in the implementation plan for capital funding requests going forward.

### ***CONCLUSION***

It is concluded that the impact of an EAB infestation on the urban forest in Thunder Bay will be significant, therefore the Parks & Open Spaces Section should continue to monitor the City for additional EAB outbreaks, keep Council informed and, following acceptance of the recommendations contained in this report, prepare a detailed implementation plan for Council’s consideration beginning with the 2017 budget process.

### ***BACKGROUND***

None

***REFERENCE MATERIAL ATTACHED***

Attachment A – City of Thunder Bay: Emerald Ash Borer Strategic Management Plan  
**(Distributed Separately)**

***PREPARED BY: Shelley Vescio, City Forester***

THIS REPORT SIGNED AND VERIFIED BY: (NAME OF GENERAL MANAGER) Kerri Marshall, General Manager – Infrastructure & Operations	DATE: July 8, 2016
---	-----------------------