



Report to: General Committee

Meeting Date: June 20, 2023

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**SUBJECT:** Tree Preservation By-law Review and Update II  
**PREPARED BY:** Tanya Lewinberg – Public Realm Coordinator, Parks and Open Space Planning, ext. 2700  
**REVIEWED BY:** Alice Lam – Director of Operations, 905.475.4857  
Richard Fournier – Senior Manager - Parks and Open Space Planning, ext. 2120

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**RECOMMENDATION:**

- 1) THAT the report and presentation entitled “Tree Preservation By-law Review and Update II” dated June 20, 2023 be received;
- 2) That Staff be directed to amend the Tree Preservation By-law and related processes recommended in this report for formal By-law readings; and
- 3) THAT Staff be authorized and directed to do all things necessary to give effect to this resolution.

**EXECUTIVE SUMMARY:**

The following report is to provide detail on recommended amendments to the Tree Preservation By-law. To address the following issues, staff have recommended changes to the Tree Preservation By-law itself or proposed changes to current practice which will be covered in a Policy and Procedures document accompanying the By-law. The issues outlined in this this report that have changed since May 2022 are: Protection of Hedges, Agricultural Tree Management, City and Private Trees Covered in the Tree Preservation By-law, Fee for Construction Related Permit review, Collecting Securities for Tree Preservation Barriers and Tree to Remain, Compensation for Illegal Removals, Conditional Planting Size.

The Issues which have been reviewed by Council previously are: Permit Signage, Undertaking Added to Permit Application, New Offences, Collect Securities for Construction Related Planting Conditions Proximity of Trees to Buildings, Compensation Method, Tree Permit Expiration, Boundary Trees, Tax Roll for Non-compliant Permit Holders, DBH (Diameter of Breast Height). of Multi-Stem Trees, Compensation Amount for Permitted Removals, Compensation Amount for Illegal Removals, Pool and Landscape Construction Process, Tree Preservation Zone Barrier Signage, Urban Design to Issue Tree Permits, Trees Located in the Proposed Building Footprint.

**PURPOSE:**

As noted in the City of Markham’s Streetscape Manual, “the City of Markham is committed to contributing to a healthy environment and increased biodiversity. The urban forest is integral to achieving this target. When suitably integrated, urban trees are also a valuable ‘green’ infrastructure providing tangible sustainability benefits that appreciate in value over time. As urban forests grow, their environmental, social and economic

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benefits increase. The urban landscape can be understood as an urban ecosystem, with each part relating to and affecting the whole.”

The purpose of the Tree Preservation By-law is to:

- Ensure the preservation of the urban canopy for air quality and ground water conservation. Trees filter carbon dioxide, carbon monoxide, lead, nitrogen dioxide, ozone and particulate matter. Trees can intercept rainfall in their foliage preventing runoff, promoting absorption and filtering of the rain water infiltrating the ground;
- Achieve a tree canopy cover of 30% or greater - this lowers the heat island effect; and is the amount of canopy required for net community benefits;
- Ensure safety of people and property; and
- Encourage maintenance of trees

The Principles of this review are:

- To Review the By-law’s effectiveness
- Align internal processes to ensure consistency
- Prioritize preservation before replacement and compensation
- Ensure transparency and fairness

## **BACKGROUND:**

In May 2022, staff brought a report with recommendations to Council. The previously approved amendments were presented (further detail presented below):

- Permits Signage
- Undertaking to acknowledge permit conditions added to the application
- New offences; failure to install tree preservation signage and failure to install tree preservation fencing
- Requiring a security for infill for trees to be planted
- Allowing trees within 1.5m of a building to be removed with conditions
- Use progressive Aggregate Caliper Method for tree valuation
- Extend Permit validity to 1 year
- Boundary tree process
- Non-compliant non-construction related permits to be added to property tax.
- Change multi-stem DBH calculation
- Compensation for permitted and illegal removals
- Pool and major landscape construction process
- TPZ process
- Urban Design to issue tree permits
- Remove the building footprint exemption

No changes were required for several of the issues reviewed which were:

- Licensing of Arborists
- Size threshold of 20cm DBH
- Trees protected in back yards
- Heritage designation for trees
- Permit and Application

### **OPTIONS/ DISCUSSION:**

A Public Engagement open house was conducted on May 30<sup>th</sup>, 2023. Notable comments included, support for the removal of the build footprint exemption and a proposal to allow farmers to manage trees for agricultural purposes.

The presentation was also available on [yourvoicemarkham.ca/trees](http://yourvoicemarkham.ca/trees) for a week prior to the open house. Sixteen comments were received on [yourvoicemarkham.ca/trees](http://yourvoicemarkham.ca/trees) summarized below:

- Privacy for online permits
- Boundary tree process
- 1.5m removal option, with a suggestion for other building on the property to be included
- Tree maintenance practices, consider reviewing all tree on the property
- Tree removal for accessibility
- Building footprint exemption removal opposition
- Developer/resident equity
- Tree selection list to be more diverse
- Infestation, invasive species should be less protected
- Request for a watch list for landmark trees

### **New Items**

The team has been working through the details of the By-law update process and has some new recommendations based on the outcome of the review and the May 2022 Council meeting. See Appendix 'B' Resolution of Council Meeting 10 – Dated May 31, 2022, Council directed staff to report back to Committee with additional recommendations that provide for the protection of hedges.

The following is a fulsome outline of all issues and recommendations. Some of the issues considered are By-law changes and some are changes to current practice which will be captured in a Policies and Procedures document to accompany the By-law.

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## 1. Protection of Hedges

To address the Resolution of Council, staff have created a Hedge valuation system with the help of Urban Forest Innovators, a well-respected arboriculture company, who has worked closely with the City on several other projects and has been successful in court proceedings regarding hedges in other jurisdictions.

*Hedge Definition: Hedge means 3 or more stems planted a maximum of 1 m apart, and having a minimum height of 2 m to create a fence, internal site barrier, or boundary formed by closely growing trees, up to 20 cm DBH (Diameter of Breast Height).*

Hedges would be protected as long as they meet the above definition. For hedge valuation a Cost of Replacement approach has been created as hedges do not meet the by-law criteria for DBH, and a new assessment strategy was required.

Cost of Replacement = Length of Hedge x % Health of Hedge x Replacement Cost

The outcome of the calculation is divided by the amount for cash-in-lieu of planting for a single hedge plant which is stated in the Fee By-law. The final outcome is the number of conditional hedge plantings required, each conditional planting for hedges is required to be 2m tall and in a minimum 7 gallon pot. The cost for cash-in-lieu of planting stated in the Fee By-law will be set at \$337.00, based on an average of the cost of common hedge species. For non-construction related permits the amount will be \$168.50, half of the amount for construction related permits, also stated in the Fee By-law.

Examples:

1. Hedge length = 4 m Health = fair
  - a.  $4\text{m} \times 60\% \times 337 = \$808.80$
  - b.  $808.8 \div 337 = 2.4$
  - c. 2 Hedge trees of the same variety as removed required for conditional planting
  
2. Hedge Length = 32 m Health = good
  - a.  $32\text{m} \times 80\% \times 337 = \$8627.20$
  - b.  $8627.20 \div 337 = 25.6$
  - c. 26 Hedge trees of the same variety as removed required for conditional planting

Recommendation – Protect hedges with the definition, valuation and compensation as proposed above.

## 2. Agricultural Tree Management

Farmers are required to manage trees on their property to ensure proper agricultural practice. Thinning of hedgerows and removal of trees is a common activity among the farming community to ensure trees do not interfere with crop production.

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Recommendation - Bylaws will work with farmers to allow injury and removal necessary to clear land in accordance with Normal Farm Practice conducted by an Agricultural Operation for its own agricultural purposes

### **3. City and Private Trees Covered in the Tree Preservation By-law**

Through the By-law review it is understood City trees are under protected and do not have all of the protections considered in the Tree Preservation By-law.

Recommendation – Cover all City trees and trees on private property  $\geq 20\text{cm}$  DBH under the jurisdiction of the Tree Preservation By-law.

### **4. Fee for Construction Related Permit Review**

Currently Urban Design charges a fee for their review of a Tree Appraisal and Preservation Plan (TAPP). By-law and Regulatory Services does not charge a fee for TAPP review.

Recommendation – A new fee to be added to the Fee By-law for review of a TAPP for Infill and construction related permits

### **5. Collect Securities for Tree Preservation Barriers and Trees to Remain**

Securities are not currently collected for Tree Protection Zone (TPZ) barriers or trees to remain on site for the duration of construction. TPZ barriers are currently required to attain permit approval. Collecting a Letter of Credit (LC) for the installation of TPZ barriers will allow staff to issue permit approval with the LC, rather than requiring the barriers installed on site at the time of permit issuance. This will alleviate residents' concerns about TPZ barriers being an eyesore in the neighbourhood, installed years before projects commence. Further this LC will provide needed protection to trees being maintained through the construction process.

Recommendation – Construction related permits will be required to submit an LC for installation and preservation of TPZ barriers and the trees to remain on site during construction. This LC may be retained for up to 5 year post project completion if trees are damaged during the construction process.

### **6. Compensation for Illegal Removals**

Currently between By-law & Regulatory Services, Forestry and Urban Design there are several ways illegal removals are valued.

Recommendation – Adopt the Aggregate Caliper Method (ACM) for all departments to provide a fair and consistent method to appraise illegally removed trees in Markham. ACM replaces the DBH of the tree 'centimeter for centimetre' with caliper trees, without taking health or structure into account.

Example of ACM – 26cm DBH blue spruce

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- a. 26cm ÷ 5cm
  - b. 5.2
  - c. 5 trees @ 5cm caliper

## 7. **Conditional Planting Sizes**

Currently all conditional plantings are required to be  $\geq 5$ cm caliper. A 5cm caliper tree is usually a ball and burlap tree, which is very difficult to move without specialized equipment, requiring permit holders to hire a landscaper to plant their conditional plantings. Because of the cost associated with hiring a landscaper to plant one or two trees, many non-construction related permit holders are choosing to pay cash-in-lieu of planting. In an effort to encourage more non-construction related permit holders to plant their conditionally required trees, 3cm caliper trees could be accepted for non-construction related permit holders, allowing them to buy the tree at a nursery and plant it themselves.

Recommendation – Accept 3cm caliper trees for non-construction related permit holder conditional plantings

### **Items with Changes Previously Endorsed By Council**

#### **1. Permit Signage**

Tree removals are often reported as illegal, even when there is a permit for the removal. A great improvement to the visibility of tree permits is the Mapit tool on the City's website on which tree permits are searchable. The implementation of signage would go one step further to help to address concerns about illegal removals, as they are often considered while residents are out in the community.

Recommendations – Require signage to be placed on site in a visible location from the street. The signage will include the tree location information and, for construction sites, the Tree Assessment and Preservation Plan (TAPP).

#### **2. Undertaking on Non-Construction Related Permit Application**

Tree Preservation would like permit applicants to acknowledge planting conditions may result from obtaining a tree removal permit. A signed Undertaking will act as an official acknowledgement of potential planting conditions. Upon permit expiration, a reminder will be sent to those that have not contacted the City regarding their planting conditions. For those that do not request an extension to their permit, the City will plant a replacement tree on public property and will have the cash-in-lieu value of their planting conditions tax rolled.

Recommendation – Add an Undertaking to the non-construction related permit application, requesting applicants acknowledge that as a result of their permit application they may have permit conditions requiring them to plant trees.

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### 3. New Offences

The following are new By-law offences:

- Failure to Install Tree Preservation Fencing – To be added to The Administrative Monetary Penalty System (AMPS) By-law
- Failure to Install Tree Preservation Signage – To be added to AMPS By-law

Recommendation – Add *Failure to Install Tree Preservation Fencing* and *Failure to Install Tree Preservation Signage* as new offences to the AMPS By-law.

### 4. Collect Securities for Construction Related Replanting Conditions

The By-law & Regulatory Services Department does not collect securities for replanting conditions on construction related permits and has a low conditions compliance rate. Urban Design does collect securities for site plan and subdivision development application replanting conditions and has 100% compliance rate for replanting conditions.

Recommendation – Collect a security deposit for construction related tree permits in the amount outlined in the Fee By-law, per conditional replant tree.

### 5. Proximity of Trees to Buildings

Residents often have concerns about trees being too close to their houses and this raises the question of a removal option based on proximity to buildings and other infrastructure. This change will allow residents to remove trees that are in close proximity to their buildings and help to achieve a feeling of safety, as well as home maintenance goals.

Tree roots extend far beyond the immediate proximity, and beyond a tree's dripline. Interaction with tree roots will not be addressed through proximity, but will rather lead to a feeling of community safety.

Recommendation – Allow trees to be removed if they are  $\leq 1.5\text{m}$  from edge of the tree at DBH (1.37 m above the ground surface) to building edge of any building on site requiring a building permit. These removals will be subject to conditions.

### 6. Compensation Method

Currently across the City there are three different compensation methods: the Ratio Method which is used by By-law & Regulatory Services for construction and non-construction related permits, CTLA 9th Edition Appraisal utilized by Urban Design staff and the Progressive Aggregate Caliper Replacement Method used by Forestry for tree valuation.

Recommendation – Adopt the Progressive Aggregate Caliper Method (PACM) for all three departments to provide a fair and consistent method to appraise trees in Markham.

Example of PACM –

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26cm Diameter at Breast Height (DBH) blue spruce  
Health – Good | Structure – Fair

- a.  $26 \times ((80\% + 60\%) / 2)$
- b.  $26 \times 70\%$
- c.  $18.2 / 5$
- d. 4 trees @ 5cm caliper (caliper is measured 15cm above ground level of small trees)

## 7. Tree Permit Expiration

Currently, section 7.2.e of the By-law designates the duration of a tree preservation permit at 90 days. As a result, permit holders regularly require multiple permit extensions creating redundant work for both Tree Preservation Technicians and permit holders.

Recommendation – Extend permit validity to one year from the date of issuance, with the option to extend to the following planting season.

## 8. Boundary Trees

Boundary trees are on the property line between neighbouring lands. To comply with the Forestry Act, Subsection 10(3), a tree growing on the boundary between adjoining lands requires the written consent from adjacent land owners to remove the tree. Currently there is not a consistent process for managing boundary trees across the municipality.

Recommendation – A standard letter template will be provided on the Markham website to direct all applicants with shared trees to request their neighbours sign an acknowledgement of tree removal, as part of the application process.

## 9. Tax Roll

Non-construction related permit holders who do not comply with the conditions of their permit or request an extension prior to permit expiration, will be charged a Service Fee for the City to plant trees on public property in lieu of the permit holder planting on their property. The amount of the Service Fee will be the amount of the cash-in-lieu of planting as outlined in the Fee By-law. If non-compliant permit holders do not pay the fee, the City will plant a replacement tree on public property, and add the outstanding fee to the property's tax roll in accordance with the Municipal Act, s. 398(2).

Recommendations – Non-construction related permit holders who are not compliant with permit conditions, will be charged a Service Fee in the amount of the cash-in-lieu of planting, if this fee is not paid it will be added to their property's taxes as well as any additional fees charged by the Tax group in Finance.

## 10. DBH of Multi-Stem Trees

The current multi-stem DBH calculation in the By-law leads to the protection of small trees. It also increases the value of large multi-stem trees above the industry standard. Under the current By-law definition the DBH of a multi-stem tree is calculated by adding



the DBH's of the three largest limbs. This method leads to elevated DBH's, influencing the compensation value and minimum tree protection zones for these trees. However, there is an industry standard in arboriculture for calculating the DBH of the multi-stem tree.

Recommendation – Revise the current multi-stem DBH calculation to the industry standard quadratic equation.

$$\text{Sqr}\sum(n^2\dots) = \text{Effective DBH.}$$

$$(40^2 + 40^2 + 40^2) = \sqrt{4800} = 69\text{cm DBH}$$

Example: A large multi-stem tree with three stem diameters of 40, 40 and 40 is valued as a 120 cm DBH tree. According to the widely practiced arboricultural calculations the tree would be viewed as a 69 cm DBH tree. This then influences compensation value and the size of the minimum tree protection zone.

## 11. Compensation Amount for Permitted Removals

Cash-in-lieu is only applied on permits with planting conditions when the applicant chooses not to plant on their property. There is currently not a consistent cost for the cash-in-lieu of planting across the municipality. Forestry has their fee for cash-in-lieu of planting stated in the Fee By-law which changes annually with inflation and is currently at \$675.00. By-law & Regulatory Services and Urban Design charge a standard rate of \$600.00 and for non-construction related permits By-law & Regulatory Services charges \$300.00 for cash-in-lieu of planting.

Recommendation – All departments to use the Fee By-law for the amount of cash-in-lieu of planting currently \$675.00 for development or construction related removals, for non-construction related permits the fee is to be half of the construction related permit amount, currently \$337.00.

## 12. Compensation for Illegal Removals

There is not a consistent cost for cash-in-lieu of planting across the municipality for illegal removals.

Recommendation – All departments to use the amount stated in the Fee By-law, (adjusted for inflation annually), for cash-in-lieu of planting which is currently \$675.00, whether or not they are construction related.

## 13. Pool/Landscape Construction Process

Currently the City receives several pool/landscape construction applications annually requiring tree removals to support construction. There is no mechanism through the By-law to allow tree removals because of pool/landscape installations. These projects will be managed in the same way the RGS (Residential Grading and Servicing) applications for infill housing development are managed.

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Recommendation – By-law & regulatory Services staff will work with residents to minimize tree removal. A Tree Permit will be granted based on the submission of a Tree Appraisal and Preservation Plan (TAPP) submission and compliance with TPZ barriers in agreed locations. All tree removals must be approved by By-law & regulatory Services staff.

#### **14. Tree Preservation Zone (TPZ) Barrier Signage**

TPZ barrier signage is required on all development sites. Once TPZ barriers have been installed, an inspection for approval is required. Inspected TPZ barriers have signage applied to the barriers indicating they are accepted and approved. This signage will be installed by the contractor and signed off by the appropriate department.

Recommendation – Provide specifications for signage in construction related permit application packages. TPZ signage to include contact information for the inspector in case the TPZ barriers come down for any reason.

#### **15. Urban Design Division to Issue Tree Permits**

*(Under review with Planning and Legal due to Bill 23/109)*

Developers often request advance tree removals to avoid nesting season and to make the most of the construction season. A separate process to permit removal of trees prior to the execution of a development agreement is beneficial, as long as the development application review has progressed enough to ensure tree removals are as per acceptable tree preservation plans.

Recommendation – Facilitate Urban Design Division to process tree permits for development sites, to either permit or deny the requests based on the status of their review to help developers undertake tree removals at their schedule. Tree securities will be collected prior to any removals.

When development applications are submitted into ePLAN (or during pre-construction evaluations depending on Bill 109 & 23) and a formal circulation is initiated, Urban Design will use the Tree By-law to review and approve tree removals up until execution of a site plan or subdivision agreement. Developers who choose to utilize a tree permit, rather than waiting until site plan or subdivision agreement is executed, will be required to submit a final Tree Appraisal and Preservation Plan (TAPP) at the point of execution of the agreement. The final TAPP will be compared to the initial tree permit TAPP. If there are trees which could have been preserved based on the final TAPP, the developer will be required to pay an additional full compensation value for each tree unnecessarily removed.

The Appeal process will not be applicable to tree permits on development sites.

#### **16. Trees Located in the Proposed Building Footprint**

Trees located in the building footprint are exempt from planting conditions in the Tree Preservation By-law 2008-96. The exemption of trees within the building footprint

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(where there is no planning application) results in net canopy loss and creates an inconsistency in compensation between tree reviewing departments. Currently Urban Design requires compensation for trees located in the building footprint for Site plan and Subdivision development.

Removing the exemption for trees within the building footprint will prevent the net canopy loss the City is currently experiencing. Requiring compensation for trees within the building footprint will create consistency across the City, as well as encourage design development to preserve trees.

Recommendation – Remove the exemption in the Tree Preservation By-law 2008-96 for trees within the building footprint and require compensation for trees located within the building footprint.

### **Items with no Changes Previously Endorsed By Council**

- 17. Licensing of Arborists**
- 18. Size Threshold 20cm DBH**
- 19. Trees in Rear Yards**
- 20. Heritage Designation for Trees**
- 21. Non-Construction Related Permit Fees**

### **NEXT STEPS**

Staff will bring the By-law and Policy and Procedures document back in Q3/4 2023.

### **FINANCIAL CONSIDERATIONS**

Finance will be required to manage the Letters of Credit. There may be other financial considerations with the administration of fees for review of construction related permit applications and the tax roll process.

### **HUMAN RESOURCES CONSIDERATIONS**

The protection of hedges has the potential to increase the workload of the Tree Preservation Technicians. Further depending on the outcome of the review of Bill 109/23 by Planning, if the under 10 unit site plan process is moved to the Residential Grading and Servicing process, the workload of By-law & Regulatory Services, may increase.

### **ALIGNMENT WITH STRATEGIC PRIORITIES:**

The services provided by the Tree Preservation By-law illustrates Markham's commitment to the environment providing tree preservation as a community cost is the way to encourage tree planting as a community value. The tree preservation By-law promotes sustainability through preserving trees on public and private property.

**BUSINESS UNITS CONSULTED AND AFFECTED:**

Planning & Urban Design, By-law & Regulatory Services, Finance, People Services, Buildings Standards, Legal, Forestry have been consulted through the cross commission working group.

**RECOMMENDED BY:**

Alice Lam,  
Director, Operations Department  
Community Services Commission

Morgan Jones  
Commissioner,  
Community Services Commission

Trinela Cane  
Commissioner,  
Corporate Services Commission

Arvin Prasad  
Commissioner,  
Development Services Commission

**ATTACHMENTS:**

Attachment A - Tree Preservation By-law Review & Update Presentation  
Attachment B - Resolution of Council Meeting 10 – Dated May 31, 2022