



NORTH OAKVILLE

Palermo Village

Tree Canopy Coverage Analysis

August 2023



Prepared for:
Palermo Village Corp.

Prepared by:
NAK Design Strategies

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1.0 Introduction

1.1 Purpose of the Analysis

The Palermo Village Tree Canopy Coverage Analysis represents a general assessment of the projected canopy coverage for this 47.85 ha (118.2 acre) land parcel within North Oakville.

Located at the northwest corner of Dundas Street and Bronte Road, the proposed development is planned as a mix of land uses and densities, including townhouse and single detached dwellings, with higher density built form associated with the urban core along Bronte Road and Dundas Street. The overall development will ultimately accommodate over 6,600 units in single detached dwellings on 36'-50' lots, 2 and 3-storey back to back, rear lane, and dual-front townhouses, and mixed use/apartment buildings. The subject lands also includes 6.90 Ha (17 acres) of NHS lands, a 2.25 ha (5.56 acre) community park, and a 0.16 ha (0.40 acre) park/village square which forms a portion of a larger park block with adjacent lands owned by others (0.49ha total park size).

The analysis will determine how these land uses can contribute to the tree canopy coverage and will estimate the projected coverage for streets and park 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 Palermo Village is situated north of Dundas St., east of Old Bronte Road, and south Highway 407. The existing topography and vegetation of the subject lands is that of gently rolling farmland and hedgerows. NHS lands, including woodlots, are a significant natural feature, with a NHS corridor located in the northern portion of the subject lands. A future transitway corridor runs east-west through a section of the of NHS towards the northern site limits.

The Palermo Village Study Area is surrounded by future residential development, with William Halton Parkway and Glenorchy Road extending east-west through the site, connecting adjacent to neighbourhoods. On the west side of of the study area boundary, a future stormwater management pond is anticipated across from the park. East of Bronte Road, mixed use and high density residential will complete the urban corridor, with a future transit terminal is located on the north east corner of Dundas Street and Bronte Road.

Within the subject land boundary, the condominium blocks, mixed use residential, and high density residential blocks 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.

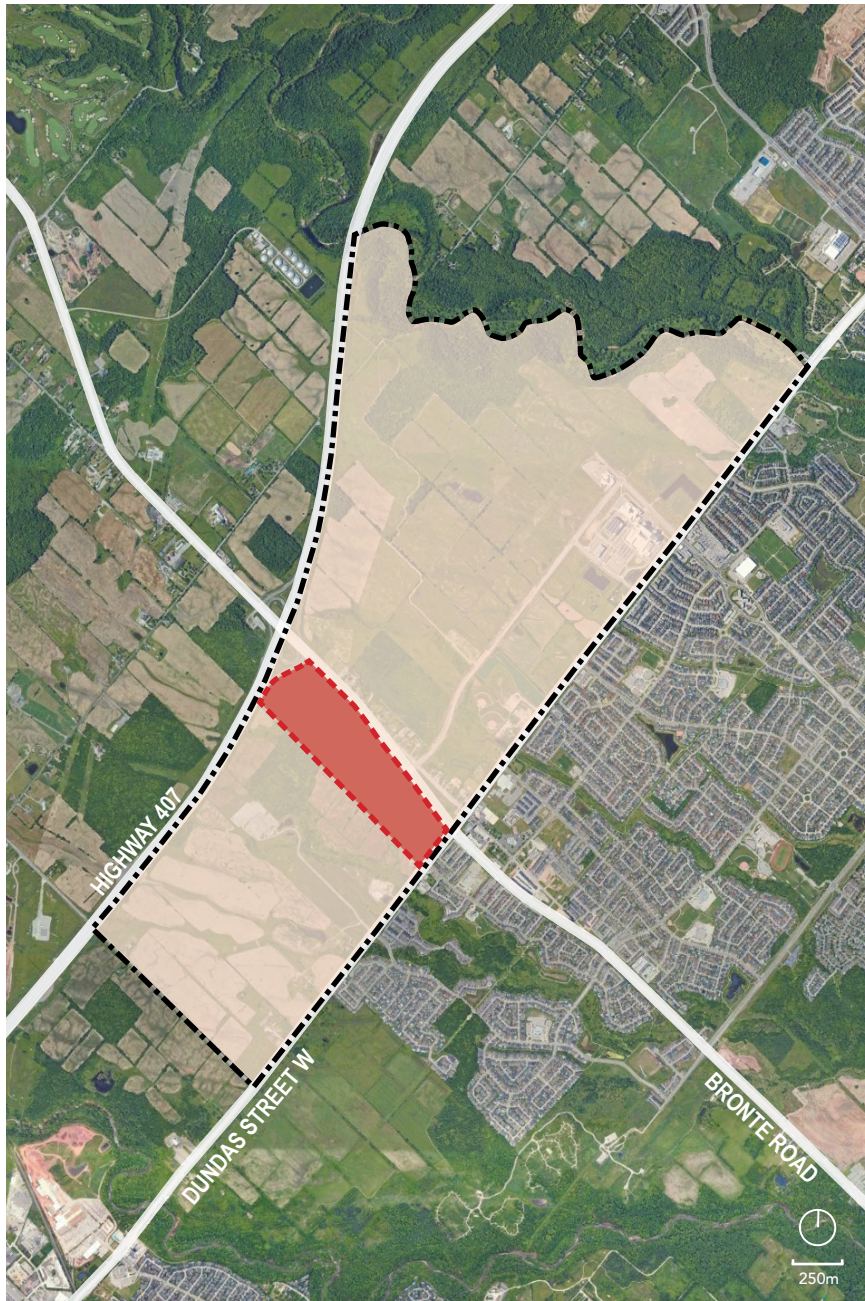


Fig. 1.2b - The Palermo Village lands within the North Oakville West Secondary Plan Area

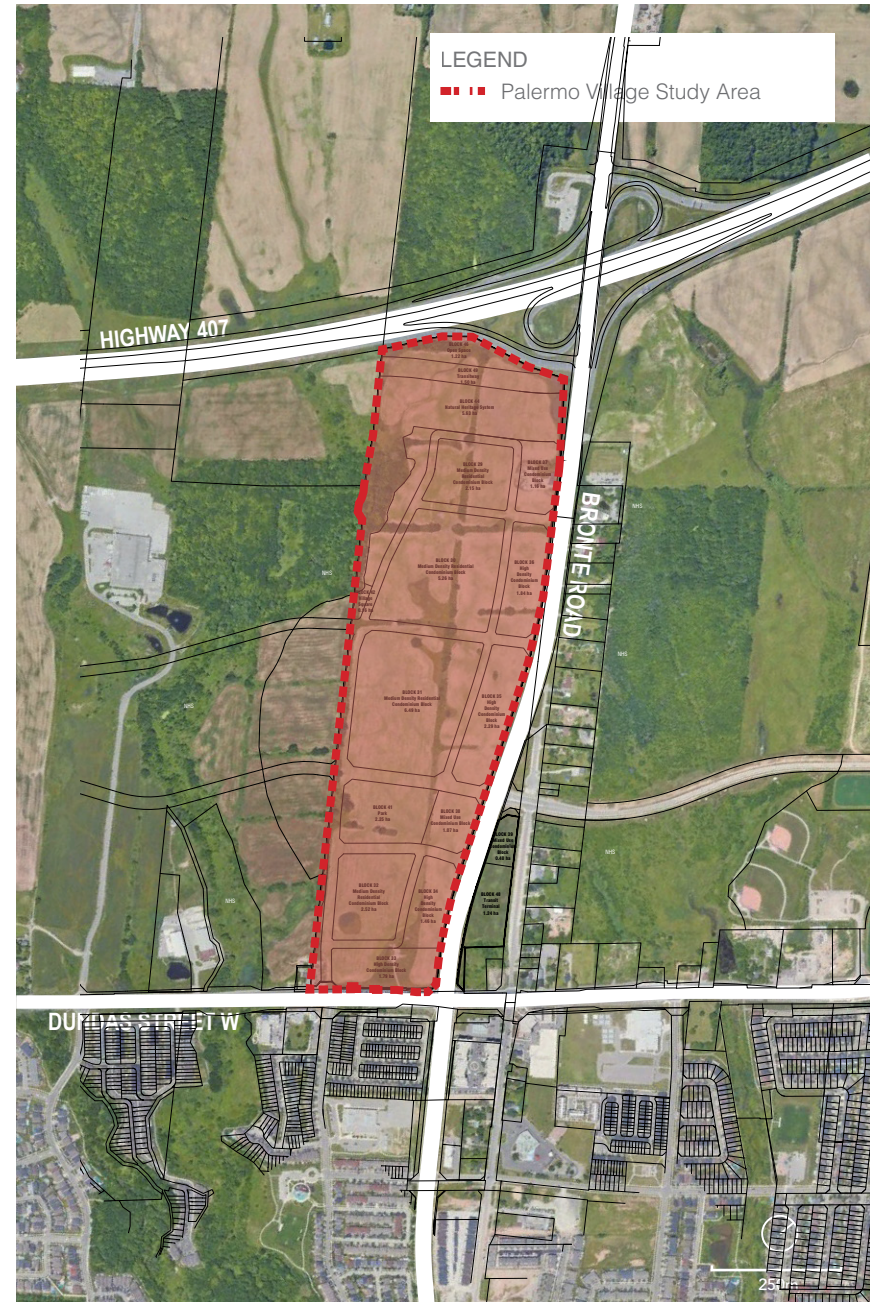


Fig. 1.2c - Palermo Village Subject Lands

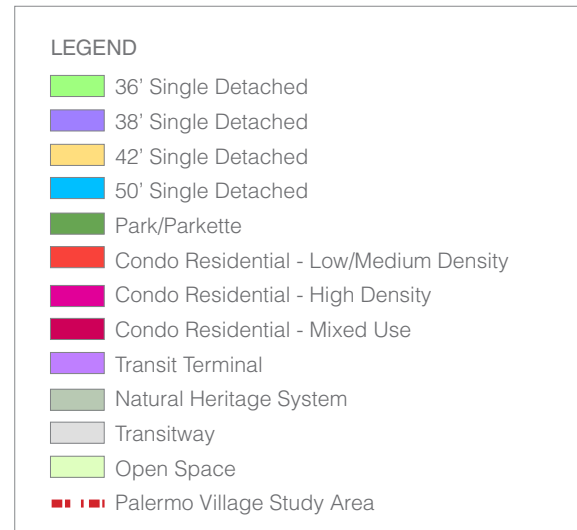
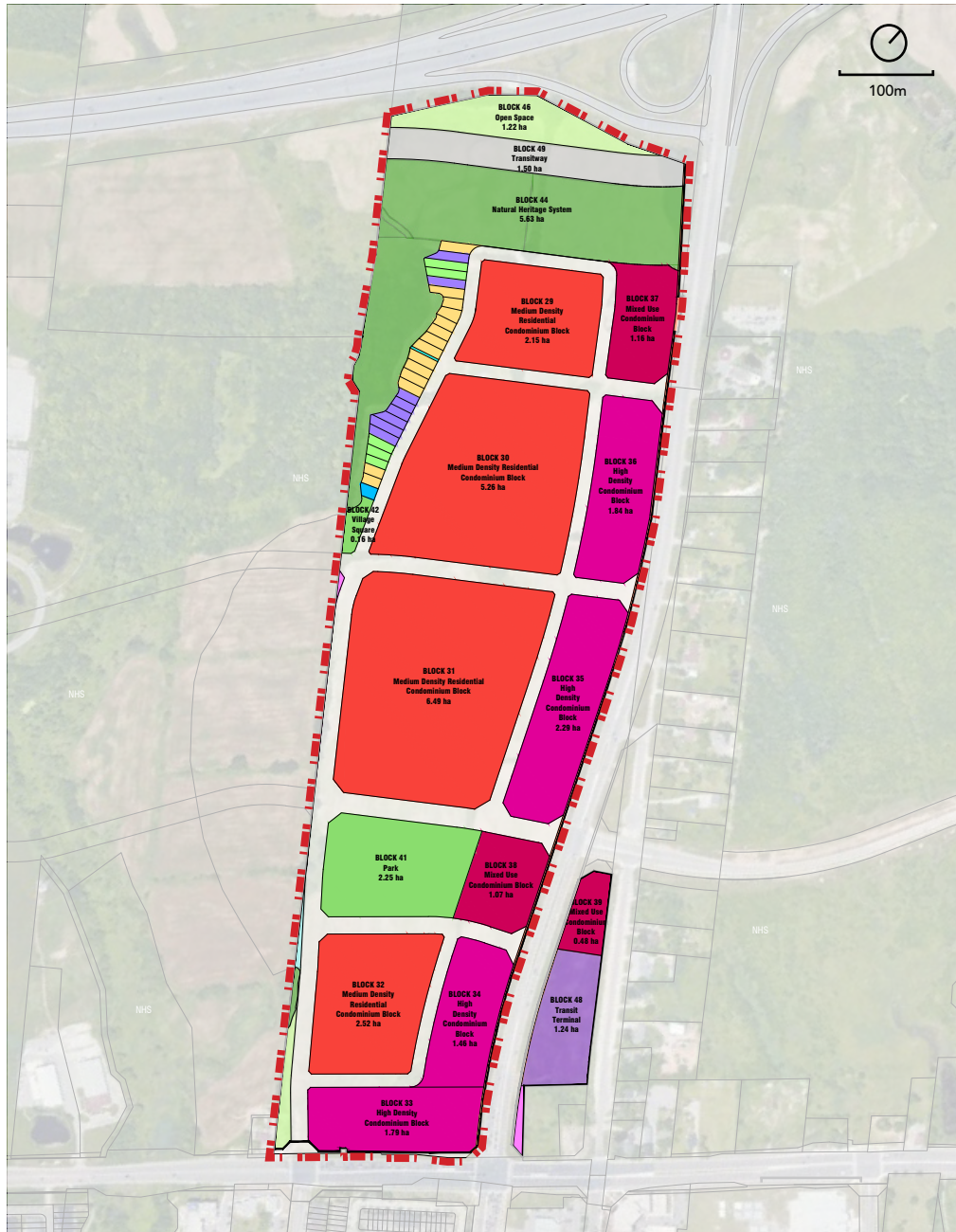


Fig. 1.2d - Proposed block plan over-layed on aerial view.

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 Palermo Village are as follows:

- Local Roads - 20%
- Arterial Roads - 34%
- Residential (all types) - 20%
- Parks - 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 Palermo Village 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 Palermo Village Study Area, the overall community canopy coverage contribution will be achieved through the proposed streetscape treatment and park blocks. As this study focuses on the public realm, the analysis includes street tree canopy coverage on public right-of-ways and the proposed canopy coverage of two (2) park blocks 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.

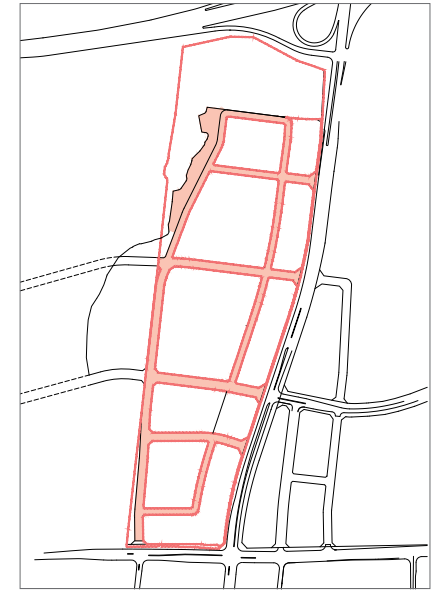
2.1 Street Tree Canopy Coverage

The street tree canopy coverage calculation for the Palermo Village 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 public right-of-ways, and considers all trees to be planted within grass boulevards. Given the type of residential development intended for the blocks within the TCCA study area, 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 strategically situated adjacent to open space blocks, including parks, the SWM pond, and the NHS. Medium stature trees have been identified for the local and collector streets adjacent to residential land uses.

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

- Total Applicable Land Area - approx. 83,057 sq.m. (not including the condominium blocks, high density residential, mixed use residential, parks, NHS, Bronte Road, and Dundas Street).
- Total Street Tree Canopy Coverage Area (based on medium and large stature trees) - approx. 35,525 sq.m.
- **Street Tree Canopy Coverage = 42.8%** (35,525/83,057)



KEY PLAN - STREET TREE CANOPY STUDY AREA

LEGEND

- Medium Stature Street Trees (10m dia.)
- Large Stature Street Trees (14m dia.)
- Palermo Village
- TCCA Study Area

Preliminary Street Tree Canopy Coverage:

Total Applicable Land Area - Approx. 83,392 sq.m.

(Not Including the Condominium Blocks, High Density Residential, Mixed Use Residential, Parks, NHS)

Total Street Tree Canopy Coverage Area (Based On Medium And Large Stature Trees) - Approx 35,372 sq.m.

Street Tree Canopy Coverage: 42.4%

Fig. 2.1 - Conceptual Street Tree Canopy Coverage Plan for Palermo Village

2.2 Parks

The Palermo Village parks canopy coverage calculation is a preliminary estimate based on preliminary facility fit plans for the Community Park and Village Square (refer to Fig. 2.2b and Fig. 2.2c). Situated on the north west boundary of the subject lands, the Village Square is partially located in the Palermo Village Study Area. A facility fit concept for the entire park block is provided to demonstrate the potential tree canopy coverage. The designs of both parks 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 (3-9m dia.), medium stature (10m dia.) and large stature trees (14m dia.). Street trees are not included in the park canopy coverage calculation.

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

2.2.1 Community Park Coverage

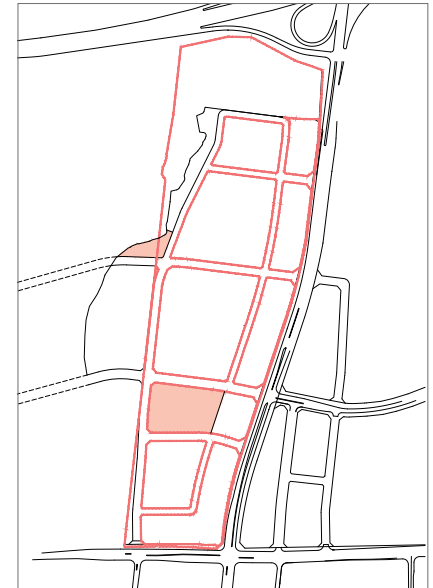
- Total Community Park Land Area - approx. 22,217 sq.m
- Total Community Park Tree Canopy Coverage - approx. 11,110 sq.m
- Tree Canopy Coverage = 50.0%

2.2.2 Village Square Coverage

- Total Village Square Land Area - approx. 5,575 sq.m
- Total Village Square Canopy Coverage Area - approx. 3,706 sq.m
- Tree Canopy Coverage = 66.5%

2.2.3 Combined Park (Community Park and Village Square) Coverage

- Total Park Land Area - approx. 27,792 sq.m
- Total Park Tree Canopy Coverage Area - approx. 14,816 sq.m
- Park Tree Canopy Coverage = 53.3%



KEY PLAN - PARK STUDY AREA



Fig. 2.2a - Aerial photo of Isaac Park in North Oakville, east of Palermo Village.

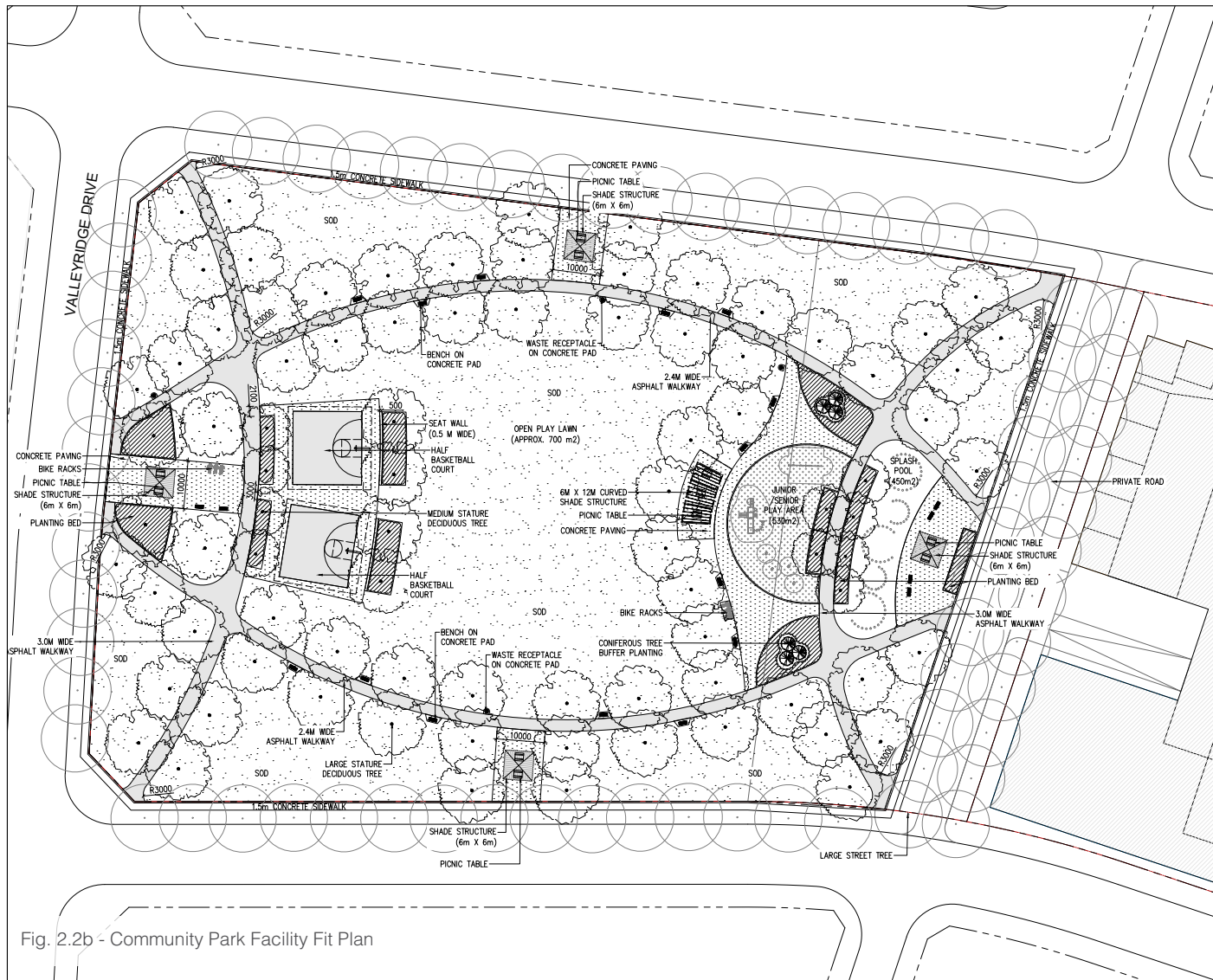
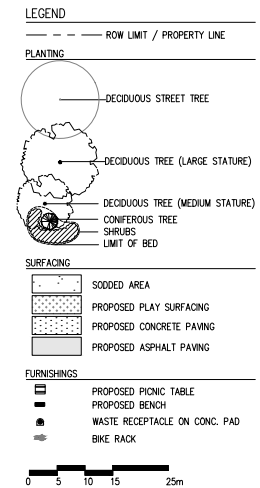
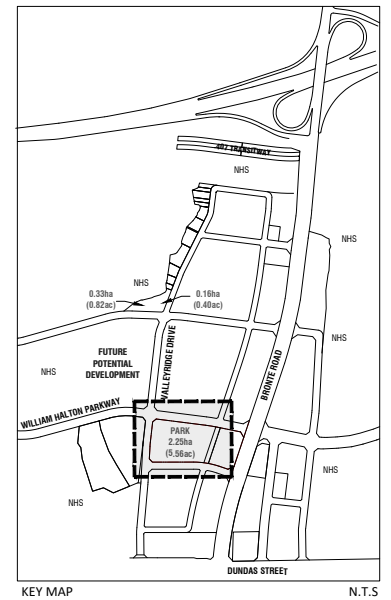


Fig. 2.2b - Community Park Facility Fit Plan



Tree Canopy Coverage:

Total Community Park Area - 22,217 sq.m.

Total Tree Canopy Coverage (Excluding Overlap) - 11,110 sq.m.

(11,110 / 22,217 = 50.0%)

(Note: Street trees not included in park calculation)

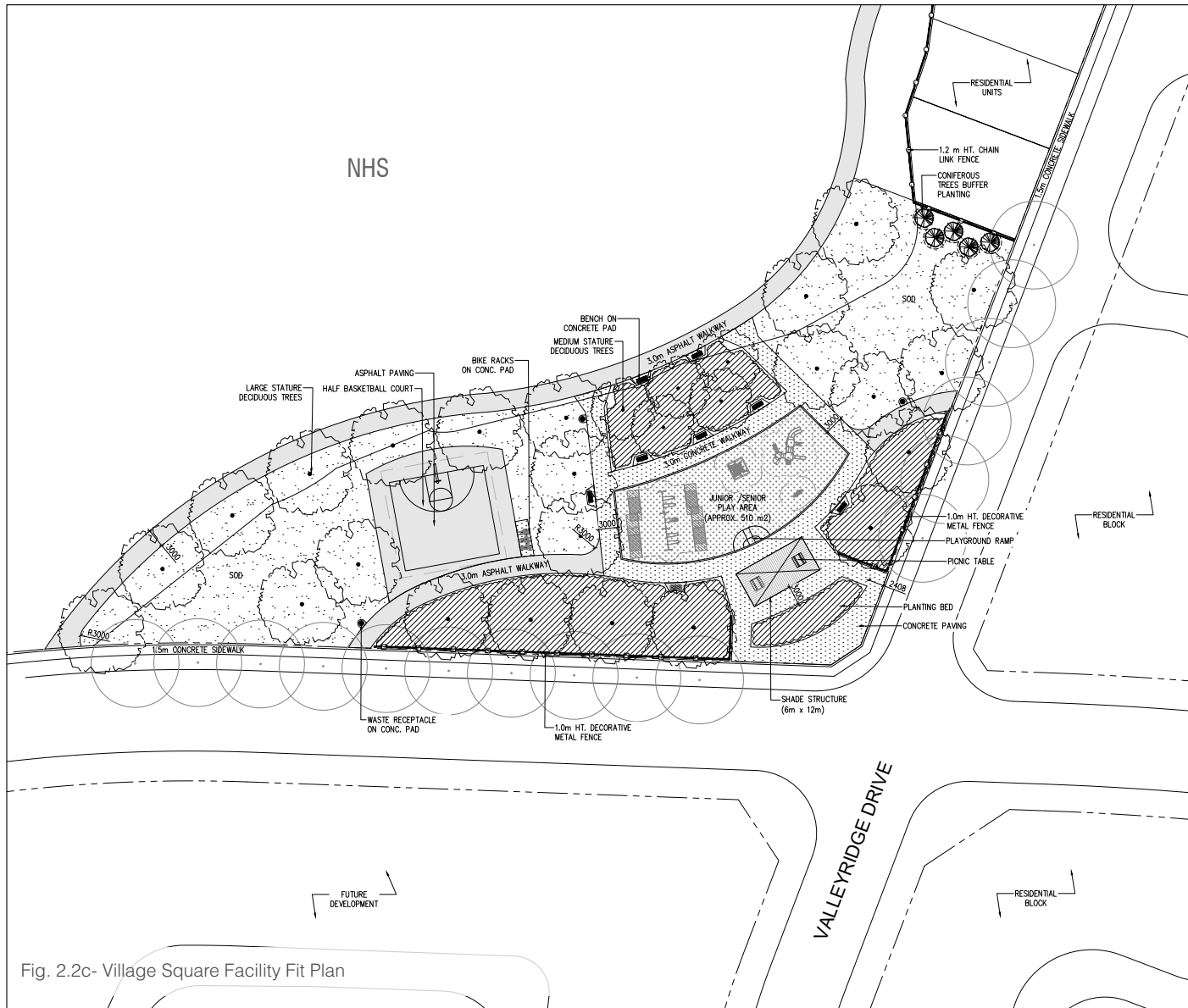


Fig. 2.2c- Village Square Facility Fit Plan

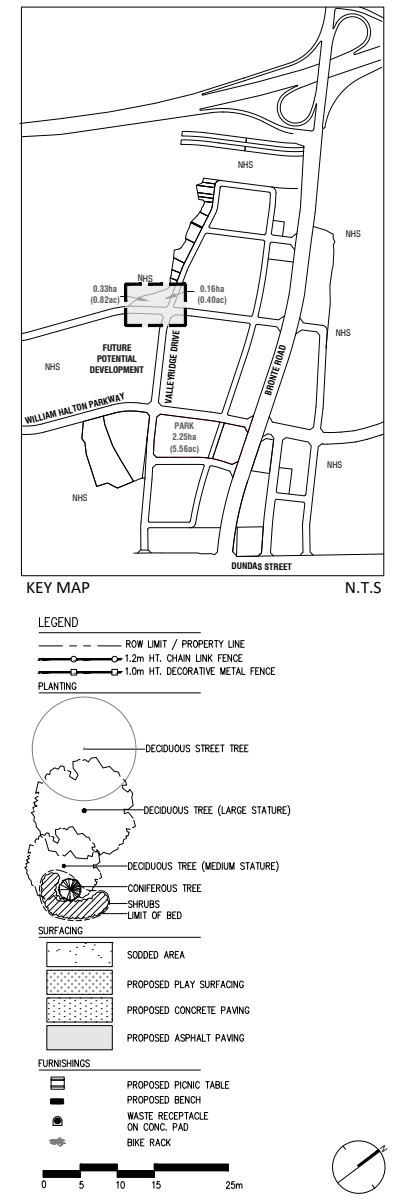
Tree Canopy Coverage:

Total Village Square Area - 5,575 sq.m.

Total Tree Canopy Coverage (Excluding Overlap) - 3,706 sq.m.

(3,706 / 5,575 = 66.5%)

(Note: Street Trees Not Included In park calculation)



2.3 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 Palermo Village Study Area also includes the following open spaces.

Natural Heritage System

The NHS will function as a publicly accessible community open space amenity with a potential 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.

2.4 Conclusion

There are many factors that will contribute to the health and long term sustainability of the tree canopy within Palermo Village 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 Palermo Village meets the targets required by the Town to help achieve long term objective of a 40% urban forest canopy cover. The 42.8% street tree canopy coverage for the study area exceeds the 20% local road target, and the proposed open space concepts (Community Park, Village Square) each meet the Town's 50% canopy target for these land uses. As noted in this report, the future condominium blocks, high density residential, mixed use blocks, Dundas Street, and Bronte Road, will be subject to future site plan applications, and the Town's canopy coverage requirements will be evaluated at that time.



421 RONCESVALLES AVE
TORONTO ON M6R 2N1
nakdesignstrategies.com

T: 416.340.8700