



NORTH OAKVILLE

Redoak/Capoak Subdivision TREE CANOPY COVERAGE ANALYSIS

April 2021

Project No. 20-055

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1.0 INTRODUCTION

1.1 Purpose of the Analysis

The Redoak/Capoak Subdivision Tree Canopy Coverage Analysis represents a general assessment of the projected canopy coverage for this 40 ha (99 acre) land parcel within North Oakville.

Located at the corner of Dundas Street and Eighth Line, 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 along Street 'A' and the Dundas Urban Core (DUC). The overall development will ultimately accommodate over 1,100 units in 2-storey singles, 2 and 3-storey street, rear lane and live/work townhouses, 3-storey back-to-back townhouses and mixed use/apartment buildings. The site also includes 17.8 Ha (44 acres) of NHS lands, two Village Square blocks of 0.6 ha (1.48 acres), a SWM pond of 0.64 ha (1.6 acres), and an Open Space block 0.01 ha (0.02 acres).

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, September 2012). It will also address potential measures within the 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 Redoak/Capoak Subdivision is situated north of Dundas St., east of Eighth Line, and south of Burnhamthorpe Rd. 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 in the northern portion of the subject lands.

The Redoak/Capoak Subdivision lands are surrounded by future residential developments, with the proposed Street 'A' providing the eastern extension of Wheat Boom Drive, and the western gateway into the subject lands. Built form in the surrounding future residential developments will include a variety of single detached homes and townhouses. West of the subject lands, 2-storey front-loaded townhouses are located along Eighth Line, contributing to the urban character of the future Neighbourhood Centre Area that will continue along Street 'A' in the proposed development, through a mix of street, rear lane and live/work townhouses. The DUC blocks located along the southern extent of the subdivision have been excluded from the study area in this analysis, as they will be subject to future site plan applications and the Town's tree canopy coverage requirements will be evaluated at that time.



Fig. 1.2a - Existing view facing north at the corner of Eighth Line, Wheat Boom Drive, and the future western gateway into the subject lands.

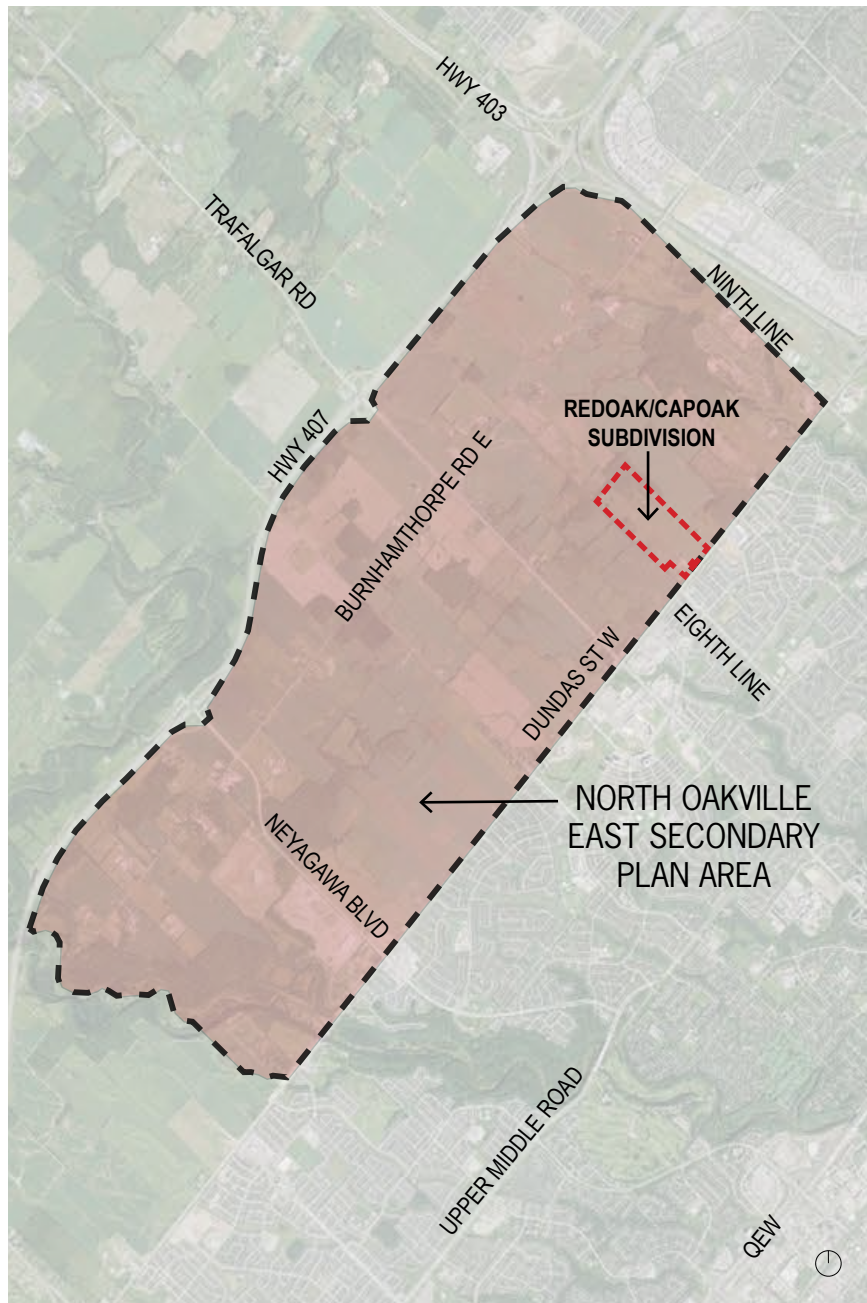


Fig. 1.2b - The Redoak/Capoak Subdivision lands within the North Oakville East Secondary Plan Area

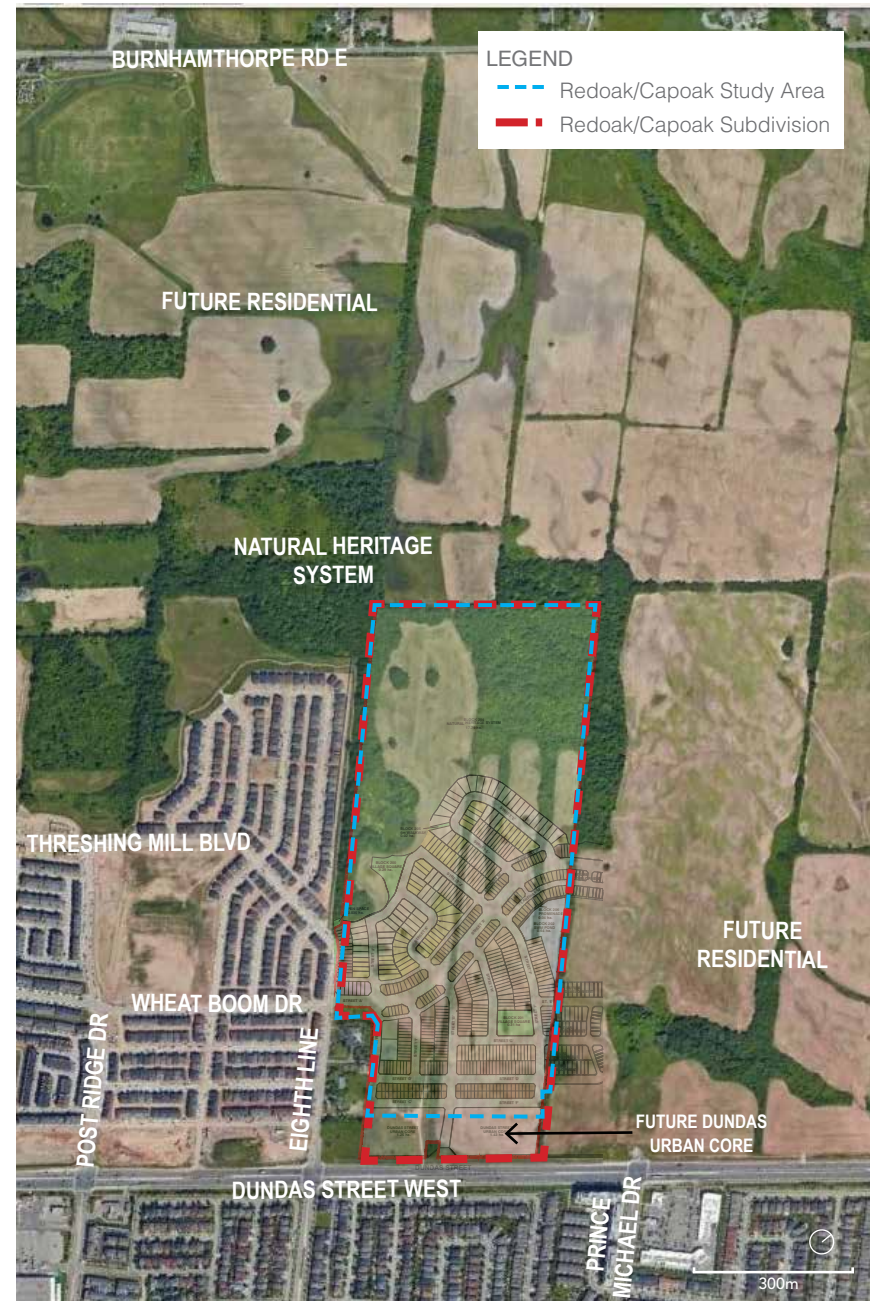


Fig. 1.2c - Redoak/Capoak Subdivision Subject Lands



Fig. 1.2d - Proposed land use plan over-layed on aerial view of existing land uses.

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 land uses and overall canopy cover targets for North Oakville that pertain to this analysis for Redoak/Capoak are as follows:

- Local Roads - 20%
- Arterial Roads - 34%
- Residential (all types) - 20%
- Village Squares - 50%
- SWM - 15%
- NHS - 90%

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 Redoak/Capoak 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.
- Large stature trees (14m spread) = 154 sq.m and shown as 14m 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.

1.3.3 Projected Park Canopy Coverage

Canopy coverage reflects an estimate of the proportion of the ground area that is covered by tree and shrub crowns, expressed as a percentage value. Where canopies merge or overlap, the combined area contributes to the coverage requirement, as opposed to including the canopy area of each overlapping tree. The tree canopy coverage will be calculated based on the amount of landscape area that could possibly be covered by canopy, with the exclusion of hard landscape features, parking areas, and buildings.

1.3.4 Soil Volumes

As referenced in the NOUFSMP, the following represents the recommended soil volume requirements -

- 30 cu.m of good quality topsoil for each tree with a minimum depth of 750mm;
- Integrate 300mm wide rooting break-out zones where 30 cu.m cannot be realized;
- Soil quality to be in compliance with Town of Oakville standards;
- Soil shall be placed in maximum 150mm lifts and compressed to between 80-85% SPD.

2.0 COMMUNITY TREE COVERAGE

Within the Redoak/Capoak Study Area, the overall community canopy coverage contribution will be achieved through the proposed streetscape treatment, Village Squares, SWM ponds, NHS, and Open Space block. As this study focuses on the public realm, the analysis includes street tree canopy coverage and the proposed canopy coverage of two (2) village squares and an Open Space block based on conceptual designs. Although not measured specifically in this analysis, 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 Redoak/Capoak Study Area is a preliminary estimate based on the proposed Draft Plan of Subdivision. It corresponds with the proposed road hierarchy, with a particular relevance to the residential streets, and considers all trees to be planted within grass boulevards. Given 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.

Street trees have been indicated, on average, at approximately one tree per lot. The street trees in this assessment have been designated as medium and large stature, until such time a more comprehensive streetscape plan can be undertaken as part of a detailed landscape plan review process. Large stature trees have been situated along Street 'A' and Eighth Line, where greater boulevard widths are anticipated. Medium stature trees have been identified for the local streets.

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

- Total Applicable Land Area - approx. 183,100 sq.m (not including the NHS, Village Squares, SWM pond, Open Space block).
- Total Street Tree Canopy Coverage Area (based on medium and large stature trees) - approx. 42,876 sq.m
- **Street Tree Canopy Coverage = 23.4%** (42,876/183,100)



Fig. 2.1 - Conceptual Street Tree Canopy Coverage Plan for Redoak/Capoak Subdivision

2.2 Village Squares

The Village Squares ('A' and 'B') canopy coverage calculation for the Redoak/Capoak Study Area is a preliminary estimate based on potential facility fit plans for the two parks. The Village Square designs are currently conceptual and subject to future modification as part of the detailed landscape design process. All tree sizes have been included in the design and assessment, including small stature, medium stature and large stature trees.

The preliminary tree canopy coverage results are described in the following:

2.2.1 Village Square 'A' Coverage

- Total Village Square 'A' Land Area - approx. 3,128 sq.m
- Total Village Square 'A' Tree Canopy Coverage - approx. 1,582 sq.m
- Village Square 'A' Tree Canopy Coverage = 50.5%

2.2.2 Village Square 'B' Coverage

- Total Village Square 'B' Land Area - approx. 2,878 sq.m
- Total Village Square Tree Canopy Coverage Area - approx. 1,490 sq.m
- Village Square 'B' Tree Canopy Coverage = 51.7%

2.2.3 Combined Village Square ('A' and 'B') Coverage

- Total Village Square Land Area - approx. 6,006 sq.m
- Total Village Square Tree Canopy Coverage Area - approx. 3,072 sq.m
- Village Square Tree Canopy Coverage = 51.1%

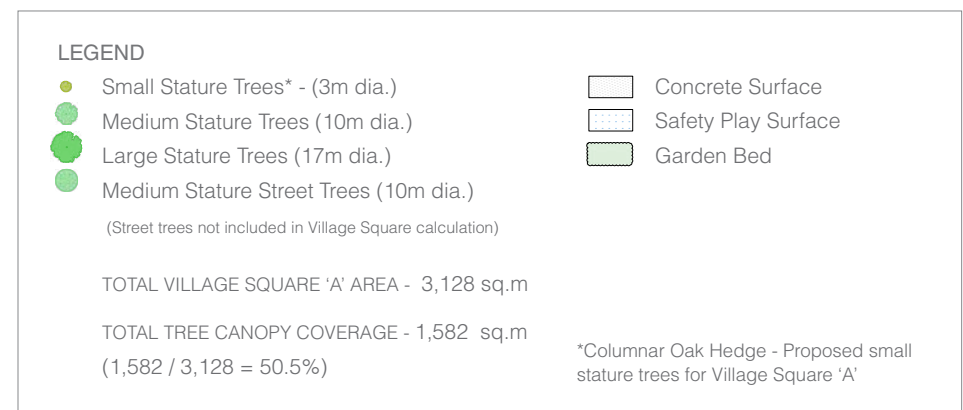
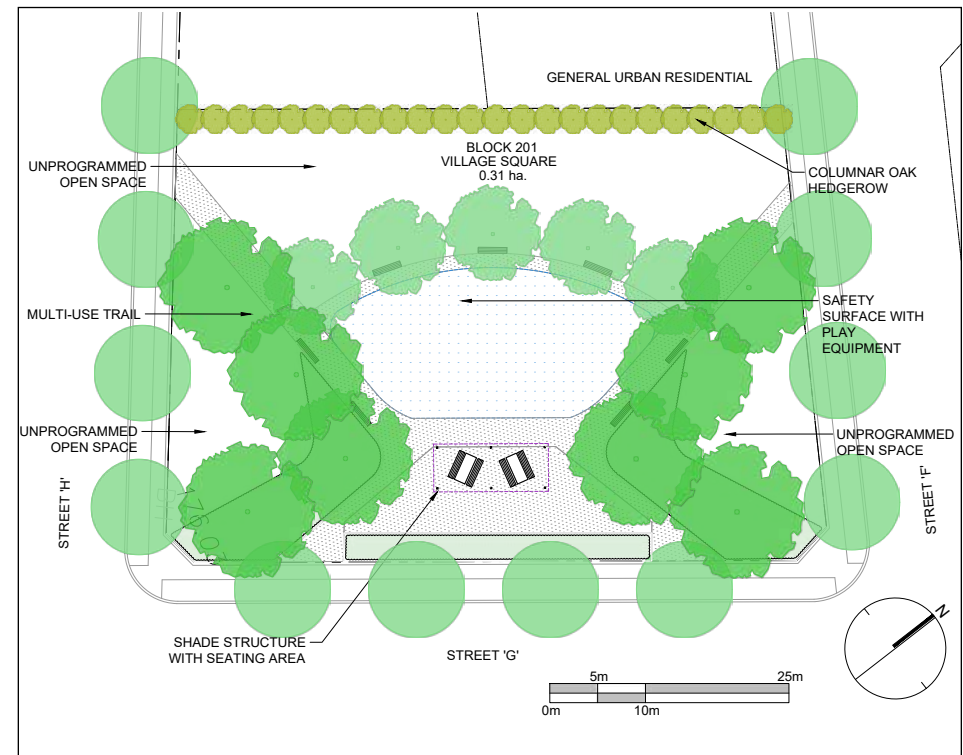
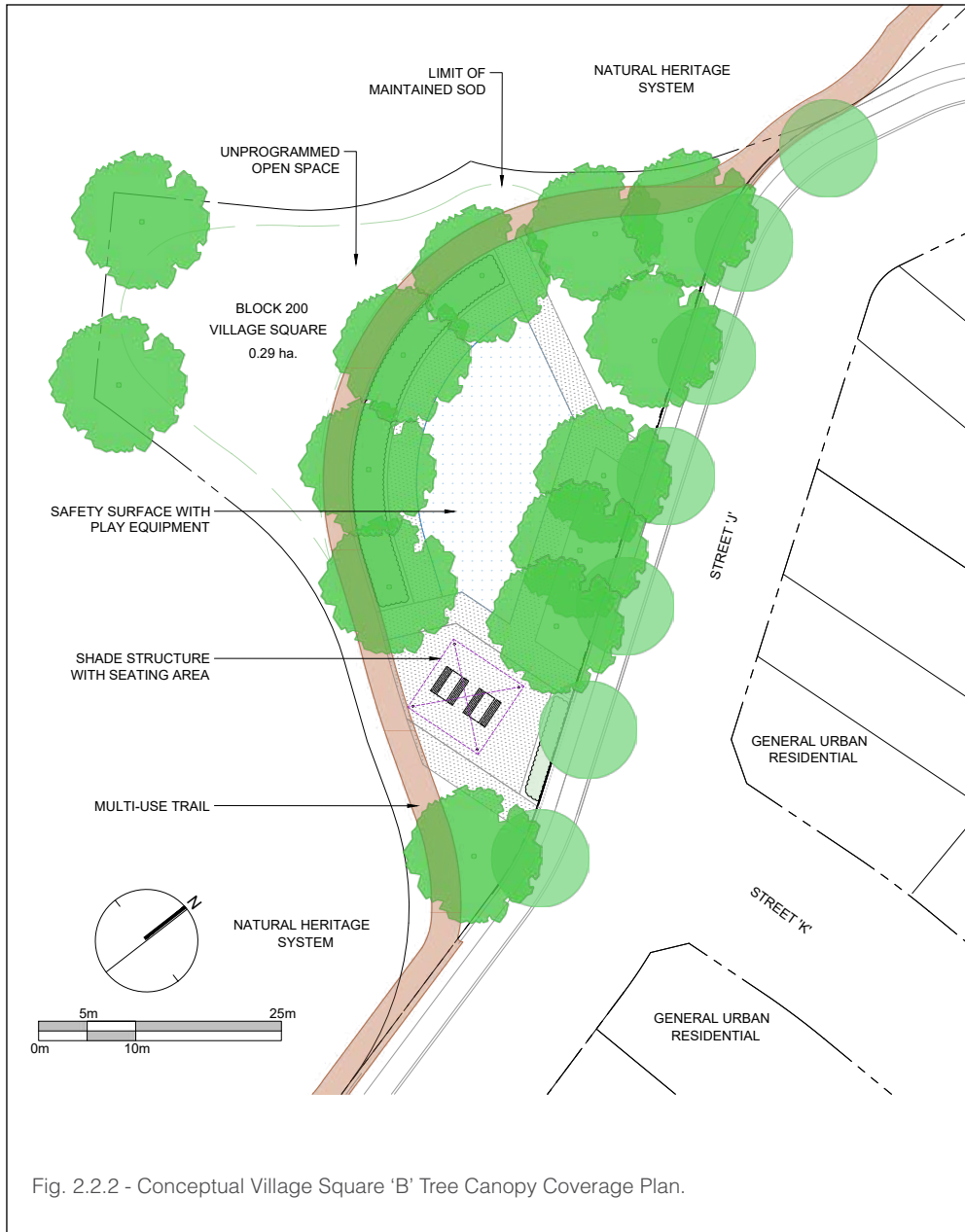


Fig. 2.2.1 - Conceptual Village Square 'A' Tree Canopy Coverage Plan.



LEGEND

- Large Stature Trees (14m dia.)
- Medium Stature Street Trees (not included in Village Square calculation)
- Concrete Surface
- Multi-Use Trail Surface (Asphalt)
- Safety Play Surface
- Shrub Bed

TOTAL VILLAGE SQUARE 'B' AREA - approx. 2,878 sq.m

TOTAL TREE CANOPY COVERAGE -1,490 sq.m

(1,490/2,878 =51.7%)

Fig. 2.2.2 - Conceptual Village Square 'B' Tree Canopy Coverage Plan.

2.3 Open Space Block

Accessed from Eighth Line near the western boundary of the Redoak/Capoak Study Area, an Open Space block is partially located in the Redoak/Capoak Subdivision. As component of the community's open space plan, a facility fit concept for the entire block is provided to demonstrate the potential tree canopy coverage. This design is currently conceptual and subject to future modification as part of the detailed landscape design process. Appropriate to the limited size of the site, small and medium stature trees are included in the assessment.

The preliminary tree canopy coverage results are described in the following:

- Total Open Space Block Land Area: approx. 343 sq.m.
- Total Open Space Block Tree Canopy Coverage Area: approx. 220 sq.m.
- Open Space Block Tree Canopy Coverage: 64.1%

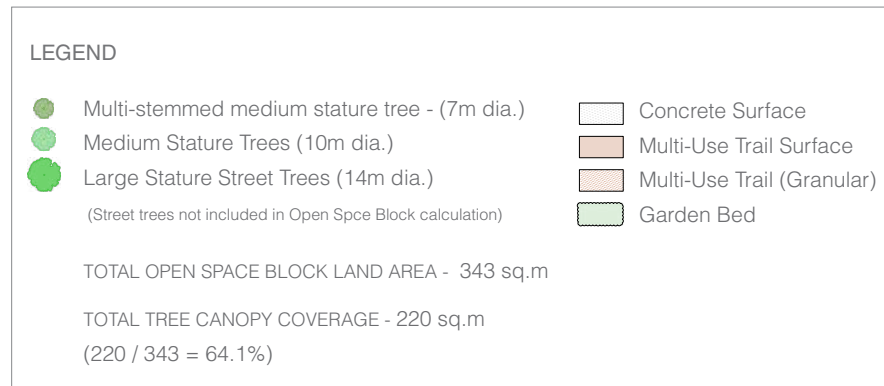


Fig. 2.3 - Conceptual Open Space Block Tree Canopy Coverage Plan.

2.4 Additional Open Spaces

This report addresses tree canopy coverage for the public realm in the proposed development based on the current land use plan. In addition to the previously discussed land uses, the Redoak/Capoak Study Area also includes the following open spaces.

Stormwater Management Pond

A SWM pond is partially located within the Redoak/Capoak Subdivision along the east boundary, south of Street 'A'. The SWM pond design is under review by the Town and will comply with canopy coverage targets. The canopy coverage will 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. Although each pond is unique, when designed as per Conservation Halton standards, 15% is considered the minimum target. For reference, the average canopy coverage for 8 completed SWM ponds in North Oakville within the last 5 years was approximately 47.5%.

Natural Heritage System

The NHS will function as a publicly accessible community open space amenity with a connected trail network reflecting the North Oakville Trails Plan. The 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.

2.5 Conclusion

There are many factors that will contribute to the health and long term sustainability of the tree canopy within Redoak/Capoak Subdivision 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.

As demonstrated in this analysis, the proposed canopy coverage for the study area within the Redoak/Capoak Subdivision meets the targets required by the Town to help achieve long term objective of a 40% urban forest canopy cover. The 23.4% street tree canopy coverage for the study area exceeds the 20% local road target, and the proposed open space concepts (Village Squares, Open Space) each meet the Town's 50% canopy target for these land uses. As noted in this report, the future Dundas Urban Core blocks within the subdivision will be subject to future site plan applications, and the Town's canopy coverage requirements will be evaluated at that time.