



London
CANADA

Design Specifications & Requirements Manual

12 TREE PROTECTION & TREE PLANTING

12.1.1	TREE PROTECTION	2
12.1.2	Requirement for Approved Tree Protection Plan.....	2
12.1.3	Operational Constraints	3
12.1.4	Tree Protection Zones and Barriers	3
12.1.5	Cutting and Repair	3
12.1.6	Tree Damage and Remediation	4
12.1.7	Requirements for Post Construction Measures	4
12.2.1	TREE PLANTING	4
	INTRODUCTION	4
12.2.2	POLICY	5
12.2.2.1	Security (at Development Agreement Stage)	5
12.2.2.2	Planting Plan (at time of assumption request by developer).....	5
12.2.2.3	Guidelines for Planting Plan Preparation.....	5
12.2.3	PLANTING	8
12.2.3.1	Planting (Post Assumption).....	8
12.2.3.2	Species Substitutions.....	8
12.2.3.3	Timely Planting	8
12.2.3.4	Fee	8
12.2.4	AT END OF WARRANTY	8
12.2.4.1	Fee	8
12.2.4.2	Security.....	8
12.2.4.3	Public Relations	9
12.2.4.4	Procedure Summary	9
	LIST OF APPENDICES	10
	APPENDIX 4	14
	GENERAL NOTES	14
	APPROVED STREET TREES	15
	APPENDIX 5	16

12 TREE PROTECTION & TREE PLANTING

12.1.1 TREE PROTECTION

This Section describes the requirements and measures required to ensure adequate protection for trees identified for retention under the contract. The requirements and measures include a tree protection plan, identification of Tree Protection Zones, installation of tree protection barriers, pruning of branches and roots and remediation measures to mitigate the impact of damage to retained trees.

The City will consider the protection of trees throughout the acceptance and construction processes and adopt reasonable precautions for the protection of trees.

All new subdivisions require an accepted Tree Protection Plan.

For site plans, the City will recommend at the site plan pre-consultation meeting whether a Tree Protection Plan is warranted for the specific site.

The City will assess each Capital Works project to determine whether a Tree Protection Plan is warranted.

12.1.2 Requirement for Approved Tree Protection Plan

12.1.2.1 A tree protection plan shall be completed by a certified arborist or approved professional, such as a Landscape Architect, and submitted to the Urban Forester or designate for approval prior to the start of the construction or other works.

12.1.2.2 No on-site construction or other works that may cause damage to trees is permitted without an accepted tree protection plan.

12.1.2.3 The tree protection plan shall include, but is not limited to:

- a) Identification of specific trees (species, size and health) that are to be removed for safety, tree health, operational requirements or aesthetics. A detailed description of the condition of the trees and factors on which the recommendation to remove were based must be included in the report. Pictures of the trees showing pertinent condition are recommended;
- b) Identification of specific trees (species, size and health) that will be retained and protected during the operations as future forest cover. Pictures of the trees showing pertinent conditions are recommended;
- c) Identification of specific trees that will be dug up and relocated prior to the start of the operations and the locations where they will be replanted;
- d) Foreseeable remedial actions to ensure the health of the remaining trees such as but not limited to branch pruning, deep root fertilization, tree watering, soil replacement or amelioration, planting;
- e) Specification of good arboriculture practices for root and branch pruning;

- f) A map showing:
 - i) the location of all existing trees and the extent of their crowns;
 - ii) the location of all trees to be retained, removed, replaced or relocated;
 - iii) highlighted and labeled Tree Protection Zones and tree protection barriers.

12.1.3 Operational Constraints

Operational constraints as per Ontario Provincial Standards Specification (OPSS) 565.07.01 apply accept during emergency situations.

12.1.4 Tree Protection Zones and Barriers

12.1.4.1 Tree Protection Zones (TPZ) shall be established surrounding all trees to be retained. The outside boundary of the TPZ shall be delineated by a tree protection barrier.

12.1.4.2 Barriers for Tree Protection Zones as per OPSS 565.07.02 apply accept where;

- a) The tree is flanked by curb/sidewalk and/or an asphalt road the TPZ and barrier can be limited to furthest extent of the boulevard area; and
- b) A TPZ is not required or not feasible to establish beyond the main stem of the retained trees, banding boards shall be installed around the stems of the retained trees. The boards shall be installed in a vertical direction and remain in place for the duration of the project. Banding boards must not be nailed, or screwed onto the tree stem. Bark must not be broken or torn during the establishment of the banding boards. The banding boards must extend from ground level to a minimum height not of 1.2 metres.

12.1.5 Cutting and Repair

12.1.5.1 The Ontario Standard Specification (OPSS) 565.07.03 for tree cutting and repair applies except as amended as follows:

The term "Specimen "Trees" is deleted and replaced by the term "Trees to be retained"

12.1.5.2 All trees identified in the approved tree protection plan for pruning must be pruned before commencement of any on-site operations by a certified arborist.

12.1.5.3 It is recommended that when lateral services require replacement that the use of 'no dig' technology be used. Feasibility will be determined by the City's Project Manager.

12.1.5.4 Roots that are exposed should be covered with wet burlap or soil as soon as possible and watered regularly to prevent them from drying out. Watering is required until such time as the topsoil and sod has been replaced satisfactorily or as otherwise directed by the City's Project Manager.

All trees identified in the tree protection plan for relocation or removal must be relocated or cut and removed prior to the commencement of the on-site operations.

12.1.6 Tree Damage and Remediation

12.1.6.1 "Damage" means to carry out any activity that may injure or kill any tree and including but not limited to:

- a) the topping or removal of branches from a tree other than in accordance with accepted arboricultural practices;
- b) the cutting or shattering of the roots of a tree within the drip line other than in accordance with accepted arboricultural practice;
- c) the scraping, gouging or denting of a tree's drip line
- d) the compaction of the soil within the Tree Protection Zone by the placement of soil, fill, heavy equipment, vehicles, building or other materials thereon or by the movement of vehicles or equipment thereover;
- e) depositing within the tree's drip line any toxic or harmful substance;
- f) the removal of soil from within a tree's drip line.

12.1.6.2 No objects except approved tree protection barriers are permitted to be attached to trees protected by City by-laws.

12.1.6.3 Costs associated with any remediation actions required as a result of damage to retained trees, as ordered by the City, shall be borne solely by the contractor.

12.1.7 Requirements for Post Construction Measures

12.1.7.1 A certified arborist, or other tree professional, approved by the Urban Forester or designate, shall inspect all retained trees and their rooting area to assess if any additional remediation work is required to ensure their future health and survival.

12.1.7.2 If the inspection specified in Section 6.6.1 indicates damage to retained trees, the certified arborist or approved professional shall prepare a post construction remediation plan for approval to the City Urban Forester. The remediation plan may include but is not limited to: pruning; deep root fertilization; irrigation; aeration; tree planting either as a single activity or in combination.

12.1.7.3 A certified arborist, or other tree professional, approved by the Urban Forester or designate shall inspect the project site and certify that any and all measures specified in the tree protection plan or post construction remediation plan have been completed as per the plan. This certification is required before final acceptance and approval of the work by the City

12.2.1 **TREE PLANTING**

INTRODUCTION

Tree planting on the public right-of-way is a long term initiative. What is done today can have a serious impact on street tree maintenance activities for years to come. It is therefore imperative that tree planting be done with care and planning. Planning is critical to ensure that the final product is sustainable and aesthetically pleasing. Trees of similar shape but different species, if carefully selected, will provide the desired effect of tree arch over the

street. The mix of species is essential to reduce the chances of insect epidemics, to guard against the spread of disease as trees are trimmed in efficient block treatments, to prevent widespread neighbourhood complaints and to eliminate extensive tree removal programs when single species plantings die (eg. Dutch Elm Disease on American Elm, Verticillium wilt on Norway Maples).

Designs should reflect patterns which show a use of random plantings of diversified species. Consideration should be given to adjacent lands where existing street trees may exist to ensure that continuous plantings are not created, in particular infill projects of limited frontage.

The City of London recognizes the difficulties in coordinating tree planting within the development process for new subdivisions. Trees are a living entity and, as such, cannot always be planted or inspected at convenient times. As well, difficulties with tree species availability, the seasonal nature of planting operations and administration make it more difficult to coordinate tree planting operations within the framework in place for assumption and end of warranty processes currently in place for new developments. The City of London, therefore, has instituted a 'cash-in-lieu' system whereby the developer will participate in providing a planting plan at the time of assumption and the City will implement the tree planting.

12.2.2 POLICY

12.2.2.1 Security (at Development Agreement Stage)

Security is required to ensure that funds are available in the event of default by the developer. Currently, this is a standard subdivision development requirement and will continue to be required in the amount of \$25.00 per linear metre of street frontage (both sides) within the plan of subdivision.

12.2.2.2 Planting Plan (at time of assumption request by developer)

The developer will submit a planting plan showing actual planting locations (with all site amenities known and shown on the plan) and proposed species of trees (common and Latin names shown). **The services of an Ontario Registered Professional Forester or a member of the Ontario Association of Landscape Architects in good standing must be retained.** This will ensure that an appropriate planting plan is in place which considers species diversity, tree form location and design. The planting plan must be stamped by the R.P.F. or L.A. and be shown on the standard plan of subdivision drawing or grading plan which shows lot dimensions (particularly frontages) as prepared by the consulting engineer. The plan will be reviewed and approved by City staff. The plan is to be submitted to the Coordinator, Forestry Programs, Planning Division, City Hall for review.

12.2.2.3 Guidelines for Planting Plan Preparation

Trees should be shown approximately every 8m. – 15 m.o.c. where practical and where growing space is available. Since large trees contribute more to the environment than small ones, the largest tree that fits the location is to be planted, considering eventual size at maturity. All trees are to be planted on City property.

The following guidelines will assist:

i) Lot Width Considerations (see Figure 1)

Consider the following in combination with figure 1.

- ◆ Plant one tree per lot, centered approximately in the green space between the side yard property boundaries
- ◆ Where lot width is less than or equal to 9M (30ft), plant one tree per lot selecting an ornamental or medium shade, depending on spatial constraints, from the Approved Street Trees list (Appendix A).
- ◆ Where lot width is 15M (50ft) or larger, plant one tree per lot selecting a large shade tree from the Approved Street Trees list (Appendix A).

Figure 1. Tree size in combination with lot width, boulevard width and other factors

		LOT WIDTH		
		< 9.0m (30 ft)	9.0 – 15.0m (30-50 ft)	> 15.0m (50 ft)
Blvd Width	>2.0m (6 ft)	Ornamental or Medium Shade	Medium or Large Shade	Large Shade
	1.5 – 2.0m (4-6 ft)	Ornamental or Medium Shade	Medium Shade	Medium Shade
	1.5 (<4 ft)	NO TREE	NO TREE	NO TREE
No Sidewalk		Ornamental or Medium Shade	Medium Shade	Large Shade
Overhead Hydro Present		Ornamental	Ornamental	Ornamental

ii) **Curb to Property Line Considerations**

- ◆ Where no sidewalks exist or where sidewalk construction is not planned, trees are to be shown one meter outside the private property boundary on city property.
- ◆ Where a boulevard between curb and sidewalk exists that is greater than 2.0 m. (6 ft), trees are to be shown in the centre of the boulevard, assuming no overhead utility.
- ◆ Where a boulevard between curb and sidewalk exists that is 1.5 m. (4 ft) to 2.0 m. (6 ft) ornamental or medium shade trees are to be shown in the centre of the boulevard.
- ◆ Trees are not to be planted on boulevards which are less than 1.5m (4ft) wide.

iii) **Site Considerations**

- ◆ Plant only ornamental tree varieties under high voltage overhead utility wires. Large and medium shade trees are permitted near single phase, street light cable and homeowner service cables. The leader of the tree should not be directly under such wires.
- ◆ No tree is to be shown closer than 2.0m (6.7 ft) to a driveway, lead sidewalk going into a property or underground hydro vault (transformer).

- ◆ No tree is to be shown closer than 15.0m (50 ft) to a stop sign or traffic signal light.
- ◆ No tree is to be shown closer than 6.0m (20 ft) to a street light pole or fire hydrant.
- ◆ Trees only are required for cul-de-sac island or roundabout areas and will be shown on the planting plan. The cost for any shrub or perennial plantings will be at the expense of the developer and will be shown on the planting plan for review and approval in accordance with city guidelines and specifications. Planting of shrubs and/or perennials should coincide with City guidelines and specifications. Should this be required in advance of scheduled planting operations by City staff (ie: for model homes, etc), the developer should discuss the scheduling of this planting with City Staff prior to work being carried out.

iv Design Considerations

Uniform, mature street trees are the most visible and desirable component of our streetscapes. However, to increase resistance to insect and disease problems, tree species must be mixed in order to avoid a continuous mono-culture situation. Where several phases make up the M-Plan, the plan should reflect the character of planting in adjacent phases.

- ◆ No more than five of any one species or variety is to be shown on one side of the street in a row. Trees should be matched one side of the street to the other (maximum of 10 matched trees) to provide a 'closed canopy' effect at maturity.
- ◆ At intersections, a maximum of 24 trees only may be shown in a 'block' (ie: 3 trees on each side of each corner).
- ◆ Where several phases make up the M-Plan, the plan should reflect the character of plantings in adjacent phases.
- ◆ In order to integrate species diversity into each plan, the species mix should endeavour to provide no more than 15% of any one species (percentage of the entire number of trees within the plan). Individual phases may diverge from this percentage if deemed reasonable (ie: cul-de-sac of 12 lots) so long as the overall object of 15% species mix is maintained within the plan of subdivision.
- ◆ Trees with similar shape (ie: vase, oval, upright) are to be selected to provide a closed canopy effect.
- ◆ No species other than those listed in Appendix B are to be shown on the planting plan without prior consultation with City of London staff. Other species may be considered within the context of the location chosen to place these trees. Take care to recognize all characteristics of the mature tree in making species selections.
- ◆ Trees with large or messy fruit may be planted only in limited situations; trees with large thorns are not permitted and species such as poplar and willow are banned by by-law for street tree planting. Coniferous needle-bearing trees or other species will not be planted on the right of way where they will cause sight line obstructions but may be considered if the location supports placement of this type of tree.
- ◆ Ash species shall make up not more than 5% of the species mix per plan – no exceptions.

12.2.3 PLANTING

12.2.3.1 Planting (Post Assumption)

Once the planting plan is approved at the time of assumption, the City of London will implement street tree planting before end of warranty of the subdivision through City of London tender processes and administration.

12.2.3.2 Species Substitutions

The City will implement the tree planting plan, as accurately as possible, with the tree species specified. Once the planting plan is prepared, substitutions will be done only as necessary and should not be a common occurrence, with pre-planting. Should species require substitution due to unforeseen circumstances, the City reserves the right to substitute with a suitable species without further consultation or approvals through the developer.

12.2.3.3 Timely Planting

The City of London will commit to planting trees within one year of assumption. Any subdivisions assumed prior to October 1 of the current year would be incorporated into the Tender process for planting the following year. If assumptions are processed after that date, they could possibly be planted the following year, depending upon availability of plant material specific to the planting plan, but could not be guaranteed, depending upon when the Tender documents are distributed.

12.2.3.4 Fee

There are several components which comprise the cash-in-lieu amount charged for street tree planting. The fee must cover all costs associated with implementing the program, including the cost to supply and install the tree, a two year replacement warranty policy and associated administration costs (planning, organizing and implementing of tree planting as well as surveying and compliance checks).

Once the trees are planted, the City will forward an invoice to the developer reflecting the actual cost of planting trees in that subdivision with an additional 10% administration fee (plus all applicable taxes).

12.2.4 AT END OF WARRANTY

12.2.4.1 Fee

Payment for tree planting as invoiced by the City of London is a requirement at the time of end of warranty of the subdivision. If payment is not received, end of warranty will not be granted.

12.2.4.2 Security

Once payment for street tree planting has been received (as invoiced), the developer will be released from all obligations in this regard and the City's Engineering Review Department will be authorized to release all securities held for such.

12.2.4.3 Public Relations

Should homeowners inquired about tree planting operations, the developer will explain that trees will be planted post-assumption. Further inquiries may be directed to the City of London.

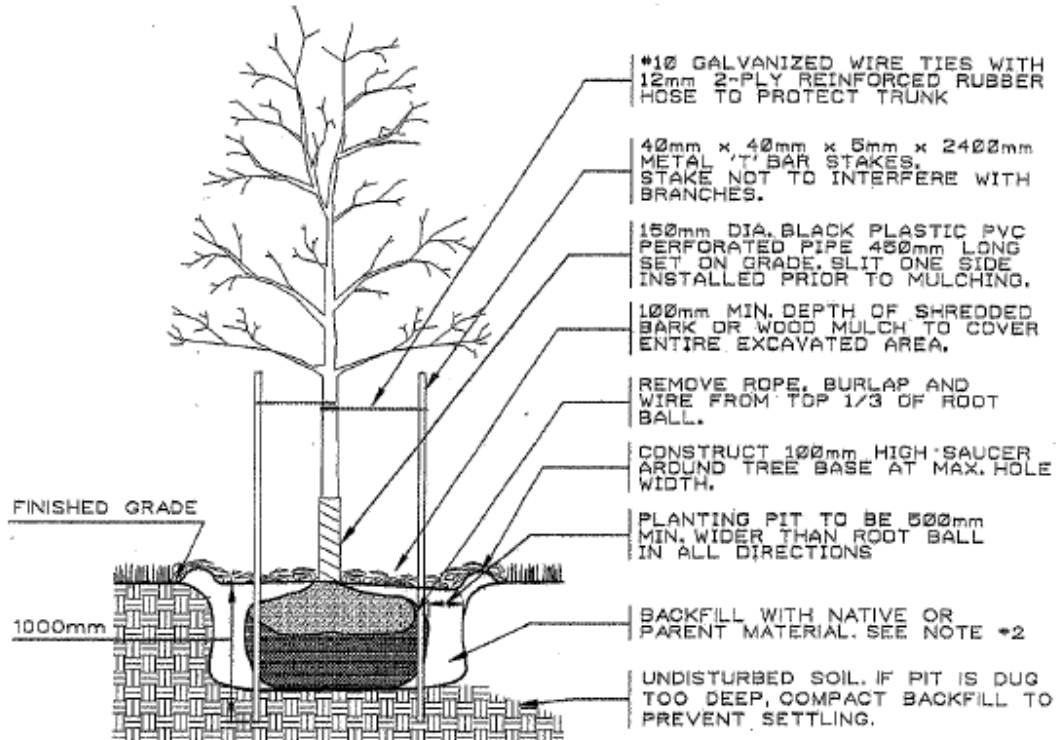
12.2.4.4 Procedure Summary

- ◆ The developer will submit security amount at time of development agreement;
- ◆ The developer will provide a planting plan for review and approval at time of assumption;
- ◆ City Staff will plant trees between assumption and end of warranty of the subdivision;
- ◆ The City will invoice the developer for tree planting operations;
- ◆ The developer will forward payment as invoiced to the Finance Division, City Hall, Room 406;
- ◆ City staff will acknowledge receipt of payment and communicate to the Engineering Review Department that all requirements with regards to tree planting have been met for the area being assumed;
- ◆ City staff will authorize release of securities held;
- ◆ Payment for street tree planting is a requirement at end of warranty. If payment has not been received, end of warranty will not be awarded and securities will continue to be held until such time as payment is received by the consulting engineer. The plan will be reviewed and approved by City staff. The plan is to be submitted to the Coordinator, Forestry Programs, Planning Division, City Hall for review.

LIST OF APPENDICES

- APPENDIX 1 TREE CONCEPT PLAN
- APPENDIX 2 TREE PLANTING DETAIL
- APPENDIX 3 BOULEVARD TREE PLANTING DETAIL
- APPENDIX 4 GENERAL NOTES
- APPENDIX 5 APPROVED STREET TREES
- APPENDIX 6 TREE PLANTING LISTING FOR PROVINCIAL ACCEPTANCE
- APPENDIX 7 TREE PLANTING PROCESS
- APPENDIX 8 TREE ASSESSMENT CRITERIA

REMOVE RUBBING AND/OR BROKEN BRANCHES ONLY- DO NOT TOP PRUNE AND DO NOT PRUNE THE LEADER. REMOVE ALL NURSERY TAGS, PLASTIC OR METAL LABELS, STRING, TRUNK WRAPPING AND OTHER FOREIGN MATERIAL.

**NOTE:**

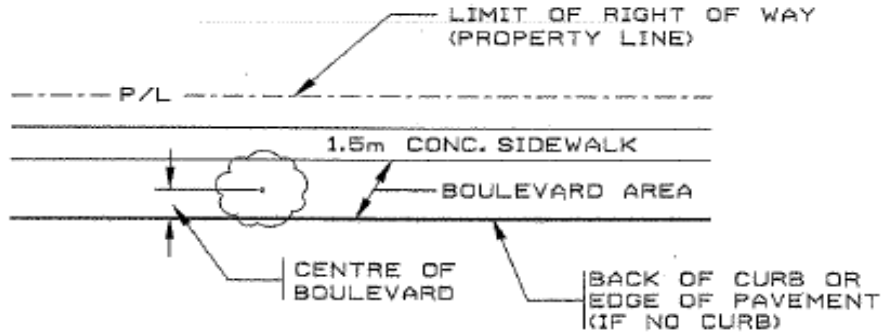
1. TRUNK TO HAVE SAME ELEVATION RELATIVE TO FINISHED GRADE AS PREVIOUSLY OCCUPIED PRIOR TO TRANSPLANTING.
2. BACKFILL TREE-PIT WITH NATIVE SOIL AND/OR A COMBINATION OF NATIVE SOIL AND APPROVED IMPORTED TOPSOIL. REMOVE FOREIGN DEBRIS AND STONES.
3. SAUCER TO BE SOAKED WITH WATER AND COMPLETELY MULCHED IMMEDIATELY FOLLOWING PLANTING.
4. ON STRING BALLS, ONLY BIODEGRADABLE ROPE IS ACCEPTABLE.
5. ALL DIMENSIONS ARE IN MILLIMETERS.

BALLED AND BURLAPPED DECIDUOUS TREES

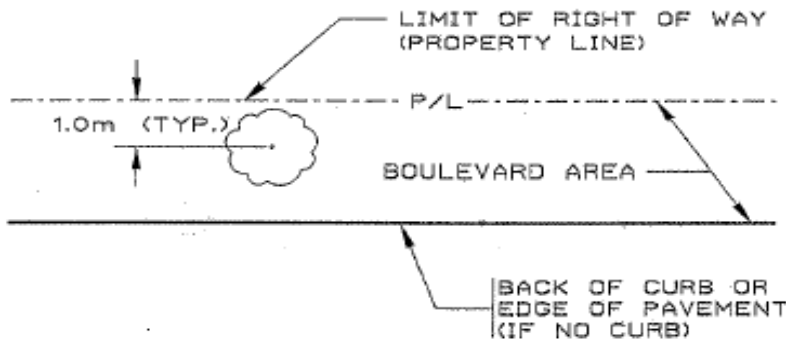
CITY OF LONDON STANDARD DRAWING

TREE PLANTING DETAIL

DWG	D-31A	DATE	2002 11 14	APPROVED BY	CITY ENGINEER	Pg. 12-11
-----	-------	------	------------	-------------	---------------	-----------



**TYPICAL TREE LOCATION DETAIL
ON BOULEVARD WITH SIDEWALK**



**TYPICAL TREE LOCATION DETAIL
WITHOUT BOULEVARD SIDEWALK**

CITY OF LONDON STANDARD DRAWING

BOULEVARD TREE PLANTING DETAIL

DWG D-36	DATE 2002 11 14	APPROVED BY CITY ENGINEER
-------------	--------------------	------------------------------

GENERAL NOTES

1. All plant materials shall be #1 nursery stock meeting Canadian standards.
2. Stake all deciduous trees.
3. Dig all tree pits 500.0 mm larger all around than the root ball and place tree centred in pit on undisturbed soil. Backfill with parent material and replace debris (eg. Brick, dry wall, etc) with screened topsoil.
- 4.
5. For grading and drainage, see engineering plans.
6. Specific tree locations for each lot are to be determined by Tree Planting Guidelines set by the City of London Environmental Services Department and as shown on Lot Grading Certification Plans.
7. All dimensions are in millimetres unless otherwise noted.
8. All plant materials to be guaranteed for two growing seasons from the date of provisional acceptance.
9. Prior to the commencement of construction, all existing underground utilities within the limits of the construction site shall be located and marked. Any utilities damages or disturbed during construction shall be repaired or replaced to the satisfaction of the City of London at the Contractor's expense.
10. Plant materials to be installed as shown; substitutions allowed only after consultation with the Landscape Consultant and the City of London.
11. Predominant soil type in the area.

The selection of trees for individual locations is a difficult process. It must give careful consideration to the neighbourhood and the existing conditions including soil type, moisture, available growing space above ground, proximity to hard physical plant (hydro wires, gas, lighting, hydrants, vaults, sidewalks) and future rooting and growing space demands.

In recommending the species in the table we recognize that they are not all suitable for all locations. Carefully select the species which possess the characteristics that most closely meet the environmental conditions of each site. As well, not all cultivars of each species are listed. The design professional may suggest species not listed and they will be reviewed by City staff through the approval process.

Other concerns include:

- ◆ **STRESS** considers the tolerance to conditions such as compacted soil, diseases, drought, insects, road salt spray
- ◆ **TIME** considers which species can be transplanted/moved at specific times in the year eg. spring only
- ◆ **NATIVE** considers the suitability of trees indigenous to this region for use in highly disturbed soils, traditionally found in streetscapes and new subdivisions
- ◆ **FRUIT** consider the size and season and abundance of fruit produced by some species making them less desirable in specific locations
- ◆ **DISEASE** consider the potential for widespread mortality and costly removal and replacement programs generating public and political complaints with trees such as Norway maple (Verticillium wilt) American Elm (Dutch Elm Disease) Austrian Pine (Diplodic Tip Blight). Avoid mass planting of single species.

Variety

In an effort to promote long term sustainability, cost effective block trimming operations and increase ability to manage street tree risk management, we encourage a variety of tree species on each and every street. We also support aesthetically pleasing street tree designs and therefore encourage the planting of tree species mixtures which have similar form.

Commonly the landscape architect or registered professional forester is responsible for proper design and species selection taking the above points into consideration.

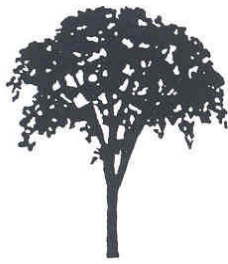
In an attempt to assist the design and species selection process, a list of recommended street trees is included. The list has been prepared using a number of references and you are encouraged to search these out and provide input with respect to other species for consideration.

APPENDIX 5

References include:

- Dirr, M.A. 1990 Manual of Woody Landscape Plants
Farrar, J.L. 1995 Trees in Canada
Gerhold, H.D. et.al., 1989 Street Tree Factsheets
Himelick, E.B., 1981 Tree & Shrub Transplanting Manual
Poor, J.M. (Editor) 1984 Plants That Merit Attention Vol. 1
Rehder, A. 1940 Manual of Cultivated Trees & Shrubs
Sternberg, G, & J. Wilson 1995 Landscaping with Native Trees
Watson, G.W. 1992 Selecting and Planting Trees

TREE FORMS:



VASE



PYRAMIDAL



OVAL



COLUMNAR



ROUNDED



SPREADING

APPROVED STREET TREES

APPENDIX 5

TREE NAME	NATIVE	GENERAL COMMENTS	FORM	SIZE
<i>Acer campestre</i> Hedge Maple	Non-native	compact form/trunk suckers require extra maintenance/best on dry alkaline soil /yellow fall colour	Rounded	Medium
<i>Acer ginnala</i> Amur Maple (single stem only)	Non-native	compact form/red & yellow face colour/lots of seeds/tends to sucker/specify single stem form	Rounded	Ornamental
<i>Acer nigrum</i> Black Maple	Native to Canada	lots of seed for winter interest rare/needs moist soil	Oval	Large
<i>Acer platanoides</i> Norway Maple	Non-native	surface roots conflict with and turf/girdling roots/aphid and wilt problems. Not to be used near river corridors as seeding is heavy. *Do not use near natural areas or Thames River and associated tributaries.	Rounded	Medium
* 'Columnar'	Non-native	narrow form, 60' potential. For use where crown growing space is restricted	Columnar	Medium
* 'Crimson King'	Non-native	dark maroon foliage all season	Rounded	Medium
* 'Deborah'	Non-native	red foliage in spring and fades to dark green by late summer/girdling roots	Rounded	Medium
* 'Emerald Queen'	Non-native	excellent upright form	Rounded	Medium
* 'Olmsted'	Non-native	good narrow form	Columnar	Medium
* 'Schwedler'	Non-native	red foliage in spring & fades to dark green by late summer	Rounded	Medium
* 'Erectum'	Non-native	short lateral branches, very narrow form	Columnar	Medium
* 'Superform'	Non-native	excellent upright & tight form	Oval	Medium
<i>Acer pseudoplatanus</i> Sycamore Maple	Non-native	very pollution and salt tolerant/cankers cause high maintenance	Oval/ Rounded	Large
<i>Acer rubrum</i> Red Maple - 'October Glory' - 'Red Sunset'	Native to Canada	green summer foliage & yellow to red fall colour/tolerates wet soil	Oval/ Rounded	Medium
<i>Acer saccharinum</i> Silver Maple	Native to Canada	fast growing softwood maple; maintenance issues as tree nears maturity due to weak wood. *For use in limited circumstances.	Oval/ Rounded	Large
<i>Acer saccharum</i> Sugar Maple	Native to Canada	upright form/fall colour varies/prefers good drainage/shallow roots/salt sensitive	Oval/ Rounded	Large

APPROVED STREET TREES

APPENDIX 5

TREE NAME	NATIVE	GENERAL COMMENTS	FORM	SIZE
<i>Acer tataricum</i> Tatarian Maple (single stem only)	Non-native	good red & yellow fall colour/tends to sucker/lots of seeds	Rounded	Medium
<i>Aesculus glabra</i> Ohio Buckeye	Non-native	untested in London area and may suffer winter problems/likes moist soil. *For use in limited circumstances.	Oval	Medium
<i>Aesculus hippocastanum</i> Horsechestnut * 'Baumannii'	Non-native	good spring flower with no seeds/rare/disease susceptible	Rounded	Large
<i>Alnus glutinosa</i> European Alder (single stem only)	Non-native	showy flower & fruit/tolerant of wet & dry soil	Pyramidal	Medium
<i>Amelanchier canadensis</i> Shadblow Serviceberry (single stem only)	Native to Canada	difficult to maintain single stem/4 season interest/tolerates moist soil	Rounded	Ornamental
<i>Aralia spinosa</i> Devil's Walking stick	Non-native	thrives with neglect/suckers can be problem *for use in limited circumstances	Oval	Ornamental
<i>Carpinus betulus</i> * Fastigiata Fastigate European Hornbeam	Non-native	Oval/vase shaped tree/difficult to transplant keep away from road salt & spray	Pyramida -Oval	Medium
<i>Carpinus caroliniana</i> Blue beech or Musclewood	Native to Canada	difficult to transplant/keep away from road salt & spray/likes wet soil/thin bark and sculptured trunk	Rounded	Medium
<i>Celtis levigata</i> Sugar Hackberry	Native to Canada	compact form/good in moist soils	Vase	Large
<i>Celtis occidentalis</i> Common Hackberry	Native to Canada	requires pruning for witches broom and general form/good substitute for elms	Vase	Large
<i>Cercidiphyllum japonicum</i> Katsura Tree (single stem only)	Non-native	difficult to transplant/orange fall colour/thin bark/needs supplemental water *For use in limited circumstances	Rounded	Large
<i>Cladrastis kentukea</i> (lutea) Yellowwood (single stem only)	Non-native	few problems/use local seed sources or stock only/prune early	Rounded	Medium
<i>Cornus florida</i> Flowering dogwood (single stem only)	Native to Canada	use local winter hardy material only/good flower/specify single stem	Rounded	Ornamental

APPROVED STREET TREES

APPENDIX 5

TREE NAME	NATIVE	GENERAL COMMENTS	FORM	SIZE
<i>Corylus colurna</i> Turkish Hazel	Non-native	good form/difficult to transplant/winter interest/needs supplemental water	Pyramidal	Large
<i>Crataegus (varieties)</i> Hawthorns	Non-native	<u>thornless & disease resistant</u> varieties only *For use in limited circumstances	Rounded	Ornamental
<i>Fagus sylvatica</i> European Beech	Non-native	needs moist soil/different leaf colours with varieties/sensitive to activity within root zone/leaves persist through winter/thin bark	Oval- Rounded	Large
<i>Ginkgo biloba</i> Maidenhair tree (Male varieties only)	Non-native	good yellow fall colour/thin bark/tolerant of City conditions & pollution/slow growing but very large at maturity/virtually pest and disease free	Pyramida Spreading	Large
<i>Gleditsia triacanthos</i> <i>Varieties inermis</i> Thornless Honeylocust * 'Shademaster ' * 'Skyline'	Non-native	provides a filtered shade/susceptible to defoliation by leafhoppers/susceptible to canker and other pests and diseases	Spreading	Medium
<i>Gymnocladus dioicus</i> Kentucky coffeetree	Native to Canada	interesting winter texture/open lawn setting/large leaves/male variety only *For use in limited circumstances.	Oval	Large
<i>Halesia tetraptera</i> Carolina Silverbell	Native to Canada	low branched tree with narrow head/broad, rounded crown/reserve for lawn areas	Rounded	Medium
<i>Juglans nigra</i> Black Walnut	Native to Canada	messy fruit/needs large area *For use in limited circumstances.	Oval	Large
<i>Koelreuteria panicutata</i> Goldenrain tree	Non-native	good yellow flower & fruit/susceptible to winter damage/weak/reserve for lawn areas/borderline hardiness	Rounded	Medium
<i>Labrunum (varieties)</i> Goldenchain tree	Non-native	yellow chain like flower/winter hardy/local varieties only/borderline hardiness *For use in limited circumstances.	Rounded	Ornamental
<i>Liriodendron tulipifera</i> Tuliptree	Native to Canada	good flowers and yellow fall colour/local sources/moist, well drained soil/very large tree/most appropriate for lawn areas	Rounded	Large
<i>Maackia amurensis</i> Amur Maackia	Non-native	Small, round headed tree/slow growing/summer flowering/bronze coloured bark	Rounded	Ornamental
<i>Malus</i> (most) Flowering & Domestic Crab Apple	Non-native	good flowers/fruit usually maintenance problems/disease & insect problems/tolerates most soils, select fruitless or persistent fruit varieties Spring Snow, Sugar Tyme, Snowdrift, Red Jewel, Harvest Gold, Centurion, Radiant, Brandywine, Prince Georges, Profusion, Red Snow, White Candle *For use in limited circumstances.	Rounded- Spreading	Ornamental

APPROVED STREET TREES

APPENDIX 5

TREE NAME	NATIVE	GENERAL COMMENTS	FORM	SIZE
<i>Phellodendron amurense</i> Amur corktree	Non-native	good winter texture in bark/lots of black berries/use in protected areas	Spreading	Medium
<i>Platanus x acerifolia</i> London Planetree	Non-native	frost cracks on trunk/attractive peeling bark/fruit can cause problems/very large at maturity – reserve for large lots and lawn areas	Spreading	Large
<i>Prunus (varieties)</i> Cherry/Columnar/ Sargent/Kkwanzan	Non-native	excellent flowers with no fruit/single stem to be specified/weeping cankers *For use in limited circumstances.	Vase	Ornamental
<i>Prunus virginiana</i> Shubert cherry	Non-native	green spring foliage & red in summer/bark tends to split *For use in limited circumstances.	Rounded	Ornamental
<i>Pyrus calleryana</i> Callery Pear * 'Chanticleer'	Non-native	good flowers/may have good fall colour/lush shiny leaves/fireblight problems	Pyramidal	Ornamental
<i>Quercus macrocarpa</i> Bur Oak	Native to Canada	Large size at maturity - reserve for large lots and lawn areas/fruit drop/difficult to transplant/ requires good soils	Rounded	Large
<i>Quercus alba</i> White Oak	Native to Canada	Needs moist soil/fruit maintenance/needs large space at maturity	Rounded	Large
<i>Quercus robur 'Fastigata'</i> Fastigate English Oak	Non-native	Needs well drained soil/holds leaves through the winter/difficult to transplant/very upright in form – reserve for sites with specific need for this form	Columnar	Large
<i>Quercus robur</i> English Oak	Non-native	Needs well drained soil/difficult to transplant/large size at maturity	Rounded	Large
<i>Quercus rubra</i> Red Oak	Native to Canada	Needs sandy loam soil/difficult to transplant/more salt tolerant and faster growing than other Oaks	Rounded	Large
<i>Sophora japonica</i> Japanese Pagoda Tree	Non-native	excellent white flower/green stem when young/limit use due to messy characteristics	Spreading	Large
<i>Sorbus aria</i> Whitebeam Mountain Ash	Non-native	Leathery grey green leaves/white flowers in May/fall colours varies from pale green to golden brown to reddish	Pyramidal Oval	Medium
<i>Sorbus aucuparin</i> European Mountain Ash	Non-native	small flower & orange fruit/disease & insect problems/limited use due to other problems	Oval	Medium
<i>Sorbus x thuringiaca</i> Oakleaf Mountain Ash	Non-native	Forms a tight, rounded crown/white flowers/red fruit/leathery dark leaves	Rounded	Ornamental
<i>Syringa reticulata</i> Japanese Lilac Tree * 'Ivory Silk'	Non-native	good white summer flower/excellent small specimen	Rounded	Ornamental

APPROVED STREET TREES

APPENDIX 5

TREE NAME	NATIVE	GENERAL COMMENTS	FORM	SIZE
<i>Tilia americana</i> Basswood	Native to Canada	prefers deep moist fertile soil/will grow on drier heavier soil/needs large space	Oval	Large
<i>Tilia cordata</i> Littleleaf Linden * 'Glenleven' * 'Greenspire'	Non-native	showy & fragrant flowers/ greenglobe maybe used under hydro lines/aphid & borer problems/suckers from base/messy species/limit use	Pyramidal	Medium
<i>Tilia x euchlora</i> Crimean Linden	Non-native	showy & fragrant flowers/fruit messy/suckers from base/limit use * For use in limited circumstances	Rounded	Medium
<i>Tilia tomentosa</i> Silver Linden	Non-native	larger leaves than <i>Tilia cordata</i> – dark green above, silvery beneath/heat and drought tolerant	Pyramidal Oval	Medium
<i>Ulmus carpinifolia</i> Smoothleaf Elm * 'Homestead' * 'Pioneer' * 'Sapporo Autumn Gold'	Non-native	Aggressive species/arching form/elm leaf beetle susceptible/limit use due to dutch elm disease	Vase	Large
<i>Zelkova serrata</i> Japanese Zelkova * 'Green Vase' * 'Village Green'	Non-native	rapid growth/narrow branch angles promote fork split/frost susceptibility when young	Vase	Large

TREE PLANTING PROCESS

ITEM		RESPONSIBILITY
1.	Select landscape architect/consulting forestry firm	Developer
2.	Using plan of subdivision drawing and the list of trees in the guidelines for tree planting , select the most appropriate tree species for the lot size, conditions and soil types, and plot on the plan	Consultant
3.	Submit the tree planting concept plan to the Forestry Division, Environmental Services Department for review and approval.	Consultant
4.	Once plan receives final approval stamp and is signed and dated, the plan is submitted to Engineering Review for inclusion in their files.	Consultant
5.	When subdivision final grades are established and sodding is complete, select landscape firm to plant trees according to planting plan and guidelines.	Developer
6.	Plant Trees	Landscaper
7.	Inspect trees for compliance with plan and guidelines (location, species, etc.) and prepare listing of trees planted by address.	Consultant
8.	Notify Forestry Division of completion and provide listing by address of species planted.	Consultant
9.	Acknowledge provisional acceptance.	Forestry Division
10.	At the end of 2 year guarantee, inspect all trees for condition/survival and recommend and arrange replacements and/or assumption to Forestry Division.	Consultant
11.	Inspect and prepare assumption letter for developer with copy to Engineering Review and authorize release of security.	Forestry Division

TREE ASSESSMENT CRITERIA

It is critical that the inspections of trees are done in a consistent manner so that all developers and landscapers are treated fairly. We must also ensure that the City assumes a quality product that will not result in high maintenance costs.

To help facilitate this, the following tree assessment criteria are to be followed by the L.A. or R.P.F. in recommending tree assumption to the City. If these criteria are followed, City staff should be able to quickly approve trees for assumption.

Tree assessments are to be conducted from May 1 to September 1 only.

TREE CROWN

- leaf area must be 75% or more
- branch ratio must be 50% of total tree height and there must be 9 to 11 branches, well spaced and ascending the main trunk in a spiral fashion. The crown must be well balanced.
- leaf size must be normal for the species
- leaf colour must be normal for the species

TREE STEM

- the main leader must be intact – not cut
- the trunk must be single and straight
- the tree must be planted straight
- there must be 175 – 200 cm of clean stem below the branches
- there must be no major scrapes or cuts on the bark
- the tree must meet the diameter class as specified on the concept plan
- trees must be planted as on the concept plan or an explanation provided
- trees must be planted at the same height as in the nursery. We will accept maximum 4 inches high where necessary for survival. We will not accept trees planted deep, ie: below the level they were in the nursery.

PLANTING METHODS

- plastic pipe may be left in place
- stakes, ties, labels and wrap must be removed prior to acceptance
- saucer and mulch are to be left in place
- NO mounding of soil or avolcano@ acceptable.

A professionally stamped report by address is to be submitted with your recommendation to the Parks and Forestry Division. The following form is to be completed and submitted with your recommendation for assumption.

