



# ARGO WEST MORRISON CREEK

## TREE CANOPY COVERAGE ANALYSIS

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# TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	Purpose of the Analysis	1
1.2	Study Area	1
1.3	North Oakville Urban Forest Strategic Management Plan (NOUFSMP)	3
1.3.1	Tree Classification and Sizing	3
1.3.2	Projected Street Tree Canopy Coverage (Residential)	3
<b>3.0</b>	<b>COMMUNITY TREE COVERAGE</b>	<b>4</b>
2.1	Street Tree Canopy Coverage	4
2.2	Sixth Line - Arterial Road Tree Canopy	6
2.3	Mixed Use Building	7
2.4	Open Spaces	8
2.5	Conclusion	8

# 1.0 INTRODUCTION

## 1.1 Purpose of the Analysis

The proposed Argo West Morrison Creek Tree Canopy Coverage Analysis represents a general assessment of the projected tree canopy coverage for these lands within North Oakville. The proposed development is planned as a mix of residential dwellings, including single detached dwellings and townhouse dwellings, with higher density built form associated with the Neighbourhood Centre Area situated along the eastern limits of the subject lands. Other land uses include a stormwater management pond (SWM) connecting with the natural heritage system (NHS) south of the subject lands and an NHS channel bisecting the subject lands and extending north from the SWM pond.

The analysis will determine how these land uses can contribute to the tree canopy coverage and will estimate the projected coverage for streets, and open space blocks, in part, on standard calculation methods outlined in the North Oakville Urban Forest Strategic Management Plan (NOUFSMP - Natural Resource Solutions Inc. & Dillon Consulting Limited, November 2011). It will also address potential measures within the Argo West Morrison Creek study area that will help meet the criteria established by the NOUFSMP for achieving the Town of Oakville's long term objective of a 40% urban forest canopy cover, including criteria related to soil volume, tree health and tree spacing.

This analysis will be informed by the current land use plan available, with future driveway, parking layouts and utility constraints considered as an average based on similarly developed residential streetscapes in the surrounding communities.

## 1.2 Study Area

The development site for Argo West Morrison Creek is situated north of Dundas St., south of Burnhamthorpe Rd, west of Sixth Line, and east of Preserve Drive. The existing topography and vegetation of the subject lands is that of gently rolling farmland, hedgerows, and wooded areas. NHS lands, including woodlots and wetlands, are a significant natural feature, with an east-west NHS corridor located south of the site and proposed channel extending north through the centre of the subject lands.

The Argo West Morrison Creek lands are surrounded by future residential developments, and bounded by the future extension of Preserve Drive on the west and Sixth Line on the east. NHS lands are located along the majority of the site's southern boundary and a proposed channel will extend north through the centre of the Argo West Morrison Creek community. Built form in the surrounding future residential developments will include a variety of single detached homes and townhouses. In the north east portion of the site, the proposed 8-storey mixed use built form will contribute to the urban character of the Neighbourhood Centre Area and Neighbourhood Activity Node, providing amenities and services for the wider community.



Fig. 1.2a - Major Trail within the NHS south of the subject lands





Fig. 1.2b - The Argo West Morrison Creek lands within the North Oakville East Secondary Plan Area



Fig. 1.2c - Argo West Morrison Creek Subject Lands

## 1.3 North Oakville Urban Forest Strategic Management Plan (NOUFSMP)

The North Oakville Urban Forest Strategic Management Plan is a high level strategy and planning study prepared to provide the Town of Oakville with recommendations and guidelines for achieving a sustainable, healthy urban forest for the North Oakville lands. This strategy is an extension of the Town's long term vision to achieve its 40% tree canopy coverage target.

North Oakville comprises approximately 4,000 hectares of land, with roughly 1,600 hectares of tree canopy coverage required to achieve the 40% target. The designated Natural Heritage System (NHS), which includes native forests, cultural woodlands, shrub lands and agricultural hedgerows, accounts for approximately 1,200 hectares of North Oakville's land area, making it a significant contributor to achieving the 40% target. The remaining approximately 400 hectares of coverage is expected to be achieved through land development (residential, employment/industrial, institutional and commercial), including streetscapes, parks, buffers, cemeteries, stormwater management facilities, parking lots, etc.

The following is a brief summary of some of the targets, recommendations and measuring criteria described in the NOUFSMP that are pertinent to assessing the ultimate long term tree canopy coverage within the Argo West Morrison Creek study area.

### 1.3.1 Tree Classification and Sizing

The canopy coverage plan shall comply with the following guidelines -

- small stature trees (3m spread) = 38.5 sq.m and shown as 3m dia.
- medium stature trees (10m spread) = 78.5 sq.m and shown as 10m dia.

### 1.3.2 Projected Street Tree Canopy Coverage (Residential)

As a general proposed standard, the NOUFSMP recommends achieving a 20% street tree canopy coverage for residential developments. However, it is noted that trees will not reach their full genetic size potential within most streetscape environments unless enhanced rooting techniques are employed to achieve the growing environment necessary to support good quality canopy coverage. This is particularly important within a more dense, compact and transit-oriented environment where the utilization of enhanced rooting techniques, such as rooting break-out zones below sidewalks and driveways within engineered soil systems, may be required to achieve the 30 cu.m soil volume requirement.

# 3.0 COMMUNITY TREE COVERAGE

Within the Argo West Morrison Creek study area, the canopy coverage contribution will be achieved through the proposed streetscape treatment. Although not measured specifically in this analysis for the community tree coverage, a secondary contribution may be considered through front and rear yard landscape treatment for dwellings. This can account for approximately 1-2% coverage and is typically derived from smaller stature trees.

## 2.1 Street Tree Canopy Coverage

The street tree canopy coverage calculation for the Argo West Morrison Creek study area is a preliminary estimate based on a conceptual land use plan primarily characterized by General Urban and Sub Urban Areas, corresponding with the Town's planning designations for these lands. Along the eastern boundary of the site, a mixed use block and townhouses east of the NHS are designated as a Neighbourhood Centre Area. Considering the type of residential development intended for the community, it is not expected that engineered soils (e.g. structural soils or cell support structures) will be utilized on residential streets. The street tree canopy coverage corresponds with the proposed road hierarchy and all trees to be planted within grass boulevards.

Street trees have been indicated, on average, at approximately one tree per lot. The street trees in this assessment have been designated as medium stature, until such time a more comprehensive streetscape plan can be undertaken as part of a detailed landscape plan review process. During the detailed design stage, large stature trees may be situated along Sixth Line and Marvin Avenue, where greater boulevard widths are anticipated. Medium stature trees have been identified on all streets for this report to demonstrate a minimum coverage calculation.

The preliminary tree canopy coverage results are as follows (refer to figure 2.1):

- Total Argo West Morrison Creek TCCA Applicable Land Area - approx. 82,847 sq.m (not including the NHS, SWM pond, and mixed use building).
- Total Street Tree Canopy Coverage Area (based on medium stature trees) - approx. 17,671 sq.m (not including the NHS and SWM pond, and mixed use building).
- **Argo West Morrison Creek Street Tree Canopy Coverage = 21.3%** (17,670/82,847)





Fig. 2.1 - Conceptual Street Tree Canopy Coverage Plan for Argo West Morrison Creek





**LEGEND**

- Small Stature Trees (6m dia.)
- Medium Stature Trees (10m dia.)
- Argo West Morrison Creek Subject Lands
- ⋯ Sixth Line ROW - TCCA Applicable Area

**PRELIMINARY STREET TREE CANOPY COVERAGE:**

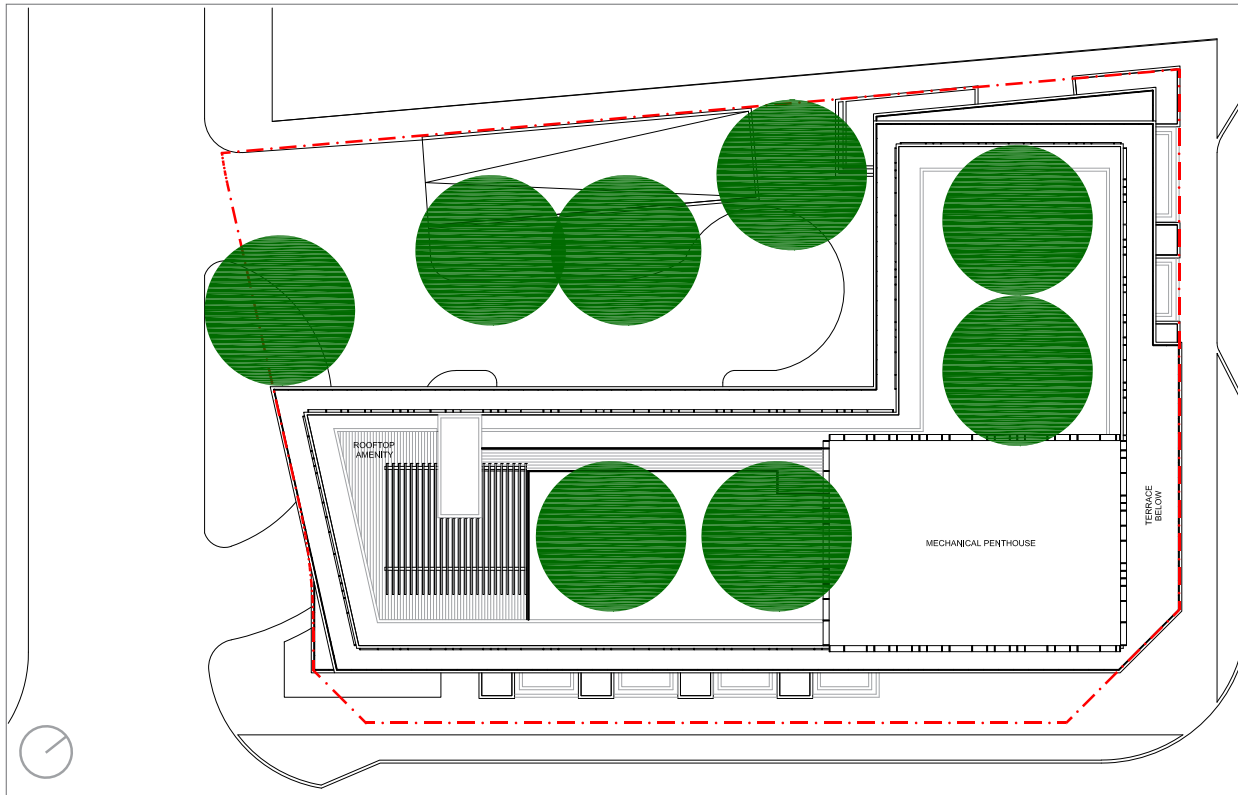
TOTAL SIXTH LINE ROW TCCA AREA - approx. 4,718 sq.m. (not including east side of Sixth Line)

TOTAL STREET TREE CANOPY COVERAGE AREA (based on small and medium stature trees) - approx 1,664 sq.m.

STREET TREE CANOPY COVERAGE: 35.2%

## 2.2 Sixth Line - Arterial Road Tree Canopy

In the Neighbourhood Centre Area, arterial roads are required to achieve a canopy cover target of 34%. With street parking proposed on portions on Sixth Line, the necessary tree canopy cover will be achieved through a combination of street trees in the grass boulevard and trees in private front yards of the townhouses along Sixth Line. The row of street trees would be provided in between lay-by parking, alternating on the east and west sides of the street. A preliminary calculation including street trees in the right-of-way and trees in private front yards demonstrates a 35.2% tree canopy coverage.



**LEGEND**

- Medium Stature Trees (10m dia.)
- Mixed Use Building Site Area

**PRELIMINARY TREE CANOPY COVERAGE:**

TOTAL MIXED USE BUILDING SITE AREA - approx. 2,400 sq.m.

TOTAL TREE CANOPY COVERAGE AREA (based medium stature trees) - approx 628 sq.m.

TREE CANOPY COVERAGE: 26.2%

## 2.3 Mixed Use Building

The 2,400 m<sup>2</sup> mixed use block located on the north west corner of Sixth Line and Marvin Avenue will be subject to a tree canopy coverage site target of 20%. Once the detailed site plan is complete, an analysis of the tree canopy coverage can be calculated based on the amount of the site area that could possibly be covered by canopy.

A preliminary calculation demonstrates that a 26.2% canopy coverage can be achieved with the inclusion of trees on a building green roof. Opportunities for trees on a green roof will be determined in consultation with the Structural Engineer during the detailed design stage.

## 2.4 Open Spaces

### *Stormwater Management Pond*

A 2.07 ha. (5.11 ac.) SWM pond is proposed along the southern boundary of the Argo West Morrison Creek subject lands. Once preliminary pond design is complete, tree canopy coverage can be calculated based on the amount of landscape area that could possibly be covered by canopy, with the exclusion of open water, hard landscape features, and circulation areas.

### *Natural Heritage System Channel*

The NHS drainage corridor is interconnected with the SWM pond. Together, they will function as water quality and quantity control for the community, and as publicly accessible community open space amenities. Once preliminary channel design is complete, tree canopy coverage within the NHS corridor can be calculated based on the amount of landscape area that could possibly be covered by canopy, with the exclusion of open water, hard landscape features, and circulation areas.

### *Walkway Blocks*

In the south east portion of the subject lands, three (3) mid-block walkways between the townhouse blocks provide a direct visual and physical connection to the NHS and SWM pond from Sixth Line. These blocks may include low planting and soft landscape treatment on either side of the path. Any planting shall not obstruct views through the walkway block.

## 2.5 Conclusion

There are many factors that will contribute to the health and long term sustainability of the tree canopy within Argo West Morrison Creek and the surrounding development areas. In addition to maximizing tree planting opportunities, resolving issues related to soil compaction, soil quality, soil volumes and tree species selection in an increasingly urban environment will be fundamental to reaching the overall 40% tree canopy coverage targeted for the Town of Oakville. These issues can be considered in a more comprehensive depth during the detailed landscape design process.