VAUGHAN
Public Works

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# memorandum

DATE: March 5, 2015

TO: HONOURABLE MAYOR BEVILACQUA AND MEMBERS OF COUNCIL

FROM: PAUL JANKOWSKI, COMISSIONER OF PUBLIC WORKS
JOHN HENRY, COMMISIONER OF FINANCE AND CITY TREASURER

RE: FINANCE, ADMINISTRATION AND AUDIT COMMITTEE – MARCH 2, 2015
ITEM 1, Report 6
DRAFT 2015 BUDGET AND 2016-2018 PLAN

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COMMUNICATION
FAA - MAR 9/15
ITEM - 1

## Purpose

This report further documents the status of tree replanting programs in the City, the impact of the DRAFT 2015 Budget and 2016-18 Plan on the tree planting backlog and the impact of the 2013 Ice Storm.

## Background

**The City's total street tree inventory is approximately 150,000 trees with an estimated annual replacement program of 1,400 trees. The existing street tree planting objective is to replace tree mortality. The City of Vaughan street tree deficit at the end of 2014 was estimated at 16,500 trees with an approximate replacement cost of $10.8M, primarily due to ice storm and EAB.**

At the June 16, 2014 Finance, Administration and Audit Committee meeting, a report titled "Forestry Operations Long-Term Tree Replacement Strategy" was presented. In that report, the tree deficit in the City at the end of 2014 was estimated at 13,000 trees. This included an estimate of ice storm tree damage and existing residential back-log only. Since that time staff has done a more complete assessment of the state of the trees following the completion of the clean-up from the 2013 ice storm and have developed a more complete list of plantable locations.

The actual number of street tree locations requiring a new tree is now estimated to be closer to 16,500 trees. This is made up of trees damaged in the ice storm, trees impacted by the Emerald Ash Borer, backlog of tree planting from previous years and some other factors. Table 1 below shows the breakdown of the 16,500 street trees. In addition to this there are an estimated 4,800 locations in parks and open spaces that require a replacement tree. The funding scenarios in this communication are focused only on the street tree locations. Other funding strategies will be explored for Parks & Open Spaces which includes capital projects and partnerships.

**Table 1: Available Planting Locations**

| | | Current Status | | |
|---|---|---|---|---|
| Planting Location Explanation | June 14, 2014 Item (Note 1) | Street Trees | Parks & Open Spaces | Total |
| 2013 Ice Storm | 11,000 | 8,000 | 600 | 8,600 |
| 2014 Tree Hazard Assessment | - | 5,900 | 800 | 6,700 |
| 2013/14 Backlog | 2,000 | 1,100 | 3,400 | 4,500 |
| 2014 Missed Fall Plant | - | 1,200 | - | 1,200 |
| 2014 Residential Initiated Removals | - | 300 | - | 300 |
| **Total** | **13,000** | **16,500** | **4,800** | **21,300** |

Note 1: June 14/14 was an estimate before a complete assessment was performed.

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**Prior to 2013, Vaughan Citizens typically had their residential trees replaced the following year from the time of inspection. The annual funding for tree replacement was approximately $0.6M (1,400 trees)**

It is in the best interests of the City to ensure its urban tree canopy is fully restored, for both environmental and aesthetic reasons. As such, a proposed long-term plan would take into account a one for one replacement to ensure that the priorities set by Council in the Green Directions Vaughan, Community Sustainability Environment Master Plan, are met, specifically, Goal 2, Objective 2.2: *"To develop Vaughan as a City with maximum green space and an urban form that supports our expected population growth by providing strategies for achieving our urban forest targets which include; planning, maintenance, species and planting recommendations."*

**In 2013, Council added annual funding of approximately $0.4M to fund the replacement of Ash trees lost to Emerald Ash Bore (EAB) infestation (500 trees).**

Recognizing the impact of the EAB on the city street tree canopy, Council included in the 2013 budget an additional capital project of $0.4M to fund the replacement of ash trees at the rate of 500 trees per year for 20 years.

**In addition to the 8,000 trees identified in early 2014 as destroyed by the ice storm, summer inspections identified an additional 6,200 (primarily Ash trees) irreparably damaged and now requiring replacement.**

The Ash trees planted in the past as part of the City's street tree inventory, in addition to being attacked by the Emerald Ash Borer, have exhibited poor branching characteristics and are prone to failure once mature. Forestry has observed in the past that ash trees have been the most common tree species to fail during regular summer storms. In the ice storm, about 90% of all failed trees were Ash trees, often weakened by the existing Emerald Ash Borer infestation. The ice storm also accelerated the number and timing of EAB trees to be replaced.

**Because of increased tree costs staff, have recommended in 2015 that the original regular tree replacement program be increased from $0.6M to $1.0M allowing for the number of replacement trees to remain at 1,400. In addition, the $0.4M EAB tree replacement program continues to fund the replacement of 500 trees annually.**
**The 2015 tree replacement strategy includes funding for 3, 000 trees from four funding programs plus carryover funding from prior year projects for an additional 960 trees**

The 2015 Draft Budget includes three tree planting programs in four separate capital projects and some carryover funding from previous years, as detailed below.

| Project Number | Description | Contractor cost | Admin cost | Contingency | Total | # of Trees |
|---|---|---|---|---|---|---|
| RP-6700-15 | Regular Tree Planting Program (old $ amount) | 539,303 | 17,797 | 53,930 | $ 611,030 | |
| RP-6757-15 | Funding update to regular tree planting program | 365,097 | 12,048 | 36,510 | 413,655 | |
| Subtotal | Regular Tree Planting Program | 904,400 | 29,845 | 90,440 | $1,024,685 | 1,400 |
| RP-6739-15 | EAB Tree Replacements | 323,000 | 10,659 | 32,300 | 365,959 | 500 |
| RP-6755-15 | Ice Storm Tree Replacement (2015 Only) | 702,750 | 23,191 | 70,275 | 796,216 | 1,100 |
| 2015 Total | | $ 1,930,150 | $ 63,695 | $ 193,015 | $2,186,860 | 3,000 |

There are two tree planting Capital Projects that remain open with available funds. These will be used in 2015 to add an additional 960 trees to the 2015 planting program. These projects are detailed below.

| Existing Project Number | Description | Budget Remaining | Trees |
|---|---|---|---|
| PO-6700-10 | Tree Planting Program | 81,328 | 125 |
| PO-6739-13 | Tree Replacement Program-EAB | 529,250 | 835 |
| Carryover Total | | 610,578 | 960 |

When combined, the total funding for 2015 will allow for the planting of 3,960 trees, falling to 1,900 trees in 2016 and beyond. Note that the actual number of trees may vary depending on market forces, tree availability and contractor pricing and will be known based on the results of the successful tender that will be issued in March.

**With an estimated future annual loss of approximately 1,000 trees (less than 1.0%of the street tree inventory) due to normal mortality and the current deficit of 16,500 street trees, the existing funded replacement rate of 1,900 trees will be required for many years.**

Factoring in the additional mortality of trees to EAB (estimated at 5,400 trees over the next three years) and natural tree mortality (conservatively estimated at 1,000 trees per year), the existing funding is insufficient to restore the City's tree canopy to pre ice-storm and EAB condition. The following table shows annual balance of street tree replacement locations assuming no additional funding is approved and all existing funding continues at current levels. It would take over 20 years to restore the City's street tree canopy.

**Table 2: Tree Replacement Strategy as per Draft Budget (Street Trees Only)**
**(Illustrated for first 5 years only)**

| Year | Starting Street Tree Backlog | Estimated EAB Mortality (Note 1) | Estimated Natural Mortality and Regular Replacement (Note 2) | Current Open Capital Projects | Tree Planting as per DRAFT Budget | Ending Street Tree Backlog |
|---|---|---|---|---|---|---|
| 2015 | 16,500 | 2,700 | 1,000 | (960) | (3,000) | 16,240 |
| 2016 | 16,240 | 1,800 | 1,000 | | (1,900) | 17,140 |
| 2017 | 17,140 | 900 | 1,000 | | (1,900) | 17,140 |
| 2018 | 17,140 | | 1,000 | | (1,900) | 16,240 |
| 2019 | 16,240 | | 1,000 | | (1,900) | 15,340 |

Notes

1. This is an estimate of both the amount of trees and the timing of their demise.
2. Before EAB and ice storm this was actually 1,400 trees. This has been reduced due to the impact of these major events but is likely to increase in the future to a more natural rate. The 1,000 trees per year is more than likely too low in the later years of this forecast.

**The information in this report is based on present conditions only and does not consider mortalities from future climatic catastrophic events or other species infestations.**

Based on history, we should anticipate future impacts to the tree canopy through invasive agents and/or catastrophic natural events that can negatively affect this strategy. The expedient replacement of the trees will improve the overall diversity of the street tree inventory, therefore reducing the local impacts of future infestations.

**The introduction of a temporary tree associated tax increase will shorten the street tree replacement program significantly and allow for an early elimination of the special EAB Tree Replacement project and a reduction to the Regular Tree Replacement projects**

The original Draft 2015 Budget and 2016-18 Plan proposed a temporary tree associated tax increase to be phased in over the next 2 years (0.49% in 2015 and 0.45% in 2016). This temporary tax increase, when fully implemented, equates to 2,125 trees per year and would result in the restoration of the street tree canopy to pre ice-storm and EAB conditions by the year 2022, as can be seen in Table 3.

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Table 3: Street Tree Replacement Strategy with Phased in Associated Tax Increase

| Year | Starting Street Tree Backlog | Estimated EAB Mortality (Note 1) | Estimated Natural Mortality and Regular Replacement (Note 2) | Current Open Capital Projects | Tree Planting as per DRAFT Budget | Associated Tax Increase | Ending Street Tree Backlog |
|---|---|---|---|---|---|---|---|
| 2015 | 16,500 | 2,700 | 1,000 | (960) | (3,000) | (1,025) | 16,240 |
| 2016 | 16,240 | 1,800 | 1,000 | | (1,900) | (2,125) | 15,015 |
| 2017 | 15,015 | 900 | 1,000 | | (1,900) | (2,125) | 12,890 |
| 2018 | 12,890 | | 1,000 | | (1,900) | (2,125) | 9,865 |
| 2019 | 9,865 | | 1,000 | | (1,900) | (2,125) | 6,840 |
| 2020 | 6,840 | | 1,000 | | (1,900) | (2,125) | 3,815 |
| 2021 | 3,815 | | 1,000 | | (1,900) | (2,125) | 790 |
| 2022 | 790 | | 1,000 | | (1,790) | - | - |
| 2023 | - | | 1,000 | | (1,000) | - | - |

Notes

1. This is an estimate of both the amount of trees and the timing of their demise.
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As the table above shows, the temporary tree associated tax increase could be eliminated for the 2022 taxation year. In addition to this, the regular and EAB replacement programs could be reduced by 110 trees in 2022 and a further 790 trees in 2023 thus freeing up funds in the Capital from Taxation envelope for other projects.

Table 4 below shows the impact of the temporary tree associated tax increase if no addition to the tax increase is added in 2016. Under this scenario, the temporary increase could be reduced in 2025 and completely removed in 2026. Street tree backlog would be eliminated in 2025, 3 years longer than if the full tree associated tax increase were implemented but still over 10 years faster than using current funding alone.

Table 4: Street Tree Replacement Strategy with half of Associated Tax Increase

| Year | Starting Street Tree Backlog | Estimated EAB Mortality (Note 1) | Estimated Natural Mortality and Regular Replacement (Note 2) | Current Open Capital Projects | Tree Planting as per DRAFT Budget | Associated Tax Increase | Ending Street Tree Backlog |
|---|---|---|---|---|---|---|---|
| 2015 | 16,500 | 2,700 | 1,000 | (960) | (3,000) | (1,025) | 16,240 |
| 2016 | 16,240 | 1,800 | 1,000 | | (1,900) | (1,025) | 16,115 |
| 2017 | 16,115 | 900 | 1,000 | | (1,900) | (1,025) | 15,090 |
| 2018 | 15,090 | | 1,000 | | (1,900) | (1,025) | 13,165 |
| 2019 | 13,165 | | 1,000 | | (1,900) | (1,025) | 11,240 |
| 2020 | 11,240 | | 1,000 | | (1,900) | (1,025) | 9,315 |
| 2021 | 9,315 | | 1,000 | | (1,900) | (1,025) | 7,390 |
| 2022 | 7,390 | | 1,000 | | (1,900) | (1,025) | 5,465 |
| 2023 | 5,465 | | 1,000 | | (1,900) | (1,025) | 3,540 |
| 2024 | 3,540 | | 1,000 | | (1,900) | (1,025) | 1,615 |
| 2025 | 1,615 | | 1,000 | | (1,900) | (715) | - |
| 2026 | - | | 1,000 | | (1,000) | - | - |

Notes

1. This is an estimate of both the amount of trees and the timing of their demise.
2. Before EAB and ice storm this was actually 1,400 trees. This has been reduced due to the impact of these major events but is likely to increase in the future to a more natural rate. The 1,000 trees per year is more than likely too low in the later years of this forecast.

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**Conclusion**

During and after the ice storm, the City experienced a higher volume of communications from residents, voicing their concerns about the state of their trees and requesting remedial action. The present funding sources provide for an accelerated planting program in 2015. With the funding formula for 2016 and beyond for 1,900 trees to be planted, the City will experience a street tree deficit for many years to come. A temporary associated tax increase would allow for the elimination of this street tree deficit in a much more expedient manner.

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Respectfully submitted,

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