YZD
BY Northcrest

Plant Guide

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for Northcrest Developments

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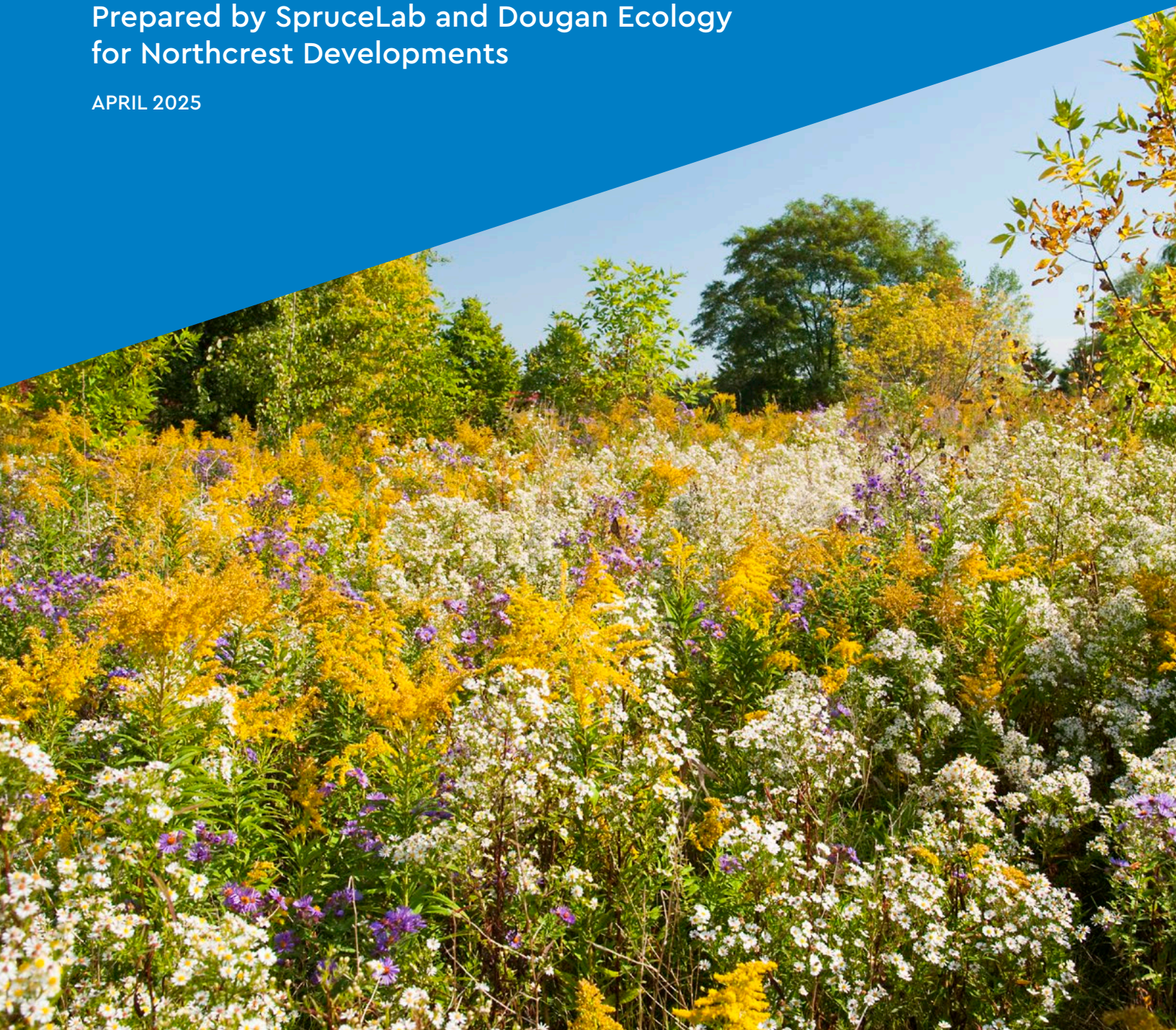

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Introduction

This plant guide is designed to support the installation of all new plant material within YZD. Over the course of several decades, the creation of seven distinct districts will gradually, yet entirely transform the former Downsview lands from an airport into a place for communities to gather, explore, work, innovate and play. This document will help to support the innovation and sustainability goals of Northcrest Developments, particularly the City Nature pillar, as outlined in the Responsible Development Framework.

Nature plays a vital role in Northcrest's vision for YZD, so much so that 'City Nature' makes up one of the foundational pillars of this 370 acre project.

A park and open space network will add over 70+ acres of new parks and open space across YZD. Given the vast scale of the project, there is a unique opportunity to innovate how nature integrates into urban environments. YZD strives to redefine the meaning of urban living by redefining the hierarchy between nature, public space, buildings, and infrastructure.

A network of green spaces will integrate nature into urban life at multiple levels, offering a range in size, function and design scattered throughout the site. This network will enhance the urban environment not only by providing diverse experiences for the future residents and local communities but also by supporting the environment by providing food and native habitat for a diverse variety of species and by contributing to stormwater management.

Rasmus Astrup, Partner and Design Principal for SLA, lead landscape architect of the Downsview Framework Plan (202X), explains:

> **"At YZD, we introduce a whole new hierarchy for how to design our cities and our communities. By putting nature first, we create a new way of living in Toronto centred on biodiversity, climate resilience, local identity, and strong community. We call this design approach 'City Nature'. City Nature is a both/and approach to urbanism that weaves landscape and nature together with architecture. At YZD, this approach is essential to creating a sense of place and individual identity to the vast site."**

https://www.northcrestdev.ca/news-and-insights/plan-to-build-15-minute-city-for-80000-people-wins-design-award

What is the purpose of this document and who is it for?

This document is primarily to help assist landscape contractors in sourcing, installing and maintaining planted landscapes across typical growing conditions and needs across YZD. Whether permanent or temporary installations, the information found within this plant guide will ensure that the appropriate, efficient and ecologically sensitive approaches are consistently taken throughout the life span of this project.

This document is a reference guide of plant species that have been pre-vetted for alignment with the ecological values of YZD, along with important guidance to ensure appropriate selection and maintenance for the specific context of a given project. While users are not required to use plants on this list, it is expected that any alternative plant selections are supported by clear rationale that responds to the core principles laid out in the 'Planting Conditions & Plant Lists' section of this document.

This reference document offers unifying and consistent point of reference to ensure that projects undertaken over the timeline and geography of the YZD development are anchored in our five pillars of the YZD Responsible Development Framework and will ensure that as the project progresses there is a sense on connectivity and continuity amongst the seven districts which make up YZD.

It is important to acknowledge that given the extended timeline for the completion of this project, that this reference will be periodically reviewed and updated to ensure that it aligns with shifting regulations, materials and approaches while remaining true to the original vision and core founding intentions for the development. This includes anticipated Toronto bylaw changes that will better support the creation of biodiverse native species plantings that are currently classified as 'weeds.'

This document will provide guidance on the following items to guarantee a cohesive and successful approach is applied to the installation of new plant material over the lifespan of this project:

- Planting conditions
- Plant lists
- Permaculture
- Soil types
- Pollinator plants
- Plants for birds/habitat
- Fragrant plants
- Seasonal interest
- Maintenance
- Recommendations on procurement of plant material and supplies

Guiding Values

The values listed below outline the factors taken into consideration while carefully compiling the plant lists within this document, and that should also be applied in the selection of suitable species for the various planting applications within the YZD.

LOCAL NATIVE SPECIES

Wherever possible, choose native species that have historically existed as close to the YZD site as possible. This is important because these are plants that have coexisted for thousands of years and have coevolved as integral parts of ecosystems, to be mutually beneficial and to support other life such as pollinator species and animals. Planted in growing conditions that satisfy their needs, these plants are often more robust and resilient in comparison to introduced species and genetically created cultivars.

In cases where there may be no appropriate native species for the required condition, the preference should be to use species that are native to the larger region or Province of Ontario more broadly, as long as their specific growing conditions are provided.

Plants that are identified as being "invasive" in Ontario should be avoided at all costs (see: https://www.ontarioinvasiveplants.ca/invasive-plants/species/).

Regarding a definition of "native plants," plant expert and author Lorraine Johnson (March, 2024) states:

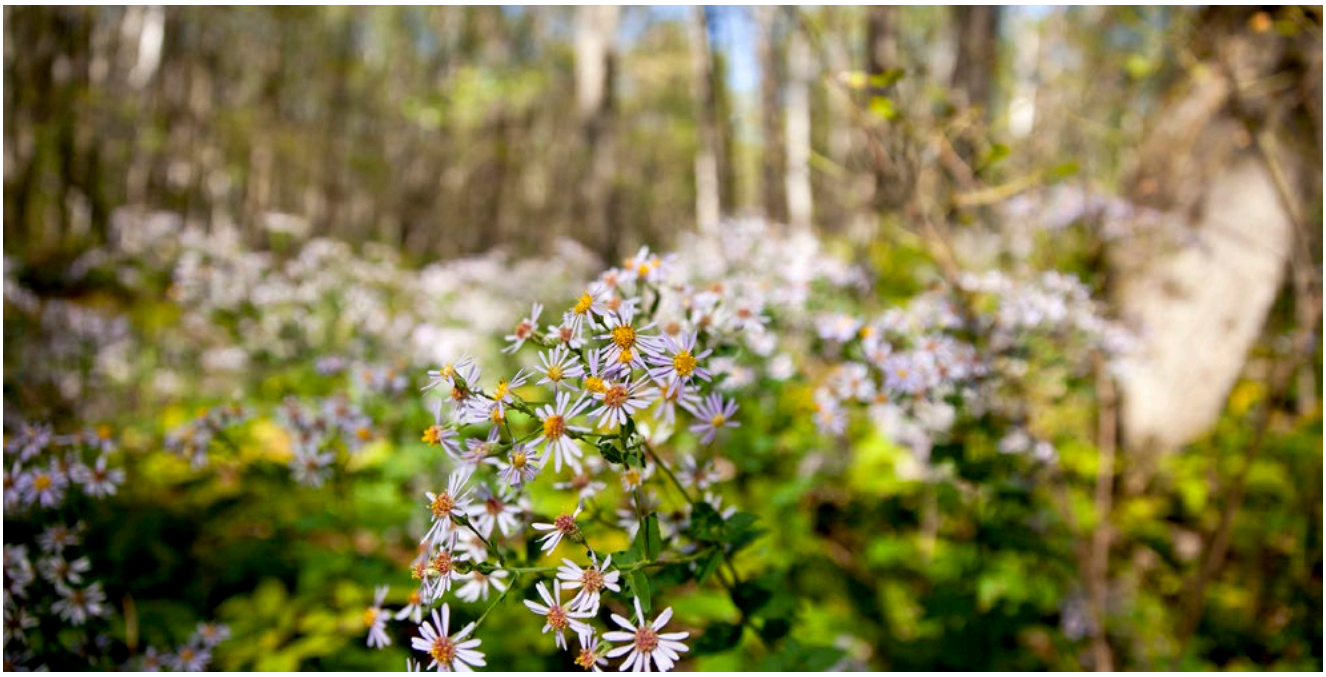
> "Native plants are generally defined as plants that have co-evolved in a region and have developed interrelationships, associations and interactions with co-occurring species (other plants and animals) and features (soils, climate, hydrology, etc.) of the region, all of which function together in a myriad of ways in support of the region's biodiversity."

CLIMATE ADAPTATION

Plants that currently grow in the Toronto area but are susceptible to heat stress or extreme flooding conditions are expected to not survive in the upcoming decades due to the impacts of climate change. The plants that are included in the lists in this document have been vetted for resilience to extreme weather conditions, and associated diseases and insect issues. However, as this presents unpredictable and changing situations, these lists should be reviewed and updated periodically to respond to the information that is currently available at the time.

NON-TOXIC

Plants that are noxious or toxic to humans or other creatures are not included in the plant lists. This is for safety reasons to protect people's health, as well as to protect agricultural lands, recreational opportunities, wildlife, and use and enjoyment of property at YZD and in the surrounding communities.



PLANTS FOR HARVEST

The plants included as *plants for harvesting* are food or medicines that can be safely consumed by humans, with a preference for culturally significant species local to the area. These plants are also not to be located in areas where they will absorb pollutants from stormwater runoff from paved surfaces (due to fuel and heavy metals from vehicles), or in contaminated soil conditions. They are also species that are edible without needing significant processing. For example, while it was an ancient Indigenous practice to harvest acorns from oak trees and refine them into a type of flour for cooking, eating them from the tree is not very pleasant. As there are some plants where portions of the plant are edible, or are edible after cooking, while other aspects of the plant are poisonous, these species are not recommended to avoid risk of harm. Similarly, the lists do not include medicinal species that cause rashes or other harm to humans before required treatment/refinement into usable medicines.

BIODIVERSITY

Urban areas suffer from an overall lack of biodiversity due to the clearing of natural areas to make way for settlements, and more recently, to cultural preferences for non-native ornamental cultivars and monocultures. The impacts of these decisions have resulted in serious threats to the existence of native bees and other insects, birds (including migratory species), and creatures. Without pollinator species, plants will not be able to produce food, flowers, seeds – essential to their survival. Natural corridors that supported the movement of mammals for example are also no longer present, forcing them to move through neighbourhoods (unsafe passage) to access food and water. By reintroducing large swaths of plants that provide food and habitat for all creatures, urban spaces can begin to fix the damage that was done and to find a way towards a co-existence with human beings that also live there.

ECOSYSTEM SERVICES

When plants help humans or the environment in some way that is measurable, these benefits are often referred to as "ecosystem services." They can be found when plants help with absorbing and filtering stormwater runoff, or even the urban cooling effect through the natural shade of trees, or evapotranspiration of moisture into the air through their leaves. These services can also be valued as improving human health and wellbeing, where the term "biophilia" is used to describe our innate affinity to want to be near nature and natural elements. "Forest bathing," for example (immersing oneself in forested / treed areas), is a practice that is growing globally with proven health benefits that include decreased stress, and even anti-cancer agents.

Planting Conditions & Plant Lists

Information is provided below on the various kinds of growing conditions that are typical urban planting environments found in Toronto, and distinct situations that require consideration of the plants that can thrive in them. The associated plant lists were developed to support plantings across YZD, and include urban tolerant species and cultivars that are readily available on the market. There are primarily native species to support enhanced biodiversity, but also include non-native introduced plants that offer other benefits (e.g. aesthetics, stormwater management) and can thrive in harsh urban conditions (e.g. are salt and heat/ drought tolerant).

The Toronto Green Standard (required for building permits) states that plantings in the ground must be a minimum of 50% native plants, with at least two kinds of plants that together provide flowers throughout the growing season. Invasive species that spread intensely and stress local ecosystems are not included in the plants recommended below. Drought tolerant plants are also listed, to help minimize potable water use even in situations where irrigation systems are to be installed. Where a non-native cultivar is included, it is offered as an example that can easily be replaced by a similar cultivar, pending the size and form desired for that particular area.

Considerations of future growing extreme growing conditions due to climate change (rising urban heat, extreme storm events) resulted in some plants not being included in the lists, and with others added.

For example, there are some species from the more south-western Carolinian Zone included that are not native to Toronto but can grow here and are recommended as they will be able to thrive in the warmer conditions of a hotter city.

The plant material recommendations provided are not to be seen as an exhaustive list, but a variety of available options. To create a useful guide for easier project planning and installations, they are also plants that are available at a size that can withstand the common physical impacts and lower maintenance needs of being in public environments, such as perennials with more established root systems.

Regarding the installation of soils, planting beds are typically assumed to be sandy loam, an optimal growing medium for newly restored spaces. For more information, refer to the City of Toronto's Construction Specification for "Growing Medium" and consider the design that is intended, i.e. individual trees planted in grass in 'Type 1 – Standard Mix,' new garden beds to be created from 'Type 2 – Planting Bed Mix,' and street trees should be planted in 'Type 3 – Boulevard Mix').

The sections of this chapter include the following:

- Full Sun
- Part Shade/Shade
- Drought
- Moist/Wet
- Street Trees
- Naturalization
- Meadow
- Urban Agriculture
- Screening
- Raised Planters

Plant lists are based on research that includes all of the considerations noted above, with a key system that documents unique characteristics related to support for pollinator species and birds, drought and salt tolerance, soil moisture levels, and fragrance and seasonal interest, as below:

- B: bird food/habitat
- P: pollinator plant
- F: fragrance
- X: toxic properties
- DT: drought tolerant
- ST: salt tolerant
- WS: wet/moist soil
- Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

Plants with irritant or toxic qualities, but are workhorse plants of the landscaping industry because of their winter interest, screening and/or flowering hardiness, have been marked in the Qualities column of the document with an X. It's recommended these plants are not planted near children's play areas.

The recommendations for tree plantings are organized in the plant lists according to typical growing conditions. However, for a more in-depth look at this topic, see the scientific classification system called the "Tree Urban Site Index" (USI), developed by the Ohio State Forestry Department in partnership with Ohio State University (Scharenbroch, 2017 & 2023). This system assigns tolerances related to site and species qualities, to support forestry departments in planting trees in the best possible planting conditions to support their optimal growth. This tool is used for assessing sites for tree plantings in optimal growing conditions related to planting space that is available, existing soils and vegetation, and microclimate. Speaking in botanical terms, the goal is for an urban forest to have a maximum of 10% of a single species, 20% of a single genus, and 30% of a family, described as the "10–20–30 guide". See this link for more information about the Tree USI.

Abbreviations:

- spp. species (plural)
- cvs. cultivars var. variety

The following lists are also available in our interactive spreadsheet: Planting Reference.xlsx

Full Sun

Plantings in "full sun" conditions means that the planting area receives at least 6 hours of direct sunlight each day, and "part-sun" refers to 4–6 hours of direct sun. These kinds of planting areas are thus hotter and create drought stress for plants. However, the intense sunshine (energy from the sun) also supports increased floral display and improved growth overall – assuming the plant's water and nutrient needs are met.

TREES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
CONIFEROUS				
Balsam fir	*Abies balsamea*	18 × 6	w	F
White fir**	*Abies concolor*	15 × 8	w	
Eastern red cedar	*Juniperus virginiana*	6 × 3	w	ST
American larch	*Larix laricina*	18 × 6		WS
Dawn redwood**	*Metasequoia glyptostroboides*	20 × 7	w	
Serbian spruce**	*Picea omorika*	15 × 6	w	
Blue spruce**	*Picea pungens*	15 × 4	w	DT, ST
Austrian pine**	*Pinus nigra*	16 × 12	w	DT, ST
Red pine	*Pinus resinosa*	30 × 6	w	DT
Eastern white pine	*Pinus strobus*	20 × 7	w	
Eastern white cedar	*Thuja occidentalis*	10 × 3	w	WS
DECIDUOUS				
SMALL TREES: <8m				
Paperbark maple**	*Acer griseum*	6 × 5	f, w	
Black maple	*Acer nigrum*	15 × 7	f	
Paw paw*	*Asimina triloba*	6 × 5	sp	WS
Eastern redbud*	*Cercis canadensis*	8 × 7	sp	P, B
White flowering dogwood*	*Cornus florida*	7 × 7	f, sp	B
Star magnolia**	*Magnolia stellata*	3 × 3	f, sp	F
Saucer magnolia**	*Magnolia × soulangeana*	5 × 2	sp	F
Japanese flowering cherry**	*Prunus serrulata*	6 × 5	sp	B, F
Common chokecherry	*Prunus virginiana*	6 × 5	sp, f	B, F, DT
American mountain ash*	*Sorbus americana*	5 × 5	sp	
Japanese lilac tree**	*Syringa reticulata*	9 × 4	s, f	B, P, F

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
MED TREES: 8m – 15m				
Red maple	*Acer rubrum*	12 × 10	f	P
Freeman maple	*Acer x freemanii*	15 × 12	f	DT
Yellow buckeye**	*Aesculus flava*	15 × 12	f, sp	B
Ohio buckeye*	*Aesculus glabra*	10 × 9	f	B
River birch**	*Betula nigra*	13 × 10	f, w	B
Paper birch	*Betula papyrifera*	13 × 10	f, w	ST, B
Katsura tree**	*Cercidiphyllum japonicum*	12 × 4	f	
Yellowwood**	*Cladrastis lutea*	10 × 9	f	B, F
European beech**	*Fagus sylvatica*	15 × 12	f	
Blue ash*	*Fraxinus quadrangulata*	15 × 10	f	
Maidenhair tree**	*Ginkgo biloba*	15 × 11	f	ST
Black gum*	*Nyssa sylvatica*	10 × 9	f	B, ST, WS
Ironwood	*Ostrya virginiana*	10 × 7	f	B
Trembling aspen	*Populus tremuloides*	10 × 5	f	WS
Swamp white oak*	*Quercus bicolor*	15 × 15	f	WS
Chinkapin oak*	*Quercus muehlenbergii*	15 × 12	f	
Peach-leaved willow	*Salix amygdaloides*	11 × 8		B, WS
Sassafras*	*Sassafras albidum*	10 × 9	f, sp	B, P
Showy mountain ash*	*Sorbus decora*	8 × 6	sp, s	B, WS
LARGE TREES: >15m				
Yellow birch	*Betula alleghaniensis*	20 × 12	f	
Silver maple	*Acer saccharinum*	18 × 15	f	WS
Sugar maple	*Acer saccharum*	25 × 15	f	
Shagbark hickory	*Carya ovata*	22 × 15	f, w	
Northern catalpa**	*Catalpa speciosa*	16 × 12	f	F
American beech	*Fagus grandifolia*	18 × 16	f	
White ash	*Fraxinus americana*	21 × 14	f	
Honey locust*	*Gleditsia triacanthos*	17 × 12	f	DT, ST
Kentucky coffeetree*	*Gymnocladus dioicus*	17 × 13	f	F, ST
Sweet gum	*Liquidambar styraciflua*	20 × 18	f	ST
Tulip tree*	*Liriodendron tulipifera*	20 × 10	f	
Cucumber tree*	*Magnolia acuminata*	20 × 15	f	F, B
Balsam poplar	*Populus balsamifera*	25 × 14	f	P

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Eastern cottonwood	*Populus deltoides*	20 × 16	f	
Big-toothed aspen	*Populus grandidentata*	18 × 8	f	WS
Black cherry	*Prunus serotina*	18 × 8	sp, f	B, F, P, ST
White oak	*Quercus alba*	18 × 18	f	
Burr oak	*Quercus macrocarpa*	18 × 13	f	ST
Pin oak*	*Quercus palustris*	20 × 13	f	ST
English oak**	*Quercus robur*	18 × 13	f	ST
Northern red oak	*Quercus rubra*	16 × 15	f	ST
Black willow	*Salix nigra*	18 × 4		B, WS
Basswood	*Tilia americana*	20 × 13	f	F, P
Little leaf linden**	*Tilia cordata*	16 × 8	f	F, P
American elm	*Ulmus americana*	18 × 13	f	DT

SHRUBS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
CONIFEROUS				
Common juniper	*Juniperus communis*	4 × 6	w	ST, DT
Creeping juniper	*Juniperus horizontalis*	1 × 2	w	ST, DT
Savin juniper	*Juniperus sabina*	1 × 1	W	DT
Mugo pine**	*Pinus mugo* cvs.	varies		
European yew **	*Taxus baccata* cvs.	varies		X
Canadian yew	*Taxus canadensis*	0.5 × 0.8	w	B, DT, X
Yew	*Taxus × media* cvs.	varies		X
BROADLEAF EVERGREEN				
Kinnickkinick	*Arctostaphylos uva-ursi*	0.1 × 1	w	B, F, DT
Common boxwood**	*Buxus sempervirens*	4 × 4	w	DT, F
Bearberry cotoneaster**	*Cotoneaster dammeri*	0.2 × 1	w, f	B, F
Winter heath**	*Erica carnea*	0.5 × 0.3	s, w	
Creeping grape-holly	*Mahonia repens*	0.3 × 1	w	B, F
Great plains yucca**	*Yucca glauca*	0.6 × 0.6	w	ST, DT
DECIDUOUS				
HEIGHT: ≤2m				
Black chokecherry	*Aronia melanocarpa*	1.5 × 0.8	sp, f	B, F, ST, WS

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
New Jersery tea	*Ceanothus americanus*	1 × 1	w	B, P, F, DT
Buttonbush	*Cephalanthus occidentalis*	1.75 × 1.75	s	B, F, WS
Japanese quince**	*Chaenomeles japonica*	0.8 × 1.2	sp	B, F, DT
Sweet fern	*Comptonia peregrina*	0.3 × 0.3		P, F, ST, DT
Red osier dogwood	*Cornus sericea (syn. c. stolonifera)*	2 × 2	f, w	B, ST
American hazelnut*	*Corylus americana*	2 × 4	f	
Somerset daphne	*Daphne x burkwoodii 'Somerset'*	0.8 × 1.2	sp	B, F, DT
Slender deutzia	*Deutzia gracilis*	0.8 × 0.8	sp	F, DT
Bush honeysuckle	*Diervilla lonicera*	0.8 × 1		B, P, F, DT, ST
Weeping forsythia**	*Forsythia suspensa*	1.5 × 1.75	sp	
Vernal witchhazel**	*Hamamelis vernalis*	2 × 1.75	f, w	F
Pot o'gold	*Hypericum kalmianum*	0.5 × 0.5	s	P, DT, WS, X
Shrubby St. John's wort	*Hypericum prolificum*	1 × 1	s	P, ST, DT, X
Common winterberry	*Ilex verticillata*	1.75 × 1.75	s, w	B, ST, WS, X
Beautybush	*Kolkwitzia amabilis*	1.75 × 1.75	s	DT, WS
Sweet gale	*Myrica gale*	1 × 0.8		B, F, WS
Bayberry	*Myrica pensylvanica*	1.75 × 1.75		B, F, ST, WS
Common ninebark	*Physocarpus opulifolius*	1.75 × 1.75	s	DT
Alpine currant**	*Ribes alpinum*	1.25 – 1.5	sp	B, DT
Meadow rose	*Rosa blanda*	1.25 × 1.5	sp, s	B, P, F, ST
Pasture rose	*Rosa carolina*	1.5 × 1.75	s, f	B, P, F, ST, WS
Swamp rose	*Rosa palustris*	1.5 × 1.5	s	B, P, F, ST, WS
Alleghany blackberry	*Rubus allegheniensis*	1 × 1.75	s,f	B
Wild red raspberry	*Rubus idaeus ssp strigosus*	1.75 × 1.75	s, f	B, DT
Black raspberry	*Rubus occidentalis*	1 × 2.5	s, f	B, DT
Flowering raspberry	*Rubus odoratus*	1.5 × 1.5	s	B, F
Slender willow	*Salix petiolaris*	2 × 2		WS
Meadowsweet	*Spiraea alba*	1.25 × 1.25	s	P, ST, WS
Hardhack	*Spiraea tomentosa*	1 × 1	s	P, DT, ST
Common lilac**	*Syringa vulgaris*	2 × 2	sp	B, P, F
Snowberry	*Symphoricarpos albus*	1.25 × 1	s	B, DT, ST, WS
Low bush cranberry	*Vaccinium angustifolium*	0.5 × 0.5	sp, s, f	B, DT
Mapleleaf viburnum	*Viburnum acerifolium*	1.5 × 1	sp, s, f	
Arrowwood	*Viburnum dentatum*	1.75 × 1.75	sp, s	B, P, ST

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Weigela	*Weigela spp.*	varies		
HEIGHT: >2m				
Saskatoon*	*Amelanchier alnifolia*	2.5 × 1.5	sp	B, F
Canadian serviceberry*	*Amelanchier canadensis*	5 × 3	sp, f	B, P, WS
Allegheny serviceberry	*Amelanchier laevis*	4 × 4	sp, f	B, F
Alternative-leaved dogwood	*Cornus alternifolia*	4 × 7	s, f	B, P, F, WS
Chinese flowering dogwood**	*Cornus kousa var. chinensis*	6 × 4	f	B
Gray dogwood	*Cornus racemosa*	3 × 3	f	B
Cockspur hawthorn	*Crataegus crus-galli*	8 × 8	sp, f	B, P
Downy hawthorn*	*Crataegus mollis*	10 × 6	sp, f	B, P
Witchhazel	*Hamamelis virginiana*	4 × 4	f, w	F
Rose of Sharon**	*Hibiscus spp.*	varies	s	
Spicebush	*Lindera benzoin*	3 × 2	sp, f	B, F, DT
Rhododendrons	*Rhododendron spp.*	varies		
Staghorn sumac	*Rhus typhina*	2.5 × 2.5	s, f	B, ST, DT
Beaked willow	*Salix bebbiana*	4 × 9	sp	B, WS
Heartleaf willow	*Salix cordata*	1.75 × 1.75		WS
Pussy willow	*Salix discolor*	5 × 1.25	sp	P, WS
Heart-leafed willow	*Salix eriocephala*	3 × 3		WS
Shinning willow	*Salix lucida*	5 × 5		WS
Common elderberry	*Sambucus canadensis*	2.5 × 2	s	B, P, F, WS
Scarlet elderberry	*Sambucus pubens*	2.5 × 2	sp	B, P, WS
Silver buffalo berry**	*Shepherdia argentea*	10 × 9	sp, f	B, DT
Russett buffaloberry	*Shepherdia canadensis*	2 × 2	sp	B, DT
Nannyberry	*Viburnum lentago*	5 × 1.75	s, f	B
Highbush cranberry	*Viburnum trilobum*	2.5 × 2.5	sp, f	B

PERENNIALS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
GROUNDCOVERS				
Lady's mantle**	*Alchemilla mollis*	30 × 45	s	ST
Canada anemone	*Anemone canadensis*	30 × 30	sp, s	ST
Dwarf goat's beard**	*Aruncus aethusifolius*	25 × 30	s	WS

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Harebell	*Campanula rotundifolia*	30 × 20	s	
Spring beauty	*Claytonia virginica*	10 × 15	sp	
Wild strawberry	*Fragaria virginiana*	15 × 30	s	B, DT, ST
Coral bells **	*Heuchera* spp.	varies	w	B, P, DT
Creeping phlox	*Phlox subalata*	10 × 30	sp	P, DT
Canada violet	*Viola canadensis*	15 × 15	sp	F
≤60cm				
Yarrow	*Achillea millefollium*	45 × 50	s, f	P, F, DT, ST
White baneberry	*Actaea pachypoda*	60 × 60	s	WS, X
Red baneberry	*Actaea rubra*	60 × 50	s	WS
Nodding onion	*Allium cernuum*	45 × 25	s	B, P, F, DT
Pearly everlasting	*Anaphalis margaritacea*	60 × 30	s	P, DT
Wild columbine	*Aquilegia canadensis*	40 × 30	sp	B, P, X
Butterfly milkweed	*Asclepias tuberosa*	30 × 30	s	P, ST, DT, X
Turtlehead	*Chelone glabra*	60 × 40	s	P, WS
Lance-leaved coreopsis	*Coreopsis lanceolata*	30 × 30	s	P, DT, ST
Bleeding heart**	*Dicentra spectabilis*	60 × 40	sp	P, F, X
Big root geranium**	*Geranium macrorrhizum*	40 × 40	s, f, w	P, F, DT
Wild geranium	*Geranium maculatum*	40 × 50	sp	DT, WS
Three-flowered avens	*Geum triforum*	30 × 30	sp	DT, ST
Daylily **	*Hemerocallis* cvs.	varies	s	DT, ST
Blue flag iris	*Iris versicolor*	60 × 60	sp	ST, WS
Dense blazing star	*Liatris spicata*	30 × 25	s	B, P ,DT
Cardinal flower	*Lobelia cardinalis*	50 × 45	s	B, P, WS
Great blue lobelia	*Lobelia siphilitica*	50 × 45	s	B, P, WS
Wild lupine	*Lupinus perennis*	35 × 40	s	B, P, ST, X
Starry false lily of the valley	*Maianthemum stellatum*	30 × 25	sp	B, F
Bee balm*	*Monarda didyma*	60 × 60	s	B, F, P
Catmint**	*Nepeta* spp.	varies		P, DT
Foxglove beardtongue	*Penstemon digitalis*	50 × 45	s	B, P, DT
Hairy beardtongue	*Penstemon hirsutus*	50 × 40	s	B, P, DT
Bracken fern	*Pteridium aquilinum*	40 × 80		DT, WS
Black eyed-susan	*Rudbeckia hirta*	60 × 40	s, f	B, P, DT, ST
Blue-eyed grass	*Sisyrinchium montanum*	30 × 30	sp	DT, ST

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Bluestem goldenrod	*Solidago caesia*	30 × 30	f	P, DT
Canada goldenrod	*Solidago canadensis*	150 × 90	f	P, DT
Zigzag goldenrod	*Solidago fexicaulis*	30 × 30	s	P, DT
Heart-leaved aster	*Symphyotrichum cordifolius* (syn. *aster cordifolius)*	50 × 60	f	P, DT, ST
Heath aster	*Symphyotrichum ericoides* (syn. *astser ericoides)*	30 × 30	f	P, DT, ST
Early meadow rue	*Thalictrum dioicum*	30 × 30	sp	B, P
>60cm				
Bear's breeches **	*Acanthus mollis*	75 × 60		P
Giant blue hyssop	*Agastache foeniculum*	100 × 70	f	B, P, F, DT
Swamp milkweed	*Asclepias incarnata*	100 × 60	s	P, WS
Common milkweed	*Asclepias syriaca*	80 × 30	s	P, DT, WS
Blue false indigo	*Baptisia australis*	90 × 90	s	P, DT
Black snakeroot*	*Cimicifuga racemosa*	100 × 60	s	P, F, WS
Showy tick trefoil	*Desmodium canadense*	100 × 50	s	B, P, DT
Pale purple coneflower	*Echinacea pallida*	75 × 40	s	B, P, DT
Purple coneflower	*Echinacea purpurea*	90 × 50	s	B, P, DT
Boneset	*Eupatorium perfoliatum*	90 × 60	f	B, P, F
Joe Pye weed	*Eutrochium maculatum*	150 × 60	s	B, P, DT, WS
Sneezeweed	*Helenium autumnale*	100 × 60	f	B, P, WS
False sunflower	*Heliopsis helianthoides*	90 × 40	s	B, P
Monkey flower	*Mimulus ringens*	75 × 40	s	WS
Wild bergamot	*Monarda fistulosa*	90 × 75	s	B, P, DT, ST, F
Obedient plant	*Physostegia virginiana*	100 × 60	s	P, WS
Cutleaf coneflower	*Rudbeckia laciniata*	125 × 80	s	P, DT, ST
Cup plant	*Silphium perfoliatum*	150 × 75		WS
New England aster	*Symphyotrichum novae-angliae*	100 × 50	f	P, ST
Tall meadow-rue	*Thalictrum pubescens*	150 × 50	s	P
Blue vervain	*Verbena hastata*	125 × 60	s	ST, WS
Hoary vervain	*Verbena stricta*	90 × 60	s	DT, ST
Culver's root	*Veronicastrum virginicum*	125 × 60	s	P, DT, ST
Golden Alexander	*Zizia aurea*	75 × 45	sp	DT, ST

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GRASSES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Big bluestem	*Andropogon gerardi*	150 × 60		B, P, DT
Bluejoint reedgrass	*Calamagrostis canadensis*	100 × 80		B, DT, WS
Bebb's sedge	*Carex bebbii*	60 × 5		WS
Bristly sedge	*Carex comosa*	100 × 50		B, ST, WS
Fringed sedge	*Carex crinita*	100 × 100		WS
Morning star sedge	*Carex grayi*	60 × 50		WS, ST
Oak sedge	Carex pensylvanica	20 × 30		B, DT
Fox sedge	*Carex vulpinoidea*	50 × 40		B, ST, WS
Tufted hairgrass	*Deschampsia cespitosa*	60 × 60		B, DT, ST
Canada wildrye	*Elymus canadensis*	125 × 60		DT, ST
Virginia wildrye	*Elymus virginicus* var. *virginicus*	60 × 60		P, DT, ST
Soft rush	*Juncus effusus*	90 × 50		B, ST, WS
Giant lilyturf **	*Liriope muscari*	40 × 30	w	DT, ST
Switch grass	*Panicum virgatum*	120 × 75		B, DT, ST
Fountain grass	*Pennisetum alopecuroides*	90 × 80		B
Little bluestem	*Schizachyrium scoparium*	100 × 50		DT, ST
Indian grass	*Sorghastrum nutans*	120 × 45		B, DT, ST
Prairie dropseed	*Sporobolus heterolepsis*	60 × 45		B, DT

VINES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Chocolate vine **	*Akebia quinata*	8 × 3	sp	F
Trumpet vine*	*Campsis radicans*	7 × 1	s	B, DT, X
Virgin's bower	*Clematis virginiana*	4 × 4	s, f	B, P, WS
Virginia creeper	*Parthenocissus quinquefolia*	20 × 15	s, f	B, ST, DT, WS

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Part Shade/Shade

Planting areas designated as 'Part shade/shade' receive only 4–6 hours of direct sunlight per day, and plants in full shade receive less than 4 hours of sunlight. The light reaching these areas may be filtered through trees, other plants or structures leaving the areas in shade most of the day. Sunlight also reaches these areas often in the morning or late afternoon. Plants suitable for these areas are those which prefer relief from the intense midday heat and often prefer cooler environments.

TREES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
CONIFEROUS				
Balsam fir	*Abies balsamea*	18 × 6	w	F
White fir **	*Abies concolor*	15 × 8	w	
Dawn redwood **	*Metasequoia glyptostroboides*	20 × 7	w	WS
Blue spruce **	*Picea pungens*	15 × 4	w	DT, ST
Austrian pine **	*Pinus nigra*	16 × 12	w	DT
Eastern white cedar	*Thuja occidentalis*	10 × 3	w	DT
Eastern hemlock	*Tsuga canadensis*	18 × 8	w	
DECIDUOUS				
SMALL TREES: <8m				
Paperbark maple **	*Acer griseum*	6 × 5	f, w	
Mountain maple	*Acer spicatum*	6 × 2	f	
White flowering dogwood *	*Cornus florida*	7 × 7	f	B
Star magnolia **	*Magnolia stellata*	3 × 3	f, sp	F
Common chokecherry	*Prunus virginiana*	6 × 5	sp, f	B, F, DT
Sassafras*	*Sassafras albidum*	10 × 9	sp, f	B, P
American plum	*Prunus americana*	6 × 4	f	B, P, DT, F
MED TREES: 8m – 15m				
Red maple	*Acer rubrum*	12 × 10	f	P
Ohio buckeye *	*Aesculus glabra*	10 × 9	f	B
Blue beech	*Carpinus caroliniana*	8 × 8	f	B
Bitternut hickory	*Carya cordiformis*	15 × 14	f	WS
River birch **	*Betula nigra*	13 × 10	f, w	B
Common hackberry *	*Celtis occidentalis*	15 × 14	f	
Katsura tree **	*Cercidiphyllum japonicum*	12 × 4	f	
Eastern redbud *	*Cercis canadensis*	8 × 7		P, B

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Blue ash *	*Fraxinus quadrangulata*	15 × 10	f	
Maidenhair tree **	*Ginkgo biloba*	15 × 11	f	ST
Black gum *	*Nyssa sylvatica*	10 × 9	f	WS, B, ST
Ironwood	*Ostrya virginiana*	10 × 7	f	B
Pin cherry	*Prunus pensylvanica*	8 × 3	f, w	B
Showy mountain ash *	*Sorbus decora*	8 × 6	sp, s	B, WS
Japanese lilac tree **	*Syringa reticulata*	9 × 4	s, f	B, P, F
LARGE TREES: <15m				
Yellow birch	*Betula alleghaniensis*	20 × 12	f	
Shagbark hickory	*Carya ovata*	22 × 15	f, w	
Northern catalpa **	*Catalpa speciosa*	16 × 12	f	F
American beech	*Fagus grandifolia*	18 × 16		
Honey locust *	*Gleditsia triacanthos var. inermis*	17 × 12	f	DT, ST
Sweet gum	*Liquidambar styraciflua*	20 × 18	f	ST
Cucumber tree *	*Magnolia acuminata*	20 × 15	f	F, B
Eastern sycamore	*Platanus occidentalis*	27 × 20	w	
Balsam poplar	*Populus balsamifera*	25 × 14	f	P
Black cherry	*Prunus serotina*	18 × 8	f	B, F, ST
Little leaf linden **	*Tilia cordata*	16 × 8	f	F, P
American elm	*Ulmus americana*	18 × 13	f	DT

SHRUBS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
CONIFEROUS				
Savin juniper	*Juniperus sabina*	1 X 1	W	DT
BROADLEAF EVERGREEN				
Kinnickkinick	*Arctostaphylos uva-ursi*	0.1 × 1	w	B, F, DT
Common boxwood**	*Buxus sempervirens*	4 × 4	w	DT, F
Bearberry cotoneaster**	*Cotoneaster dammeri*	0.2 × 1	w, f	B, F
Oregon grape holly*	*Mahonia aquifolium*	1 × 1	w	B, F
Creeping grape-holly	*Mahonia repens*	0.3 × 1	w	B, F
Wintergreen	*Gaultheria procumbens*	0.1 × 0.2	f, w	F

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
DECIDUOUS				
HEIGHT: ≤2m				
Black chokecherry	*Aronia melanocarpa*	1.5 × 0.8	sp, f	B, F, ST, WS
New Jersey tea	*Ceanothus americanus*	1 × 1	w	B, DT, F, P
Buttonbush	*Cephalanthus occidentalis*	1.75 × 1.75	s	B, F, WS
Japanese quince**	*Chaenomeles japonica*	0.8 × 1.2	sp	B, F, DT
Sweet fern	*Comptonia peregrina*	0.3 × 0.3		P, F, ST, DT
Red osier dogwood	*Cornus sericea (syn. c. stolonifera)*	2 × 2	f, w	B, ST
Bunchberry	*Cornus canadensis*	0.1 × 0.2	sp, s, f	B
Slender deutzia	*Deutzia gracilis*	0.8 × 0.8	sp	F, DT
Bush honeysuckle	*Diervilla lonicera*	0.8 × 1		B, P, DT, ST, F
Weeping forsythia**	*Forsythia suspensa*	1.5 × 1.75	sp	
Pot o'gold	*Hypericum kalmianum*	0.5 × 0.5	s	P, DT, WS, X
Shrubby St. John's wort	*Hypericum prolificum*	1 × 1	s	P, ST, DT, X
Common winterberry	*Ilex verticillata*	1.75 × 1.75	s, w	B, ST, WS, X
Beautybush	*Kolkwitzia amabilis*	1.75 × 1.75	s	DT, WS
Vernal witchhazel**	*Hamamelis vernalis*	2 × 1.75	f, w	F
Canadian fly honeysuckle	*Lonicera canadensis*	1.25 × 1.25	sp	B
Partridge berry	*Mitchella repens*	0.1 × 0.2	w	F
Sweet gale	*Myrica gale*	1 × 0.8		B, F, WS
Bayberry	*Myrica pensylvanica*	1.75 × 1.75		B, F, ST, WS
Common ninebark	*Physocarpus opulifolius*	1.75 × 1.75	s	DT
Wild black currant	*Ribes americanum*	1.25 × 1.5	sp	B, P
Meadow rose	*Rosa blanda*	1.25 × 1.5	sp, s	B, P, F, ST
Swamp rose	*Rosa palustris*	1.5 × 1.5	s	B, P, F, ST, WS
Meadowsweet	*Spiraea alba*	1.25 × 1.25	s	P, ST, WS
Hardhack	*Spiraea tomentosa*	1 × 1	s	P, DT, ST
Snowberry	*Symphoricarpos albus*	1.25 × 1	s	B, DT, ST, WS
Low bush cranberry	*Vaccinium angustifolium*	0.5 × 0.5	sp, s, f	B, DT
Mapleleaf viburnum	*Viburnum acerifolium*	1.5 × 1	sp, s, f	
Arrowwood	*Viburnum dentatum*	1.75 × 1.75	sp, s	B, P, ST
Weigela	*Weigela spp.*	varies		

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
HEIGHT: >2m				
Saskatoon*	*Amelanchier alnifolia*	2.5 × 1.5	sp	B, F
Canadian serviceberry*	*Amelanchier canadensis*	5 × 3	sp, f	B, P, WS
Paw paw*	*Asimina triloba*	6 × 5	sp	WS
Alternative-leaved dogwood	*Cornus alternifolia*	4 × 7	s,f	B, P, F, WS
Chinese flowering dogwood**	*Cornus kousa var. chinensis*	6 × 4	f	B
Gray dogwood	*Cornus racemosa*	3 × 3	f	B
American hazelnut *	*Corylus americana*	4 × 2	f	
Beaked hazelnut	*Corylus cornuta*	2.5 × 2		
Witchhazel	*Hamamelis virginiana*	4 × 4	f, w	F
Spicebush	*Lindera benzoin*	3 × 2	sp, f	B, F, DT
Staghorn sumac	*Rhus typhina*	2.5 × 2.5	s, f	B, ST, DT
Slender willow	*Salix petiolaris*	2 × 2		WS
Common elderberry	*Sambucus canadensis*	2.5 × 2	s	B, P, F, WS
Scarlet elderberry	*Sambucus pubens*	2.5 × 2	sp	B, P, WS
Nannyberry	*Viburnum lentago*	5 × 1.75	s, f	B
Highbush cranberry	*Viburnum trilobum*	2.5 × 2.5	sp, f	B
Common elderberry	*Sambucus canadensis*	2.5 × 2	s	B, P, F, WS
Scarlet elderberry	*Sambucus pubens*	2.5 × 2	sp	B, P, WS
Nannyberry	*Viburnum lentago*	5 × 1.75	s, f	B
Highbush cranberry	*Viburnum trilobum*	2.5 × 2.5	sp, f	B

PERENNIALS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
GROUNDCOVERS				
Lady's mantle**	*Alchemilla mollis*	30 × 45	s	ST
Canada anemone	*Anemone canadensis*	30 × 30	sp, s	ST
Wild ginger	*Asarum canadense*	20 × 30	sp, s	F, WS
Siberian bugloss**	*Brunnera macrophylla*	30 × 30	sp	WS
Spring beauty	*Claytonia virginica*	10 × 15	sp	
Dutchman's breeches	*Dicentra cucullaria*	20 × 25	sp	ST, X
Red barrenwort**	*Epimedium rubrum*	20 × 30	w	
Wild strawberry	*Fragaria virginiana*	15 × 30	s	B, DT, ST

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
False lily of the valley	*Maianthemum canadense*	10 × 10	sp	B
False Solomon's seal	*Maianthemum racemosum*	70 × 40	sp	
Woodland phlox	*Phlox divaricata*	20 × 30	sp	P, F
Mayapple	*Podophyllum peltatum*	30 × 40	sp	F
Bloodroot	*Sanguinaria canadensis*	10 × 20	sp	
Blue-eyed grass	*Sisyrinchium montanum*	30 × 30	sp	DT, ST
Foam flower	*Tiarella cordifolia*	10 × 40	sp	WS
White trillium	*Trillium grandiflorum*	20 × 20	sp	
Canada violet	*Viola canadensis*	15 × 15	sp	F
Barren strawberry	*Waldsteinia fragarioides (syn. Geum fragarioides)*	5 × 30	sp	DT, ST
≤60cm				
Yarrow	*Achillea millefollium*	45 × 50	s, f	P, F, DT, ST
White baneberry	*Actaea pachypoda*	60 × 60	s	WS
Red baneberry	*Actaea rubra*	60 × 50	s	WS
Northern maidenhair fern	*Adiantum pedatum*	30 × 30		
Nodding onion	*Allium cernuum*	45 × 25	s	B, P, F, DT
Wild columbine	*Aquilegia canadensis*	40 × 30	sp	B, P, X
Jack-in the-pulpit	*Arisaema triphyllum*	30 × 20	sp	WS
Dwarf goat's beard **	*Aruncus aethusifolius*	25 × 30	s	WS
Lady fern	*Athyrium flix-femina*	60 × 60		
Blue cohosh	*Caulophyllum thalictroides*	45 × 50	sp	WS
Turtlehead	*Chelone glabra*	60 × 40	s	P, WS
Lance-leaved coreopsis	*Coreopsis lanceolata*	30 × 30		P, DT, ST
Bleeding heart**	*Dicentra spectabilis*	60 × 40	sp	P, F, X
Trout lily	*Erythronium americanum*	10 × 10	sp	
Wild geranium	*Geranium maculatum*	40 × 50	sp	DT, WS
Big root geranium**	*Geranium macrorrhizum*	40 × 40	s, f, w	P, F, DT
Three-flowered avens	*Geum triflorum*	30 × 30	sp	DT, ST
Lenten rose**	*Helleborus spp.*	varies	w, sp	DT, S, X
Daylily**	*Hemerocallis cultivars*	varies	s	DT, ST
Hosta**	*Hosta spp.*	varies		B, DT
Coral bells**	*Heuchera spp.*	varies	w	B, P, DT
Blue flag iris	*Iris versicolor*	60 × 60	sp	ST, WS

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Cardinal flower	*Lobelia cardinalis*	50 × 45	s	B, P, WS
Great blue lobelia	*Lobelia siphilitica*	50 × 45	s	B, P, WS
Starry false lily of the valley	*Maianthemum stellatum*	30 × 25	sp	B, F
Bee balm*	*Monarda didyma*	60 × 60	s	B, F, P
Catmint **	*Nepeta spp.*	varies		P, DT
Sensitive fern	*Onoclea sensibilis*	30 × 90		WS
Foxglove beardtongue	*Penstemon digitalis*	50 × 45	s	B, P, DT
Hairy beardtongue	*Penstemon hirsutus*	50 × 40	s	B, P, DT
Christmas fern	*Polystichum acrostichoides*	45 × 30	w	
Bracken fern	*Pteridium aquilinum*	40 × 80		DT, WS
Black eyed-susan	*Rudbeckia hirta*	60 × 40	s, f	B, P, DT, ST
Bluestem goldenrod	*Solidago caesia*	30 × 30	f	P, DT
Zigzag goldenrod	*Solidago fexicaulis*	30 × 30	s	P, DT
Heart-leaved aster	*Symphyotrichum cordifolius (syn. aster cordifolius)*	50 × 60	f	P, DT, ST
Heath aster	*Symphyotrichum ericoides (syn. aster ericoides)*	30 × 30	f	P, DT, ST
Early meadow rue	*Thalictrum dioicum*	30 × 30	sp	B, P
Large-flowered bellwort	*Uvularia grandiflora*	50 × 30		
>60cm				
Bear's breeches **	*Acanthus mollis*	75 × 60		P
Giant blue hyssop	*Agastache foeniculum*	100 × 70	f	B, P, F, DT
Goat's beard **	*Aruncus dioicus*	120 × 100	s	WS
Swamp milkweed	*Asclepias incarnata*	100 × 60	s	P, WS
Common milkweed	*Asclepias syriaca*	80 × 30	s	P, DT, WS
Blue false indigo	*Baptisia australis*	90 × 90	s	P, DT
Harebell	*Campanula rotundifolia*	30 × 20	s	
Black snakeroot *	*Cimicifuga racemosa*	100 × 60	s	P, F, WS
Marginal wood fern	*Dryopteris marginalis*	45 × 50	w	
Pale purple coneflower	*Echinacea pallida*	75 × 40	s	B, P, DT
Purple coneflower	*Echinacea purpurea*	90 × 50	s	B, P, DT
Joe Pye weed	*Eutrochium maculatum*	150 × 60	s	B, P, DT, WS
Woodland sunflower	*Helianthus divaricatus*	90 × 75	s	B, P
False sunflower	*Heliopsis helianthoides*	90 × 40	s	B, P
Canada lily	*Lilium canadense*	125 × 15	s	P

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Wild lupine	*Lupinus perennis*	35 × 40	s	B, P, ST, X
Ostrich fern	*Matteuccia struthiopteris*	90 × 60		
Monkey flower	*Mimulus ringens*	75 × 40	s	WS
Wild bergamot	*Monarda fistulosa*	90 × 75	s	B, P, DT, ST, F
Cinnamon fern	*Osmunda cinnamomea*	70 × 60		WS
Royal fern	*Osmunda regalis*	90 × 60		WS
Russian sage	*Perovskia atriplicifolia*	85 × 90	s	B, F, ST, DT
Obedient plant	*Physostegia virginiana*	100 × 60	s	P, WS
Cutleaf coneflower	*Rudbeckia laciniata*	125 × 80	s	P, DT, ST
Cup plant	*Silphium perfoliatum*	150 × 75		WS
New England aster	*Symphyotrichum novae-angliae*	100 × 50	f	P, ST
Culver's root	*Veronicastrum virginicum*	125 × 60	s	P, DT, ST
Marginal wood fern	*Dryopteris marginalis*	45 × 50	w	
Pale purple coneflower	*Echinacea pallida*	75 × 40	s	B, P, DT
Purple coneflower	*Echinacea purpurea*	90 × 50	s	B, P, DT
Joe Pye weed	*Eutrochium maculatum*	150 × 60	s	B, P, DT, WS
Woodland sunflower	*Helianthus divaricatus*	90 × 75	s	B, P
Galse sunflower	*Heliopsis helianthoides*	90 × 40	s	B, P
Canada lily	*Lilium canadense*	125 × 15	s	P
Wild lupine	*Lupinus perennis*	35 × 40	s	B, P, ST, X
Ostrich fern	*Matteuccia struthiopteris*	90 × 60		
Monkey flower	*Mimulus ringens*	75 × 40	s	WS
Wild bergamot	*Monarda fistulosa*	90 × 75	s	B, P, DT, ST, F
Cinnamon fern	*Osmunda cinnamomea*	70 × 60		WS
Royal fern	*Osmunda regalis*	90 × 60		WS
Russian sage	*Perovskia atriplicifolia*	85 × 90	s	B, F, ST, DT
Obedient plant	*Physostegia virginiana*	100 × 60	s	P, WS
Cutleaf coneflower	*Rudbeckia laciniata*	125 × 80	s	P, DT, ST
Cup plant	*Silphium perfoliatum*	150 × 75		WS
New England aster	*Symphyotrichum novae-angliae*	100 × 50	f	P, ST
Culver's root	*Veronicastrum virginicum*	125 × 60	s	P, DT, ST

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

GRASSES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Bluejoint reedgrass	*Calamagrostis canadensis*	100 × 80		B, DT, WS
Bebb's sedge	*Carex bebbii*	60 × 5		WS
Bristly sedge	*Carex comosa*	100 × 50		B, ST, WS
Fringed sedge	*Carex crinita*	100 × 100		WS
Morning star sedge	*Carex grayi*	60 × 50		WS, ST
Oak sedge	*Carex pensylvanica*	20 × 30		B, DT
Fox sedge	*Carex vulpinoidea*	50 × 40		B, ST, WS
Tufted hairgrass	*Deschampsia cespitosa*	60 × 60		B, DT, ST
Canada wildrye	*Elymus canadensis*	125 × 60		DT, ST
Bottlebrush grass	*Elymus hystrix*	60 × 30		B, P, DT
Virginia wildrye	*Elymus virginicus var. virginicus*	60 × 60		P, DT, ST
Giant lilyturf **	*Liriope muscari*	40 × 30	w	DT, ST
Switch grass	*Panicum virgatum*	120 × 75		B, DT, ST
Indian grass	*Sorghastrum nutans*	120 × 45		B, DT, ST

VINES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Chocolate vine**	*Akebia quinata*	8 × 3	sp	F
Trumpet vine*	*Campsis radicans*	7 × 1	s	B, DT, X
Virgin's bower	*Clematis virginiana*	4 × 4	s, f	B, P, WS
Virginia creeper	*Parthenocissus quinquefolia*	20 × 15	s, f	B, ST, DT, WS

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

Drought

The plants listed below are specifically selected for their ability to thrive in environments susceptible to drought. While YZD is not in a drought prone area, and these plants may play a role in the overall site stormwater management strategy, these areas will drain completely in 24–48 hours following rain events, and remain dry when rainfall is infrequent. Therefore these areas will drain completely within 24–48 hours and be dry when rainfall is infrequent, therefore these plants must be capable of surviving in both wet and dry conditions as well as tolerating possible pollutants from surrounding areas.

TREES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SUN	SEASONAL INTEREST	QUALITIES
CONIFEROUS					
Blue spruce**	*Picea pungens*	15 × 4	SN, PS	w	DT, ST
Austrian pine**	*Pinus nigra*	16 × 12	SN, PS	w	DT, ST
Red pine	*Pinus resinosa*	30 × 6	SN	w	DT
Eastern white cedar	*Thuja occidentalis*	10 × 3	PS	w	DT
DECIDUOUS					
Common chokecherry	*Prunus virginiana*	6 × 5	SN, PS	sp, f	B, F, DT
Freeman maple	*Acer x freemanii*	15 × 12	SN	f	DT
Honey locust *	*Gleditsia triacanthos var. inermis*	17 × 12	SN, PS	f	DT, ST
American elm	*Ulmus americana*	18 × 13	SN, PS	f	DT
American plum	*Prunus americana*	6 × 4	PS	f	B, P, DT, F

SHRUBS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SUN	SEASONAL INTEREST	QUALITIES
CONIFEROUS					
Common juniper	*Juniperus communis*	4 × 6	SN	w	ST, DT
Creeping juniper	*Juniperus horizontalis*	1 × 2	SN	w	ST, DT
Savin juniper	*Juniperus sabina*	1 × 1	SN	W	DT
Canadian yew	*Taxus canadensis*	0.5 × 0.8	SN	w	B, DT, X
BROADLEAF EVERGREEN					
Kinnickkinick	*Arctostaphylos uva-ursi*	0.1 × 1	SN, PS	w	B, F, DT
Common boxwood*	*Buxus sempervirens*	4 × 4	SN, PS	w	DT, F
Great plains yucca*	*Yucca glauca*	0.6 × 0.6	SN	w	ST, DT

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SUN	SEASONAL INTEREST	QUALITIES
DECIDUOUS					
HEIGHT: ≤2m					
New Jersery tea	*Ceanothus americanus*	1 × 1	SN, PS	w	B, P, F, DT
Japanese quince*	*Chaenomeles japonica*	0.8 × 1.2	SN, PS	sp	B, F, DT
Sweet fern	*Comptonia peregrina*	0.3 × 0.3	SN, PS		P, F, ST, DT
Somerset daphne	*Daphne x burkwoodii 'Somerset'*	0.8 × 1.2	SN	sp	B, F, DT
Bush honeysuckle	*Diervilla lonicera*	0.8 × 1	SN, PS		B, P, F, DT, ST
Pot o'gold	*Hypericum kalmianum*	0.5 × 0.5	SN, PS	s	P, DT, WS, X
Shrubby St. John's wort	*Hypericum prolificum*	1 × 1	SN, PS	s	P, ST, DT, X
Beautybush	*Kolkwitzia amabilis*	1.75 × 1.75	SN, PS	s	DT, WS
Common ninebark	*Physocarpus opulifolius*	1.75 × 1.75	SN, PS	s	DT
Alpine currant*	*Ribes alpinum*	1.25 – 1.5	SN	sp	B, DT
Wild red raspberry	*Rubus idaeus ssp strigosus*	1.75 × 1.75	SN	s, f	B, DT
Black raspberry	*Rubus occidentalis*	1 × 2.5	SN	s, f	B, DT
Hardhack	*Spiraea tomentosa*	1 × 1	SN, PS	s	P, DT, ST
Snowberry	*Symphoricarpos albus*	1.25 × 1	SN, PS	s	B, DT, ST, WS
Low bush cranberry	*Vaccinium angustifolium*	0.5 × 0.5	SN, PS	sp, s, f	B, DT
HEIGHT: >2m					
Spicebush	*Lindera benzoin*	3 × 2	SN, PS	sp, f	B, F, DT
Staghorn sumac	*Rhus typhina*	2.5 × 2.5	SN, PS	s, f	B, ST, DT
Silver buffalo berry **	*Shepherdia argentea*	10 × 9	SN	sp, f	B, DT
Russett buffaloberry	*Shepherdia canadensis*	2 × 2	SN	sp	B, DT

PERENNIALS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
GROUNDCOVERS					
Wild strawberry	*Fragaria virginiana*	15 × 30	SN, PS	s	B, DT, ST
Creeping phlox	*Phlox subalata*	10 × 30	SN	sp	P, DT
Blue-eyed grass	*Sisyrinchium montanum*	30 × 30	SN, PS	sp	DT, ST
Barren strawberry	*Waldsteinia fragarioides (syn. Geum fragarioides)*	5 × 30	PS	sp	DT, ST
60cm and under					
Nodding onion	*Allium cernuum*	45 × 25	SN, PS	s	B, P, F, DT
Pearly everlasting	*Anaphalis margaritacea*	60 × 30	SN	s	P, DT

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
Lance-leaved coreopsis	*Coreopsis lanceolata*	30 × 30	SN, PS	s	P, DT, ST
Big root geranium**	*Geranium macrorrhizum*	40 × 40	SN, PS	s, f, w	P, F, DT
Wild geranium	*Geranium maculatum*	40 × 50	SN, PS	sp	DT, WS
Three-flowered avens	*Geum triforum*	30 × 30	SN, PS	sp	DT, ST
Lenten rose**	*Helleborus spp.*	varies	PS	w, sp	DT, S, X
Daylily**	*Hemerocallis cvs.*	varies	SN, PS	s	DT, ST
Hosta**	*Hosta spp.*	varies	PS		B, DT
Coral bells**	*Heuchera spp.*	varies	PS	w	B, P, DT
Dense blazing star	*Liatris spicata*	30 × 25	SN	s	B, P ,DT
Catmint**	*Nepeta spp.*	varies	SN, PS		P, DT
Foxglove beardtongue	*Penstemon digitalis*	50 × 45	SN, PS	s	B, P, DT
Hairy beardtongue	*Penstemon hirsutus*	50 × 40	SN, PS	s	B, P, DT
Bracken fern	*Pteridium aquilinum*	40 × 80	SN, PS		DT, WS
Black eyed-susan	*Rudbeckia hirta*	60 × 40	SN, PS	s, f	B, P, DT, ST
Blue-eyed grass	*Sisyrinchium montanum*	30 × 30	SN, PS	sp	DT, ST
Bluestem goldenrod	*Solidago caesia*	30 × 30	SN, PS	f	P, DT
Canada goldenrod	*Solidago canadensis*	150 × 90	SN, PS	f	P, DT
Zigzag goldenrod	*Solidago fexicaulis*	30 × 30	SN, PS	s	P, DT
Heart-leaved aster	*Symphyotrichum cordifolius (syn. aster cordifolius)*	50 × 60	SN, PS	f	P, DT, ST
Heath aster	*Symphyotrichum ericoides (syn. astser ericoides)*	30 × 30	SN, PS	f	P, DT, ST
>60cm					
Giant blue hyssop	*Agastache foeniculum*	100 × 70	SN, PS	f	B, P, F, DT
Common milkweed	*Asclepias syriaca*	80 × 30	SN, PS	s	P, DT, WS
Butterfly milkweed	*Asclepias tuberosa*	30 × 30	SN	s	P, ST, DT, X
Showy tick trefoil	*Desmodium canadense*	100 × 50	SN	s	B, P, DT
Pale purple coneflower	*Echinacea pallida*	75 × 40	SN, PS	s	B, P, DT
Purple coneflower	*Echinacea purpurea*	90 × 50	SN, PS	s	B, P, DT
Joe Pye weed	*Eutrochium maculatum*	150 × 60	SN, PS	s	B, P, DT, WS
Wild bergamot	*Monarda fistulosa*	90 × 75	SN, PS	s	B, P, DT, ST, F
Russian sage	*Perovskia atriplicifolia*	85 × 90	PS	s	B, F, ST, DT
Cutleaf coneflower	*Rudbeckia laciniata*	125 × 80	SN, PS	s	P, DT, ST
Hoary vervain	*Verbena stricta*	90 × 60	SN	s	DT, ST

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
Culver's root	*Veronicastrum virginicum*	125 × 60	SN, PS	s	P, DT, ST
Golden Alexander	*Zizia aurea*	75 × 45	SN	sp	DT, ST

GRASSES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
Big bluestem	*Andropogon gerardi*	150 × 60	SN		B, P, DT
Bluejoint reedgrass	*Calamagrostis canadensis*	100 × 80	SN, PS		B, DT, WS
Oak sedge	*Carex pensylvanica*	20 × 30	SN, PS		B, DT
Tufted hairgrass	*Deschampsia cespitosa*	60 × 60	SN, PS		B, DT, ST
Canada wildrye	*Elymus canadensis*	125 × 60	SN, PS		DT, ST
Bottlebrush grass	*Elymus hystrix*	60 × 30	SN, PS		B, P, DT
Virginia wildrye	*Elymus virginicus var. virginicus*	60 × 60	SN, PS		P, DT, ST
Giant lilyturf **	*Liriope muscari*	40 × 30	SN	w	DT, ST
Switch grass	*Panicum virgatum*	120 × 75	SN, PS		B, DT, ST
Little bluestem	*Schizachyrium scoparium*	100 × 50	SN, PS		DT, ST
Indian grass	*Sorghastrum nutans*	120 × 45	SN, PS		B, DT, ST
Prairie dropseed	*Sporobolus heterolepsis*	60 × 45	SN		B, DT

VINES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SUN	SEASONAL INTEREST	QUALITIES
Trumpet vine*	*Campsis radicans*	7 × 1	SN, PS	s	B, DT, X
Virginia creeper	*Parthenocissus quinquefolia*	20 × 15	SN, PS	s, f	B, ST, DT, WS

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

Moist/Wet

Areas which are often moist or wet are typically located in low lying areas within the landscape with low levels of infiltration (e.g. higher clay content in soils), and are special considerations of the overall stormwater management system. Plantings in these areas help to filter and clean the water through a process called phytoremediation, a process that involves slowing the flow of water (helping to trap suspended solids) and the uptake of other pollutants within the plants themselves. These areas appear in the form of a marsh with seasonal water, a shallow wetland with standing water and an abundance of plants, or a wet detention pond with plants growing only at the perimeter. Plant species in these types of areas must be able to tolerate waterlogged conditions for extended periods of time. In addition, they provide important ecosystem services through their unique growing conditions for specialized plants. They contribute to an improved biodiversity of the local urban ecosystem overall by attracting many different birds, and supporting mammals and other creatures, including pollinators that have evolved in specific relationships with these kinds of plants.

SN – full sun, PS – part shade, shade

TREES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SUN	SEASONAL INTEREST	QUALITIES
CONIFEROUS					
American larch	*Larix laricina*	18 × 6	SN		WS
Dawn redwood**	*Metasequoia glyptostroboides*	20 × 7	SN, PS	w	WS
Black spruce	*Picea mariana*	15 × 8	SN, PS	w	WS
Eastern white cedar	*Thuja occidentalis*	10 × 3	SN, PS	w	WS
DECIDUOUS					
Silver maple	*Acer saccharinum*	18 × 15	SN	f	WS
Black ash	*Fraxinus nigra*	15 × 9	PS	f	WS
American larch	*Larix laricina*	18 × 6	SN		WS
Black gum*	*Nyssa sylvatica*	10 × 9	SN, PS	f	WS, B, ST
Big-toothed aspen	*Populus grandidentata*	18 × 8	SN	f	WS
Trembling aspen	*Populus tremuloides*	10 × 5	SN, PS	f	WS
Swamp white oak	*Quercus Bicolor*	15 × 15	SN	f	WS
Black willow	*Salix nigra*	18 × 4	SN		WS, B
Showy mountain ash*	*Sorbus decora*	8 × 6	SN, PS	sp, s	B, WS

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

SHRUBS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SUN	SEASONAL INTEREST	QUALITIES
DECIDUOUS					
Canadian serviceberry*	*Amelanchier canadensis*	5 × 3	SN, PS	sp, f	B, P, WS
Black chokecherry	*Aronia melanocarpa*	1.5 × 0.8	SN, PS	sp, f	B, F, ST, WS
Paw paw*	*Asimina triloba*	6 × 5	SN, PS	sp	WS
Buttonbush	*Cephalanthus occidentalis*	1.75 × 1.75	SN, PS	s	B, F, WS
Alternative-leaved dogwood	*Cornus alternifolia*	4 × 7	SN, PS	s,f	B, P, F, WS
Common winterberry	*Ilex verticillata*	1.75 × 1.75	SN, PS		B, ST, WS, X
Sweet gale	*Myrica gale*	1 × 0.8	SN, PS		B, F, WS
Pasture rose	*Rosa carolina*	1.5 × 1.75	SN	s, f	B, P, F, ST, WS
Swamp rose	*Rosa palustris*	1.5 × 1.5	SN, PS	s	B, P, F, ST, WS
Beaked willow	*Salix bebbiana*	4 × 9	SN	sp	B, WS
Heartleaf willow	*Salix cordata*	1.75 × 1.75	SN		WS
Pussy willow	*Salix discolor*	5 × 1.25	SN	sp	P, WS
Heart-leafed willow	*Salix eriocephala*	3 × 3	SN		WS
Shinning willow	*Salix lucida*	5 × 5	SN		WS
Slender willow	*Salix petiolaris*	2 × 2	SN, PS		WS
Common elderberry	*Sambucus canadensis*	2.5 × 2	SN, PS	s	B, P, F, WS
Scarlet elderberry	*Sambucus pubens*	2.5 × 2	SN, PS	sp	B, P, WS
Meadowsweet	*Spiraea alba*	1.25 × 1.25	SN, PS	s	P, ST, WS
Snowberry	*Symphoricarpos albus*	1.25 × 1	SN, PS	s	B, DT, ST, WS

PERENNIALS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
GROUNDCOVERS					
Dwarf goat's beard**	*Aruncus aethusifolius*	25 × 30	SN, PS	s	WS
Wild ginger	*Asarum canadense*	20 × 30	PS	sp, s	F, WS
Siberian bugloss**	*Brunnera macrophylla*	30 × 30	PS	sp	WS
60cm and under					
White baneberry	*Actaea pachypoda*	60 × 60	SN, PS	s	WS, X
Jack-in the-pulpit	*Arisaema triphyllum*	30 × 20	PS	sp	WS
Blue cohosh	*Caulophyllum thalictroides*	45 × 50	PS	sp	WS
Turtlehead	*Chelone glabra*	60 × 40	SN, PS	s	P, WS

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
Wild geranium	*Geranium maculatum*	40 × 50	SN, PS	sp	DT, WS
Pot o'gold	*Hypericum kalmianum*	50 × 50	SN, PS		P, DT, WS, X
Blue flag iris	*Iris versicolor*	60 × 60	SN, PS	sp	WS
Sensitive fern	*Onoclea sensibilis*	30 × 90	PS		WS
Bracken fern	*Pteridium aquilinum*	40 × 80	SN, PS		DT, WS
>60cm					
Goat's beard**	*Aruncus dioicus*	120 × 100	PS	s	WS
Swamp milkweed	*Asclepias incarnata*	100 × 60	SN, PS	s	P, WS
Common milkweed	*Asclepias syriaca*	80 × 30	SN, PS	s	P, DT, WS
Black snakeroot*	*Cimicifuga racemosa*	100 × 60	SN, PS	s	P, F, WS
Joe Pye weed	*Eutrochium maculatum var. maculatum*	150 × 60	SN, PS	s	B, P, WS, DT
Sneezeweed	*Helenium autumnale*	100 × 60	SN	f	B, P, WS
Monkey flower	*Mimulus ringens*	75 × 40	SN, PS	s	WS
Cinnamon fern	*Osmunda cinnamomea*	70 × 60	PS		WS
Obedient plant	*Physostegia virginiana*	100 × 60	SN, PS	s	P, WS
Cup plant	*Silphium perfoliatum*	150 × 75	SN, PS		WS
Blue vervain	*Verbena hastata*	125 × 60	SN	s	WS

GRASSES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
Bluejoint reedgrass	*Calamagrostis canadensis*	100 × 80	SN, PS		B, DT, WS
Bristly sedge	*Carex bebbii*	60 × 5	SN, PS		WS
Bristly sedge	*Carex comosa*	100 × 50	SN, PS		B, ST, WS
Fringed sedge	*Carex crinita*	100 × 100	SN, PS		WS
Morning star sedge	*Carex grayi*	60 × 50	SN, PS		ST, WS
Fox sedge	*Carex vulpinoidea*	50 × 40	SN, PS		B, WS
Soft rush	*Juncus effusus*	90 × 50	SN		B, ST, WS

VINES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SUN	SEASONAL INTEREST	QUALITIES
Virginia creeper	*Parthenocissus quinquefolia*	20 × 15	SN, PS	s, f	B, ST, DT, WS

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

Naturalization

Naturalized areas are designed to allow native plant species to spread out through their roots or seeds, have minimal maintenance requirements ("no mow zones"), and are often intended to reinstate presettlement ecosystems. The native species specified are well adapted to the local climate, soil and ecological conditions, also with considerations of their ability to still thrive in harsh urban environments. They are intended to eventually become entirely self-sustaining, once the plants are fully established. Naturalized areas play a vital role in supporting local ecosystems through their biodiverse plant mixes (including a broad mix of trees, shrubs and herbaceous plants), and are often installed with the aim of providing food (throughout the seasons) and improving local habitats for all urban creatures. A broad variety of species should be planted with ranges in height, width, and plant forms to replicate the variety that is present in nature. These plantings also contribute to the overall health and stability of the soil through the natural cycling of nutrients supported by the decomposition of plant material. Further, naturalized areas contribute to stormwater management though slowing down and spreading out stormwater runoff and encouraging it to infiltrate back into the ground.

TREES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
CONIFEROUS				
Balsam fir	*Abies balsamea*	18 × 6	w	F
American larch	*Larix laricina*	18 × 6		WS
Jack pine*	*Pinus banksiana*	10 × 6	w	
Red pine	*Pinus resinosa*	30 × 6	w	DT
Eastern white pine	*Pinus strobus*	20 × 7	w	
Eastern white cedar	*Thuja occidentalis*	10 × 3	w	WS
Eastern hemlock	*Tsuga canadensis*	18 × 8	w	
DECIDUOUS				
Black maple	*Acer nigrum*	15 × 7		
Red maple	*Acer rubrum*	12 × 10	f	P
Silver maple	*Acer saccharinum*	18 × 15	f	WS
Sugar maple	*Acer saccharum*	25 × 15	f	
Yellow birch	*Betula alleghaniensis*	20 × 12	f	
Paper birch	*Betula papyrifera*	13 × 10	f, w	ST, B
Bitternut hickory	*Carya cordiformis*	15 × 14	f	WS
Shagbark hickory	*Carya ovata*	22 × 15	f, w	
Blue beech	*Carpinus caroliniana*	8 × 8	f	B
Eastern redbud*	*Cercis canadensis*	8 × 7		P, B

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
White flowering dogwood*	*Cornus florida*	7 × 7	f	B
American beech	*Fagus grandifolia*	18 × 16	f	
White ash	*Fraxinus americana*	21 × 14	f	
Black ash	*Fraxinus nigra*	15 × 9	f	WS
Green ash	*Fraxinus pennsylvanica*	18 × 10	f	B
Blue ash*	*Fraxinus quadrangulata*	15 × 10	f	
Butternut	*Juglans cinerea*	12 × 12	f	P
Black walnut	*Juglans nigra*	18 × 16	f	ST, DT, WS
Cucumber tree *	*Magnolia acuminata*		f	F, B
Black gum*	*Nyssa sylvatica*	10 × 9	f	WS, B, ST
Ironwood	*Ostrya virginiana*	10 × 7	f	B
Balsam poplar	*Populus balsamifera*	25 × 14	f	P
Eastern cottonwood	*Populus deltoides*	20 × 16	f	
Big-toothed aspen	*Populus grandidentata*	18 × 8	f	WS
Trembling aspen	*Populus tremuloides*	10 × 5	f	WS
Black cherry	*Prunus serotina*	18 × 8	f	B, F, ST
White oak	*Quercus alba*	18 × 18	f	
Swamp white oak	*Quercus bicolor*	15 × 15	f	WS
Burr oak	*Quercus macrocarpa*	18 × 13	f	ST
Chinkapin oak*	*Quercus muehlenbergii*	15 × 12	f	
Pin oak*	*Quercus palustris*	20 × 13	f	ST
Northern red oak	*Quercus rubra*	16 × 15	f	ST
Wild red raspberry	*Rubus idaeus ssp strigosus*	1.75 × 1.75	s, f	B, DT
Black raspberry	*Rubus occidentalis*	1 × 2.5	s, f	B, DT
Flowering raspberry	*Rubus odoratus*	1.5 × 1.5	s	B, F
Peach-leaved willow	*Salix amygdaloides*	11 × 8		WS, B
Black willow	*Salix nigra*	18 × 4		WS, B
Sassafras*	*Sassafras albidum*	10 × 9	sp, f	B, P
Basswood	*Tilia americana*	20 × 13	f	F, P

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SHRUBS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
BROADLEAF EVERGREEN				
Oregon grape holly *	*Mahonia aquifolium*	1 × 1	w	B, F
Creeping grape-holly	*Mahonia repens*	0.3 × 1	w	B, F
DECIDUOUS				
Saskatoon*	*Amelanchier alnifolia*	2.5 × 1.5	sp	B, F
Canadian serviceberry*	*Amelanchier canadensis*	5 × 3	sp, f	B, P, WS
Allegheny serviceberry	*Amelanchier laevis*	4 × 4	sp, f	B, F
Black chokecherry	*Aronia melanocarpa*	1.5 × 0.8	sp, f	B, F, ST, WS
Paw paw*	*Asimina triloba*	6 × 5	sp	WS
Buttonbush	*Cephalanthus occidentalis*	1.75 × 1.75	s	B, F, WS
Sweet fern	*Comptonia peregrina*	0.3 × 0.3		P, F, ST, DT
Alternative-leaved dogwood	*Cornus alternifolia*	4 × 7	s,f	B, P, F, WS
Gray dogwood	*Cornus racemosa*	3 × 3	f	B
Red osier dogwood	*Cornus sericea (syn. stolonifera)*	2 × 2	f, w	B, ST
American hazelnut *	*Corylus americana*	4 × 2	f	
Beaked hazelnut	*Corylus cornuta*	2.5 × 2		
Cockspur hawthorn	*Crataegus crus-galli*	8 × 8	sp, f	B, P
Downy hawthorn *	*Crataegus mollis*	10 × 6	sp, f	B, P
Bush honeysuckle	*Diervilla lonicera*	0.8 × 1		B, P, DT, ST, F
Witchhazel	*Hamamelis virginiana*	4 × 4	f, w	F
Spicebush	*Lindera benzoin*	3 × 2	sp, f	B, F, DT
Canadian fly honeysuckle	*Lonicera canadensis*	1.25 × 1.25	sp	B
Sweet gale	*Myrica gale*	1 × 0.8		B, F, WS
Common ninebark	*Physocarpus opulifolius*	1.75 × 1.75	s	DT
Wild black currant	*Ribes americanum*	1.25 × 1.5	sp	B, P
Meadow rose	*Rosa blanda*	1.25 × 1.5	sp, s	B, P, F, ST
Pasture rose	*Rosa carolina*	1.5 × 1.75	s, f	B, P, F, ST, WS
Swamp rose	*Rosa palustris*	1.5 × 1.5	s	B, P, F, ST, WS
Beaked willow	*Salix bebbiana*	4 × 9	sp	B, WS
Heartleaf willow	*Salix cordata*	1.75 × 1.75		WS
Pussy willow	*Salix discolor*	5 × 1.25	sp	P, WS
Heart-leafed willow	*Salix eriocephala*	3 × 3		WS
Shinning willow	*Salix lucida*	5 × 5		WS

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Slender willow	*Salix petiolaris*	2 × 2		WS
Common elderberry	*Sambucus canadensis*	2.5 × 2	s	B, P, F, WS
Scarlet elderberry	*Sambucus pubens*	2.5 × 2	sp	B, P, WS
Russett buffaloberry	*Shepherdia canadensis*	2 × 2	sp	B, DT
Meadowsweet	*Spiraea alba*	1.25 × 1.25	s	P, ST, WS
Hardhack	*Spiraea tomentosa*	1 × 1	s	P, DT, ST
Snowberry	*Symphoricarpos albus*	1.25 × 1	s	B, DT, ST, WS
Mapleleaf viburnum	*Viburnum acerifolium*	1.5 × 1	sp, s, f	
Arrowwood	*Viburnum dentatum*	1.75 × 1.75	sp, s	B, P, ST
Nannyberry	*Viburnum lentago*	5 × 1.75	s, f	B
Highbush cranberry	*Viburnum trilobum*	2.5 × 2.5	sp, f	B
Alleghany blackberry	*Rubus allegheniensis*	1 × 1.75	s,f	B

PERENNIALS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Red baneberry	*Actaea rubra*	60 × 50	s	WS
Northern maidenhair fern	*Adiantum pedatum*	30 × 30		
Giant blue hyssop	*Agastache foeniculum*	100 × 70	f	B, P, F, DT
Nodding onion	*Allium cernuum*	45 × 25	s	B, P, F, DT
Pearly everlasting	*Anaphalis margaritacea*	60 × 30	s	P, DT
Canada anemone	*Anemone canadensis*	30 × 30	sp, s	ST
Wild columbine	*Aquilegia canadensis*	40 × 30	sp	B, P, X
Jack-in the-pulpit	*Arisaema triphyllum*	30 × 20	sp	WS
Wild ginger	*Asarum canadense*	20 × 30	sp, s	F, WS
Swamp milkweed	*Asclepias incarnata*	100 × 60	s	P, WS
Common milkweed	*Asclepias syriaca*	80 × 30	s	P, DT, WS
Butterfly milkweed	*Asclepias tuberosa*	30 × 30	s	P, ST, DT, X
Harebell	*Campanula rotundifolia*	30 × 20	s	
Blue cohosh	*Caulophyllum thalictroides*	45 × 50	sp	WS
Lance-leaved coreopsis	*Coreopsis lanceolata*	30 × 30		P, DT, ST
Showy tick trefoil	*Desmodium canadense*	100 × 50	s	B, P, DT
Dutchman's breeches	*Dicentra cucullaria*	20 × 25	sp	ST, X
Marginal wood fern	*Dryopteris marginalis*	45 × 50	w	

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Pale purple coneflower	*Echinacea pallida*	75 × 40	s	B, P, DT
Purple coneflower	*Echinacea purpurea*	90 × 50	s	B, P, DT
Trout lily	*Erythronium americanum*	10 × 10	sp	
Joe Pye weed	*Eutrochium maculatum*	150 × 60	s	B, P, DT, WS
Wild strawberry	*Fragaria virginiana*	15 × 30	s	B, DT, ST
Wild geranium	*Geranium maculatum*	40 × 50	sp	DT, WS
Three-flowered avens	*Geum triforum*	30 × 30	sp	DT, ST
Sneezeweed	*Helenium autumnale*	100 × 60	f	B, P, WS
Woodland sunflower	*Helianthus divaricatus*	90 × 75	s	B, P
False sunflower	*Heliopsis helianthoides*	90 × 40	s	B, P
Blue flag iris	*Iris versicolor*	60 × 60	sp	ST, WS
Dense blazing star	*Liatris spicata*	30 × 25	s	B, P ,DT
Cardinal flower	*Lobelia cardinalis*	50 × 45	s	B, P, WS
Great blue lobelia	*Lobelia siphilitica*	50 × 45	s	B, P, WS
Wild lupine	*Lupinus perennis*	35 × 40	s	B, P, ST, X
False lily of the valley	*Maianthemum canadense*	10 × 10	sp	B
False Solomon's seal	*Maianthemum racemosum*	70 × 40	sp	
Ostrich fern	*Matteuccia struthiopteris*	90 × 60		
Monkey flower	*Mimulus ringens*	75 × 40	s	WS
Wild bergamot	Monarda fistulosa	90 × 75	s	B, P, DT, ST, F
Cinnamon fern	*Osmunda cinnamomea*	70 × 60		WS
Royal fern	*Osmunda regalis*	90 × 60		WS
Foxglove beardtongue	*Penstemon digitalis*	50 × 45	s	B, P, DT
Woodland phlox	*Phlox divaricata*	20 × 30	sp	P, F
Obedient plant	*Physostegia virginiana*	100 × 60	s	P, WS
Mayapple	*Podophyllum peltatum*	30 × 40	sp	F
Bracken fern	*Pteridium aquilinum*	40 × 80		DT, WS
Black eyed-susan	*Rudbeckia hirta*	60 × 40	s, f	B, P, DT, ST
Cutleaf coneflower	*Rudbeckia laciniata*	125 × 80	s	P, DT, ST
Bloodroot	*Sanguinaria canadensis*	10 × 20	sp	
Cup plant	*Silphium perfoliatum*	150 × 75		WS
Bluestem goldenrod	*Solidago caesia*	30 × 30	f	P, DT
Canada goldenrod	*Solidago canadensis*	150 × 90	f	P, DT
Zigzag goldenrod	*Solidago fexicaulis*	30 × 30	s	P, DT

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Heart-leaved aster	*Symphyotrichum cordifolius* (syn. *aster cordifolius)*	50 × 60	f	P, DT, ST
Heath aster	*Symphyotrichum ericoides* (syn. *aster ericoides)*	30 × 30	f	P, DT, ST
New England aster	*Symphyotrichum novae-angliae*	100 × 50	f	P, ST
Sky blue aster	*Symphyotrichum oolentangiense*	60 × 30	f	DT, ST
Tall meadow-rue	*Thalictrum pubescens*	150 × 50	s	P
White trillium	*Trillium grandiflorum*	20 × 20	sp	
Large-flowered bellwort	*Uvularia grandiflora*	50 × 30		
Blue vervain	*Verbena hastata*	125 × 60	s	ST, WS
Hoary vervain	*Verbena stricta*	90 × 60	s	DT, ST
Culver's root	*Veronicastrum virginicum*	125 × 60	s	P, DT, ST
Barren strawberry	*Waldsteinia fragarioides* (syn. *Geum fragarioides)*	5 × 30	sp	DT, ST
Golden Alexander	*Zizia aurea*	75 × 45	sp	DT, ST

GRASSES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Big bluestem	*Andropogon gerardi*	150 × 60		B, P, DT
Bluejoint reedgrass	*Calamagrostis canadensis*	100 × 80		B, DT, WS
Fringed sedge	*Carex crinita*	100 × 100		WS
Morning star sedge	*Carex grayi*	60 × 50		WS, ST
Fox sedge	*Carex vulpinoidea*	50 × 40		B, ST, WS
Tufted hairgrass	*Deschampsia cespitosa*	60 × 60		B, DT, ST
Canada wildrye	*Elymus canadensis*	125 × 60		DT, ST
Bottlebrush grass	*Elymus hystrix*	60 × 30		B, P, DT
Virginia wildrye	*Elymus virginicus* var. *virginicus*	60 × 60		P, DT, ST
Soft rush	*Juncus effusus*	90 × 50		B, ST, WS
Switch grass	*Panicum virgatum*	120 × 75		B, DT, ST
Little bluestem	*Schizachyrium scoparium*	100 × 50		DT, ST
Indian grass	*Sorghastrum nutans*	120 × 45		B, DT, ST

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VINES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Virgin's bower	*Clematis virginiana*	4 × 4	s, f	B, P, WS
Thicket creeper	*Parthenocissus inserta*	10 × 15	s	B, DT
Virginia creeper	*Parthenocissus quinquefolia*	20 × 15	s, f	B, ST, DT, WS
River grape	*Vitis riparia*	10 × 8		F, DT

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Street Trees

Street trees are trees planted along roads and sidewalks and other urban areas. They play many important roles including the 'greening' of urban spaces, extending habitat corridors, providing shade and as a result cooling the 'urban heat island effect' and of course contributing to air quality improvement. Despite their many benefits, in many cases street trees endure less than ideal conditions because of poor planning. It is important to ensure that appropriate species are selected for the conditions they will be exposed to (climate, wind, salt, surrounding materials, available area for mature canopy and roots). Due to their location in rights-of-way and the associated maintenance which take place in these spaces, street trees are often exposed to salt spray during winter months, in this case, it is important to select salt tolerant species and ensuring good soil conditions are maintained. The species listed below are all urban tolerant species which grow well in the Greater Toronto Area.

TREES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
MED TREES: 8m – 15m				
Black maple	*Acer nigra*	15 × 7	f	
Red maple	*Acer rubrum*	12 × 10	f	P
Freeman maple	*Acer x freemanii*	15 × 12	f	DT
Horsechestnut 'ruby red'	*Aesculus carnea 'Briotii'*	10 × 10	sp, f	P
Yellow buckeye**	*Aesculus flava*	15 × 12	sp, f	B
Ohio buckeye	*Aesculus glabra*	10 × 9	f	B
Common hackberry *	*Celtis occidentalis*	15 × 14	f	
Katsura tree **	*Cercidyphyllum japonicum*	12 × 4	f	
Yellowwood **	*Cladrastis kentukea*	10 × 9	f	
Turkish hazel 'filbert'	*Corylus corlurna*	12 × 6		
European beech **	*Fagus sylvatica*	15 × 12	f	
Maidenhair tree **	*Ginkgo biloba*	15 × 11	f	
Honey locust 'skyline'	*Gleditsia triacanthos 'Skyline'*	12 × 9	f	ST, DT
Ironwood	*Ostrya virginiana*	10 × 7	f	B
Swamp white oak	*Quercus bicolor*	15 × 15	f	WS
Shumard oak	*Quercus shumardii*	12 × 10	f	
Basswood 'redmond'	*Tilia americana 'Redmond'*	15 × 9	f	F, P
Littleleaf linden 'glenleven'	*Tilia flavescens 'Glenleven'*	14 × 10	f	F, P
LARGE TREES: <15m				
Silver maple	*Acer saccharinum*	18 × 15	f	WS
Sugar maple	*Acer saccharum*	25 × 15	f	

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Common buckeye	*Aesculus hippocastanum*	18 × 14	sp, f	P
Northern catalpa	*Catalpa speciosa*	16 × 12	f	F
Kentucky coffeetree	*Gymnocladus dioicus*	17 × 13	f	F, ST
Tulip tree *	*Liriodendron tulipifera*	20 × 10	f	
London plane **	*Platanus x acerifolia*	22 × 20		
White oak	*Quercus alba*	18 × 18	f	
Bur oak	*Quercus macrocarpa*	18 × 13	f	ST
Northern red oak	*Quercus rubra*	16 × 15	f	ST
Basswood	*Tilia americana*	20 × 13	f	F, P
White elm 'valley forge'	*Ulmus americana 'Valley Forge'*	18 × 15	f	DT

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Meadow

Meadow planting provides a welcome replacement to lawn, as it is much more visually compelling as well as supportive to a rich variety of wildlife, pollinators in particular. Often designed to mimic the structure and ecology of wild meadows, these areas can form a stunning visual display especially when at full bloom, and alive with insects. As well as their aesthetic qualities, meadow planting offers numerous additional benefits including their contribution to soil health, as their root systems help to aerate the soil and prevent compaction, overall supporting a healthier urban ecosystem. Additionally, meadow areas require little to no mowing and many species are drought tolerant. In nature, meadows are open areas with relatively fertile soil, and no more than 50% woody vegetation or 25% tree cover.

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Pearly everlasting	*Anaphalis margaritacea*	60 × 30	s	P, DT
Tall thimbleweed	*Anemone virginiana*	30 × 30	s	DT
Bluejoint reedgrass	*Calamagrostis canadensis*	100 × 80		B, DT, WS
Bebb's sedge	*Carex bebbii*	60 × 5		WS
Boneset	*Eupatorium perfoliatum*	90 × 60	f	B, P, F
Grass leaved goldenrod	*Euthamia graminifolia*	90 × 30		B, P
Great blue lobelia	*Lobelia siphilitica*	50 × 45		B, P, WS
Monkey flower	*Mimulus ringens*	75 × 40	s	WS
Wild bergamot	*Monarda fistulosa*	90 × 75	s	B, P, F, ST, DT
Evening primrose	*Oenothera biennis*	100 × 30	s	P, F
Switch grass	*Panicum virgatum*	120 × 75		B, DT, ST
Virginia mountain mint	*Pycnanthemum virginianum*	60 × 50	s	P, F
Black eyed-susan	*Rudbeckia hirta*	60 × 40	s, f	B, P, DT, ST
Canada goldenrod	*Solidago canadensis*	150 × 90	f	P, DT
Early goldenrod	*Solidago juncea*	60 × 60	s	B, DT
Stiff goldenrod	*Solidago rigida*	90 × 60		P, DT
Heath aster	*Symphyotrichum ericoides*	30 × 30		P, DT
Panicled aster	*Symphyotrichum lanceolatum*	100 × 50	s, f	P, ST
New England aster	*Symphyotrichum novae-angliae*	100 × 50	s, f	P, ST
Tall meadowrue	*Thalictrum pubescens*	150 × 50	s	P
Hairy aster	*Symphyotrichum pilosum*	60 × 60	f	P

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Urban Agriculture

Globally there is a growing interest in urban agriculture and "food forests" to bring food closer to where many people live in cities and to help address concerns of food insecurity. The term "permaculture" is increasingly being used to describe the purposeful growing of plants for food for humans, although the meaning of this concept is much more than that:

> "Permaculture is a holistic agricultural and land management design approach that seeks to mimic natural ecosystem patterns to achieve sustainability and efficiency. It's a philosophy and practice of creating self-sustaining ecosystems by integrating human activity with natural surroundings, with goals of minimizing waste, preventing pollution, and enhancing sustainability, resiliency, and biodiversity. This approach extends beyond agriculture to include principles of ethical land use, recycling, renewable energy use, and low impact living, aiming to produce food and use land in a sustainable, non-destructive manner. Coined by Bill Mollison, permaculture combines the concepts of permanent agriculture and culture, focusing on responsible production and stewardship of the land."
>
> -Verge Permaculture

The three core values underlying this work are: "Care for the Earth, Care for the People, and Fair Share." Permaculture design encourages learning from nature to regenerate degraded land and create natural systems that support all life on earth. It also requires an appreciation and understanding of soil science, biology, science and engineering, hydrology, animal husbandry, climate, architecture, geology, and much more.

The creation of these edible landscapes depends on responding to site conditions and natural systems and recreating them in a way that considers energy needs of various planting zones. For example, locating a rain garden in a location that helps infiltrate stormwater to the root zones of trees, to support healthier tree growth and food production. Collections of plants that help each other grow with lower competition for resources are designed as "guilds," which includes a food plant, with a nitrogen fixing plant (to encourage growth), and a groundcover that acts as a living mulch (to help retain moisture in the soil and to suppress weed growth). Guilds also help provide physical shelter from wind, and for shade loving plants, from direct sunlight.

TREES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
CONIFEROUS				
Eastern white pine	*Pinus strobus*	20 × 7	w	
Eastern white cedar	*Thuja occidentalis*	10 × 3	w	WS
DECIDUOUS				
Black maple	*Acer nigrum*	15 × 7	f	
Red maple	*Acer rubrum*	12 × 10	f	P
Silver maple	*Acer saccharinum*	18 × 15	f	WS

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Sugar maple	*Acer saccharum*	25 × 15	f	
Paw paw	*Asimina triloba*	6 × 5		
Bitternut hickory	*Carya cordiformis*	15 × 14	f	WS
Pignut hickory	*Carya glabra*	14 × 8	f	
King nut hickory	*Carya laciniosa*	16 × 12		
Shagbark hickory	*Carya ovata*	22 × 15	f, w	
American chestnut*	*Castanea dentata*	15 × 15		
American beech	*Fagus grandifolia*	18 × 16		
Black walnut	*Juglans nigra*	18 × 16	f	ST, DT, WS
Common apple	*Malus sylvestris*	8 × 4	sp	
Eastern cottonwood	*Populus deltoides*	20 × 16	f	
American plum	*Prunus americana*	6 × 5	sp, f	B, P, F, DT
Black cherry	*Prunus serotina*	18 × 8	sp, f	P, DT
Common pear**	*Pyrus communis*	12 × 7.5	sp	B, P

SHRUBS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
BROADLEAF EVERGREEN				
Bearberry	*Arctostaphylos uva-ursi*	0.1 × 1	sp, f, w	ST, DT
Wintergreen	*Gaultheria procumbens*	0.1 × 0.2	f, w	F
Creeping grape-holly	*Mahonia repens*	0.3 × 1	w	B, F
DECIDUOUS				
Saskatoon *	*Amelanchier alnifolia*	2.5 × 1.5	sp	B, F
Serviceberry	*Amelanchier canadensis*	5 × 3	sp, f	P
Allegheny serviceberry	*Amelanchier laevis*	4 × 4	sp, f	B, F
Black chokecherry	*Aronia melanocarpa*	1.5 × 0.8	sp, f	ST
Japanese quince*	*Chaenomeles japonica*	0.8 × 1.2	sp	B, F, DT
Sweet fern	*Comptonia peregrina*	0.3 × 0.3		P, F, ST, DT
Bunchberry	*Cornus canadensis*	0.1 × 0.2	sp, s, f	B
Beaked hazelnut	*Corylus cornuta*	2.5 × 2		
Spicebush	*Lindera benzoin*	3 × 2	sp, f	DT, P, F
Partridge berry	*Mitchella repens*	0.1 × 0.2	w	F
Staghorn sumac	*Rhus typhina*	2.5 × 2.5	s, f	B, ST, DT

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Wild black currant	*Ribes americanum*	1.25 × 1.5	sp	B, P
Meadow rose	*Rosa blanda*	1.25 × 1.5	sp, s	B, P, F, ST
Carolina rose	*Rosa carolina*	1.5 × 1.75	sp, s	ST
Alleghany blackberry	*Rubus allegheniensis*	1 × 1.75	s,f	B
Wild red raspberry	*Rubus idaeus ssp strigosus*	1.75 × 1.75	s, f	B, DT
Black raspberry	*Rubus occidentalis*	1 × 2.5	s, f	B, DT
Lowbush blueberry	*Vaccinium angustifolium*	0.5 × 0.5	sp, s, f	B, DT
Nannyberry	*Viburnum lentago*	5 × 1.75	s, f	
Highbush cranberry	*Viburnum trilobum*	2.5 × 2.5	f, sp	

PERENNIALS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SEASONAL INTEREST	QUALITIES
Yarrow	*Achillea millefollium*	45 × 50	s, f	P, F, DT, ST
Giant blue hyssop	*Agastache foeniculum*	100 × 70	f	B, P, F, DT
Nodding onion	*Allium cernuum*	45 × 25	s	B, P, F, DT
Wild chives	*Allium shoenoprasum*	30 × 30	sp, s	DT, P
Pearly everlasting	*Anaphalis margaritacea*	60 × 30	s	P, DT
Wild ginger	*Asarum canadense*	20 × 30	sp, s	F, WS
Spring beauty	*Claytonia virginica*	10 × 15	sp	
Trout lily	*Erythronium americanum*	10 × 10	sp	
Wild strawberry	*Fragaria virginiana*	15 × 30	sp, s	DT
Virginia waterleaf	*Hydrophyllum virginianum*	50 × 50		
Ostrich fern	*Matteuccia struthiopteris*	90 × 60		
Arrowhead	*Sagittaria latifolia*	30 × 100	s	B, WS
False solomon's seal	*Maianthemum racemosum*	70 × 40	sp	
Hosta**	*Hosta* spp.	varies		B, DT

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Vines/Climbers

Vines and climbing plants are particularly unique, given their ability to grow and spread across vertical surfaces. They are popular for the use of applying colour to large facades, providing screening and simply adding interest to vertical structures, be it trellises, pergolas, or buildings. Vines and climbers offer excellent opportunities for birds to nest by creating safe and sheltered spaces. When greenery is desired in small spaces, vines and climbers can be extremely useful as they don't require a large area to be planted, but are able to fill a space vertically.

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Groundnut	*Apios americana*	0.8 × 0.75	s	P
Trumpet vine*	*Campsis radicans*	7 × 1	s	B, DT, X
Clematis**	*Clematis* cvs.	varies	varies	P
Virgin's bower	*Clematis virginiana*	4 × 4	s, f	B, P, WS
Climbing hydrangea	*Hydrangea anomala petiolaris*	8 × 8	s	F
Virginia creeper	*Parthenocissus quinquefolia*	20 × 15	s, f	B, ST, DT, WS
Boston ivy**	*Parthenocissus tricuspidata*	9 × 3	f	B, DT
River grape	*Vitis riparia*	10 × 8	s	F, DT
Wisteria**	*Wisteria* spp.	varies	sp, s	P, F, X

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Screening

Plants can be a great asset in screening within the landscape and can be used for a variety of purposes, whether it is to hide unsightly views, enhance views, blocking wind, creating privacy or helping to reduce noise. The careful placement of plant species can dramatically transform the experience within space. Trees, shrubs, vines and grass can all be utilized in different ways to separate space depending on the desired result.

TREES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
CONIFEROUS				
White fir**	*Abies concolor*	15 × 8	w	
Eastern red cedar	*Juniperus virginiana*	6 × 3	w	ST
Black spruce	*Picea mariana*	15 × 8	w	
Austrian pine**	*Pinus nigra*	16 × 12	w	DT, ST
Red pine	*Pinus resinosa*	30 × 6	w	DT
Eastern white cedar	*Thuja occidentalis*	10 × 3	w	WS
Eastern hemlock	*Tsuga canadensis*	18 × 8	w	
DECIDUOUS				
Cucumber tree*	*Magnolia acuminata*	20 × 15	f	F, B

VINES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
Trumpet vine*	*Campsis radicans*	7 × 1	s	B, DT, X
Clematis **	*Clematis* cvs.	varies	varies	
Virgin's bower	*Clematis virginiana*	4 × 4	s, f	B, P, WS
Climbing hydrangea	*Hydrangea anomala petiolaris*	8 × 8	s	F
Virginia creeper	*Parthenocissus quinquefolia*	20 × 15	s, f	B, ST, DT, WS
Boston ivy**	*Parthenocissus tricuspidata*	9 × 3	f	B, DT
River grape	*Vitis riparia*	10 × 8	s	F, DT

*Native to ON, not Toronto area | **Non-native plants | B: bird food/habitat | P: pollinator plant | F: fragrance | X: toxic properties | DT: drought tolerant | ST: salt tolerant | WS: wet/moist soil | Seasonal Interest: sp (spring), s (summer), f (fall), w (winter)

SHRUBS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SEASONAL INTEREST	QUALITIES
CONIFEROUS				
Juniper**	*Juniperus chinensis* cvs.	varies	w	
Hick's yew**	*Taxus x media* 'Hicksii'	2.5 × 1.5	w	B, DT, X
Cedar	*Thjua occidentalis* cvs.	varies	w	
BROADLEAF EVERGREEN				
Common boxwood**	*Buxus sempervirens*	4 × 4	w	DT, F
DECIDUOUS				
Siberian peashrub**	*Caragana arborescens*	5 × 4		F, DT, ST
Rose of sharon**	*Hibiscus* cvs.	varies	sp	
Common ninebark	*Physocarpus opulifolius*	1.75 × 1.75	s	DT

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Raised Planters

Raised planters provide an adaptable way of integrating plant material into urban spaces. They are popular largely due to their impermanence, and ability to be relocated and replanted with ease. Planters are often used to create visual appeal for desired locations or events, as such bulbs and perennials are often selected for this season or time of the year to ensure maximum impact, while they may contain shrubs which remain year round providing structure and form. The soil quality of raised planters is somewhat easier to maintain than larger inground beds, due to the reduced volume and ease of drainage out beneath the planter. Yet another appeal of raised planters is their aesthetic quality, planters are available in an exhaustive range of sizes, colours, designs, materials and functions so they can be carefully selected to suit each required application.

ANNUALS / PERENNIALS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
Maidenhair fern**	*Adiantum raddianum*	45 × 45	PS		
Sweet alyssum**	*Alyssum maritimum*	5 × 20	SN, PS	s, f	B, P
Wild ginger	*Asarum canadense*	20 × 30	PS	sp, s	F, WS
Smooth aster	*Aster laevis*	60 × 30	SN, PS	s	P, DT
Lady fern	*Athyrium felix-femina*	60 × 60	PS		
Water hyssop	*Bacopa monnieri*	30 × 30	SN, PS	sp, s, f	WS
Begonia**	*Begonia*	15 × 15	PS	s, f	X
Bidens**	*Bidens ferulifolia*	30 × 30	SN	s, f	
Swan river daisy**	*Brachyscome* iberidifolia	30 × 30	SN	s, f	B, P
Harebell	*Campanula rotundifolia*	30 × 20	SN, PS	s	
Canna lily**	*Canna* spp.	75 × 75	SN	s	
Bleeding heart**	*Dicentra spectabilis*	60 × 40	SN, PS	sp	P, F, X
Marginal wood fern	*Dryopteris marginalis*	45 × 50	PS	w	
Wild strawberry	*Fragaria virginiana*	15 × 30	SN, PS	s	DT
Wild geranium	Geranium maculatum	40 × 50	SN, PS	sp	DT, WS
Woodland sunflower	*Helianthus divaricatus*	90 × 75	PS	s	B, P
Lenten rose**	*Helleborus* spp.	varies	PS	w, sp	DT, S, X
Coral bells**	*Heuchera* spp.	varies	SN, PS	w	
Hosta **	*Hosta* spp.	varies	PS		B, P
Candytuft**	*Iberis sempervirens*	15 × 30	SN, PS	sp	P
Ontario blazing star	*Liatris cylindracea*	20 × 15	SN	s	B, P, DT
Lobelia**	*Lobelia erinus*	10 × 10	SN, PS	sp	P

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
Starry false lily of the valley	*Maianthemum stellatum*	30 × 25	SN, PS	sp	B, F
Wild bergamot	*Monarda fistulosa*	90 × 75	SN, PS		B, P, F, DT, ST
Evening primrose	*Oenathera biennis*	100 × 30	SN	s	P, F
Cinnamon fern	*Osmunda cinnamomea*	70 × 60	PS		WS
Tall phlox	*Phlox paniculata*	60 × 60	SN, PS	s	
Ivy geranium**	*Pelargonium peltatum*	30 × 90	SN, PS	s, f	DT
Foxglove beardtongue	*Penstemon digitalis*	50 × 45	SN, PS	s	B, P, DT
Wave petunia**	*Petunia x hybrida*	30 × 30	SN	s	
Coleus**	*Plectranthus scutellarioides*	15 × 30	PS		
Black eyed-susan	*Rudbeckia hirta*	60 × 40	SN, PS	s, f	B, P, DT, ST
Zig zag goldenrod	*Solidago flexicaulus*	30 × 30	SN, PS	s	P, DT
Indian grass	*Sorghastrum nutans*	120 × 45	SN, PS		B, DT, ST
Hoary vervain	*Verbena stricta*	90 × 60	SN	s	DT
Narrowleaf zinnia**	*Zinnia angustifolia*	varies	SN	s	P, DT
Indian grass	*Sorghastrum nutans*	120 × 45	SN, PS		B, DT, ST
Hoary vervain	*Verbena stricta*	90 × 60	SN	s	DT
Narrowleaf zinnia**	*Zinnia angustifolia*	varies	SN	s	P, DT

GRASSES

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
Big bluestem	*Andropogon gerardi*	150 × 60	SN		B, P, DT
Bebb's sedge	*Carex bebbii*	60 × 5	SN, PS		WS
Oak sedge	*Carex pensylvanica*	20 × 30	SN, PS	sp	B, DT
Bottlebrush grass	*Elymus hystrix*	90 × 30	SN, PS		B, P, DT

SHRUBS

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SUN	SEASONAL INTEREST	QUALITIES
Allegheny serviceberry	*Amelanchier laevis*	4 × 4	SN, PS	sp, f	B, F
Azalea	*Azalea cvs.*	varies	PS	sp	X
American bittersweet	*Celastrus scandens*	5 × 2	SN	sp	B, DT, X
Buttonbush	*Cephalanthus occidentalis*	1.75 × 1.75	SN, PS	s	B, F, WS
Red osier dogwood	*Cornus sericea (syn. c. stolonifera)*	2 × 2	SN, PS	f, w	B, ST
Common winterberry	*Ilex verticillata*	1.75 × 1.75	SN, PS	s, w	B, ST, WS, X

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COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (M)	SUN	SEASONAL INTEREST	QUALITIES
Spicebush	*Lindera benzoin*	3 × 2	SN, PS	sp, f	B, F, DT
Staghorn sumac	*Rhus typhina*	2.5 × 2.5	SN, PS	s, f	ST, DT, B
Wild black currant	*Ribes americanum*	1.25 × 1.5	PS	sp	B, P
Meadow rose	*Rosa blanda*	1.25 × 1.5	SN, PS	sp, s	B, P, F, ST
Elderberry	*Sambucus canadensis*	2.5 × 2	SN, PS	s	B, P, F
Meadowsweet	*Spiraea alba*	1.25 × 1.25	SN, PS	s	P, ST, WS
Hardhack	*Spiraea tomentosa*	1 × 1	SN, PS	s	P, DT, ST
Snowberry	*Symphoricarpos albus*	1.25 × 1	SN, PS	s	B, DT, ST
Nannyberry	*Vibrunum lentago*	5 × 175	SN, PS	s, f	B

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Bulbs

Bulbs are a great way to add early spring interest to garden beds, be it raised planters or at grade planting. Bulbs can also refer to plants with tuberous roots and/or tubers, corms, and rhizomes. Bulbs are relatively low maintenance, come in a variety of colours and provide reliable blooms returning each spring. Keep in mind that bulbs need good drainage to keep the subsurface plant structure from rotting.

COMMON NAME	BOTANICAL NAME	HEIGHT & SPREAD (CM)	SUN	SEASONAL INTEREST	QUALITIES
Ornamental onion	*Allium spp.*	varies	SN	s	
Winter aconite**	*Eranthis hyemalis*	8 × 8	SN	sp	
Glory of the snow	*Chinadoxa*	5 × 5	SN	sp	
Autumn crocus	*Colchicum*	15 × 5	SN	f	
Dutch crocus**	*Crocus vernus*	8 × 8	SN	f	
Snake's head lily	*Fritillaria meleagris*	25 × 15	SN, PS	sp	
Snowdrop**	*Galanthus nivalis*	20 × 8	SN, PS	w, sp	P
Hyacinth	*Hyacinth orientalis*	20 × 8	SN, PS	sp	P,f
Iris	*Iris spp.*	varies	SN, PS	sp, s	P
Grape hyacinth**	*Muscari spp.*	15 × 3	SN	sp	P
Daffodil**	*Narcissus spp.*	varies	SN	sp	F
Siberian squill**	*Scilla siberica*	8 × 8	SN	sp	
Tulip**	*Tulipa spp.*	15 × 10	SN	sp	

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Maintenance

Effective maintenance is vital for guaranteeing the success of any new planting, especially when long-term health and aesthetic qualities are important factors. The varying types of landscapes which will be installed at YZD will each require their own unique maintenance protocol. This guide outlines key aspects of maintenance including watering, pruning, pest control, mulching and fertilization. It also emphasizes the importance of paying attention to plants and the benefits of visual inspections. This chapter provides essential guidelines for maintaining healthy, resilient plantings with a focus on sustainable practices which minimize environmental impact while maximizing plant vitality. Every landscape project should have a management plan, which should include a schedule and guidelines for the management items listed below. The management plan should be reviewed periodically and be adjusted based on observations of the health of the landscape.

Fertilizing

During the initial planting and subsequent two years of maintenance, organic fertilizer should be applied based on soil test findings in the early spring. Following that application, over the rest of the course of the two years, fertilizer should be applied based on a Topsoil Test Report. Fertilizing requirements vary by season and on the overall level of maintenance desired for the landscape. As a general rule of thumb, plants should be fertilized once a month during the spring and summer using an organic fertilizer or compost tea, following the supplier's instructions. When this is not possible, fertilize as necessary or when plants are visibly struggling (e.g. leaves are turning yellow). In the fall, add compost, manure, and/or leaf litter to soil as a soil amendment to increase organic content.

For a landscape with a more manicured appearance, fertilizer should be applied three times per year or as determined by growing media test results. For a landscape with a 'moderate' appearance of maintenance, apply fertilizer annually. For open spaces or play spaces, fertilize three times per year or as determined by growing media test results. If a space is intended to be background or natural level, fertilizing is not required.

Watering

It is important to understand in advance the watering requirements of a landscape area to ensure it receives suitable amounts of water for healthy plant growth. It is possible to both over and under-water planted areas, both can be avoided by tailoring irrigation practices to meet the specific needs of different landscape areas and also promoting water conservation.

When watering a landscape area, it is important not to irrigate too quickly or for too short of a time as the water will not have enough time to properly soak down to the roots. While watering, pay attention to the appearance of the plants, and look out for symptoms of overwatering such as slow or stunted growth, yellowing leaves, leaf scorch/ leaf burn, water-soaked spots and blisters on stems and leaves, or rotting around the crown of the plant. Symptoms of underwatering include wilted, yellowing, crisp, or curled leaves, leaf or flower droppings, or a decrease in fruit production. It is recommended to water in the cooler mornings and evenings to avoid evaporation, and not to water in times of heavy rain.

In general, while watering during the first two years, care should be taken to ensure it is done to a depth of 400mm (approx. 16"). Plugs or seeds should be watered gently to a depth of 200mm with a shower or mist spray at a lower pressure. Ensure that after planting, tree root balls are watered thoroughly.

Trees should be watered at least 14 times per year during the growing season and weekly in times of extreme drought. In the fall, water plants thoroughly until the soil freezes to help them thrive during winter drought conditions.

Mulching

It is important to add mulch after plants have been installed to create optimum conditions for new material. The mulch should be shredded or tub ground pine mulch (or equivalent soft or hard wood species), free of chemical residue, insects, or fungi and it should surround the plant in a ring shape, not directly surrounding the stem or trunk and should be approximately 50–75mm thick. Top up with another dd 50–75mm of mulch in the spring, summer, and fall. In the winter, top up the mulch with 50mm to provide an extra layer of insulation to minimize freeze and thaw damage to plants.

After the 12-month warranty period has passed, any areas where grades have settled beyond the elevations shown on the drawings by more than 5% of the planting soil depth should be amended. If the settlement is 75mm or less, remove the mulch, add the additional planting soil and re-mulch. If it is greater than 75mm, remove mulch and plants, then add the required planting soil. Afterwards, re-plant and re-mulch.

Weeding

During the first two years of maintenance, care should be taken to ensure that weeds are not over taking planting beds. Methods for weeding include:

- Biological control
- Herbicides
- Crop rotation
- Cultivation/hoeing
- Encouraging the growth of desired plants and reducing the growth of weeds
- Mulching/thatching
- Preventing or reducing spread by roots, seeds or runners within the area h.
- Pulling by hand
- Removing and disposing of weeds and plant pests according to provincial legislations j.
- Soil aeration
- Appropriate/adequate fertilizer
- Mowing
- Appropriate/adequate watering

Seasonal weeding following the first two years includes removing plants that have become established in the planting area and may compete or crowd out the new native species plantings. Different levels of maintenance have different acceptable levels of weeds. For a moderate appearance, no weeds will be allowed to grow larger than 5cm (2in) in width. All weeds should be removed or killed within two weeks. For a functional appearing landscape, weeding is required when isolated, weedy patches have a width of 30cm (12in), and 80% of weeds should be removed or killed. If not, the process repeats within one month. Weeding is typically carried out in the spring and summer months when the plants have become established and are most visible, it is not typically undertaken in fall or winter.

At the time of construction, all invasive plant species should be removed from the area if it appears to be threatening the sustainability of the natural landscape, habitat and functioning of the ecosystem. Municipal Bylaws or other regulations may further dictate the extent of the measures which are to be taken when controlling and eradicating invasive species. The most appropriate weed removal method is the one which is the safest, most effective and economical and should consider a combination of physical, cultural, biological and chemical methods. In general, removal, repeated mowing (during growing season) and regulated herbicide treatment will be required dependent on the extent of the invasive species in the affected area.

Visual Inspections

Visual inspections play a critical role in landscape maintenance as they offer a simple yet effective method of assessing the condition of a landscape area. It allows maintenance staff to ensure the plant material is in good health and to catch any possible issues before they become more serious. A total of four inspections are recommended between early spring and late fall, ideally one per month. Seeding inspections should be carried out 30, 60 and 90 days after installation, 'open space/play' landscapes should be inspected monthly, and 'background/ natural' landscapes should be inspected three times per year. Refer to The Guide to Interior Landscape Specifications (NALP) for further information on this.

Contractors will be required to obtain a Certificate of Substantial Performance of the Work by completing the following steps:

1. **Contractor's Inspection:**
   Conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
   - Prepare deficiency list.
   - Notify Consultant in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
   - Request Consultant's inspection.

2. **Consultant's Inspection:**
   Consultant and Contractor to inspect Work and identify defects and deficiencies.
   - Contractor to correct work as directed.

   Submit written certificates in English that tasks have been performed as follows:
   - Work: completed and inspected for compliance with Contract Documents.
   - Defects: corrected and deficiencies completed.
   - Equipment and electrical systems: tested, adjusted and balanced and fully operational.
   - Certificates required by utility companies, fire commissioner, and authorities having jurisdiction submitted.
   - Operation of systems: demonstrated to Owner's personnel.
   - Commissioning of electrical systems and copies of commissioning report submitted to Consultant.
   - Work complete and ready for final inspection.

3. **Final Inspection:**
   - When completion tasks are done, request final inspection of Work by Consultant, and Contractor.
   - When work is deemed incomplete according to Owner and Consultant, complete outstanding items and request re-inspection.
   - Inspections are typically carried out by the project designer or a person designated by the owner or designer. To be effective, inspections shall be scheduled to align with project milestones or checkpoints such as product delivery, sub-grade completion of aggregate base for hardscape, site services installation, planting or sodding. Project milestones and checkpoints for inspections should be written into the project documents and all inspections should be documented using a standard form with a communications loop including the owner, project designer and contractor.

Replanting and Reseeding

If it is required, replanting should take place in the spring or fall by the contractor, at no expense to the consultant. The contractor should repair or replace plants and related material that have failed within the warranty period. Failures include but are not limited to the following:

- Death of the plant or unsatisfactory growth except for defects resulting from abuse, lack of correct maintenance, neglect or incorrect planting. (Death or unsatisfactory growth is defined as more than 25% dead or unhealthy).
- Structural failures, including trees falling or blowing over.
- Faulty performance of materials and devices related to tree plantings including tree stabilization and watering.

Warranty periods for plants extend from the date of planting completion until two full growing seasons and 24 months until the end of contract. At the end of a warranty period, the consultant reserves the right to extend the warranty responsibilities for the addition of up to one year if plant growth is not sufficient at the two-year point. Within the initial warranty period, the following remedial actions should be carried out as a minimum:

- Remove dead plants and plants with unsatisfactory growth at end of the warranty period and replace when directed.
- A limit of one replacement of each plant will be required except for losses or replacements due to failure to comply with requirements.
- Replace materials and devices related to plantings.
- Provide extended warranty for period equal to original warranty period, for replaced plants.
- Replace plant material in the next planting season.
- Tag or mark, in a permanently visible manner replacement plant material and notify the Consultant in writing of the date the replacements were made.

The Contractor is expected to repair or replace seeded areas and related materials that fail within the specified warranty period by following the same steps as outlined above, and by reseeding in the next planting season if deemed unsatisfactory by the fall. The contractor should tag or mark, in a permanently visible manner, the re-seeded areas and notify the Consultant in writing of the date at which the re-seedings were completed.

Planted annuals should be changed one to four times a year depending on desired seasonal interest and budget requirements.

Pruning

Most first-year pruning is done before you receive your plants. The best time to trim evergreens is in the spring (mid-May to mid-June) while plants are in a period of active growth. Besides providing the desired shape, this also encourages new growth. A second trimming can be done in the fall (late August through early October) to give plants the extra protection they will require against winter kill, as well as help to guard against snow and ice damage. Pruning prescriptions should be developed by a qualified professional with extensive knowledge of the site, the species in question, preservation techniques and objectives. All risk reduction pruning shall be completed only by or done under the direction of a qualified professional. Maintenance pruning during the site preparation stage should consist of crown cleaning to remove all dead, diseased, damaged, defected, and selective crossing branches and should be done by or under the direction of a qualified professional. Tree conditions not correctable by sound horticultural pruning shall be identified and brought to the owner and/ or consultant's attention.

Tree Pruning

- Pruning at the time of planting should be limited to the minimum necessary to remove dead, diseased, damaged, and defective branches.
- The tree leader should not be removed at any stage of the tree's growth.
- Corrective pruning should be carried out to preserve the structure of the tree.
- Only clean, sharp tools suitable for the pruning task shall be used.
- Tools shall be sterilized between pruning of different plants.
- All cuts on trees and shrubs should be clean and outside the branch collar, leaving no stubs. Cuts, bruises or scars on the bark shall be traced back to living tissue and removed. The affected areas shall be shaped so as not to retain water
- The timing of pruning or shearing should be appropriate to season and plant type.

Seasonal Pruning

- Spring: Prune branches that have suffered winter injury, following best practices for that tree or shrub. Never prune more than 1/3 of a branch, unless it is to remove a broken or dead branch. Prune plants that flower in Spring after flowering so as not to remove flower buds. Cut ornamental grasses (if planted).
- Summer: Cut dead flowers after blooming.
- Fall, winter: N/A

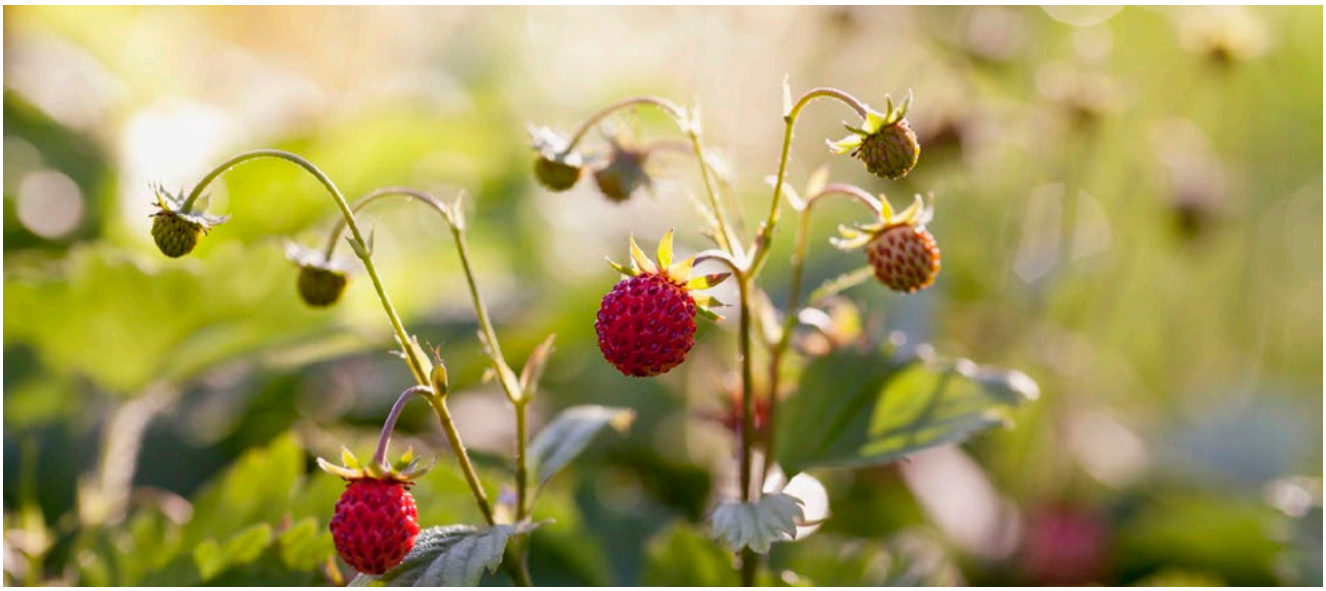
All pruning shall conform to ANSI A300 Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices. Pruning equipment shall be cleaned and sanitized between plants where plant disease is suspected or probable.

Pest Management

Pest management is an important and unavoidable requirement when maintaining a landscape. During the growing season, all planted areas should be inspected and monitored for insect pests and plant diseases at a minimum of every two months. Treatments for insect pests or plant diseases should be carried out promptly and consistently for maximum effectiveness. It is recommended that contractors establish a regular schedule to identify and monitor pests and diseases to support effective decision making, and to keep a detailed maintenance log for recording and reference.

It is recommended that natural sources of pesticide are applied during the summer months, as necessary to prevent the spread of disease or infestation of insects (consult a respected garden centre that provides expertise on products available and recommended applications).

Suitable horticultural practices should be used routinely to reduce the need for more aggressive control measures such as the use of chemicals. Facilities to which the public has free access should have minimal pesticide use except where irreversible damage would result from insect pests and plant disease infestation.



Where chemical controls are required, pesticides shall be selected based on the highest effectiveness and selectivity, with the least hazard to health and the environment. Chemicals under review by Agriculture Canada for health or environmental concerns are not to be used. The handling and application of all chemicals such as herbicides, pesticides, fungicides and insecticides, must be done by people who are legally certified under applicable government legislation. Note: All control methods must respect all government bylaws and regulations.

The principles of Integrated Pest Management [IPM] and Plant Health Care [PHC] should also be applied to help control insect pests, diseases, and invasive and noxious plants. This should be a combination of physical, cultural, biological, and chemical methods that are deemed to be effective and environmentally safe. This approach is also important to protect plants and trees which may have been weakened or stressed and made susceptible to diseases and insects.

To manage geese, protect newly planted material with fencing, boxes or tents. In addition, mowing is suspended on the newly seeded area as low grass is attractive to geese. Other methods for discouraging geese at new plantings are letting the grass grow taller, installing grids of parallel lines of wire, cable, twine or rope placed 30–50cm above new plantings or tying bright yellow ropes, flagging tape, shiny tape, or CDs between trees to block flight paths.

Make sure to allow some slack in the ropes to allow movement. This will increase visibility and make take off and approaching paths difficult for geese.

Miscellaneous

The following are a few general recommendations to care for plants throughout the year:

SPRING

- After the last frost (consult Government of Canada weather information), remove excessive layers of leaves from planting beds to allow for new plant growth.
- Aerate compacted soils by gently inserting a pitchfork into the soil (taking care to not damage major tree roots, stopping this activity where the pitchfork tines touch roots).
- Divide crowded perennials carefully with a sharp, clean garden spade, and replant where desired.

FALL

- Divide crowded perennials carefully with a sharp, clean garden spade, and replant where desired

WINTER

- Gently remove heavy snow from branches of shrubs and trees.
- Minimize deicing salt or use alternatives on paths near plantings to avoid salt damage.

Suppliers

The following list represents local wholesale tree growers and plant suppliers located within the Greater Toronto Area (GTA), to support efficiencies in planting work as well as to minimize carbon footprints and other environmental impacts.

Tree growers with farms and larger growers within a two-hour drive from Toronto are included to help ensure that only local plant material is secured for projects, given that they will be more likely of viable native plant sources, protecting biodiversity and supporting the overall guiding values of the YZD, in particularly the City Nature pillar.

Suppliers of the new plant material for the YZD are not limited to the list below, this list is not made up of 'preferred' suppliers of Northcrest (updated Dec 2024), and other suppliers can certainly be used.

When choosing suppliers, consideration should be made to use suppliers who support the broader responsible development goals for YZD, this includes vendors committed to sustainable business operations, locally based retailers/wholesalers, vendors who grow or source locally, businesses owned and/or employing people from equity seeking communities in particular indigenous and African, Caribbean, and Black communities.

Tree Farms

Anga's Farms & Nursery
89 Bankfield Drive, Etobicoke ON M9V 2R2
Phone: 416-839-2111
Email: info@angasfarm.ca
Website: https://www.angasfarm.ca

Caledon TreeLand
15316 Mount Wolfe Rd Caledon, ON L7E 3N7
Phone: 905-880-1828
Email: treeland@treeland.ca
Website: https://treeland.ca

Cerelli Tree Farm
14005 Guelph Line Campbelleville, ON L0P 1B0
Phone: 905-299-9677
Email: info@cerellitreefarm.com
Website: https://cerellitreefarm.com

Drysdale's Tree Farm
6635 Simco County Rd 56 Egbbert, ON L0L 1N0
Phone: 705-424-9719 #3
Email: info@drysdale.ca
Website: https://www.drysdales.ca

Dutchmaster Nurseries Limited-mature & large trees (Wholesale supplier)
3725 Sideline 16 Pickering, ON L1Y AA7
Phone: 905-683-8211
Email: sales@dutchmasternurseries.com
Website: https://dutchmasternurseries.com

Greenhouse to Garden – Premier Online Garden Centre
11871 Cold Creek Rd Vaughan, ON L0J 1C0
Phone: 647-951-1644 /#1 retail #2 wholesale
Email: info@greenhousetogarden.ca
Website: https://greenhousetogarden.ca

Sloan Nursery & Christmas Trees
30718 Zone Road 8, Bothwell, ON N0P 1C0
Phone: 519-695-3525
Email: travis@sloannursery.com
Website: https://sloannursery.com

Stevens Large Trees Sales
6556 Bethesda Road, Stouffville ON L4A 3A7
Phone: 905-642-2758
Email: stevenslargetrees@rogers.com
Website: https://www.stevenslargetreesales.com

Large Nurseries

Dutchmaster Nurseries Limited
3725 Sideline 16, Pickering, ON L1Y AA7
Phone: 905-683-8211
Email: sales@dutchmasternurseries.com
Website: https://dutchmasternurseries.com

Humber Nurseries 2020 Ltd
Caledon, ON L7C 2R5
Phone: 905-794-0555
Email: humber@gardencentre.com
Website: www.humbernurseries.com

NVK Nurseries (NVK Holdings Inc.)
Dundas, ON L9H 5E2
Phone: 905-628-0112
Email: mail@nvknurseries.com
Website: https://www.nvknurseries.com/

Sheridan Nurseries
2827 Yonge St, Toronto ON M4N 2J4
Phone: 416-481-6429
Email: toronto@sheridannurseries.com
Website: https://www.sheridannurseries.com

Vandermeer Nursery
588 Lake Ridge Road South Ajax, ON L1Z 1X3
Phone: 905-427-2525/#1
Email: info@vandermeernursery.com
Website: https://www.vandermeernursery.com

Native Plants

Evergreen Garden Market
550 Bayview Ave, Toronto ON M4W 3X8
Phone: 416-596-0404
Email: gardenmarket@evergreen.ca
Website: https://www.evergreen.ca/evergreen-brick-work/activities/evergreen-garden-market

Kayanase Greenhouse
993 Highway #54 P.O Box 820 Oshweken N0A 1M0
Phone: 519-770-0013
Email: sales@kayanase.ca
Website: https://www.kayanase.ca

Native Plants in Claremont Inc.
4965 Westney Rd., Pickering (Claremont), ON L1Y 1A2
Phone: 416-888-3363
Email: info@nativeplants.ca
Website: https://www.nativeplants.ca

Native Plant Source
1120 Wurster Place, Breslau (Kitchener), ON
Phone: 519 748 2298
Email: info@nativeplantsource.com
Website: www.nativeplantsource.com

Ontario Flora
Toronto, ON
Phone: 416 964 0201
Email: info@ontarioflora.ca
Website: www.ontarioflora.ca

Ontario Native Plants
Online Resource
Email: office@onplants.ca
Website: https://onplants.ca

Toronto Plant Market & Native Plant Supply
327 Bering Ave., Toronto, ON M8Z 3A5
Sales Rep: Jonas Spring
Email: jonas@ecoman.ca
Website: https://ecoman-104849.square.site

Verbinnen's Nursery Ltd
1504 Brock Road, R.R.4 Dundas, ON L9H 5E4
Phone: 905-659-7072
Email: jverbinnen@verbinnens.com
Website: www.verbinnens.com

Garden Centres

All Season Country Farm-annuals
615 McCowan Rd., Scarborough ON M1J 1K2
Phone: 416-431-5365
Email: allseasoncountryfarminc@gmail.com
Website: https://www.allseasoncountryfarm.com

East End Garden Centre
1395 Queen St. East, Toronto, ON M4L 1C7
Phone: 416 469 4925
Website: https://eastendgardencentre.ca

Fiesta Farms
200 Christie Street Toronto, ON M6G 3B6
Phone: 416-537-1244
Email: fiestagardens@fiestafarms.ca
Website: https://fiestafarms.ca

Greenwood Garden Centre
6745 Kingston Rd., Toronto, On M1B 1G9
Phone: 416-282-2666
Website: https://greenwoodgardencentre.com

Home Depot – Toronto Locations
Website: https://stores.homedepot.ca/on/toronto/

Homeland Toronto's Garden Center
750 Danforth Rd., Toronto, ON M1K 1GS
Phone: 416-266-3915
Email: service@homelandmarket.ca
Website: https://homelandmarket.ca

Summerhill Nursery
1 Popular Plains Rd., Toronto, ON M4V 1A2
Phone: 416-922-6902
Email: info@summerhill.ca
Website: https://www.summerhillnursery.ca

Tree Valley Garden Centre Ltd
4431 Stouffville Rd., Stouffville, ON
Phone: 905 640 2020
Email: sales@treevalley.ca
Website: www.treevalley.ca

Valleyview Gardens
8636 Reesor Rd., Markham, ON L6B 1A6
Phone: 905-471-5630
Email: sales@valleyviewgardens.com
Website: www.valleyviewgardens.com

Fruit Trees & Shrubs

Cohen & Master Tree and Shrub Services
42 Guardsman Rd, Thornhill, ON L3T 6L4
Phone: 416-932-0622
Email: info@cmtrees.com
Website: www.cmtrees.com

Earthbound Trees & Shrubs
155 Pickering-Uxbridge Townline, Pickering ON
Phone: 416-919-2308
Email: info@earthboundtrees.ca
Website: earthboundtrees.ca

Humber Nurseries 2020 Ltd
14905 Bramalea Rd., Caledon, ON L7C 2R5
Phone: 905-794-0555
Email: humber@gardencentre.com
Website: www.humbernurseries.com

Valleyview Gardens
8636 Reesor Rd., Markham, ON L6B 1A6
Phone: 905-471-5630
Email: sales@valleyviewgardens.com
Website: www.valleyviewgardens.com

Resources

Books

Aranya. *Permaculture Design: A step-by-step guide*. White River Junction: Chealsea Green Publishing, 2012.

Bukowski, Catherine; Munsell, John. *The Community Food Forest Handbook: How to Plan, Organize, and Nurture Edible Gathering Places*. White River Junction: Chealsea Green Publishing, 2018.

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Earth Rangers
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Hoffman Nursery
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Garden Ontario
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Nature Conservancy of Canada (NCC)
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The David Suzuki Foundation
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The Canadian Environmental Network (CEN)
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Bird Studies Canada
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Nature Canada
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The National Gardening Association
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Dave's Garden – plant files, bug files. bird files, seed trading, articles, forums
"Dave's Garden." Dave's Garden. n.d. https://davesgarden.com/

Tom Clothier's Garden Walk and Talk – databases, companion planting, bugs, techniques
"Introduction to the Archive." Tom Clothier's Garden Walk and Talk. n.d. https://tomclothier.hort.net/index.html

Gardening know how – Resources and articles by well researched authors
"Gardening Know How." Gardening Know How. n.d. https://www.gardeningknowhow.com/

Gardener's World – Resources and articles
"GardenersWorld.com." Gardener's World. n.d. https://www.gardenersworld.com/

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Northcrest
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Landscape Ontario
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NVK Nurseries
"All Plants". NVK Nurseries. n.d. https://www.nvknurseries.com/Plant-Library

APPS
Pl@ntnet – plant identifier app,

Tree Urban Site Index

The Urban Site Index (USI) is a systematic approach for assessing sites with a corresponding tree species evaluation developed by the Ohio State Forestry Department (OHSFD) in collaboration with Ohio State University (Scharenbroch, 2017 & 2023). This approach assigns site quality and species site quality tolerance, which enables municipal forestry departments to prioritize species diversity by refraining from planting robust trees in high-quality sites. This ensures that sensitive trees are allocated to sites with favorable conditions with the net effect of increased urban canopy species diversity. Although several tree species recommended in this report have been ranked by the OHSFD, these rankings are specific to Ohio and should be evaluated within the Toronto context.

The Ohio State Department of Natural Resources has generously made available several resources, including methods, to perform a full urban site index evaluation (ODNR, 2024a), available at https://ohiodnr.gov/business-and-industry/municipalities-and-public-entities/urban- forestry/uftoolbox/uftoolbox-resources?keyword=planting. This site assessment considers available space, soil quality, and existing vegetation prior to selecting a tree species. Potential constraints such as overhead wires, water availability, space constraints, salt, wind exposure, topography, and human activities are also captured to ensure appropriate species selection, species size, and placement. Large sites should be reserved for large trees and high-quality sites should be reserved for sensitive tree species.

The Urban Site Index is a method that supports the urban forestry 10–20–30 guide (Santamour, 1990) best management practice, whereby the urban forest should have no more than 10% of any one species, 20% of any one genus, and 30% of any one family. This practice promotes neighborhood diversity and minimizes the risk of complete loss due to species specific pathogens and pests. This rule can be applied to the Downsview lands and should serve as a minimum threshold.

The Ohio Division of Forestry developed an urban street tree diversity planning method referred to as the Master Planting Design (MPD). This methodology organizes species at the street scale, ensuring appropriate distances between same genera and species to minimize vulnerability against host specific pathogens and insects. Both the MPD and USI may be combined to develop a robust urban forest plan and are both freely available through the ODNR website (ODNR, 2024a).

The Urban Site Index evaluates and numerically applies a value to both sites and to tree species, as is represented in the figure above, where 'Good, Intermediate, Poor, and No Tree' refer to the site's quality and 'Sensitive and Tough' reflect tree species' capacity to thrive in the variously defined site qualities. A full methodology can be found at the ODNR website (ODNR, 2024a). As noted by Alan Siewert, one of the method's authors 'we teach "the right tree in the right place."

Size is important because we see a lot of sidewalk conflicts. But it's not just about planting small trees to avoid any conflicts at all, because then you lose the reason for having an urban forest – the ecological benefits and services they provide. We need canopy, and small trees don't provide canopy.' (Shea, 2016).

Table 4.1: Urban Site Index Ranking Score Criteria

	0	1	2	3
Vegetation	Bare dirt, gravel or some sort of pavement	Sparse weeds with some dirt showing	Patchy grass and weeds	Lush green some weed ok
Surface compaction	No soil, pavement	Hard, like walking on office carpeting	Some give, like walking on padded carpet	Cushioned give, like walking on deep pile padding
Shovel penetration	No soil, pavement	Goes in, but not completely	Goes in, but requires lots of effort	Goes in fully with ease
Speed	80km/hr or greater	55–70km/hr	Less than 55km/hr	-
Lanes	Six or more	Three to five	Two	
Parking	-	No street parking	On street parking	-
Length between traffic control devices	More than one kilometre	One-0.5km	Less than 0.5km	-

USI references:

[ODNR] Ohio Department of Natural Resources. (2024a). Tools and resources. https://ohiodnr.gov/business-and-industry/municipalities-and-public-entities/urban- forestry/uftoolbox/uftoolbox-resources?keyword=planting

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YZD
BY Northcrest

yzd.ca
@YZDtoronto