

Committee of the Whole (Working Session) Report

DATE: Wednesday, September 15, 2021

WARD(S): ALL

TITLE: ASSET MANAGEMENT PLAN – URBAN FORESTRY

FROM:

Zoran Postic, Deputy City Manager, Public Works

Vince Musacchio, Acting Deputy City Manager, Infrastructure Development

ACTION: DECISION

Purpose

Seek Council endorsement of the Urban Forestry Asset Management Plan and proactive Tree Maintenance Program.

Report Highlights

- The *Infrastructure for Jobs and Prosperity Act, 2015* under O. Reg. 588/17 specifies that Asset Management Plans be prepared and posted to a website that is available to the public.
- The Urban Forestry Asset Management Plan has been developed and includes a proactive Tree Maintenance Program to improve the resiliency of tree assets and will contribute to sustainable tree asset lifecycle management.
- The City currently utilizes a highly reactive maintenance strategy to manage its inventory of over 200,000 trees, a number which is also growing at a rate of more than 5,000 additional trees per year as seen so far during the current Term of Council.
- The proactive Tree Maintenance Program proposes increased inspection and pruning activities for the City's growing inventory of tree assets targeting a 7 year inspection and pruning cycle that is consistent with industry standards and practices in leading peer municipalities.
- A phased in approach over 4 years, beginning in 2022, is being recommended to fully implement the proactive Tree Maintenance Program with a one-time capital cost of \$35,000 and operating cost of \$1,162,000 over the 4 years.

Recommendations

1. That Council endorse the Urban Forestry Asset Management Plan and approve making it accessible to the public on the City's website (as specified by the *Infrastructure for Jobs and Prosperity Act, 2015* under O. Reg. 588/17) from the Infrastructure Planning and Corporate Asset Management webpage; and
2. That the proactive Tree Maintenance Program funding requirements be considered during the 2022 budget process.

Background

The City is responsible for over 200,000 trees along roadways and in City-owned parks, woodlots, and open spaces.

Vaughan is a rapidly growing City. As subdivisions and parks are built, new trees are planted and assumed at a current rate of more than 5,000 trees per year. The current maintenance strategy for the City's growing inventory of tree assets is largely reactive, responding to requests for service to rectify sightline concerns, tree-health or safety concerns, and emergency issues such as storm damage. The current maintenance program does not allow for more frequent lifecycle inspections or proactive pruning for the majority of the City's established tree inventory.

Trees provide a myriad of social, cultural, environmental, economic, health and aesthetic benefits, and unlike most infrastructure assets, they appreciate in value over time.

Trees contribute both directly and indirectly to the communities and citizens of Vaughan. They offer shelter and shade from the elements, whether they are moderating the urban heat island effect on streets, adjacent to homes or sheltering exposed residences from winter winds. Furthermore, trees such as those in City plazas and urban parks provide much needed natural features in our urban communities.

The City's streetscape tree assets have an estimated value of about \$110 million. Proactively managing the City's streetscape tree assets comes with significant benefits. Toronto Dominion Bank published a Special Economics Report in 2014 outlining measurable benefits from maintaining urban trees such as water transportation abatement, carbon sequestration, air pollution reduction, energy emission abatement, and energy savings through temperature moderation. The report demonstrated cost savings to residents and municipal governments between \$1.35 and \$3.20 for every dollar spent on tree maintenance.

The Forestry Operations Report on the 2013 Ice Storm identified the opportunity to reduce tree failure during future storms through proactive tree maintenance.

The December 2013 Ice Storm created extensive damage to the City's urban forest – impacting over 21,000 trees, included a loss of 8,181 trees, at a direct cost of \$9.6 million. There have been further annual losses due to the impacts of the Emerald Ash Borer and Asian Long Horned Beetle. However, following substantive tree planting activities over the previous Term of Council, the City is well-positioned to create a proactive program to mitigate against future storm-related or infestation-related losses to the City's tree canopy.

The integration of Asset Management into Urban Forestry provides the opportunity to better manage tree assets comprehensively.

Preparation of the City's Asset Management Plans is currently underway to ensure compliance with O. Reg. 588/17. This regulation came into effect to address the issue that in many Ontario municipalities, existing infrastructure is degrading faster than it is being repaired or replaced, putting infrastructure services at risk.

The Urban Forestry Asset Management Plan consists of four sections as follows:

1. State of the Infrastructure (details asset quantities and replacement valuations).
2. Levels of Service (identifies qualitative and technical performance indicators measuring the level of services that are provided by the asset quantities identified).
3. Lifecycle Management Strategy (describes the operations and capital activities undertaken to maintain and manage Urban Forestry assets to ensure they are in a condition to provide the level of services identified).
4. Financial Strategy (forecasts operating, and capital outlays needed to fund the lifecycle activities identified).

A proactive Tree Maintenance Program is a key component of lifecycle management. It aligns with the Term of Council Strategic Priority of Environmental Stewardship and supports the 2019 Community Sustainability Plan – Green Directions Vaughan.

Proactive tree maintenance is aligned with the Strategic Priority theme of “Proactive Environmental Management”. It is also aligned with the following sections of the City's community sustainability plan, Green Directions Vaughan 2019, specifically in the following sections:

- (2.1.2) Promote green infrastructure (e.g., street trees, ...) to build resilience and mitigate the effects of climate change.

- (2.2.1) Manage and improve the urban forest, including increasing overall canopy cover, as an important element of green infrastructure and a critical asset of the City that is a community amenity, improves the health of residents, and provides ecosystem services.

A proactive tree pruning strategy prioritizes service excellence.

The systematic pruning of trees is not only the most effective method to address the high volumes of active service requests in neighbourhoods scheduled for pruning, it also has a limiting effect on future citizen requests for service. With historically high request volumes and a growing tree inventory, it will become continually more important to deploy the most efficient maintenance strategies available.

Previous Reports/Authority

For reference, the Report of the Finance, Administration and Audit Committee presented to Council on March 19, 2019 pertaining to the approval of Asset Management Policy may be found at the following address:

<https://pub-vaughan.escribemeetings.com/filestream.ashx?DocumentId=15771>

The Council approved Asset Management Policy may be found at the following address:

<https://www.vaughan.ca/cityhall/departments/IPCAM/policies/Pages/default.aspx>

The Report of the Finance, Administration and Audit Committee presented to Council on June 19, 2018 pertaining to the Internal Audit Report – Forestry and Horticulture Operations Audit can be found at the following address:

<https://pub-vaughan.escribemeetings.com/filestream.ashx?DocumentId=72266>

Analysis and Options

The City retained the consulting services of AECOM Canada to complete the development and review of the Urban Forestry Asset Management Plan and Tree Maintenance Program.

The Urban Forest Asset Management Plan provides evidence-based decision-making towards responsible and sustainable tree asset lifecycle management that is financially sustainable.

As an asset class, City trees are subjected to stresses that are unique to the urban environment and exist in areas where they have the potential to represent a safety and liability issue for the City. Trees that are not maintained can develop an irregular structure, which is susceptible to wind load and shearing during severe weather events.

Additionally, tree branches growing over roadways or sidewalks can impede traffic. Managing and caring for trees via a lifecycle approach will improve operational capacity and performance.

A 7 year proactive Tree Maintenance Program can eliminate hazards before they become a safety concern thereby reducing potential liability and exposure of the City.

A proactive inspection and pruning program promotes healthy and structurally sound growth and consists of the removal of dead, dying, diseased, interfering, and weak branches as well as selective pruning to lighten branches and reduce wind resistance. The preventative work will result in:

- Reduced tree failures, thereby reducing the potential liability exposure of the City.
- Improved public safety through the elimination of branches that block traffic signals, signs, and streetlights.
- Increased performance and condition of the tree assets through greater tree vitality, extending its overall life span.

About 6,000 trees are pruned reactively each year which, based on the City's inventory of street trees (not including trees in parks, woodlots, and open spaces), represents pruning activity in line with a 22 year cycle. However, as the tree inventory increases and based on existing operational resources, it is expected that the current reactive pruning (level of service) activities will decrease to a 25 year cycle by 2024.

A 5 to 7 year inspection and pruning cycle is consistent with arboriculture best practices and established proactive programs in peer and leading municipalities.

During the early years of newly planted trees, routine inspections and pruning on a proactive basis is the ideal lifecycle management approach toward promoting tree health into maturity and minimizing long-term maintenance costs. Adopting the proactive Tree Maintenance Program as detailed in the Urban Forestry Asset Management Plan requires increased inspection and pruning activities based on the recommended 7 year frequency cycle.

The City conducted a municipal scan across comparable cities to gauge established maintenance practices. The scan identified that the majority operate with an established tree maintenance strategy of 7 to 10 years. A notable exception is Mississauga which pursues a reactive-only program. The summary of the peer review is listed in Table 1.

Table 1: Municipal Comparison – Tree Maintenance Rotation

Municipality	Maintenance Rotation (Years)
York Region	
Vaughan	22 years
Richmond Hill	10 years
Markham	7-10 years
Ontario	
Toronto	7 years (starting 3 years after assumption)
Ottawa	7 years (starting 3 years after assumption)
Oshawa	7 years
Oakville	10 years
London	10 years
Mississauga	Reactive
Canada	
Surrey	5 years
Calgary	7 years
Fredericton	7 years

These increased maintenance activities need to be supported by appropriate operational budgets that keep pace with the growing inventory of tree assets.

Financial Impact

An annual operating investment of \$1,162,000 (phased in over 4 years), plus a one-time capital investment of \$35,000 is required to implement a 7 year proactive tree maintenance program.

While there is no impact toward approving this report at this time, the program will require an operating and capital investment which will be brought forward during the 2022 budget process.

Table 2: Net New Proactive Tree Maintenance Program Costs

Requirement	2022	2023	2024	2025
Net New Operating	\$148,000	\$338,000	\$338,000	\$338,000
Net New Capital	\$35,000	-	-	-
Total Operating	\$148,000	\$486,000	\$824,000	\$1,162,000
Tree Pruning Cycle	18 year	14 year	10 year	7 year

The costs outlined are based on the recommended 7 year pruning cycle, which requires pruning approximately 21,000 trees annually. Based on budget availability and the considerable investment, a phased strategy is presented to achieve the 7 year cycle.

Broader Regional Impacts/Considerations

There are no Regional impacts anticipated as a result of the report recommendations.

Conclusion

Council endorsement of the Urban Forestry Asset Management Plan and approval to make it accessible to the public on the City's website from the Corporate Asset Management webpage is required to ensure compliance with O. Reg. 588/17. The Urban Forestry Asset Management Plan recommends a proactive Tree Maintenance Program, which is to be considered in the 2023 operating and capital budget process.

For more information, please contact:

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Attachments

1. Urban Forestry Asset Management Plan, Infrastructure Planning & Corporate Asset Management, AECOM (consultant), April 2021.
2. Urban Forests: The Value of Trees in the City of Toronto, TD Economics, June 9, 2014.

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