

TO:	CHAIR AND MEMBERS PLANNING & ENVIRONMENT COMMITTEE
FROM:	JOHN M. FLEMING MANAGING DIRECTOR, PLANNING AND CITY PLANNER
SUBJECT:	EMERALD ASH BORER BUSINESS PLAN MEETING ON OCTOBER 29, 2013
	RECOMMENDATION

That, on the recommendation of the Managing Director, Planning & City Planner, with the advice of the Manager, Urban Forestry:

- i)

this report **BE RECEIVED** for information
- ii)

the Provincial EAB funding that expires in 2013 **BE REPLACED** in the 2014 budget in the amount of \$200K, **IT BEING NOTED THAT** Planning Staff have prepared a Business Case accordingly
- iii)

the Business Plan Scenarios **BE REFERRED** as background information to the 2014 Budget Process, **IT BEING NOTED** that Scenario #2 is reflective of the business case that has been prepared to date, **AND IT BEING NOTED** that a customized tree planting program is not recommended
- iv)

the CMMS system **BE IMPLEMENTED** as quickly as possible to improve the efficiency and capacity of the EAB management and other Forestry programs.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

- Report to Planning and Environment Committee – May 28, 2013
- Report to Council – February 28, 2013
- 2012-2016 Management of Emerald Ash Borer Business Case
- Report to Strategic Priorities and Policy Committee – February 9, 2012
- Report to Services Review Committee - November 17, 2011
- Council Resolution – October 3, 2011
- 8th Report of the Trees and Forests Advisory Committee – September 28, 2011
- Report of the Community and Neighbourhoods Committee – September 27, 2011
- Emerald Ash Borer Strategy – September, 2011
- 22nd Report of the Committee of the Whole – June 21, 2011
- Emerald Ash Borer Update - Report to the ETC - July 19, 2010
- 2nd Report of the Trees and Forests Advisory Committee - February 25, 2009
- Emerald Ash Borer Strategy - Report to the ETC - May 26, 2008

BACKGROUND

1. Background

On June 11th Municipal Council resolved the following actions be taken by Civic Administration with respect to the Emerald Ash Borer Program:

- i)

Identify tree planting capacities
- ii)

Submit an updated business plan as part of the 2014 Budget process noting that the plan should provide information pertaining to the necessity for replanting trees

On July 30, 2013 Municipal Council resolved that “Civic Administration be directed to investigate the possibility of, and costs related to, the establishment of an Emerald Ash Borer (EAB) tree replacement process whereby residents are given the option of purchasing larger trees and making arrangements for a City of London approved contractor to undertake the work at the resident’s expense.”

This report identifies planning and operational considerations with respect to implementing such a program.

As previously reported, approximately one out of every ten trees in London is an Ash tree. Approximately 110,000 ash trees have been previously estimated on City property of which 100,000 are in woodlands and approximately 10,000 identified on boulevards and manicured portions of parks. The EAB infestation has been exponentially increasing each year since it was first detected in 2006. The insect has the potential to kill almost all the remaining ash trees within the next 5-7 years. The result will be a reduction of the structural value of the urban forest by \$130 million and a reduction of the tree canopy cover in the city from 24.7% to about 22.9%. This equates to a tree canopy reduction of 7%. The loss of shade will increase energy consumption and costs by residents and businesses. The loss of the trees will also result in a corresponding decrease in pollution removal and increase in greenhouse gas emissions. A 2013 report in *the American Journal of Preventative Medicine* showed a direct correlation between the loss of ash trees and human health – the more ash trees that were removed, the higher the incidence of death and illness related to cardiovascular and lower respiratory illness.

Prior to the development and Council endorsement of the Emerald Ash Borer Strategy in 2011, the management of EAB was reactive. The endorsed EAB management strategy identified a fifteen year program totalling approximately \$14.3 million which included a replanting ratio of 2:1. Annual steady state program budget requirements for the first 10 years ranged from \$1.1 - \$1.6 million with the removals and replanting costs spread out evenly over the first ten years. It was recognized that in any particular year, the relative amount of removals, planting and injections may vary but over the period of the program, the identified program would be delivered.

It should be noted that the Forestry program was recently audited. The audit resulted in over 30 recommendations to improve processes through the use of software, hardware and improved business processes. The software program, CMMS, and associated hardware upgrades were recently approved by the Senior Leadership Team and a vendor has been selected. We expect a ‘go-live’ date in late 2014 with improved business processes to follow. These enhancements are expected to provide the necessary tools to manage the planting program which has expanded significantly in the last few years and potentially without the need for new staff. This will be known in 2015.

2. EAB Program to Date and Costs

In 2011, the only dedicated EAB management funding was \$200K for tree planting. This funding was from a special Provincial fund that expires at the end of 2013 with no opportunity for renewal. In 2012, Council approved \$400K per year in capital for EAB management, with direction to find alternative sources of funding to achieve a 1.5:1 replanting ratio. Other Operational tree maintenance and Capital program funding has been reallocated to meet Council's goal. The other Capital programs impacted include infill tree planting, woodland management and ESA maintenance.

A summary of EAB-related removals, replanting and injections are summarized below. Injections of trees in ESAs are included in the estimates. We do not have reliable estimates of trees removed from woodlands. Because of the limited capability of the current tree inventory/management program, lack of inventory information in woodlands and use of multiple funding sources for some activities, some statistics provided below are based on Staffs' best available estimates.

Table 1. EAB – Specific Expenditures

Year	Trees Removed in Boulevards and Parks	Trees Planted	Trees Injected	EAB - Specific Expenditures \$1000's
2011	2,450	800	384	200 plus operational dollars
2012	5,270	2,200	200	970
2013 to date	780	1,250	384	850

Through reallocation of funding from other sources and efficiencies from block removal of Ash trees, we have been able to accelerate the Ash tree removals in a shorter time period and at lower cost than originally estimated in the EAB strategy. With limited funding, the removals were prioritized over planting so that almost all the boulevard and park trees will be removed by mid 2014. This has resulted in tree planting lagging behind the removals both in numbers and in time as the funding was used to mitigate risk in those area where people and property could be affected.

3. Impact of the Loss of Provincial funding for EAB – related tree planting in 2014

As previously identified, the Provincial funding for EAB-related tree planting expires in 2013 and has significant impacts on the City’s ability to deliver both infill and EAB-related planting programs.

In 2009, the Ontario government instituted a one-time, limited period funding for the planting of trees to mitigate the impact of EAB. London received \$1million to be spent over 5 years as part of this initiative. The provincial funds were placed into the woodland reserve fund. The funds were allocated at a rate of \$200,000/year for 5 years (2009-2013) and identified as Capital planting project PD1132 for budget and administrative purposes. This funding expires at the end of fiscal year 2013 and there will be no extension of the Provincial funding into 2014.

When this provincial funding was established, the City’s Capital tree planting program (PD1235) was reduced by a corresponding amount. The effect was reduction of London’s infill tree planting program by \$200,000 (@ 700 trees) per year for 5 years (@3,500 trees total). Consequently, tree cover replacement has slowed and wait times for residents to receive replacement trees for those destroyed by storms, old age, infrastructure replacement has increased.

Although Council endorsed the EAB strategy in 2011, the strategy was not fully funded. At the direction of Council, additional funding reallocated from the infill tree planting program, has been used to further augment the approved EAB funding levels.

A separate Service Change Business Case has been submitted to re-instate the boulevard tree planting budget that was removed in 2009 (\$200,000 increase to PD1235) and bring the funding to 2009 levels. Failure to replace this funding will result in:

- infill planting funding below 2009 funding levels
- a corresponding reduction in available funding for EAB-related planting
- increased pressure on existing Capital and Operational budgets to protect, maintain and replace existing trees

4. Opportunities for a Custom Tree Planting Program for EAB

Council requested Staff explore opportunities for a customized approach to tree replacement.

Three options were identified:

- residents planting their own trees at their own expense on boulevards;
- residents paying the difference for larger trees than currently being planted, and;
- residents selecting the type of tree planted by the City on the boulevard in front of their house.

The pros and cons and recommended approach of each option are identified below:

Option A – Residents Plant

Pros:

- No upfront cost to City
- Resident satisfaction with tree species
- Potential tree watering by residents
- Potential reduction in time between removal and replanting

Cons and Implications:

- High risk of “wrong tree planted in the wrong place”
- Residents may choose to plant a poor quality tree, or of an inappropriate species such Norway maple
- City has no control over planting quality which will affect survival, growth, future maintenance costs and liability

- Residents' preference may not meet current tree species guidelines with a high risk of planting resulting in an overabundance of certain species planted and thereby reducing species diversity.
- Trees are currently being watered by tree planting contractor in the first year, but there is no guarantee that residents will water the trees
- High risk of damage to below ground utilities. Utility locates are required prior to any planting
- Tree ownership issues. Currently trees in boulevards are deemed to be City owned regardless of who planted them in the past. Expectation of residents is that if they planted the tree in the boulevard, they own it. This will result in future maintenance and removal issues.
- Coordination with City planting contracts leads to inefficiencies and additional planning and operational costs. A program to work with residents individually to plant trees at their expense would be expensive to administer
- Boulevard Tree Protection By-law prohibits residents from planting trees on boulevards without prior permission. No staffing or resources available to develop and deal with increased complexity of such a program.
- The current tree management program has limited functionality to allow for planning and tracking of trees under this program or the level of success of such a program. The new corporate asset management system, CMMS, will not be functional until late 2014. Much of the administration of such a program would still be inefficient until CMMS becomes functional.

This level of public involvement increases the complexity of existing programs requiring additional resources and funding to develop and administer such a program, while greatly increasing the risk and higher downstream costs to the Corporation.

Option B – Residents Pay for Larger Trees

Pros:

- Immediate visual impact
- Resident satisfaction with tree planted
- No additional cost to City for larger caliper trees

Cons and implications:

- Additional tree costs do not translate into increased survival, growth, health in the long term. Analysis by staff has shown that the current caliper planted (5cm diameter) provides the "best bang for the buck" when the above factors are considered.
- Tree size between current and larger caliper trees is not noticeable after a few years
- Timing for request for larger trees may not coincide with tree availability or planting operations leading to lower resident satisfaction
- No administrative process is currently developed to bill and recoup costs
- Current tree inventory/management system has limited capability to plan and track such a program – need CMMS to be put in place before this program is practical.
- Additional planning and operational coordination required
- No guarantee that the larger caliper trees are available
- Current staff and planning process are limited to administer such a program in addition to existing planting programs
- A custom program such as this would eliminate the lost efficiencies of "batch planting" whereby a large volume of trees are purchased and planted'
- This program would serve to exacerbate delay times for completing the planting.

Option B, may not provide the value that the homeowner is seeking. It should be noted that according to research it is common for a large tree to undergo a prolonged period of slow growth after being transplanted. This period of stagnancy can last several years. On the other hand, smaller trees transplanted at the same time will experience a shorter period of reduced vigor and may surpass the larger tree in size before the larger tree has fully recovered its normal growth rate.

Larger trees can come at a premium of at least 50% more than the 2" stock and they take longer to plant due to their size and can require a mechanical lifting device to place the tree as opposed to planting by hand.

Option C – Residents Select Type of Tree

Pros:

- Resident satisfaction with species planted
- Residents may water trees due to increased satisfaction and perception of ownership of the tree resulting in increased survival and growth
- Currently residents are able to request particular tree species through the Forestry hotline or through the City and Million Tree Challenge websites. These requests are taken into consideration when planning the tree planting program and staff try to accommodate particular requests whenever possible.

Cons and implications:

- Resident’s preference may not meet current tree species guidelines, high risk of requesting unsuitable species such as Norway maple,
- Additional coordination and resources required to ensure suitable species diversity is planted
- Resident dissatisfaction if request not accommodated
- Potential future perceived ownership by residents could lead to increased maintenance costs
- Additional planning required to accommodate certain species and low species volume requests
- Tree species may not be available
- Longer wait times to receive trees if requested species is not initially available
- The current tree inventory/management program has limited capability to plan and track such a program.
- Additional planning and operational costs required if contractors have to go back to an area to accommodate requested tree species

With Option C, residents can provide comments on the type of tree planting through Forestry hotline or Million Tree Challenge websites. This information is not solicited but prior to planting the resident receives an information card in the mail and can call if they have any concerns.

Summary – Custom Programs

The Council-endorsed EAB management strategy identified the need for additional support for EAB management of \$100K per year, but this funding was not approved. There is limited funding and capacity to develop and administer custom tree planting programs at this time. Options B & C would require additional staff resources to administer a custom program, (work with residents, coordinate multiple custom planting, track plantings and monitor survival for warranty, etc.). There is no guarantee that the custom planting programs would increase the number of trees to be planted, their survival and their growth but there are risks that long term management costs and liability for the City would increase over time.

5. Funding priorities for EAB management in 2014

Until this year, the only dedicated funding sources available in 2014 to manage the EAB program have been PD2044 (\$400K per year beginning in 2012) and PD1132 (\$200K per year ending in 2013). All other management costs have been addressed on an interim basis by re-allocating funds from a variety of other existing Capital and Operational budgets which include: Infill Tree Planting; Woodland Management; Downtown Tree Planting; ESA Management; Operational Tree Maintenance.

With the elimination of the \$200K provided by the Provincial funding, the only funding source dedicated to EAB management, available in 2014, is PD2044 (\$400K). The impact of not replacing the Provincial funding (PD1132) has been identified earlier in this report and in a separate Service Change Business Case.

If no additional EAB targeted funding is approved for 2014, funding from the following Capital programs will be reallocated as needed to do what is possible: Infill Tree Planting; Woodland Management; ESA Maintenance at a considerable loss to existing programs. Additionally, contract and in-house tree maintenance money may need to also be redirected to support the planting program. Major increases in program funding levels above 2013 levels may be difficult to plan and implement with current staffing levels. Planting requires careful planning and Operations are resourced to manage about 1500-2000 trees per planting session.

Woodlands and wooded areas of parks still contain a significant number of ash trees. Removals of dead and dying Ash trees along the perimeters and managed trails have been conducted at least once in most of the areas. However, there are still a number of woodlands that contain significant Ash components that will require long term management in order to maintain their sustainability. This will require removals, site preparation,

planting, invasive species management and stand tending. Inventories and management plans will be developed as budgets and resources permit.

6. Scenarios to consider going forward

Council will be asked to make difficult choices and take into account many factors with respect to funding the EAB program. Some factors to consider include: existing EAB funding levels are below previously endorsed levels; loss of Provincial funding in 2014; funding from other programs are required to be reallocated to support the EAB program; alternative sources of funding are not available (as identified in previous reports); staff capacity to increase the program above existing levels in the short term are limited.

To provide some background information for the development of future funding options for managing the EAB infestation, four scenarios are provided for consideration. They all assume that some level of funding will be required to be reallocated from other Capital Budgets to address EAB. In all cases EAB management funding and injections will be required beyond the completion of the planting on boulevards. For simplicity, the following estimates and assumptions are used in the establishment of the options:

- The Base Case is \$400K per year dedicated to EAB management
- Estimated cost to complete the Ash removals on boulevards is \$125K
- Number of trees still to be planted in boulevards and parks is 10,750 (1.5:1 replacement ratio)
- Annually 50% of the available woodland management and infill planting program funding will be re-allocated to replanting. The remainder of the funding will be used for originally intended purposes.
- Annual minimum woodland management funding requirement for EAB is \$200K
- Injection treatments are conducted once every two years at a cost of \$170K. It is anticipated that over time, some of the injected trees will die. Any savings in injection costs as a result of mortality will be used to supplement tree planting.
- Average planting cost is \$250/tree. Note that this estimate is slightly higher than the historic low prices of the last year and less than the historical average and estimated in the endorsed EAB management strategy. Planting cost efficiencies stemming from batch planting will be more difficult to achieve in the coming years as replacements are more spread out.

Scenario 1. BASE CASE -\$400k dedicated EAB funding. This scenario shows current levels of EAB funding (\$400k), recognizing that the \$200K provincial funding has expired and has not been replaced.

Scenario 1 - BASE CASE (\$400k EAB funding) - 9 Years Until Boulevards Are Replanted at a 1.5:1 Ratio										
Year		EAB Budget (\$000's)	Utilize 50% of Woodland Management Budget (\$000's)	Utilize 50% of Infill Planting Budget (\$000's)	Removal Costs (\$000's)	Injection (\$000's)	Cost of removal and planting in woodlands (\$000's)	Residual Remaining for Planting (\$000's)	Number of Trees Planted @ \$250/tree	Number of Trees to Be Planted in Boulevards
	2013									10,750
1	2014	\$ 400	75	130	125	-	200	280	1,120	9,630
2	2015	\$ 400	75	130	-	170	200	235	940	8,690
3	2016	\$ 400	75	130	-	-	200	405	1,620	7,070
4	2017	\$ 400	75	130	-	170	200	235	940	6,130
5	2018	\$ 400	75	130	-	-	200	405	1,620	4,510
6	2019	\$ 400	75	130	-	170	200	235	940	3,570
7	2020	\$ 400	75	130	-	-	200	405	1,620	1,950
8	2021	\$ 400	75	130	-	170	200	235	940	1,010
9	2022	\$ 400	75	130	-	-	200	405	1,620	-

Scenario 2. BASE CASE + \$200,000 additional EAB budget as per submitted business case. This scenario assumes the provincial funding, that expires in 2013 is replaced by increased municipal funding. Woodland management and tree injection programs continue after the street tree planting program is complete. Woodland management activities include removals, planting, stand tending, and invasive species control. It is anticipated that some of the injected trees will die over time and savings from injections can be used for replanting as required.

Scenario 2 - BASE CASE + \$200,000 additional EAB budget as per submitted business case – 6 Years Until Boulevards Are Replanted at a 1.5:1 Ratio										
Year		EAB Budget (\$000's)	Utilize 50% of Woodland Management Budget (\$000's)	Utilize 50% of Infill Planting Budget (\$000's)	Removal Costs (\$000's)	Injection (\$000's)	Cost of removal and planting in woodlands (\$000's)	Residual Remaining for Planting (\$000's)	Number of Trees Planted @ \$250/tree	Number of Trees to Be Planted in Boulevards
	2013									10,750
1	2014	600	75	130	125	-	200	480	1,920	8,830
2	2015	600	75	130	-	170	200	435	1,740	7,090
3	2016	600	75	130	-	-	200	605	2,420	4,670
4	2017	600	75	130	-	170	200	435	1,740	2,930
5	2018	600	75	130	-	-	200	605	2,420	510
6	2019	600*	75	130	-	170	200	435	1,740	-

*Note: \$200K per year will be required for woodland management related to EAB annually and \$170 for injections every two years into the future after the planting has been completed.

Scenario 3. BASE CASE + \$500,000 additional EAB budget. Planting capacity may limit the number of trees that can be planted in 2014 and 2015 until CMMS becomes fully implemented. Consequently the planting program may have to be ramped up and any allocated planting funds that cannot be utilized in the first two years will be used in subsequent years.

Scenario 3 - BASE CASE + \$500,000 additional EAB budget - 4 Years Until Boulevards Are Replanted at a 1.5:1 Ratio										
Year		EAB Budget (\$000's)	Utilize 50% of Woodland Management Budget (\$000's)	Utilize 50% of Infill Planting Budget (\$000's)	Removal Costs (\$000's)	Injection (\$000's)	Cost of removal and planting in woodlands (\$000's)	Residual Remaining for Planting (\$000's)	Number of Trees Planted @ \$250/tree	Number of Trees to Be Planted in Boulevards
	2013									10,750
1	2014	900	75	130	125	-	200	780	3,120	7,630
2	2015	900	75	130	-	170	200	735	2,940	4,690
3	2016	900	75	130	-	-	200	905	3,620	1,070
4	2017	900*	75	130	-	170	200	735	2,940	-

*Note: \$200K per year will be required for woodland management related to EAB annually and \$170 for injections every two years into the future after the planting has been completed.

**There is likely inadequate capacity to plant this many trees in 2014. When the CMMS is completed and in place, it is expected that this level of planting will be possible within existing resources. Planting not completed in 2014 will be addressed with higher planting volumes in years 2, 3 and 4.

Scenario 4. BASE CASE + Custom tree planting program. At this level of funding, it will take 21years to plant the boulevards. Additional staff resources will be required to implement this program, thereby reducing program efficiency while increasing planting costs and residents’ wait times for a tree.

Scenario 4 - BASE CASE + Custom Tree Planting Program - 21 years until Boulevards are Replanted at a 1.5:1 Ratio											
Year		EAB Budget (\$000's)	Utilize 50% of Woodland Management Budget (\$000's)	Utilize 50% of Infill Planting Budget (\$000's)	Removal Costs (\$000's)	Injection (\$000's)	Cost of removal and planting in woodlands (\$000's)	Staff and Resources Required for Custom Program (\$000's)*	Residual Remaining for Planting (\$000's)	Number of Trees Planted @ \$350/tree	Number of Trees to Be Planted in Boulevards
	2013										10,750
1	2014	400	75	130	125	-	200	140	140	400	10,350
2	2015	400	75	130	-	170	200	140	95	271	10,079
3	2016	400	75	130	-	-	200	140	265	757	9,321
4	2017	400	75	130	-	170	200	140	95	271	9,050
5	2018	400	75	130	-	-	200	140	265	757	8,293
6	2019	400	75	130	-	170	200	140	95	271	8,021
7	2020	400	75	130	-	-	200	140	265	757	7,264
8	2021	400	75	130	-	170	200	140	95	271	6,993
9	2022	400	75	130	-	-	200	140	265	757	6,236
10	2023	400	75	130	-	170	200	140	95	271	5,964
11	2024	400	75	130	-	-	200	140	265	757	5,207
12	2025	400	75	130	-	170	200	140	95	271	4,936
13	2026	400	75	130	-	-	200	140	265	757	4,179
14	2027	400	75	130	-	170	200	140	95	271	3,907
15	2028	400	75	130	-	-	200	140	265	757	3,150
16	2029	400	75	130	-	170	200	140	95	271	2,879
17	2030	400	75	130	-	-	200	140	265	757	2,121
18	2031	400	75	130	-	170	200	140	95	271	1,850
19	2032	400	75	130	-	-	200	140	265	757	1,093
20	2033	400	75	130	-	170	200	140	95	271	821
21	2034	400	75	130	-	-	200	140	265	757	64

7. Summary

The City has taken aggressive steps to remove infested Ash trees on boulevards and parks in approximately four years. As directed by Council, staff have identified the need to replant trees as well as planting and staff capacity to implement the program. Existing levels of approved, dedicated EAB funding will result in tree replacement of boulevard and park trees over 9 more years even with the reallocation of additional funding from other capital programs. This could be reduced to 6 years if Council approves the replacement of the Provincial EAB funding that expires in 2013. The replanting delay can be reduced to 4 years with increased levels of funding, however there are staff and resource capacity issues that would need to be recognized and addressed. Greatly increasing the EAB tree planting program above current levels in 2014 may make replanting targets more difficult to achieve given that software and business process improvements have not yet been fully implemented – the target date for this is 2015.

Reallocating existing funds undermines and reduces the effectiveness of those programs from which they were taken. It will result in higher long term costs and increased future budget pressures in order to make up for the services lost and to catch up due to reduced funding now.

The current Provincial EAB-related funding expires in 2013 and will not be renewed for 2014 and beyond. The loss of this funding has significant impacts on both the infill planting and EAB management programs. This funding should be replaced to bring infill planting program to 2009 funding levels.

We have experienced considerable savings from those estimated in the endorsed EAB management strategy. This has allowed an acceleration of tree removals to reduce risk on boulevards and manicured parks. These

Ivan Listar

removals are close to completion allowing the management focus to shift to replanting. Woodland management and injection treatments will continue to be important components of the management program.

With the size of the existing EAB and other programs, there is no current capacity to develop and implement a customized tree planting program. Customized planting programs could be developed and implemented however they will require additional staff, administrative support and funding which will take away from already-stretched programs.

This report was prepared with the assistant of Forestry Operations staff.

PREPARED BY:	RECOMMENDED BY:
IVAN LISTAR, R.P.F. MANAGER, URBAN FORESTRY	JOHN M. FLEMING, MCIP, RPP MANAGING DIRECTOR, PLANNING AND CITY PLANNER

cc: TFAC
John Parsons
Alan Dunbar
October 9, 2013 IL
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