

Development application guidelines

2057 canopy cover plan and canopy calculation chart

What is the purpose of this?

A *canopy cover plan* illustrates what the retained existing and proposed tree canopy for a development site may provide by the year 2057. A *canopy calculation chart* itemizes and tabulates the tree canopy coverage contributions for the site.

Who should prepare this?

A *canopy cover plan* and *canopy calculation chart* should be prepared by a horticultural technician, certified arborist, landscape architect, architect, or engineer.

When is this required?

A *canopy cover plan* and *canopy calculation chart* may be required as part of an application for:

- Zoning By-law Amendment
- Plan of Subdivision
- Site Plan Control

Why do we need this?

A *canopy cover plan* and *canopy calculation chart* are required to demonstrate a proposed development's contribution to the urban forest and town-wide canopy coverage target of 40%, as outlined in the sustainability policies of the Livable Oakville Plan.

To advance the town's objective, development proposals must demonstrate compliance with the applicable implementing regulations, standards and guidelines contained in the Zoning By-laws, Urban Forest Strategic Management Plan 2020 (UFSMP 2020), Livable By Design Manual documents, and other contributing documents.

How should this be prepared?

A *canopy cover plan* should be a separate drawing from the landscape plan and be accompanied by a completed *canopy calculation chart* [refer to sample plans and chart template]

The *canopy calculation chart* must include the following information:

- the proposed canopy cover for the subject site and the required canopy cover target for the land use, as outlined in the UFSMP 2020 (refer to directions for canopy cover plan and chart)
- the existing tree canopy to be retained. The canopy cover of existing retained trees *on the subject site* is calculated at 1.5 times the existing site canopy coverage, as a credit for preserving existing trees (refer to directions for canopy cover plan and chart)
- any overlapping canopy shall not be counted twice.
- the soil volume of each landscape area where trees are proposed or existing trees are to remain (based on maximum 1000mm depth of soil)
- the number of surface parking stalls, and the number of trees in or within 5m of the vehicle use area.

A *canopy cover plan* must demonstrate the following, along with information contained in the directions outlined in the *canopy calculation chart* materials:

- depict the total proposed canopy coverage for the subject site (refer to directions for canopy cover plan and chart)
- depict the existing canopy to be retained (based on drip line).
- depict base information (similar to a standard tree inventory plan) that includes, but is not limited to the location and description of:
 - all existing natural features
 - all proposed site works
 - all existing vegetation to be retained and appropriately inventoried
 - all proposed plant material, planting beds and sodded areas

What else should we know?

Recommend reviewing the specific requirements of your application with an Urban Designer in the Planning Services Department.

What other resources are available?

Urban Forest Strategic Management Plan 2020:

<https://www.oakville.ca/getmedia/fce78d07-771f-4f6a-b65c-fb2d5e7da152/urban-forest-strategic-management-plan.pdf>

Livable by Design Manual:

<https://www.oakville.ca/business-development/planning-development/urban-design/livable-by-design-manual/>

Conservation Halton - Landscape and Tree Preservation Guidelines:

<http://www.conservationhalton.ca/policies-and-guidelines>

Town of Oakville – Application forms and guidelines:

<http://www.oakville.ca/business/application-forms-guidelines.html>

Town of Oakville – Forestry eligible species tree replacement

<https://www.oakville.ca/getmedia/b98d7ef4-84e3-4e5a-8478-86e7884f855b/forestry-eligible-species-tree-replacement.pdf>

CANOPY CALCULATION CHART TEMPLATE

Submit a separate chart for on-site condition and for streetscape (municipal right-of-way)

[#] References direction for completing canopy coverage plan and chart

FILE NUMBER _____

FILE NAME _____

CANOPY COVER TARGET [1] _____ % (based on land use)

Tree #	Species	Category S, M, L [2]	Soil Volume per Tree (m ³) [3]	Canopy Area (m ²) [4]	Canopy Area Sub-total (m ²)
Proposed Canopy On Site					
_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	
Subtotal of proposed canopy					
Existing Canopy On Site [5]					
_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	
Subtotal of existing canopy					
multiplied by bonus factor of 1.5					
Existing Canopy Overhanging Site [6]					
_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	
Subtotal of existing overhanging canopy					
		Total # of Trees			Total Canopy Area (m²)

Canopy Summary					
Total Site Area					m ²
Canopy Cover Target by Land Use [1]					%
Proposed Site Canopy Cover by 2057					%
Parking Area Summary [7]					
Total Parking Spaces Proposed					0
Total # of Trees in or within 5m of Parking Area					0

DIRECTIONS FOR 2057 CANOPY COVERAGE PLAN AND CHART:

This information is intended to provide guidance for the preparation of the 'Canopy Cover Plan' and the 'Canopy Calculation Chart'. The direction outlines the planting standards contained in Table 9 and 10 of the Urban Forest Strategic Management Plan 2020 (UFSMP 2020). The UFSMP 2020 was endorsed by Town Council and applies to all development applications within the town of Oakville, to achieve the 40% town-wide tree canopy coverage goal by 2057.

Tree Canopy Cover Targets [1]

The following are canopy coverage targets for land use categories in Zoning By-laws 2009-189 (North Oakville) and 2014-014 (South Oakville). The following list represents land use types commonly subject to development applications, refer to the Urban Forest Strategic Management Plan 2020 for full listing if necessary.

- **North of Dundas Street (private or public land)**
 - 20% for Residential use (HDR, NC, GU, S)
 - 15% for Commercial use (TUC, NUC, DUC, PUC, NC)
 - 20% for Employment / Industrial use (LE, GE, SA, AS)
 - 25% for Institutional use (I)
 - 20% for Community use
 - 35% for Storm Water Management use (SMF)
 - 34% for Arterial, Avenue, and Collector Roads and Transit Ways
- **South of Dundas Street on private land**
 - 35% for Residential use Class A (RL-1, RL-2, RL 1-0, RL 2-0)
 - 25% for Residential use Class B (RL 3 through RL11, RL-3-0 through RL-8-0, RM1 through RM4 & RH)
 - 19% for Commercial and mixed use (C1, C2, C3, C4, E4, CBD, MU1, MU2, MU3, MU4, MTC)
 - 20% for Employment use (E1, E2, E3, MTE)
 - 18% for Public (Some Institutional (I), Some Community Use (CU), Some Utility (U))
- **South of Dundas Street including public land**
 - 45% for Residential use Class A (RL-1, RL-2, RL 1-0, RL 2-0)
 - 30% for Residential use Class B (RL 3 through RL11, RL-3-0 through RL-8-0, RM1 through RM4 & RH)
 - 20% for Commercial and mixed use (C1, C2, C3, C4, E4, CBD, MU1, MU2, MU3, MU4, MTC)
 - 20% for Employment use (E1, E2, E3, MTE)
 - 20% for Public (Some Institutional (I), Some Community Use (CU), Some Utility (U))

Tree Category [2]

The link to the "List of Eligible Species for Tree Replacement" provides the stature of trees based on canopy volume at species level.

<https://www.oakville.ca/getmedia/b98d7ef4-84e3-4e5a-8478-86e7884f855b/forestry-eligible-species-tree-replacement.pdf>

Tree Soil Volume [3]

Soil volume shall be provided as follows:

Tree Stature	Minimum Soil Volume per Tree	Recommended Soil Volume per Tree	Shared Soil Volume per Tree
Small (S)	8.0m ³	15.0m ³	6.0m ³
Medium (M)	15.0m ³	30.0m ³	12.0m ³
Large (L)	24.0m ³	45.0m ³	18.0m ³

- Depth of soil volume shall be at least 750mm but not more than 1000mm.
- Trees shall not share minimum soil volume.
- If minimum soil volume cannot be accommodated within the planting bed, a minimum 3000mm long break-out zone with a depth between 300mm to 625mm must be constructed to allow root access to additional soil volume.
- Only 20% of engineered soil (the soil portion) is counted towards the target soil volume requirement.
- Soil volumes illustrated on the plan and in the chart must accurately reflect the soil volume on the site reasonably available to each tree. The limits of a 'soil volume area' is delineated by structures, edges of hard surface paving, and property lines. 'Minimum Soil Volume per Tree' shall be provided within the limits of the '2057 Canopy Diameter Shown on Plan' for that tree. (see Tree Canopy Area chart)
- 'Recommended Soil Volume per Tree' provides additional growing environment beyond 2057 and may reduce stress on trees during periods of drought.

Tree Canopy Area [4]

Illustrate the total projected 2057 canopy coverage on the Canopy Coverage Plan as follows:

Tree Stature	Tree Type	2057 Canopy Diameter Shown on Plan	Maximum Canopy Area Credit
Small (S)	Deciduous	5.0m	20.0m ² per tree
	Coniferous	4.0m	12.0m ² per tree
Medium (M)	Deciduous	7.0m	38.0m ² per tree
	Coniferous	5.0m	20.0m ² per tree
Large (L)	Deciduous	9.0m	64.0m ² per tree
	Coniferous	6.0m	28.0m ² per tree

- Canopy diameter for large stature deciduous trees is calculated using an annual 0.25m increase, for medium stature deciduous trees an annual 0.18 m. increase and for small stature deciduous trees an annual 0.11 m. increase in tree canopy width until the year 2057. Periodically, canopy diameters may need to be reduced as the growing window till 2057 diminishes. Growth projection modeling supplied by town Urban Forestry, based on the analysis of 2010 and 2022 tree inventory of more than 35,000 trees planted in parks and open space in the town of Oakville.
- Canopy Area shall be recorded for each individual tree or tree grouping. Tree groupings are considered those trees with overlapping canopy within a common planting area, not interrupted by structures, paving or property limits.
- Note, overlapping canopy area shall not be counted twice and Cedar is not eligible for canopy cover credit.

Existing Tree Canopy On Site [5]

- The existing canopy is measured at the current drip line of the existing tree(s)
- To encourage retention of existing trees, existing canopy coverage from trees located on the subject site can be credited with a bonus factor by multiplying the existing coverage over the site by 1.5.

Existing Tree Canopy Overhanging the Site [6]

- To discourage damage to existing trees, existing canopy overhanging the subject site from trees located on adjacent properties can be included as canopy coverage for the subject site. However, this overhanging canopy does not receive the bonus factor credit. (since the property owner lacks control over its long-term retention)
- To encourage retention of existing trees (particularly boundary trees), existing canopy overhanging adjacent properties from trees located on the subject site can be included as canopy coverage for the subject site. However, this overhanging canopy does not receive the bonus factor credit. (since the property owner lacks control over its long-term retention)

Parking Areas [7]

- Provide a minimum of one (1) 60mm caliper deciduous tree planting for every five (5) parking spaces
- In parking lots with 76 or more parking stalls, all required trees must be in the surface parking area(s), or within 5.0m of the surface parking area(s)
- All parking stalls must be within 30.0m of a tree
- Parking islands should contain at least two (2) medium stature trees or one (1) large stature tree

Tree Spacing

Tree spacing on private lands should reflect the genetic potential of the species selected and its growing environment. Please note that the ‘2057 Canopy Diameter Shown on Plans’ should not solely be used to determine tree spacing, since the trees canopy may continue to grow and expand beyond 2057.

Notwithstanding the preceding, provide minimum and maximum tree spacing as follows:

Tree Stature	Minimum Tree Spacing	Maximum Tree Spacing
Small (S)	4.0m	7.5m
Medium (M)	6.0m	12.0m
Large (L)	8.0m	15.0m

- Note, due to typically required pruning and analysis of town Urban Forestry street tree growth projection data, tree spacing within the public right-of-way shall be to the satisfaction of Urban Forestry and shall not exceed 8.0m.

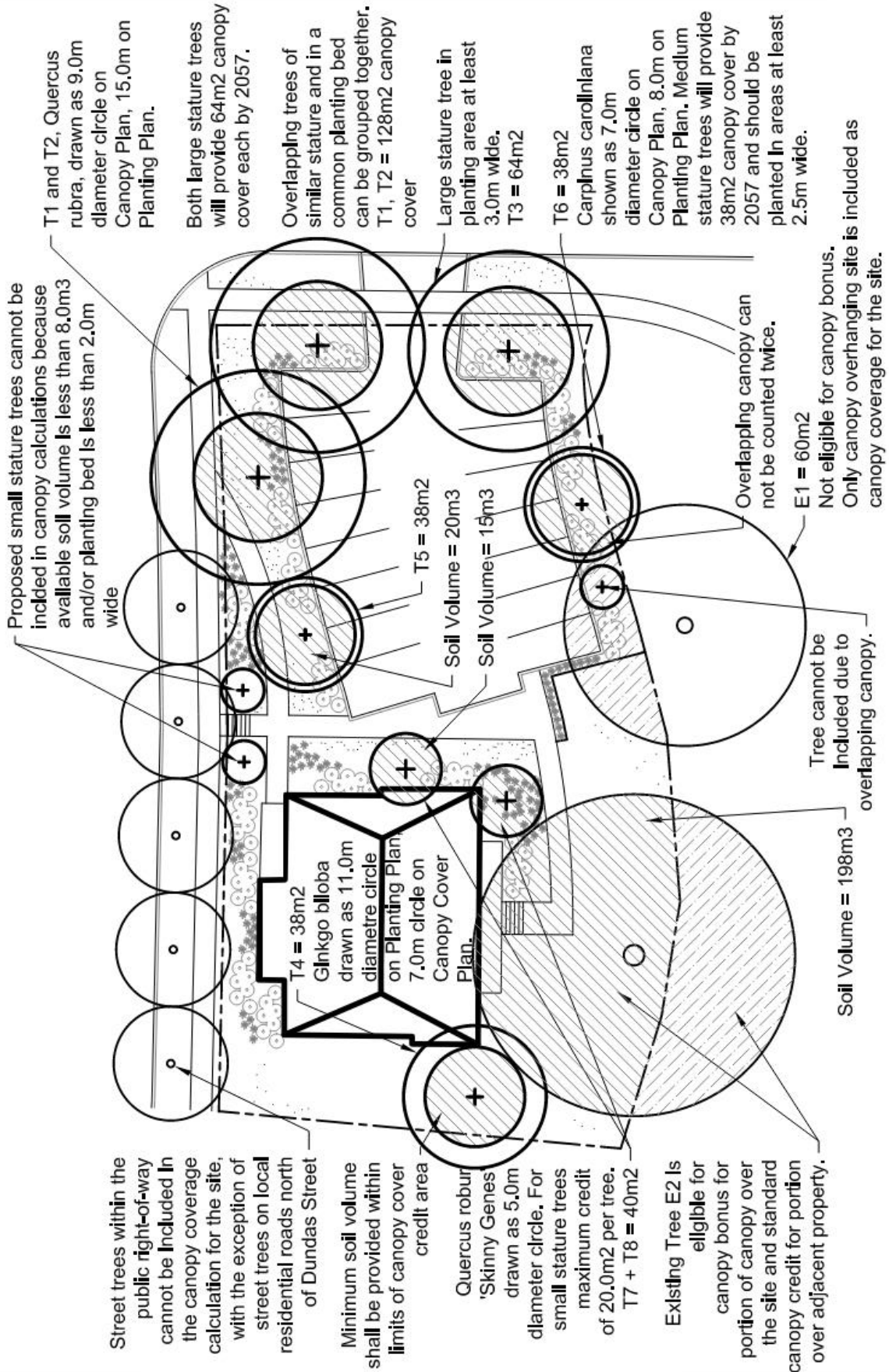
Tree Planting Area Width

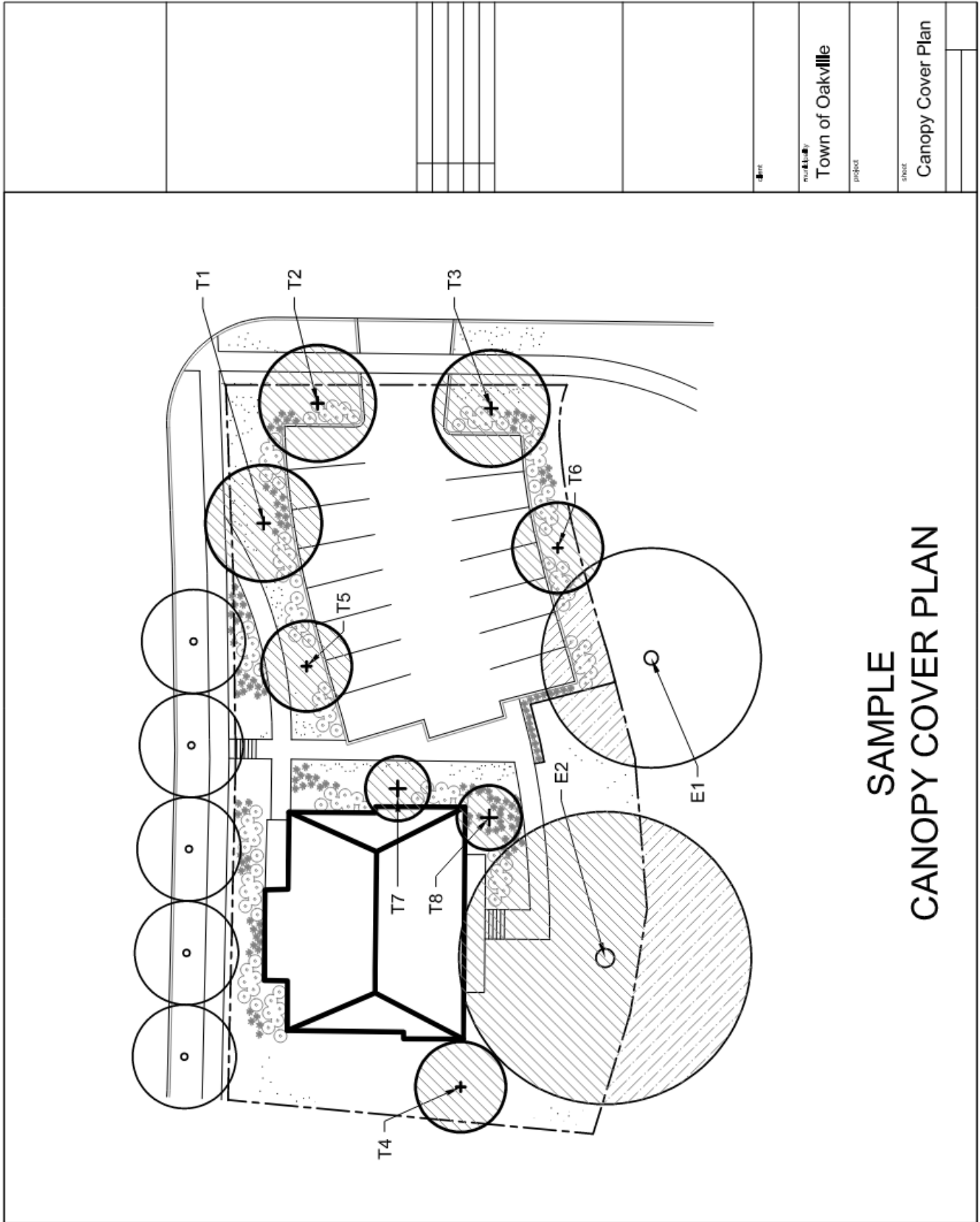
To accommodate the base of the tree in confined areas and to ensure minimum soil volume is readily accessible to the tree, provide the minimum tree planting area widths as follows:

Tree Stature	Minimum Tree Planting Area Width
Small (S)	2.0m
Medium (M)	2.5m
Large (L)	3.0m

Development application guidelines ■ 2057 canopy cover plan and canopy calculation chart

- These minimum planting area widths could be reduced by surface pavement / hardscape, provided enhanced rooting techniques, such as soil cells, are employed to achieve the minimum widths below grade, mitigating possible damage to the surrounding landscape while providing for the safe long-term development of the tree.
- Minimum planting area widths must be provided within property limits.





DATE	
PROJECT	Town of Oakville
SHEET	Canopy Cover Plan

CANOPY CALCULATION CHART TEMPLATE

Submit a separate chart for on-site condition and for streetscape (municipal right-of-way)

FILE NUMBER SP. XXXX.XXX/XX
FILE NAME Main and Front Street
CANOPY COVER TARGET 15% (based on land use)

Tree #	Species	Category S, M, L	Soil Volume per Tree (m ³)	Canopy Area (m ²)	Canopy Area Sub-total (m ²)
Proposed Canopy On Site					
T1	<i>Quercus rubra</i>	L	35	64	
T2	<i>Quercus rubra</i>	L	25	64	
T3	<i>Quercus macrocarpa</i>	L	30	64	
T4	<i>Ginkgo biloba</i>	M	35	38	
T5	<i>Carpinus caroliniana</i>	M	20	38	
T6	<i>Carpinus caroliniana</i>	M	19	36	
T7	<i>Quercus robur</i> 'Skinny Genes'	S	15	20	
T8	<i>Quercus robur</i> 'Skinny Genes'	S	18	20	
Subtotal of proposed canopy					344
Existing Canopy On Site					
E2	<i>Fagus grandifolia</i>		198	248	
Subtotal of existing canopy					248
multiplied by bonus factor of 1.5					372
Existing Canopy Overhanging Site					
E1	<i>Quercus rubra</i>			60	
E2	<i>Fagus grandifolia</i>			151	
Subtotal of existing overhanging canopy					211
Total # of Trees					927

Canopy Summary

Total Site Area	1647m ²
Canopy Cover Target by Land Use	19%
Proposed Site Canopy Cover by 2057	56%

Parking Area Summary

Total Parking Spaces Proposed	15
Total # of Trees in or within 5m of Parking Area	6