

OTTAWA URBAN TREE MANUAL



RESOURCE DOCUMENT
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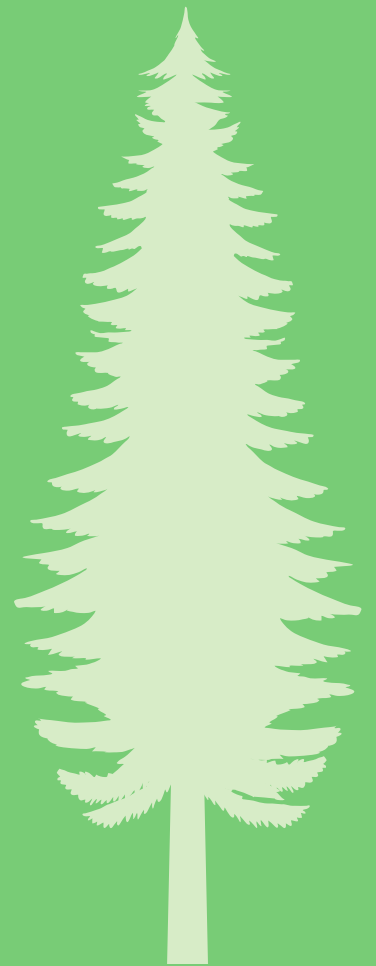
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ABOUT THIS GUIDE

This Ottawa Urban Tree Manual is a resource document that provides advice and suggestions on trees that we may want to plant in the urban areas of Ottawa, site selection, planting, ongoing care, and transplanting. This manual also discusses the benefits of the urban tree canopy for both the environment and well-being. Lastly, this manual provides a list of tree nurseries and tree planting programs in the Ottawa area. This manual is intended to aid in the decision-making process for anyone looking to plant a tree in the urban areas of Ottawa.



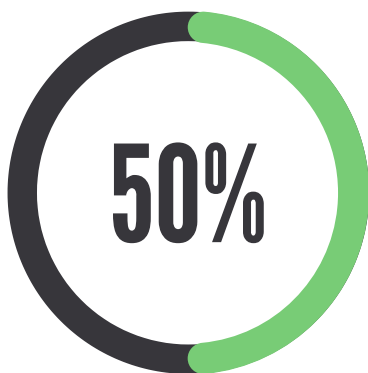
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BENEFITS OF URBAN TREE CANOPY

What is an urban area?

The definition and specific metrics of an urban area has changed through time. For the purpose of this manual, an urban area can be defined as a human settlement with a high population density and a built environment. It's the places in and around where people live and work. Examples of urban areas in Ottawa are the Glebe, Old Ottawa South, and Sandy Hill.



Globally, over 50% of the population lives in urban areas

Source: The World Bank, 2020



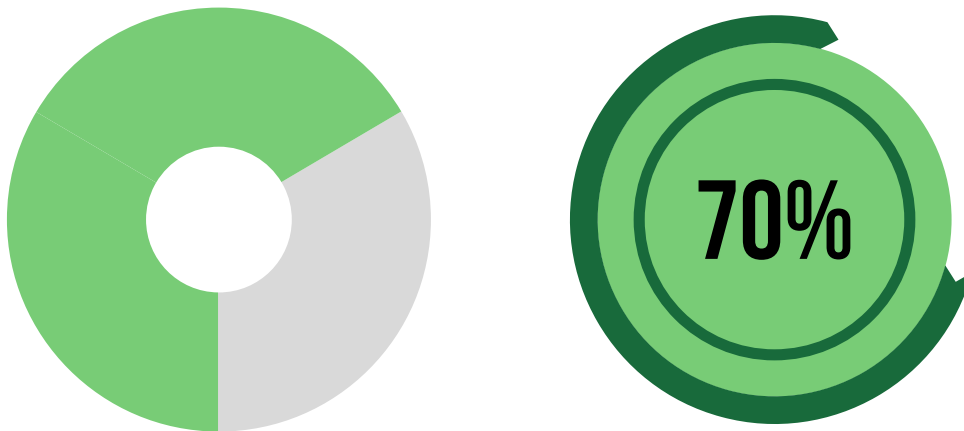
By 2045, the world's urban population will increase **1.5 times** to 6 billion

Source: The World Bank, 2020

BENEFITS OF URBAN TREE CANOPY CONT'D

What is an urbanization?

Urbanization is the process of making an area more urban and leads to urban areas. The speed and scale of urbanization brings challenges. It puts pressure on land and natural resources, resulting in unwanted outcomes. Urban areas play an increasingly important role in tackling climate change.

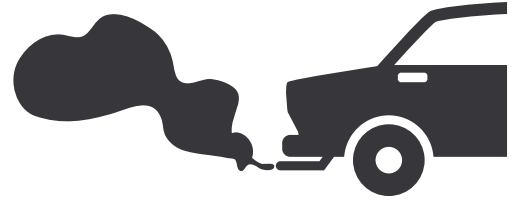


Cities consume two thirds of global energy consumption and account for over 70% of greenhouse gas emissions

Source: The World Bank, 2020

If managed well, urbanization can contribute to sustainable growth. The urban tree canopy plays a role in the sustainable growth of urban areas. In urban areas, trees provide a range of benefits and valuable ecosystems services that improve the environment, as well as human health and well-being.

BENEFITS OF URBAN TREE CANOPY CONT'D



1 Reduces air pollution

Poor air quality is the biggest environmental public health risk globally. Trees sequester the emission of greenhouse gasses by removing carbon dioxide from the atmosphere. They also remove air pollutants by trapping particulate matter (from vehicles, factories, etc.) in their leaves, needles, and bark.

2 Reduces urban heat island effect



An urban heat island occurs when an urban area experiences much warmer temperatures than nearby rural areas. Closely packed cities amplify and trap heat far more effectively than natural ecosystems and rural areas, which are frequently shaded by trees and vegetation and cooled by evaporating moisture. Urban areas also generate their own heat more than rural areas, released from sources such as furnaces, air conditioners, and vehicles.

The urban tree canopy is an important climate adaptation mechanism. Trees actively reduce temperatures in urban areas through shading and evapotranspiration.

Projections for 2051-2080 show that many Canadian cities, including Ottawa, will see at least four times as many +30°C days per year on average as they have in the past

Source: Climate Atlas of Canada



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BENEFITS OF URBAN TREE CANOPY CONT'D

3

Supports biodiversity



We are currently experiencing a biodiversity crisis – scientists predict that on our current trajectory, between one third and one half of all species will face extinction by the end of this century. We must create landscapes that work for both wildlife and humans. All trees support biodiversity and urban trees have considerable potential to sustain and enhance urban biodiversity and to reduce biodiversity loss. Trees provide structure and food resources for many species.

4

Reduces noise pollution



When planted in rows or clusters, urban trees can be used as a sound barrier to reduce noise pollution because they absorb high frequency noise. When possible, use plants with dense foliage and a diversity of tree species with a range of foliage shapes and sizes. Tree sound barriers may also create their own sounds and attract wildlife visitors to mask unnatural sounds, such as road traffic.

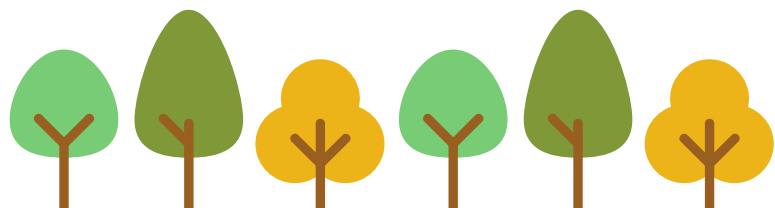
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Adds living beauty to communities

Urban trees create an appealing outdoor environment and an increased sense of community.



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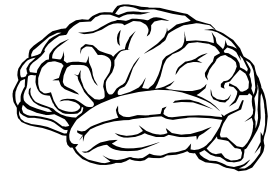


BENEFITS OF URBAN TREE CANOPY CONT'D

6

Increased human health and well-being

It has been found that exposure to trees is associated with multiple health benefits, such as reduced stress and lower measures of anxiety, depression, anger, confusion, and fatigue. It has also been found that exposure to trees and greenspace promotes the practice of physical and social activities, improving mental well-being.



7

Contributes to sustainable urban drainage

Urban trees help to manage runoff by reducing the amount of runoff that enters stormwater and sewer systems through transpiration, interception, reducing soil erosion, and increasing soil absorption capacity. This reduces flooding in extreme rainfall events.



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SELECTING A SITE



The first step when planning to plant a tree is identifying the planting location. This determines what attributes the selected tree must have and will influence all decisions going forward. This decision will determine whether the tree will thrive and fulfil its true potential. In the urban context, many human-made services and infrastructure compete with trees for the same space. Therefore, you must assess if there are any physical obstructions (overhead or underground) to keep in mind, such as a network of gas lines, water pipes, telephone and hydro cables, or a septic system. Keep in mind the size of the tree once it's full grown, and how that may impact local features.

- Avoid planting trees underneath overhead wires
- Before you dig, contact Ontario One Call by phone at 1-800-400-2255 or online at <https://www.ontarioonecall.ca/> - this free service provides information about any underground services that could influence your planting location
- Leave space around the tree so that mature roots won't interfere with fences, house foundations, or other trees
- Ensure trees are at least 2 metres away from hard surfaces like patio stones or driveways and away from other property features, such as septic tanks

Figure out who owns the land that you want to plant your tree on.

- If you want a tree planted in a park or public space, call the City of Ottawa - they're committed to planting more trees and open to citizen input on where to put them
- If you'd like to have a tree planted on City of Ottawa property in front of your home (for free, planting included!) and are willing to care for it, check out Ottawa's Trees in Trust program (see page 29 for more information)

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SELECTING A TREE



Many factors must be considered when selecting a tree in order for it to establish, be healthy, and grow to its full potential. Identifying and analyzing these factors will help ensure the optimal tree selection for the site.



Environmental conditions - Soil, Moisture, Light, Salt, and Space

- Understand the type of **soil** present at your chosen planting site – it may be lacking in structure, nutrients and organic matter, have high levels of acidity or alkalinity, or be contaminated from salt spreading
 - Assess the soil permeability – trees grow most successfully in more permeable, less compact soils
- Assess the **moisture** – each tree species can tolerate wet or dry growing conditions to a different degree
 - Special attention must be given if your site can flood, is subject to very dry conditions, or is frequently exposed to the drying effect of wind
- Consider the level of **light** – some trees prefer a high light environment, others do best when shaded
- Deicing **salt** is used in Canada on streets and sidewalks, increasing the content of Na and Cl ions in the soil and causing a number of adverse soil changes unfavourable to trees
 - If your site is exposed to salt, see the list of salt-tolerant trees on page 23
- The tree you choose should depend to some extent on the constraints of the **space** you have for planting – different trees have different growth requirements

Climate change resilience

- Drought tolerance, frost hardiness, response to elevated air temperatures and shortened winter dormancy, and tolerance to pests and disease are all important factors to consider when assessing a trees resilience to climate change

Diversity is key

- More diverse urban forests provide habitat for a wider range of organisms, increases resilience to pests and disease, and contributes to local biodiversity protection when native tree species are well represented



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SELECTING A TREE CONT'D



Air quality

- Looking to improve the air quality? – Favourable plant traits for improving air quality include being in leaf year-round, a large canopy leaf area, high canopy density that's still porous enough to allow air movement through, and a wrinkled leaf surface, presence of micro-roughness, veins, and/or hairs

Biology and life cycle

- The biology and life cycle of the tree is important to consider, depending on your reasons for planting it
- Are you hoping to get some fruit from your tree? Find out if the tree you're considering is self-pollinating or cross-pollinating
 - Self-pollinators will bear fruit without the need of pollen from another tree
 - Cross-pollinators won't bear fruit unless another tree of the same type is close by (wind and pollinators can transfer pollen between trees)

Diversity

- Diversity is key – more diverse urban forests provide habitat for a wider range of organisms, increases resilience to pests and disease, and contributes to local biodiversity protection when native tree species are well represented

Native Species

- In general, planting native trees, adapted to our local environment, particularly those that are resistant to pests, drought, and pollution is preferred to introduced species
- Planting native trees prevents the spread of invasive species and diseases that damage our ecosystem

Commercial availability

- Tree selection will depend in part on the local tree supply availability – see page 30 for a list of tree nurseries in the Ottawa region

Matter of heart

- A good part of this decision is also a matter of heart – many of us have fond childhood memories of a beloved tree

SELECTING A TREE CONT'D



Tree selection will be driven by identifying which factors are pertinent to the planting site and gathering all relevant information. Once these have been identified, you can move onto researching which tree(s) fit your criteria. Outlined below are trees that could be planted in Ottawa's urban areas, divided based on the amount of space available. Great local resources to check out are the [Plant Database of Ritchie Feed & Seed](#), [Rockcliffe Park's Database](#) and the [Province of Ontario's Tree Atlas](#).

Large Trees for Canopy (20 m +)

Basswood (*Tilia americana*)



A handsome and large shade tree, which should be planted more extensively than it is currently. Bees love the flowers because they bloom in mid-summer, when few other trees are in bloom.

Mature size: Up to 35 m (115 ft) tall; trunk 60-75 cm (2-2.5 ft), but up to 120 cm (4 ft) in diameter

Moisture: Prefers moist soils

Shade: Can grow in full shade or full sun

Soil: Prefers rich, well-drained soil

Bitternut Hickory (*Carya cordiformis*)



Resembles an ash tree from a distance and could be a good "ash-substitute", now that ashes are disappearing. The nuts, as the name implies, are inedible.

Mature size: 15-20 m (50-66 ft) tall; trunk 30-80 cm (1-2.7 ft) in diameter

Moisture: Needs significant moisture

Shade: Prefers sun but can tolerate partial shade

Soil: Prefers rich soil

Photo by Owen Clarkin.



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Bur Oak (*Quercus macrocarpa*)



Commonly planted in Ottawa where it achieves massive dimensions due to tolerance of urban conditions and inherent longevity. Mature specimens look rugged from a distance. Native, minimally affected by air pollution and should be planted more extensively due to its combination of strong wood, urban tolerance, and freedom from pests.

Mature size: 15–30 m (50–100 ft) tall; trunk 60–120 cm (2–4 ft) in diameter

Moisture: Tolerates a wide variety of moisture conditions; tolerates drought because its root grow deep into the ground

Shade: Prefers full sun, but can tolerate moderate shade

Soil: Can grow in a variety of soils

Tip: Plant where there aren't underground pipes, as roots grow deep into the soil

Kentucky Coffeetree (*Gymnocladus dioica*)



Photo by Owen Clarkin.

A native tree that is adaptable to a wide range of conditions and tolerates city conditions well. Very disease free. Its fruit is large, thick, brown pods that persist into the winter. Its increasingly being planted as a street tree in urban areas.

Mature size: Up to 25 m (82 ft) tall; trunk up to 1 m (3.2 ft) in diameter

Moisture: Moist to moderately dry

Shade: Prefers full sun, but tolerates partial shade

Soil: Prefers deep, rich soils



Red Oak (*Quercus rubra*)



A large, shade tree which can grow well on good soils, while naturally growing in drier upland conditions. It needs ample room to grow. It can tolerate shade when it's younger, but needs full sun as it gets older. It doesn't grow very well when close to other trees.

Mature size: 20-30 m (66-100 ft) tall; trunk 30-90 cm (11-35 in) in diameter

Moisture: Can tolerate a variety of moisture levels

Shade: Prefers full sun, but can tolerate some shade

Soil: Grows in a variety of soils

Shagbark Hickory (*Carya ovata*)



A native, stately tree with distinctive shaggy bark that separates into long plates as it gets older. Plates loosen from the trunk and give it a shaggy look, hence its name. Its wood is valuable. It bears edible nuts and has no currently identified pest vulnerability. It can live for 200 years. It's a good candidate for street planting in the Ottawa urban area as global warming continues.

Mature size: 20-30 m (66-100 ft) tall; trunk 30-80 cm (11-32 in) in diameter

Moisture: Prefers moist soil

Shade: Prefers sun, but can tolerate some shade

Soil: Prefers rich soil



Silver Maple (*Acer saccharinum*)



A large, fast-growing tree. Although naturally a swamp and floodplain specialist, it can grow well on drier sites and can tolerate soil compaction. It should not be planted close to foundations. It's very similar to the Red Maple.

Mature size: Up to 35 m (115 ft) tall; trunk 100 cm (3.2 ft) in diameter

Moisture: Prefers moist soil

Shade: Slightly shade tolerant, but prefers full sun

Soil: Prefers rich soil

Tip: It's a large tree - make sure it will have plenty of room to grow to its full potential

Sugar Maple (*Acer saccharum*)



Photo by Owen Clarkin.

A large, native tree that can live for over 200 years. It's found on the Canadian flag and it's the national tree of Canada. It's roots are deep and wide spreading, and it's a large and strong tree. Ideally for use as a shade tree. An important tree to wildlife who feed on the bark, buds, twigs and fruit.

Mature size: Up to 35 m (115 ft) tall; trunk 90 cm (3 ft) in diameter

Moisture: Prefers moist soil

Shade: Can tolerate shade, but grows best in full sun

Soil: Prefers deep and rich soil



White Birch (*Betula papyrifera*)



Also known as Paper Birch and Canoe Birch. It's a white-barked native birch of forests near Ottawa. It's often used in landscaping because it will grow nearly anywhere provided it gets enough sunlight. It's important to note that the non-native European White Birch (*Betula pendula*) is frequently planted but is very susceptible to the native Bronze Birch Borer.

Mature size: Up to 25 m (82 ft) tall; trunk 60 cm (2 ft) in diameter

Moisture: Can tolerate a variety of moisture levels

Shade: Needs full sun, intolerant to shade

Soil: Can tolerate a variety of soils

White Oak (*Quercus alba*)



A large, shade tree with valuable wood. It has a very pale, mature bark and edible acorns. It can live for several hundred years. It's somewhat cold-sensitive, yet hardy in Ottawa. A good candidate for more extensive planting in Ottawa with global warming.

Mature size: 20-30 m (66-100 ft) tall; trunk 50-120 cm (1.7-4 ft) in diameter

Moisture: Can tolerate a variety of moisture levels

Shade: Prefers full sun

Soil: Can tolerate a variety of soils

Tip: With its deep rooting system, it should not be planted close to septic tanks or drainage tiles



Yellow Birch (*Betula alleghaniensis*)



An attractive, deep-forest species. It's often grown in association with Beech, Sugar Maple, and Eastern Hemlock. It grows slowly and lives approximately 150 years.

Mature size: Up to 25 m (82 ft) tall; trunk 60 cm (2 ft), but up to 120 cm (4 ft) in diameter

Moisture: Prefers moisture

Shade: Moderately shade-tolerant

Soil: Prefers rich soil

Tip: Fertilize only when there are signs of poor health, such as discoloured leaves or slowed growth

Mid-Sized Trees (15-19.9 m)

Eastern White Cedar (*Thuja occidentalis*)



A native, small, hardy, slow-growing tree. It usually lives for about 200 years, but can occasionally live much longer. It's found as a tree and hedge row or a shelter belt. Its dense foliage down to ground level obstructs visibility. It needs protection from soil salt and road salt spray from vehicles.

Mature size: 15 m (50 ft) tall; trunk 30 cm (1 ft) in diameter

Moisture: Prefers moist soil

Shade: Full sun to part shade

Soil: Grows in a variety of soils, but doesn't tolerate salt



Freeman Maple (*Acer x freemanii*)



Photo by Owen Clarkin.

A naturally occurring hybrid of two native maple parents: the red maple and the silver maple. The hybridization takes the best qualities of both parents. They are chosen due to their desirable traits, such as improved tolerance to drought, hardiness, form, growth rate and beautiful fall colour.

Mature size: Up to 18 m (60 ft) tall; trunk up to 12 m (40 ft) in diameter

Moisture: Prefers moist, acidic soil

Shade: Prefers full sun

Soil: Prefers moist, well-drained soil

Trees for Smaller Spaces (< 15 m)

Alternate-Leaf Dogwood (*Cornus alternifolia*)



Photo by Owen Clarkin.

The tallest of many attractive, native, and under-utilized Dogwoods. It's also known as Pagoda Dogwood for its attractive horizontal tiers of branches on older trees. Its dark blue berries are a favourite food of summer songbirds.

Mature size: Up to 10 m (32 ft) tall; trunk 5-15 cm (2-6 in) in diameter

Moisture: Prefers evenly moist soils

Shade: Prefers partial shade, full sun with ample moisture

Soil: Prefers well-drained, deep soils

Tip: Mulch well with 8 cm (3 in) of bark mulch, or plant near the sloped edge of a water feature where the roots can access water in the heat of summer



Blue Beech (*Carpinus caroliniana*)



Photo by Owen Clarkin.

Also known as Musclemore for its muscle-like ridges on the smooth-gray trunks. A relative of the birches and an attractive understory tree. A good candidate for planting in shade.

Mature size: Up to 8 m (26 ft) tall; trunk up to 25 cm (10 in) in diameter

Moisture: Prefers moist soil and can tolerate seasonal flooding

Shade: Can tolerate full shade and full sun with ample moisture

Soil: Prefers rich, well-drained soil

Chokecherry (*Prunus virginiana*)



Small tree or tall shrub with attractive foliage and fruit. Most noticeable in flower, with many dense, white elongated clusters of 5-petaled flowers which then become clusters of round, shiny fruits, varying from yellow to red to almost black. The fruit is an important food source for birds. A good candidate for more extensive planting in Ottawa.

Mature size: Up to 9 m (30 ft) tall; trunk 15 cm (6 in) in diameter

Moisture: Moist to average soil

Shade: Prefers full sun, but will tolerate some shade

Soil: Prefers rich, well-drained soils

Tip: Can be trained as a single-stemmed tree, but will often sucker from the roots at the base of the stem; to reduce root suckering, carefully tear young shoots off with your hands instead of cutting with sharp tools



Hawthorns (*Crataegus spp.*)



Useful for their ability to tolerate dry, windy areas. Due to sharp thorns, they're not recommended for schoolyard planting. The loggerhead shrike (critically endangered in Canada) prefers Hawthorn-rich areas as its habitat because of these thorns. Similar to crab apples, Hawthorn fruits contain high levels of pectin and have been used to make jams and jellies. A good candidate for more extensive planting in Ottawa.

Mature size: Up to 12 m (40 ft) tall; trunk 25–30 cm (10–12 in) in diameter

Moisture: Moist to dry

Shade: Prefers full sun, but tolerates partial shade

Soil: Adaptable, especially to high pH soils

Tip: If planting on heavy, wet soil, plant on a mound and loosen the soil in a circle 6 times the width of the planting hole to a depth of 15 cm (6 in)

Hop-hornbeam (*Ostrya virginiana*)



Photo by Owen Clarkin.

A native species, also known as Ironwood. A relative of the birches. Maturing clusters of fruit look like hops, hence its name. A slow-growing tree adapted to many environmental factors, except for waterlogged soils where the similarly sized Hornbeam thrives.

Mature size: Up to 12 m (40 ft) tall; trunk 15–25 cm (6–10 in), but up to 60 cm (2 ft) in diameter

Moisture: Moist to dry

Shade: Very shade-tolerant, but tolerates full sun with ample moisture

Soil: Prefers well-drained, slightly acidic soils

Tip: If planted in full sun on lighter soils, it will benefit from a large ring of mulch up to 8 cm (3 in) deep and supplemental watering to prevent leaf scorch in mid-summer



Mountain Ashes (Two species: *Sorbus decora*, *Sorbus Americana*)



Small, northern trees. Highly tolerant of urban pollution and can thrive in urban environments. Accent tree for small landscapes, featuring showy clusters of flowers in spring and bright berries lasting into winter. Their fruit is a favourite food for overwintering birds.

Mature size: 3-9 m (10-30 ft) tall; trunk 10-25 cm (4-10 in) in diameter

Moisture: Prefers moist ground, but can survive in dry conditions

Shade: Can tolerate some shade

Soil: Grows in a variety of soils, including rocky and poor soil

Serviceberries (*Amelanchier spp.*)



A group of similar species that are increasingly being planted for their tasty and edible fruit. They're very adaptable, native, attract wildlife (e.g. birds), and offer beautiful fall colours. The fruits were a staple food of the Cree tribes of the Prairies, who mixed the dried berries with buffalo meat to make pemmican.

Mature size: Up to 12 m (40 ft) tall; trunk 7-30 cm (3-12 in) in diameter

Moisture: Moist to dry sites

Shade: Partial shade to full sun

Soil: Adaptable to all but water-logged soils



Striped Maple (*Acer pensylvanicum*)



Photo by Owen Clarkin.

A small, understory maple with large, beautiful, distinctive duck-foot-like leaves and striped green-white bark. Its leaves turn yellow in the fall. It's slightly fussy about soil conditions and growing environment. It's well-adapted to a cool understory.

Mature size: Up to 10 m (32 ft) tall; trunk 25 cm (10 in) in diameter

Moisture: Prefers evenly moist soils

Shade: Prefers full to partial shade, dislikes hot summer sun

Soil: Prefers well-drained, slightly acidic soils

Witch-Hazel (*Hammamelis virginiana*)

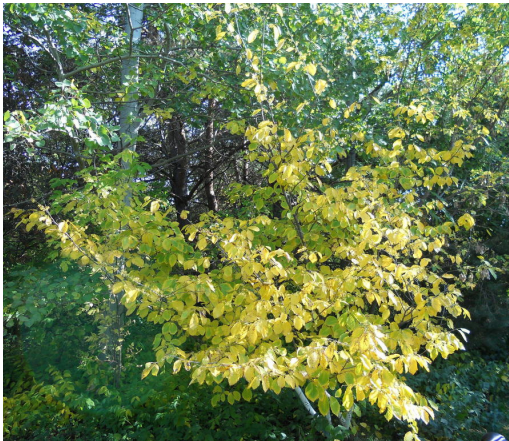


Photo by Owen Clarkin.

An attractive, small tree. It's notable for flowering in late-autumn and often staying in bloom long after the leaves have fallen. A good candidate for planting more extensively in Ottawa. Tolerates pollution well and is relatively trouble-free.

Mature size: 3-5 m (10-15 ft) tall; trunk up to 15 cm (6 in) in diameter

Moisture: Prefers moisture

Shade: Full sun to partial shade

Soil: Prefers moist, cool, acidic soil

Worried about the cost of a tree?
They are not as expensive as you
may think! Find your local nursery
on page 30 and check out their
website for availability and prices!



Salt-Tolerant Trees

If your planting site is exposed to deicing salt from winter street and sidewalk clearing operations, consider selecting a tree from the following list of salt-tolerant trees:

- Black Cherry (*Prunus serotina*)
- Black Oak (*Quercus velutina*)
- Bur Oak (*Quercus macrocarpa*)
- Common Hackberry (*Celtis occidentalis*)
- Eastern Cottonwood (*Populus deltoides*)
- Eastern Red Cedar (*Juniperus virginiana*)
- Kentucky Coffeetree (*Gymnocladus dioica*)
- Red Oak (*Quercus rubra*)
- Silver Maple (*Acer saccharinum*)
- Swamp White Oak (*Quercus bicolor*)
- White Oak (*Quercus alba*)
- White Spruce (*Picea glauca*)



Fruit Trees

Fruit trees are a lovely sight in every season. Planting and growing fruit trees has many social and environmental benefits:

- **Promotes well-being:** growing your own fruit gives you more control over what is in your food and where it comes from and reduces the demand for conventionally grown fruit (pick fruit straight from your yard, rather than buying fruit shipped from thousands of kilometres away!)
- **Strengthens local pride and builds connections:** planting fruit trees in a community provides an educational source for children and helps strengthen a community's character and local pride
- **Climate change mitigation:** by planting fruit trees, you can help reduce the greenhouse effect and fossil fuel impact (the food industry accounts for approximately 10% of fossil fuel consumption) and reduce your plastic consumption



SELECTING A TREE CONT'D



In the Ottawa climate, we can't grow all fruit trees. Below are some of the best suited fruit trees for our climate:

- **Apples:** the most common fruit tree with one of the heaviest harvests – some of the most popular varieties for Ottawa include McIntosh and Honeycrisp
- **Sour Cherries:** great for narrow spaces and self-pollinating – Montmorency is the best sour cherry tree for long term survival in Ottawa
- **Pears:** the best hardy pear for Ottawa is the Flemish Beauty – a perfect complement to apple trees as they bloom earlier and bear fruit earlier in the summer

Want to plant a fruit tree but don't have the capacity to harvest the fruit? Check out Hidden Harvest Ottawa! They pick and share fruit that would otherwise go to waste through volunteer-led harvest events. The fruit is shared with volunteers pickers, food agencies and the tree owner. Register your tree for harvesting through their website!



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PLANTING A TREE

Now that you've decided on an appropriate location and tree, it's time to plant! In general, early spring and autumn are the best times to plant a tree. It's also important to not plant your tree in the heat of the day, as this can lead to dehydration. Try to plant your tree as soon as possible. If planting is not possible right away, store your tree in a cool, shaded area and water as needed to keep the roots and soil moist. The steps for planting a young sapling and an older tree are similar, but there are some minor differences.

Planting a Sapling



- 1 Dig a hole two to three times the width of the root ball, or of the container that the tree is in. The hole should be only as deep as the root ball/container. To make it easier for the roots to penetrate the soil and grow, roughen the sides and bottom of the hole. To help the roots establish and provide nutrients, mix in some compost/nutritious soil and a pinch of bonemeal at the bottom of the hole.
- 2 Carefully remove the sapling from its container, gently carrying it by the base of the root ball. Before placing the sapling in the hole, you may have to loosen the roots slightly so that you can spread them out in the hole. Do not prune or cut any roots.
- 3 Place the tree upright in the hole. It should be deep enough that all the roots are underground and where the roots meet the trunk is aboveground. Spread out the roots, fill the hole with nutritious soil, and gently pack it down to remove any air pockets around the roots.
- 4 If the tree moves easily in the planting site, you should place 1-3 stakes in the ground and tie them loosely to the trunk. Remove the stakes once the tree is firmly established. Mulch around the base of the trunk (2-4 inches high) to help keep the water from evaporating and keep grass/weeds at bay. Put a tree guard at the base of the trunk to avoid irreparable damage to the trunk from grass trimmers and weed whackers.
- 5 Water the tree immediately after planting, and then approximately once every week (you may have to water more or less than this, depending on the weather). Allow the ground to fully dry out before watering again.



PLANTING A TREE CONT'D

Planting an Older, Large-Caliper Tree

- 1 Dig a hole 6-inches wider, and no deeper than the root ball. Gently place the tree in the hole, making sure that the top of the root ball is level with the ground. Do your best to keep all of the soil that came with the tree intact. Do not disturb the root system by loosening, pruning, or trimming it (this will increase the transplant shock experienced by the tree).
- 2 Carefully pack soil around the root ball, ensuring that the tree will stand upright. Be careful not to bury any of the tree trunk as this can kill the tree prematurely.
- 3 Once planted, create a ring of soil around the circumference of the root ball. This creates a saucer that captures water so that the tree can be watered more efficiently. As mentioned when planting a sapling, it is important to mulch around the base of the trunk and to put a tree guard at the base of the trunk.



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ONGOING CARE



Now that you've planted your tree, it's going to need some attention and care! Newly planted trees need a lot of water while they're growing their root systems. Without enough water, newly planted trees will slowly die. Until your tree has fully established itself in its new environment, you should water it regularly (approximately once a week). Monitor the weather – if it's very rainy, water your tree less; if it's very dry, water your tree more. There are different ways to go about watering your tree:

- **Overhead sprinklers** – these are highly inefficient. You will most likely lose half of your water on evaporation alone, and it's difficult to avoid watering areas that don't need to be watered (e.g. the sidewalk).
- **Garden hose** – these are more effective and recommended. Place the garden hose with a slow trickle of water at the base of the tree and let it sit there for 2-3 hours. This method allows water to reach the deepest roots of your tree.
- **Spiral soaker hose** – you can encircle your tree with a spiral soaker hose. Similar to using a garden hose, this method will also allow water to reach the deepest roots of your tree.

Tip – To save water, avoid watering your tree during the hottest part of the day. Watering in the evening allows the tree to soak up the water over night, before the water is lost to evaporation during the day!

When your tree is in its establishment phase, keep pruning to an absolute minimum, only pruning dead and broken branches. In this phase, all of the tree's resources are going into growing its root system and very little into growing branches and leaves. If you prune its branches and leaves, it will be a long time before they're replaced. Trees use leaves to make food – if they lose them, you may end up with a weakened tree.

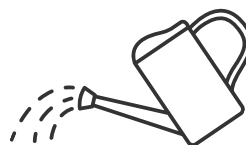
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TRANSPLANTING A TREE

Transplanting trees should generally be avoided due to the risk of transplant shock. However, if you must transplant a tree, the best time to do so is in the spring. This will allow the tree a full season to familiarize itself with and adjust to its new environment. To avoid tree dehydration, work on a calm, cloudy, cool, and humid day. Root care is the most important thing to keep in mind when transplanting a tree. A beautiful tree canopy depends on a healthy root system. Take as much of the root system as possible when digging up a tree.

- 1 Dig out an area large enough to fit your tree's root ball (roots and soil).
- 2 When digging up the tree, keep the root ball intact as much as possible so that the roots do not separate from the soil.
- 3 To avoid dehydration, wrap the root ball in a plastic bag for moving and storage.
- 4 Follow the steps outlined on page ... for planting trees. Note that tree care is largely the same as for newly planted trees.
- 5 Water your newly planted tree!



Tip - A common mistake is to over-fertilize transplanted trees. If you're going to fertilize, avoid fertilizers that target leaf growth as this is usually at the expense of root rehabilitation.

References

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TREE PROGRAMS IN OTTAWA

The City of Ottawa offers several programs that support tree planting in the city:

Commemorative Tree Program

- Established in 1989, the City assists families or groups who wish to have a tree planted in a City park in remembrance or to commemorate a loved one who has passed away

Parks and Streetscape Tree Planting

- The City's Forestry Services will work with your community group to determine appropriate locations for trees within your community

Trees in Trust

- If your City-owned street frontage lacks a tree and you have the time and commitment to help care for one, the City will provide and plant a tree in front of your home with no charge

Schoolyard Tree Planting Grant Program

- Tree planting projects on school property within the City of Ottawa are eligible to apply for this program to cover the purchase and installation of trees

For more information on City of Ottawa tree planting programs, click [here](#).

Ecology Ottawa offers a **Tree Giveaway Program**

- Alongside dozens of community partners, Ecology Ottawa co-hosts Tree Giveaways across the city to provide as many residents as possible with tree seedlings
- Trees distributed through this program are for individuals to plant on private property
- For more information, [click here](#)

TREE NURSERIES IN OTTAWA

Artistic Landscape Design Limited

2079 Artistic Place, Ottawa

613-733-8220

<https://www.artisticlandscape.on.ca/>

<https://www.artisticlandscape.on.ca/contact/contactform.aspx>

Make it Green Garden Centre

5200 Flewellyn Road, Stittsville

613-599-3419

<http://www.makeitgreen.ca/>

info@makeitgreen.ca

Carleton Place Nursery Ltd

7164 County Road 29, Carleton Place

613-267-8175

<https://www.carletonplacenursery.com/>

<https://www.carletonplacenursery.com/email-us>

Manotick Tree Movers Inc.

1966 Carsonby Road West, North Gower

613-489-1116

<http://manoticktree.com/>

info@manoticktree.com

Ferguson Tree Nursery

275 County Road 44, Kemptville

613-258-0110

<https://www.seedlingnursery.com/>

admin@fergusontreenursery.ca

Peter Knippel Nursery

4590 Bank Street, Ottawa

613-822-0383

<https://www.knippelgardencentre.com/>

info@knippelgardencentre.com

Greenlife Ottawa Wholesale Nursery

1776 Manotick Station Road, Greely

613-692-3047

<http://www.greenlifenursery.ca/>

sales@greenlifenursery.ca

Richmond Nursery

5470 Old Richmond Road, Richmond

613-838-2282

<https://www.richmondnursery.com/index.php/en/>

<https://www.richmondnursery.com/index.php/en/contact-us>

Legault Garden Center

1810 Highway 34, Hawkesbury

613-632-1177

<https://lesserreslegault.ca/en>

<https://lesserreslegault.ca/en/pages/propos>

Ritchie Feed & Seed Inc.

5901 Ottawa Street, Richmond / 1390 Windmill

Lane, Gloucester / 2079 Carp Road, Stittsville

613-838-5959 / 613-741-4430 / 613-836-6880

<https://www.ritchiefeed.com/>

<https://www.ritchiefeed.com/pages/contact-us>

Twigs Nursery

1115 Dunning Road, Cumberland

613-749-7188

<http://www.twignursery.ca/>

<http://www.twignursery.ca/contact/>

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If you would like to get involved with planting, protecting, and promoting more trees in the Ottawa urban area, please contact trees@cafesottawa.ca.

