Report to Planning and Environment Committee

To: **Chair and Members**
Planning & Environment Committee
From: **John M. Fleming**
Managing Director, Planning and City Planner
Subject: **List of Approved Tree Species**
PEC deferred matter #2
Meeting on: **September 10, 2018**

Recommendation

That, on the recommendation of the Managing Director, Planning and City Planner, this report **BE RECEIVED** for information regarding the List of Approved Tree Species that may be planted on City lands.

Executive Summary

The Planning & Environment Committee asked staff to report back on the types of tree species that are planted on the boulevard. This item is on the Planning & Environment Committee's deferred matters file #2, as a resolution from the February 24, 2015 meeting of the Planning & Environment Committee.

The City has long maintained a list of approved tree species for planting on City lands (Appendix A). This list is in appendix 5 to Chapter 12 of the Design Specifications and Requirements Manual. The list was originally created as a guide to developers in their preparation of acceptable tree planting plans. It now serves as an approved list of tree species for all City lands. It is updated annually, as required. Suggested changes from Trees & Forests Advisory Committee (Allergens, Climate Change and Invasives Working Group) and more recently from members of the Urban Agriculture Steering Committee have been reviewed and discussed with those Committees and included, if aligned with Official Plan policy and Urban Forest Strategy recommendations.

1.0 Relevant Background

1.1 History

The City has long maintained a list of approved tree species for planting that can be found as appendix 5 to Chapter 12 of the Design Specifications and Requirements Manual. This Manual is available on the City's website. The list of approved tree species for planting on City lands was intended to guide developers in their preparation of acceptable tree planting plans for sub-divisions and other developments where trees are required to be planted on City boulevards. While this guidance was intended for trees being planted as street trees, it serves as an approved list of tree species for all City lands. Staff and the Trees and Forests Advisory Committee have suggested several improvements to the list annually. Those changes are submitted for compilation with all other suggested amendments to the Design & Specification Requirements Manual. Draft revisions are then circulated for comment across City Divisions and the development community.

The latest submission of changes to the List of Approved Tree Species was made in 2017, and put into effect in July 2018. Prior to this it had been a few years since updates to the list had been made. Recent changes to the list include removal of tree types no longer being planted by the City and a new shortlist of species that are prohibited in the City. The list also includes the Ogren Plant Allergy Scale (OPALS) rating. This is the potential allergy rating based on tree species. The provision of improved information is a goal of the Urban Forest Strategy (2014).

The Forestry Operations team participated in the preparation of this report and in discussions with the Trees & Forests Advisory Committee and members of the Urban Agriculture Steering Committee.

1.2 Policy Context

The London Plan (Tree Planting) - Policy 401:

1. The principle of planting the right tree in the right place will guide all municipal and private development-related tree planting. This involves the assessment of a tree's long-term survival, growth, and health prospects within the context of its urban environment.
2. Tree planting will focus on the preferential planting of large shade tree species where possible to maximize long-term benefits.
3. Native species trees will be preferred for planting, recognizing that non-native species play an important role where native species do not survive and grow well in urban conditions or for specific landscape objectives.

Urban Forest Strategy (2014) & Tree Planting Strategy (2017):
The concept of "right tree, right place" is fundamental to urban forest management. This focuses on making sure suitable tree species are selected to match their intended function and available growing space conditions. This applies to city street and park trees as well as natural woodlands. In the latter case, the emphasis is on making sure species are well suited to soil conditions.

London Plan (Pollinator Policies):

1. Policy 239 - Opportunities will be explored for supporting pollinators and food production through landscaping and street tree planting.
2. Policy 659 – Promote London as a pollinator sanctuary, considering how we can create and support environments that are conducive to pollinators in all of the planning and public works we are involved with, recognizing the important role that pollinators play in our long-term food security.

The Urban Agriculture Strategy (2017):
Action Item: Ensure that good management practices are undertaken to prevent pests; locate edible trees in locations where they can be safely maintained over the long-term.

2.0 Key Issues and Considerations

2.1 Invasive Species

Concern has been expressed by the Trees & Forests Advisory Committee with regard to the inclusion of some invasive species in the list. Whether a species is invasive or not can be difficult to establish until long after its initial introduction by when its invasive tendencies may be obvious. Species may be invasive in one country, plant zone, region or City, but not in another. Staff will continue to monitor the emergence of non-native species in naturalized areas as well as review scientific literature and outcomes from other places that are broadly similar to our City before determining that a species is invasive or likely to be invasive here. Probable or known invasive species will be placed in the new "Prohibited Species" section.

2.2 Native vs. non-native

Guided by the Urban Forest Strategy, and as outlined in the Tree Planting Strategy, the City has adopted a priority system for future species selection:

1. Native to Ontario
2. Native to the continent of North America
3. Non-native – originating from places other than North America, and not invasive.

Trees from category (3) are acceptable if a tree from (1) or (2) has already failed in that location, or the conditions in a site are such that certain species from (3) are the only species expected to thrive. Minimum buffers or setbacks may be applied as well to minimize the risk of harm to natural heritage (native species) features.

2.3 Edible Tree Species

The London Plan, Urban Forest Strategy and Tree Planting Strategy reflect the growing interest in urban food security and the desire to provide edible trees in our City.
Some projects that included edible trees on public lands:

- South Thames Park Food Forest
- West Lion's Park Food Forest
- Cedar Hollow Orchard
- Community Orchards & Gardens (2017 Neighbourhood Decision Making Project)

Many native tree species provide food - such as serviceberry (fruits), maple (sap made into syrup) and shellbark or shagbark hickory (nut "milk"). Cultivated fruits and hybridized nut trees further extend the range of edible tree species that are resilient to diseases and pests endemic in this region although many of these are non-native. Discussions will continue with the Urban Agriculture Steering Committee to identify existing and potentially extend the range of edible species in the List.

2.4 Pollinators

Recently, the Advisory Committee on the Environment (ACE) has recommended that London become a "Bee City" designated through "Bee City Canada". London's urban forest is a key element in providing pollinators food, habitat and protection from adverse weather conditions. This is reflected in our species list where each tree species provide some or all of these values.

2.5 Species at Risk

The City may require a permit from the Ministry of Natural Resources and Forestry before Species At Risk may be planted. The City has obtained and implemented permits to plant tree Species At Risk in some park locations as part of a broader species recovery strategy. Caution is required when planting Species At Risk, as once planted, future maintenance and/or removal of the tree may be regulated by the Province.

2.6 The approved list is not exhaustive.

Absence from the list does not necessarily mean that a species is unacceptable to the City. Expanding the list of suitable species would lead to a more diverse, and likely resilient, urban forest that will be exposed to extremes of weather, migration of pests and diseases, and the urban heating effect. The City may accept other species that are not listed, and the list may be expanded during regular annual updates if those species appear to do well in the City of London. Although not intended for anything other than new street plantings through development processes, over the years the list has been amended to include tree species for parks and other City lands. The name of the list will be reconsidered for the 2018 Design & Specifications Guidelines update.

3.0 Conclusion

The City will continue to work with interested stakeholders to maintain and update the List of Approved Tree Species to provide a useful tool for selecting appropriate tree species for planting on City lands.

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Recommended by:

John M. Fleming, MCIP, RPP
Managing Director, Planning and City Planner

Note: The opinions contained herein are offered by a person or persons qualified to provide expert opinion. Further detail with respect to qualifications can be obtained from Planning Services

August 28, 2018
SR/sr

Y:\Shared\Urban Forestry\PEC reports\List of Approved Tree Species 2018

Appendix A

List of Approved Trees - Appendix 5, Ch. 12 of Design & Specification Requirements Manual, 2018

APPROVED STREET TREES — APPENDIX 5

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

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Tree Species	Native Range	Use	Comments and Notes	Size	Form	OPALS Rating[7]
Acer campestre** Hedge Maple	**Non-Continental**	Boulevard	Compact form/trunk suckers require extra maintenance.	Medium	Rounded	7
Acer x freemanii Hybrid Soft Maple	**Native to Ontario**	Boulevard	Caution: Many cultivars of *Acer rubrum* and *A. saccharinum* exist under the name Freemanii, each with different characteristics	Medium	Oval-Rounded	Autumn Fantasy, Indian Summer and Morgan all 1 Autumn Blaze 7
Acer ginnala** Amur Maple	**Non-Continental**	Boulevard	(by prior approval Only) Multi-stem Compact form/red & yellow face colour/lots of seeds/tends to sucker/specify single stem form	Small	Rounded	4
Acer nigrum Black Maple	**Native to Ontario**	Boulevard Park	Lots of seed for winter interest/rare/needs moist soil	Large	Oval	~7 (assumed to be same as sugar maple)
Acer pennsylvanicum Striped Maple	**Native to Ontario**	Boulevard Park	Specify single stem.	Medium	Rounded	6
Acer pseudoplatanus* * Sycamore Maple	**Non-Continental**	Boulevard	Very pollution and salt tolerant Cankers cause high maintenance	Large	Oval-Rounded	8
Acer rubrum Red Maple ▪ 'October Glory' ▪ 'Red Sunset'	**Native to Ontario**	Boulevard Park	Green summer foliage & yellow to red fall colour tolerates wet soil	Medium	Oval-Rounded	*1 *1
Acer saccharinum Silver Maple	**Native to Ontario**	Boulevard Park	Fast growing softwood maple; Maintenance issues as tree nears maturity due to weak wood.	Large	Oval-Rounded	Males: 9 Females: *1
Acer saccharum *Sugar Maple*	**Native to Ontario**	Boulevard Park	Upright form/fall colour varies/prefers good drainage/shallow roots/salt sensitive	Large	Oval-Rounded	7
Acer spicatum Mountain Maple	**Native to Ontario**	Boulevard Park	Specify single stem. Shade tolerant, seldom thriving in the open. Prefers cool shade. May spread by root shoots.	Small	Oval-rounded	Not available
Acer tataricum** Tatarian Maple	**Non-Continental**	Boulevard	Specify single stem. Good red & yellow fall	Medium	Rounded	5

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Tree Species	Native Range	Use	Comments and Notes	Size	Form	OPALS Rating[7]
Aesculus glabra Ohio Buckeye	**Native to Ontario**	Boulevard	Untested in London area and may suffer winter problems. Likes moist soil. ***For use in limited circumstances***	Medium	Oval	7
Aesculus hippocastanum Horsechestnut ▪ 'Baumannii'	**Non-Continental**	Boulevard	Good spring flower with no fruit/limit use due to disease susceptibility	Large	Rounded	7
Amelanchier Arborea Downy Serviceberry	**Native to Ontario**	Boulevard Park	Showy flower & fruit/ tolerant of wet & dry soil	Small	Rounded	Not available
Amelanchir canadensis Shadblow Serviceberry	**Native to Ontario**	Boulevard Park	Difficult to maintain single stem Four-season interest Tolerates moist soil	Small	Rounded	Not available
Amelanchier laevis Smooth Serviceberry	**Native to Ontario**	Boulevard Park	Multi-stem specimens by prior approval only	Small	Rounded	3
Asimina triloba Pawpaw	**Native to Ontario**	Park	Large fruit has food value to humans	Small	Rounded	
Betula alleghaniensis Yellow Birch	**Native to Ontario**	Parks	Interesting bark features and good fall colour	Large	Rounded-Spreading	7 (but only has a short blooming period)
Betula papyrifera White Birch	**Native to Ontario**	Parks	Interesting bark features and good fall colour	Large	Rounded-Oval	7
Carpinus betulus European Hornbeam 'Fastigiata'	**Non-Continental**	Boulevard	Difficult to transplant Keep away from road salt & spray	Medium	Pyramidal-Oval	8
Carpinus caroliniana Blue beech or Musclewood	**Native to Ontario**	Boulevard Parks	Difficult to transplant/keep away from road salt & spray/likes wet soil/thin bark and sculptured trunk	Medium	Rounded	8 (Rating for genus only)

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Tree Species	Native Range	Use	Comments and Notes	Size	Form	OPALS Rating[7]
Carya cordiformis Bitternut Hickory	**Native to Ontario**	Parks	Difficult to transplant due to large tap root, messy fruit	Large	Oval-Vase	8-10* (Rating for genus only)
Carya glabra Pignut Hickory	**Native to Ontario**	Parks	Difficult to transplant due to large tap root, messy fruit	Large	Oval-Vase	8-10*
Carya laciniosa Big Shellbark Hickory	**Native to North America**	Parks	Difficult to transplant due to large tap root, messy fruit	Large	Oval-Vase	8-10*
Carya ovata Shagbark Hickory	**Native to Ontario**	Parks	Difficult to transplant due to large tap root, messy fruit	Large	Oval-Vase	10
Celtis laevigata Sugarberry	**Native to North America**	Boulevard Park	Compact form/good in moist soils	Large	Vase	8
Celtis Occidentalis Common Hackberry	**Native to Ontario**	Boulevard Park	Requires pruning for general form. Very tolerant.	Large	Vase	8
Cercidiphyllum japonicum Katsura Tree	**Non-Continental**	Boulevard	Multi-stem by prior approval only. Difficult to transplant. Thin bark. Needs supplemental water.	Large	Rounded	Males: 8 Females: *1
Cercis canadensis Redbud	**Native to Ontario**	Boulevard Park	Seeds readily. Suitable for lawns but not formal boulevard due to low branching.	Medium	Vase-Rounded	5
Cladrastis kentukea (lutea) Yellowwood (Single Stem Only)	**Native to North America**	Boulevard	Few problems/use local seed sources or stock only/prune early	Medium	Rounded	5
Cornus alternifolia Alternate-leaf Dogwood	**Native to Ontario**	Boulevard Park	Use local winter hardy material only Specify single stem	Medium	Rounded	5

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Tree Species	Native Range	Use	Comments and Notes	Size	Form	OPALS Rating[7]
Cornus florida Flowering dogwood	**Native to Ontario**	Park	Specify single stem only. Use local winter hardy material only/ good flower/ specify single stem Can be very sensitive. Prefers acid soil, Limited use only.	Small	Rounded	5
Cornus kousa Kousa dogwood	**Non-Continental**		Resistant to dogwood anthracnose; berries have human food value	Small	Vase	5
Corylus colurna Turkish Hazal	**Non-Continental**	Boulevard	Good form/ difficult to transplant/ winter interest/ needs supplemental water	Large	Pyramidal	8
Crataegus (varieties) Hawthorns	*(Dependent on species)*	Boulevard Park	Thornless & disease resistant varieties only. * For use in limited circumstances *Crataegus monogyna* is invasive*	Small	Rounded	4
Fagus grandifolia American Beech	**Native to Ontario**	Boulevard Park		Large	Oval	7
Fagus sylvatica European Beech	**Non-Continental**	Park	Needs moist soil/different leaf colours with varieties/sensitive to activity within root zone/leaves persist through winter/thin bark	Large	Oval-Rounded	7
Fagus orientalis Oriental beech	**Non-Continental**	Park		Large	Oval-Rounded	7
Ginkgo biloba Maidenhair tree (Male cultivar only)	**Non-Continental**	Boulevard	Good yellow fall colour/thin bark/tolerant of city conditions & pollution/slow growing but very large at maturity/virtually pest and disease free	Large	Pyramidal Spreading	Males: 7 Females: *2
Gleditsia triacanthos* var. *inermis Thornless Honey Locust ▪ 'Shademaster' ▪ 'Skyline'	**Native to North America**	Boulevard	Provides a filtered shade/susceptible to defoliation by leafhopper/susceptible to canker and other pests and diseases	Medium	Spreading	Males: 7 Females: *1 Bisexual: 4

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Tree Species	Native Range	Use	Comments and Notes	Size	Form	OPALS Rating[7]
Gymnocladus dioicus Kentucky Coffee tree	**Native to Ontario**	Boulevard Park	Male variety only in boulevard	Large	Oval	Males: *9 Females: *1
Halesia tetraptera Carolina Silverbell	**Native to North America**	Park	Low branched tree with narrow head/broad, rounded crown/reserve for lawn areas	Medium	Rounded	3
Juglans nigra Black Walnut	**Native to North America**	Park	Messy fruit/needs large area * For use in limited circumstances	Large	Oval	8-*9
Koelreuteria paniculata Goldenrain tree	**Non-Continental**	Boulevard Park	Good yellow flower & fruit/susceptible to winter damage/weak	Medium	Rounded	4
***Laburnum* (varieties)** Golden chain tree	**Non-Continental**	Park	Poisonous pea-like seeds. yellow chain like flower/winter hardy local varieties only/borderline hardiness **** For use in limited circumstances***	Small	Rounded	7
Liriodendron tulipifera Tulip tree	**Native to Ontario**	Boulevard Park	Good flowers and yellow fall colour/local sources/moist well drained soil/very large tree most appropriate for lawn areas/somewhat weak wooded	Large	Rounded	4
Maackia amurensis** Amur Maackia	**Non-Continental**	Boulevard	Small, round headed tree/slow growing/summer flowering/bronze coloured bark	Small	Rounded	3
Maclura pomifea Osage Orange	**Native to Ontario**	Park only				
Magnolia acuminata Cucumber tree	**Native to Ontario**	Boulevard Park	Status: Endangered	Medium	Oval-Rounded	Deciduous:6 Evergreen: 5
Malus* (most)** *** Flowering & Domestic Crab Apple:	*(Dependent on species)*	Boulevard	Maintenance problems/disease & insect problems/tolerates most soils Choose persistent fruit- holding, or poorly-fruiting types.	Small	Rounded-Spreading	4
Malus coronia Wild Crabapple	**Native to Ontario**	Park		Small	Rounded	4 (Genus only)

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Tree Species	Native Range	Use	Comments and Notes	Size	Form	OPALS Rating[7]
Nyssa sylvatica Black Gum	**Native to Ontario**	Park	Difficult to transplant due to tap root, interesting summer and fall foliage, not for heavily polluted areas	Medium	Rounded -Oval	Males: 9 Females: 1
Ostrya virginiana Hop Hornbeam or Ironwood	**Native to Ontario**	Boulevard Park	Mainly an understory species	Medium	Oval	7
Phellodendron amurense Amur corktree	**Non-Continental**	Boulevard	Good winter texture in bark/lots of black berries/use in protected areas	Medium	Spreading	Males: 8 Females: 1
Pinus strobus White Pine	**Native to Ontario**	Park Boulevard	Locate with care in boulevards, due to possible sight line and access issues when mature (bushy). Avoid *Ribes* (alternate host for white pine blister rust)	Large	Pyramidal	4
Platanus x acerifolia London Planetree	Hybrid of *Platanus occidentalis* (N. America) and *Platanus orientalis (Europe)*, so has no native range[11]	Boulevard	Frost cracks on trunk/attractive peeling bark/fruit can cause problems/very large at maturity – reserve for large lots and lawn areas	Large	Spreading	9
Platanus occidentalis *Sycamore*	**Native to Ontario**	Boulevard Park	Frost cracks on trunk/attractive peeling bark/fruit can cause problems/very large at maturity – reserve for large lots and lawn areas	Large	Spreading	9
Populus ssp. Balsam Poplar, Eastern Cottonwood, Large-tooth Aspen, Trembling Aspen	**Balsam Poplar**, **Eastern Cottonwood**, **Large-tooth Aspen**: **Native to Ontario Trembling Aspen:** (TBD)	Park. Not permitted in Boulevard	Wood is light, soft and weak, breaks easily in storms, drops flowers, fruit, twigs and branches	Large	Pyramidal – Vase and Spreading	Males: 9 Females: 1

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Populus ssp. Dwarf varieties.		Boulevard or Park	Limited numbers may be considered in Boulevards on a trial basis	Medium	Varies	
Prunus Americana American plum	**Native to Ontario**	Park	Somewhat thorny. Untested in boulevard.	Small	Rounded	2
Prunus nigra Canada plum	**Native to Ontario**	Park	Thorny. Untested in boulevard.	Medium	Rounded	3
Prunus pensylvanica Pin Cherry	**Native to Ontario**	Park	Excellent flowers with no fruit/single stem to be specified/weeping cankers * For use in limited circumstances	Small	Oval	5
Prunus serotina Black Cherry	**Native to Ontario**	Boulevard Park	Interesting bark, messy fruit; Better in lawns than in formal boulevard.	Large	Oval	5 (Genus only)
***Prunus* (flowering varieties)** Small Cherry	*(Dependent on species; most popular flowering cherries are non-continental)*	Boulevard	Weeping cankers; prone to fungal infections *** For use in limited circumstances ***	Small	Vase	
Prunus virginiana Choke Cherry	**Native to Ontario**	Boulevard Park	green spring foliage & red in summer/bark tends to split	Small	Rounded	6
Ptelea trifoliata Hop-tree	**Native to Ontario**					
Quercus alba White Oak	**Native to Ontario**	Boulevard Park	Needs moist soil/fruit maintenance/needs large space at maturity	Large	Rounded	8
Quercus bicolour Swamp White Oak	**Native to Ontario**	Boulevard Park	Grows in wetter conditions with acidic soils	Large	Rounded	8
Quercus ellipsoidalis Northern Pin Oak	**Native to Ontario**	Boulevard Park				8
Quercus macrocarpa Bur Oak	**Native to Ontario**	Boulevard Park	Large size at maturity – reserve for large lots and lawn areas/fruit drop/difficult to transplant/requires good soils	Large	Rounded	8

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Quercus muhlenbergii Chinquapin Oak	**Native to Ontario**	Boulevard Park	Attractive tree, especially in old age	Medium	Rounded	8
Quercus robur 'Fastigata' Fastigate English Oak	**Non-Continental**	Boulevard	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	Large	Columnar	8
Quercus robur English Oak	**Non-Continental**	Boulevard Park	Needs well drained soil/difficult to transplant/large size at maturity	Large	Rounded	8
Quercus rubra Red Oak	**Native to Ontario**	Boulevard Park	Needs sandy loam soil/difficult to transplant/more salt tolerant and faster growing than other oaks	Large	Rounded	8
Quercus velutina Black Oak	**Native to Ontario**	Boulevard Park	Needs well drained soil/difficult to transplant/large size at maturity	Large	Rounded	8
Rhus ssp. Staghorn Sumac, Smooth Sumac	**Native to**	Boulevard Park	Spreads quick, freely suckers from roots creating wide spreading colonies. Tolerates dry sterile soils	Small	Rounded - Spreading	Males: 10 Females: 7
Sassafrass albidum Sassafrass	**Native to Ontario**	Boulevard Park	Prefers sandy soils			Males: 7 Females: 1
Sophora japonica Japanese Pagoda Tree	**Non-Continental**	Boulevard	Excellent white flower/green stem when young/limit use due to messy characteristics	Large	Spreading	5
Sorbus aria *Whitebeam Mountain Ash*	**Non-Continental**	Boulevard	Leathery, gray-green leaves/white flowers in May/fall colour varies from pale green to golden brown to reddish	Medium	Pyramidal-Oval	4 (Genus only)
Sorbus x thuringiaca Oakleaf Mountain Ash	**Non-Continental**	Boulevard	Forms a tight, rounded crown/White flowers/red fruit/Leathery dark green leaves	Small	Rounded	4 (Genus only)
Syringa reticulata Japanese Tree Lilac ▪ 'Ivory Silk'	**Non-Continental**	Boulevard	Good white summer flower/excellent small specimen. Prone to over-use	Small	Rounded	6
Tilia americana Basswood	**Native to Ontario**	Boulevard Park	Prefers deep moist fertile soil/will grow on drier heavier soil/needs large space	Large		7

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Tilia cordata Littleleaf Linden ▪ 'Glenleven' ▪ 'Greenspire' ▪ 'Greenglobe'	**Non-Continental**	Boulevard	Aphid & borer problems; suckers from base; messy species	Medium	Pyramidal	7
Tilia x euchlora Crimean Linden	**Non-Continental**	Boulevard	Fruit messy/suckers from base **** For use in limited circumstances***	Medium	Rounded	7
Tilia tomentosa Silver Linden	**Non-Continental**	Boulevard	Heat and drought tolerant.	Medium	Pyramidal-Oval	7
Ulmus americana Elm ▪ 'Homestead' ▪ 'Pioneer' ▪ 'Sapporo Autumn Gold'	***Specific cultivars hybrydized for disease resistance***	Boulevard	Choose with care. Cultivars vary in resistance to Dutch elm disease and elm leaf beetle.	Large	Vase	8
Zelkova serrata Japanese Zelkova ▪ 'Green Vase' ▪ 'Village Green'	**Non-Continental**	Boulevard	Rapid growth/narrow branch angles promote fork split/frost susceptibility when young	Large	Vase	*10

SPECIES NOT PERMITTED FOR USE

Tree Species	Native Range	Comments and Notes	Size	Form	OPALS Rating[7]
Acer platanoides Norway Maple (many cultivars)	**Non-Continental**	Surface roots conflict with and turf/girdling roots/aphid and wilt problems.	Medium	Various Forms	8
Ailanthus altissima Tree of Heaven	**Non-Continental**				
Alnus glutinosa European Alder (Single Stem Only)	**Non-Continental**	Tolerant of wet & dry soil. Invasive tendencies checked by dry sites.	Medium	Pyramidal	9
Caragana arborescens	**Non-Continental**	Toxic	Small	Varies	
Carpinus betulus European Hornbeam 'Fastigiata'	**Non-Continental**	Difficult to transplant Keep away from road salt & spray	Medium	Pyramidal-Oval	8
Eleagnus angustifolia *Russian Olive*	**Non-Continental**				
Maackia amurensis Amur Maackia	**Non-Continental**	Small, round headed tree/slow growing/summer flowering/bronze coloured bark	Small	Rounded	3
Paulownia spp.					
Pyrus calleryana Callery Pear ▪ 'Chanticleer'	**Non-Continental**	Fireblight problems Graft incompatibility problems with some rootstocks. Objectionable smell.	Small	Pyramidal	Ornamentals:4 Fruiting: 3
Sorbus aucuparia *European Mountain Ash*	**Non-Continental**	Scab disease & insect problems; Limit use due to fruit and other problems.	Medium	Oval	4