



# Arborist Report

# Highway 404 North Collector Roads

August, 2019

C11-08 - B000801

---

**SUBMITTED BY CIMA CANADA INC.**

415 Baseline Road West, 2<sup>nd</sup> Floor  
Bowmanville, ON L1C 5M2  
T 905 697 4464 F 905 697 0443

[cima.ca](http://cima.ca)

**CONTACT**

Lisa Cullen  
[Lisa.Cullen@cima.ca](mailto:Lisa.Cullen@cima.ca)  
T 905 697 4464 ext. 6915



# City of Markham

## Arborist Report

### Highway 404 North Collector Roads

Project no C11-08 – B000801

PREPARED BY:



---

**Lisa Cullen** OALA, ISA  
Associate Partner, Senior Project Manager

**CIMA+**  
415 Baseline Road West, 2<sup>nd</sup> Floor  
Bowmanville, Ontario L1C 5M2

**August, 2019**

# Table of Contents

ii

- 1. Introduction ..... 3
- 2. Limitations ..... 3
- 3. Methodology ..... 3
  - 3.1 Tree Size ..... 4
  - 3.2 Observations ..... 4
  - 3.3 Tree Condition ..... 4
  - 3.4 Tree Protection Recommendations ..... 4
- 4. Summary ..... 6
  - 4.1 Tree Impacts ..... 6
- 5. Protected Species ..... 6
- 6. Certification and Closure ..... 6

## List of Appendices

Appendix A – Tree Inventory Drawings TI-0 to TI-7, Tree Inventory Table, Tree Preservation Detail

## 1. Introduction

CIMA Canada Inc. (CIMA) was retained by the City of Markham to complete a Tree Assessment for the Highway 404 North Collector Roads.

Refer to the Tree Inventory Key Plan (TI-0) for the proposed collector roads scope and location. The purpose of the Tree Assessment is to review the trees potentially affected by the proposed road construction.

Using the latest engineering design drawings, this report includes the project's impacts to trees and provides recommendations to avoid and mitigate tree loss and injury.

## 2. Limitations

The assessment presented in this report has been made using accepted standard arboriculture techniques as outlined in the Council of Tree and Landscape Appraisers *Guide for Plant Appraisal, 9th Edition* (2000). These techniques include visual examination of above ground parts of each tree or trees in each group. The trees observed were not climbed, cored, or dissected, and excavation for detailed root crown inspection was not performed. Since some symptoms may only be present seasonally, the extent of observations that can be made may be limited by the time of year in which the inspection took place.

Since trees are living organisms, their health and vigour continually change over time due to seasonal variations, changes in site conditions, and other factors. For this reason, the assessment presented in this report is valid at the time of inspection, and no guarantee is made about the continued health of trees that are deemed to be in good condition. It is recommended that the trees be re-assessed periodically to identify changes in condition. While every standing tree has the potential for failure and therefore poses some risk, a tree assessment is a good indication of present health and potential problems that could arise in the future.

CIMA+ has prepared this report for the sole use of the client. Any use of this report by a third party, as any decision based on this report, is the singular responsibility of the third party. CIMA+ will not be held responsible for eventual damages towards a third party resulting from decisions taken, or based, on this report.

## 3. Methodology

CIMA+ conducted a site visit on July 23 and August 15, 2019 to complete the following inventory and assessment. The on-site inventory of existing trees was carried out using the existing engineering design drawings overlaid with the latest available aerial photography.

All trees located within and adjacent to the proposed Right-of-Way (ROW) were inventoried. Trees were numbered, identified, measured, and assessed for condition. The tree inventory tables containing this information are included in Appendix A along with drawings TI-0 to TI-7 which shows the locations of the numbered trees surveyed.

### 3.1 Tree Size

Size refers to trunk diameter (caliper or DBH) measured in centimetres at 1.37 m above the ground. Where trees had more than one trunk from the base, the size of each trunk was recorded. Where trees forked to codominant trunks, each trunk was measured or the diameter was measured under the flare and the approximate height of the measurement was noted. A plus/minus symbol has been added to the DBH of numbered trees that were not accessible and therefore the size is approximate, as noted in the Tree Inventory Table in Appendix A.

### 3.2 Observations

Several structural defects and health problems are included in the Comments section of the tree inventory and assessment table.

The detailed observations made concerning tree species, size, and condition are included in the tree inventory and assessment table in Appendix A.

### 3.3 Tree Condition

Each tree was given a subjective rating for trunk integrity, canopy structure, and crown vigour, and an overall health condition rating of Excellent, Good, Fair, Poor, or Dead. The following is a summary of how the ratings are determined:

- **EXCELLENT (E):** no apparent health problems; good structural form
- **GOOD (G):** minor problems with health and/or structural form
- **FAIR (F):** more serious problems with health and/or structural form
- **POOR (P):** major problems with health and structural form
- **DEAD (D):** dead

### 3.4 Tree Protection Recommendations

The most typical construction damage to trees is root damage from compaction and severance. While the dripline of a tree's canopy is typically thought to be associated with the root area, the root zones can actually extend significantly beyond the dripline of the tree, where space is available, sometimes up to 2 or 3 times the height of the tree.

To protect trees, grade changes and construction activities that could cause soil compaction should be kept away from trees as much as possible. If roots will be damaged by excavation equipment, it is better to cut roots cleanly with sharp pruning tools rather than allow them to be torn by large equipment. Clean cuts will help to minimize decay and entry points for disease. If branches are likely to hang in the way of passing equipment, the branches should be pruned by a qualified arborist to avoid tearing and undue injury to the tree.

It is recommended that tree protection measures be followed for all trees that are identified to be retained. Where possible, hand dig areas closest to each tree to prevent any unnecessary

tearing or pulling of roots. Removal of roots that are greater than 2.5 centimetres in diameter or roots that are injured or diseased should be performed as follows:

- All roots that require pruning or removal shall be cut cleanly with sharp hand tools, by an ISA Certified Arborist or under direct supervision of an ISA Certified Arborist.
- Directional Root Pruning (DRP) is the recommended technique and should be employed during hand excavation around tree roots. Preserve the root bark ridge (similar in structure to the branch bark ridge). With DRP, objectionable and severely injured roots are properly cut to a lateral root that is growing downward or in a favorable direction.
- Avoid prolonged exposure of tree roots during construction - keep any exposed roots moist with water, burlap wrap or mulching material if exposed for longer than 4 hours.
- Equipment should not be left idling where exhaust could burn foliage.

### 3.4.1 Establish a Tree Protection Zone (TPZ)

The purpose of the tree protection zone is to prevent physical damage, soil compaction, root damage, and soil contamination during construction. Workers and all equipment necessary to complete the works shall not enter or disturb the tree protection zone. In order to prevent any damage, the following recommendations are offered:

- Tree protection fence to be installed as per detail in Appendix A.
- During construction it should be ensured that no equipment, supplies, fill or waste be placed within the tree protection zone.
- Tree protection shall be maintained in good condition at all times during construction.
- Tree protection fencing to remain until all construction activities have been completed.

The City of Markham outlines the following recommended TPZ's per Tree Permit Requirements, dated July 10, 2019.

**Table 1. Tree Protection Zones for Individual Specimen Trees**

DBH (cm)	Minimum Tree Protection Zone (TPZ) (radius in m)
<10	1.2
11-19	1.8
20-40	2.4
41-50	3.0
51-60	3.6
61-70	4.2
71-80	4.8
81-90	5.4
91-100	6.0
>100	6cm per 1cm $\emptyset$

## 4. Summary

A total of 309 individual trees were surveyed and uniquely numbered within the ROW. As well as 17 tree groupings (Groups A to Q).

The drawings TI-1 to TI-7 in Appendix A illustrate each tree's location and proposed impact (if removal is required).

### 4.1 Tree Impacts

A total of 8 trees are expected to be injured, mostly due to proposed grading through TPZs as required for the roadway construction.

A total of 34 individual trees are expected to require removal due to conflict with construction zones along the roadway (trees #32-33, 94-96, 138-147, 152-159, 166-170, 177-178, 180, 194, 208 and 210). Tree groupings C, J and K will require complete removal and tree groupings F, M, N, O and P will require partial removal for the roadway completion.

## 5. Protected Species

Certain tree species are protected under the Ontario Endangered Species Act, 2007 (e.g., butternut), however, no species at risk were found on site at the time of inspection.

The Migratory *Birds Convention Act*, 1994 protects the nests of migratory birds. Trees to be removed from the site should be removed outside of the migratory bird-nesting window, the timing of which differs regionally across Canada as determined by Environment Canada. Following Environment Canada's guidelines, the window at this site is from April 1 to August 31. Trees may be removed during this restricted period only when trees are inspected for nests of protected bird species by a qualified avian biologist immediately prior to removal.

## 6. Certification and Closure

We certify that all the statements of fact in this assessment are true, complete, and correct to the best of our knowledge and belief, and that they are made in good faith.

We trust that this report meets your needs at this time. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,



Lisa Cullen, OALA, ISA  
ISA Certified Arborist ON-0741A

**Attachments:**

1. TI-0 to T17 TREE INVENTORY DRAWINGS
2. TREE INVENTORY TABLE
3. TREE PRESERVATION AND PROTECTION DETAIL



# A

## **Appendix**

TREE INVENTORY DRAWING TI-0 to TI-7

TREE INVENTORY TABLE

TREE PRESERVATION DETAIL



**SUBMITTED BY CIMA CANADA INC.**

415 Baseline Road West, 2<sup>nd</sup> Floor  
Bowmanville, ON L1C 5M2  
T 905 697 4464 F 905 697 0443  
[cima.ca](http://cima.ca)

**CONTACT**

Lisa Cullen  
[Lisa.Cullen@cima.ca](mailto:Lisa.Cullen@cima.ca)  
T 905 697 4464 ext. 6915

