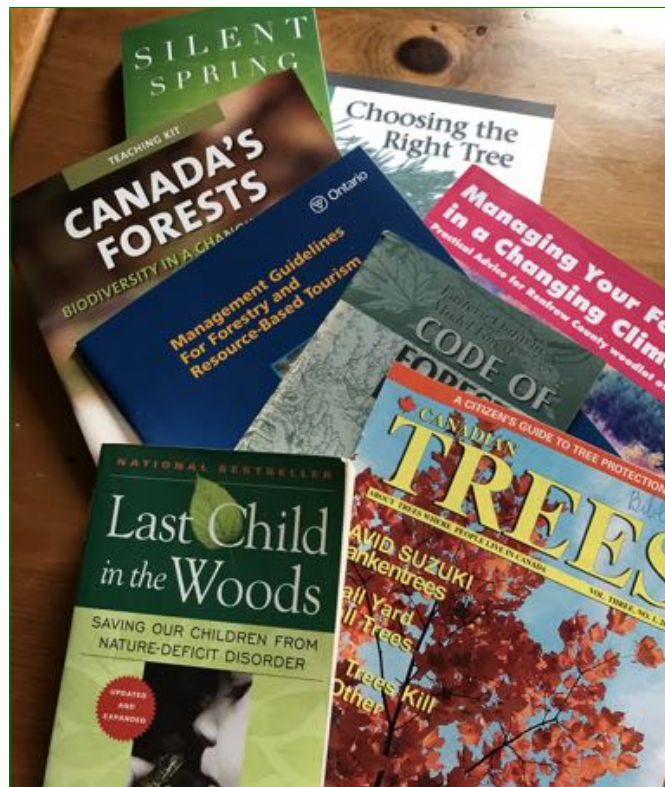


The Urban Forest and the Greening of the Town of Prescott



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Background

Eight to ten thousand years ago a thick glacier covered this part of the North American continent and as it melted, the mixed forest of the Great Lakes/St. Lawrence moved in. The principal tree species of this Canadian forest type were then Red Pine, Eastern White Pine, eastern hemlock, yellow birch, maple and oak. The people were mainly Haudenosaunee (People of the Long House) until the Loyalists arrived in 1789. Time passed; the Town flourished as a centre of the forwarding trade.

This report focuses on the small town urban forests in Eastern Ontario as illustrated by the Town of Prescott and the history of our trees. It provides guidance on species, planting and care of the right tree in the right place for Prescott and other small urban communities' forests in Zone 5a/b

In this post-pandemic edition, the benefits of the natural world and the small urban forest are evermore obvious and include:

- contribution to the mental and physical well-being of urban residents
- benefit to children as in best seller *Last Child In the Woods*¹
- benefit to human health by filtering air and water and performing other ecosystem functions.
- beautification of streets and properties, thereby increasing property values
- for urban wildlife – performing functions such as pollination, seed propagation, and insect and pest control
- reduced energy costs re provision of shade
- noise buffering and
- a helpful antidote to physical and mental illness.

This report is a plan to protect and enhance the urban forest with recommendations for tree planting, tree protection and “greening” of this Eastern Ontario small town. It also provides a list of trees indigenous to the area.

While Prescott once had a tree-planting program, currently there is none. A tree planting program would not only ensure there is sufficient canopy coverage (experts recommend a minimum of 30% for urban areas) but that species native to the area continue to be planted and protected. It is encouraging to note that the 2022 draft budget has a small sum set aside for downtown street trees.

Furthermore, this report recommends that professionally prepared conservation and tree planting plans be provided for all developments, including new builds, renovations, and major landscaping in order to reduce disruption to soil or roots, or other impacts to trees. Additional recommendations are made regarding protecting trees while conducting work that may impact them.



¹ Richard Louv, *Last Child In the Woods*, p 66, Algonquin Books of Chapel Hill, 2008

In days gone by

In the 1870's this sketch of Mayor Buckley's handsome brick home depicts the sugar maples that some say, were the dominant street tree and still exist in this neighbourhood along with their numerous descendants.



Decades passed and much has changed because of the Covid Pandemic.

In the 1980's, Prescott had a yearly tree-planting program and a citizens' tree count. A major transformation of the Waterfront created an arboretum, plantings of trees, bushes and perennials as well as the creation of an expansive meadow and Heritage Trail.

In 2015 and in response to the Communities In Bloom recommendation that the community required more emphasis on the urban forest, this report was drafted for the benefit of current and future generations. This report is the second edition of "Our Urban Forest Report."



The Ontario Urban Forest Council ² (www.oufc.org) reminds us of the importance of the Urban Forest.

"Our health and well-being are intricately interconnected with the health of our natural environment. Trees and forests are integral components of healthy ecosystems that support healthy human populations.



Trees help to reduce smog and pollution in our communities by filtering out many airborne pollutants such as carbon dioxide, carbon monoxide, lead, nitrogen dioxide, ozone, sulphur dioxide and particulates. These pollutants have been linked to heart disease, respiratory illnesses, diabetes and cancer. This school yard could benefit from more trees.

A growing body of evidence suggests that human mental and physical health is closely associated with the health of our forest

ecosystems. Consequently, poor environmental conditions may lead to an increase in the incidence of a wide array of illnesses. Forests and green spaces have conclusively been linked to a significant decline in stress, improved rehabilitation, faster hospital recovery rates, and a decrease in the severity of symptoms in attention deficit disorders.



² The Ontario Urban Forest Council (www.oufc.org)

Billions of dollars are spent annually on health care services to treat symptoms; however, comparatively little is invested in addressing the root causes of many commonly occurring diseases. Restoring the health and integrity of our forests, can be viewed as a preventative health measure and will contribute to our collective health and well-being.

The Great Ice Storm of 1998 and our Urban Forest

The ice storm of 1998 provided forewarning of the need to prepare for extremes in precipitation brought on by our changing climate. Two victims of the 1998 Ice Storm are witnesses to this reality for the urban forest of this small town. One ancient sugar maple and its descendant (?) prove how tenacious sugar maples can be!



Post-pandemic Times

Post-pandemic Efforts to enrich our forest ecosystems will contribute to the stability and resiliency of the ecosystems we inhabit. To enhance the health of our ecosystems and to better prepare Ontario to adapt to climate change, tree-planting efforts must involve both rural and urban initiatives. Currently, forest cover is as low as five per cent in some regions of Ontario's settled landscape, compromising the health of our ecosystems and their inhabitants. Experts have determined that a minimum 30 per cent forest cover is required to maintain a healthy, sustainable ecosystem.



A meadow and an arboretum beside the Upper St. Lawrence

Installed in the 1980's – a special meadow of restoration and adventure, milkweed and butterflies. In the south-east corner of Prescott the arboretum designed by Michael Laking and others represents the lush St. Lawrence/Great Lakes Mixed Hard Wood Forests and deserves special attention.



The Shakespeare and Harbour Gardens planting and maintenance

The landscaping of the Harbour began with tree planting, the amphitheatre development, seeding and other rather spectacular changes. A program called Shakespeare Blossoms was lead by Paul Boivin and Michael Laking. Many volunteers were involved over the years and a substantial grant lead to the last major improvement. And the naming of many of the gardens as the Shakespeare Gardens. Many volunteers made a big difference! The Riverwalk Park was completed by contractors and is another example of the greening of the community.



Property values

The economic value of trees on a property value has long been recognized. “In one study, some years ago, 83% of realtors believe that mature trees have a ‘strong or moderate impact’ on the salability of homes According to the USDA Forest Service, “healthy, mature trees add an average of 10% to a property’s value.” <http://www.happytreeconsulting.com>



“Trees properly placed around buildings can reduce air conditioning needs by 30 percent and can save 20–50 percent in energy used for heating,” reports the USDA Forest Service.

Many towns and cities have been following the trend of planting native shade trees that will become part of the forest canopy.

Urban forests: An Important Part of Our Natural Heritage” can be found at <https://ontarionature.org/> and provides further evidence of the values attached to a flourishing urban forest.



Tree Inventory for this review

In light of time constraints, a tree inventory was prepared by means of a windshield survey. The Google Earth satellite images will also be helpful for zeroing in on the most needy areas.

Prescott has a wealth of “heritage trees” based on their age, beauty, association, legends and traditions. Most residential streets have a substantial tree canopy. Sturdy shade tolerant and indigenous sugar maples are most prevalent with many such trees being over a century old. Children in our community are tapping their backyard sugar maples and even potting up our heritage maple seedlings for sale. There are many stories to be told.

There is also a variety of evergreens including Eastern White Pine and little leaf lindens, horse chestnut (introduced from Europe in early to mid 1800’s), silver and red maples and some oak trees.

Residents and Businesses

This once proud George Street oak tree stump remains steadfast. The property owners anticipate replanting in the spring. At least one citizen is nurturing dozens of sturdy oak seedlings.



There are a few residential, industrial and commercial areas that lack street trees and would be ideal candidates for a refresh tree-planting program especially in those very few areas devoid of any trees at all. This is also true of the industrial “park” in the North West Quadrant of Prescott.



Composting

For decades, the municipality has had a policy of composting in one way or another. In the 1970’s individual composting bins were popular. Currently the municipality collects brush on the last Wednesday of the spring and summer months – this is composted and used for public plantings.

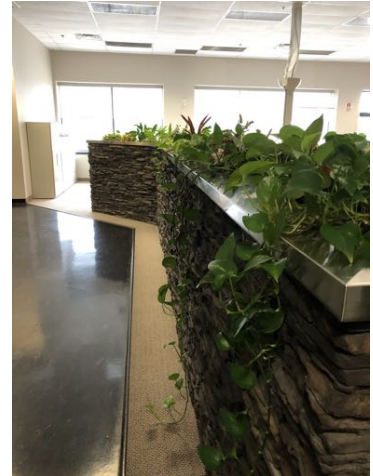
The Greening of Prescott

Greening of the workplace

Prescott's largest employer, Kriska Transportation Group has been in Prescott since 1987 when there were approximately 20 employees including truck drivers. Today there are over 1000 employees. It is encouraging to note their recognition of the value of the greening of the workplace.

Canada's Year of the Garden 2022

Nanos Research has revealed Canadians' passion for gardening with over 90 percent of Canadians feeling that gardening improves their quality of life as well as their physical and mental health. We know that there are already many beautiful gardens in Prescott.



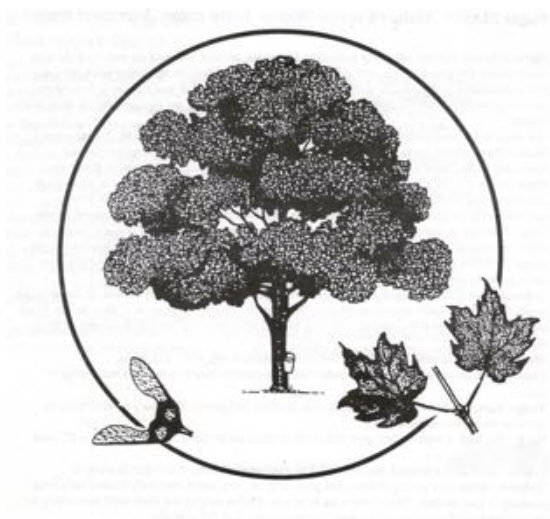
As the country recovers, and public interest is high, it is expected that the *Year of the Garden 2022* will be a great success.

Here in our area we are blessed with master gardeners such as Donna White and Joe and Jamie McFarland.

Hundreds of years ago before the Europeans arrived, the farmers of the Haudensosaunee villages near Prescott were the first gardeners of this region. The First Nations people (the women in particular) recognized that the plants worked many wonders. "Since the beginning of time, the grains, the vegetables and berries have helped people to survive." 2022 is Canada's Year of the Garden – a celebration of everything garden and gardening related in Canada.

A Special Place for our National tree!

The hardy sugar maple has a special place in our urban forest! Considered a sacred tree by the First Nations people, providing the first nourishment in the spring and hard at work in 2022.



Recommendations for Planting in Prescott and other Zone 5 small Urban communities

Species of Trees for Parks / Natural Areas

- Sugar Maple – *Acer saccharum* (drier sites)
- Silver Maple – *Acer saccharium* (large planting locations)
- Red Maple – *Acer rubrum* (moist sites near the river)
- Red Oak – *Quercus rubra*
- Bur Oak – *Quercus macrocarpa*
- Hackberry – *Celtis occidentalis*
- Horse Chestnut – *Aesulus hippocast anum*
- White Spruce – *Picea glaoca*
- Norway Spruce – *Picea abies*
- White Pine – *Pinus strobes*
- Eastern White Cedar – *Thuja occdentalis*
- Tamarack – *Larix laricina*

Species for Residential Streets/Residential Development Areas

- Sugar Maple – *Acer saccharum* (large planting locations)
- Red Maple – *Acer rubra* (large planting spot)
- Silver Maple – *Acer saccharium* (large planting locations)
- Freeman Maple – *Acer x fremani* (large planting locations)
- Red Oak – *Querus rubra* (large planting locations)
- Bur Oak – *Querus macrocarpa* (large planting locations)
- Hackberry – *Celtis occidentalis* (large planting locations)
- Maidenhair Tree – *Ginko biloba* (male clone only)
- Honey Locust – *Gleditsia triacanthos* (small planting locations)
- Service Berry – *Amelanchier* (small planting locations)
- White Spruce – *Picea glaoca* (large planting spot)
- Norway Spruce – *Picea abies* (large planting locations)
- Tamarack – *Thuja occidentalis* ((medium planting locations)
- Showy Mountain Ash – *Sorbus decora* (small planting locations)
- Flowering crab – *Malus* (small planting locations)



For “Hard” Zones e.g. downtown streets

- Red Oak – *Quercus rubra*
- Freeman Maple – *Acer x freemanii*
- Hackberry – *Celtis occidentalis*
- Honey Locust – *Gleditsia triacanthos*
- Colorado Blue Spruce – *Picea pungens*
- Little Leaf Linden- *Tilia cordata*
- Amur maple – *Acer ginnala*

Shrubs to Plant in Town of Prescott or other small urban setting

- False Spirea – lovely creamy-white plumes of flowers, grows quickly, will grow anywhere good for holding soils on banks
- Spireas – bridal wreath (taller 5ft, white flowers), goldflame, not goldmound (3 ft. pink flowers, very attractive leaves all year) Anthony Waterer (3.5 ft. dark leaves, lovely deep pink flowers)
- Potentillas – wide variety, 3 feet, white or yellow flowers, very hardy
- Purple Leaf Sandcherry – can get tall, responds to pruning, but will grow into a nice shrubby tree if not pruned, maroon leaves
- Nanking Cherry – will get quite large- up to 7 ft.- but easily pruned, round growth habit, white blooms, red berries
- Burning Bush – 4-5 ft., red fall colour, branches break in very heavy snow
- Flowering Dogwood – shiny red berries through fall and early winter. Has crimson autumn colour



Guidelines When Working Around Trees

Development can have a negative impact on pre-existing trees if proper measures are not taken to protect these trees. Changes made to grade, water table level, compaction, and drainage will impact the health and longevity of such trees. The following measures must be implemented to ensure tree survival during and after construction:

1. Before construction begins, mark individual trees or stands with tree marking paint and flagging tape so all involved know what trees are to be protected;
2. Around each individual tree or stand of trees erect a snow fence or other barrier 1 metre high and supported vertically by t-bars at regular intervals. This fencing must be placed, if possible, at the drip line (furthest spread of outside branches). The purpose is to stop vehicle traffic from entering the root zone and causing compaction;



3. Maintain this fencing during construction and check at regular intervals to make sure it is still standing;
4. Place gravel, sand or preferably wood chips for a distance of 2 metres outside of the drip line to a thickness of at least 7 centimetres. This will further help elevate the compaction of soil surrounding the fine feeding roots;
5. No stockpiling of material, refueling, parking of vehicles or repairing of vehicles is to take place within the 2 metres outside of the drip line;

6. When excavation *must* take place within the drip line, care of the root system is essential. A trench should be dug by hand or with a root cutting (stump-grinder) or a stone cutting (cut-off) machine along the furthest reach of the cut. This is to ensure the roots are cut cleanly with no ragged ends so the roots have a chance to heal. When the trench is established, other equipment may be used to complete the work;
7. It is better to tunnel under a root system than to cut through it;
8. When heavy equipment is used during excavations, care must be used so not to compact the soil within the barricaded root zone;
9. When tree roots are cut and do become exposed during construction, water them immediately and backfill or cover with filter cloth or wood chips so the fine root hairs do not dry out. Ensure the chips or filter cloth is kept moist with a fine spray a number of times during the week and daily if hot dry weather is encountered;
10. Avoiding changes in grade will assist with the overall health of the tree during construction. Where grade changes cannot be avoided, the installation of retaining walls or tree wells must be considered for those trees worth protecting. An arborist should be consulted on the design of both.

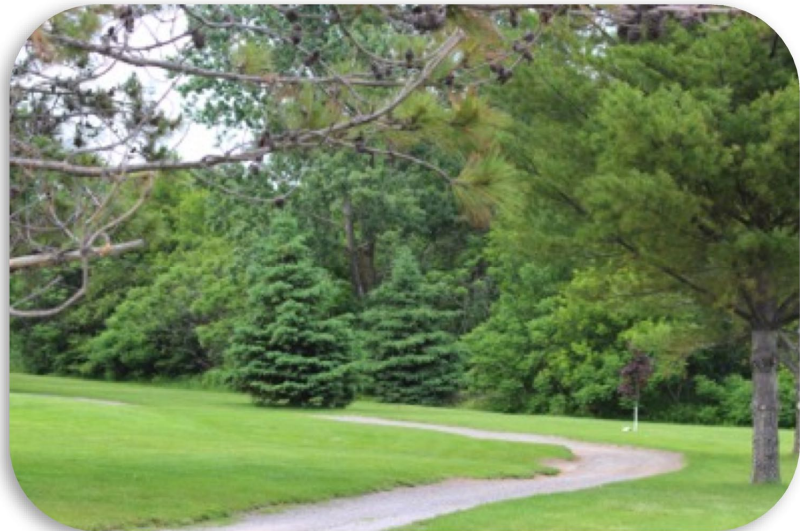
*Guidelines & Standards for New Development*³

The Town should require Conservation Plans and Tree Planting plans for all development including residential, commercial, and industrial uses.

Conservation Plan

The conservation plan will have a preliminary assessment by a qualified professional (certified arborist, registered professional forester or other qualified professional), which will determine stands of trees or individual trees on the property which warrant protection. This plan should consider such matters as:

- The existing health of the tree, grouping of trees or woodlot, hackberry and the quality of such and
- Its degree of sensitivity to grade changes, drainage disruption, changes in water table or any other factors, which may affect the trees.
- Measures that can be taken to protect the trees (tree wells)
- If trees cannot be protected, why not?
- Opportunities for tree planting to mitigate loss of tree or forest cover.



³ prepared by Jim McCready R.P.F./ ISA Certified Arborist, December 1, 2014

The conservation plan will identify how these trees will be protected both above and below ground, as it is important to protect the root systems from soil compaction. The following measures will be undertaken to protect these trees:

1. The identified tree or trees to be protected will be fenced off, a minimum, to the drip line (furthest point of extension of branches) to protect the roots from soil compaction.
2. Above ground utilities shall avoid, where possible, the crowns of the trees.
3. Below ground utilities shall avoid where possible damaging the root system of trees. If utilities are to be placed below ground they are to be placed directly under the tree so not to damage the fine root hairs of the extended root system.
4. Tree roots that will be damaged must be cut cleanly to avoid ragged edges so they will heal properly. If exposed they must be moistened immediately and covered with moist material.
5. No equipment, trucks and storage of supplies shall be inside the fenced area.
6. No grading shall take place around the protected tree or trees.

In short the professional should be asking these questions:

1. Are there trees that can be protected due to size, rareness or they are a healthy stand that would add to the community?
2. If trees are going to be protected how will this be done during construction and after the project is complete?
3. If trees cannot be protected why not?
4. If trees cannot be protected what is the mitigating measure going to be for lose of trees. i.e. enhanced tree-planting program.

South Nation Conservation Authority

Although Prescott is not officially in the drainage basin of the SNCA they have valuable expertise and can be found at <https://www.nation.on.ca>



Landscaping Plans for New Development

The Planting plan will identify where additional trees are to be planted, which species and size of trees to be planted and how these trees will be planted and maintained.

The planting plan will identify:

1. Where trees will be planted:

- The site plan must identify where trees will be planted.
- At least one tree shall be planted for each residential lot developed unless a large number of trees have been removed for the development then an enhanced tree planting program will be undertaken.
- Industrial and commercial development site plans shall incorporate multiple trees.
- Prior to planting the developer must identify the location of underground utilities; present, planned and potential future locations.

2. Species and size of trees to be Planted

- Trees will be from seed from plant hardiness zone 4b, 4a or 5a or seed zones 35 and 36.
- The developer will plant a 60 mm (2.5 ins) caliper deciduous tree or a conifer tree minimum height 2.0 m.
- To avoid monocultures at least 4 deciduous and 1 conifer species will be selected from the list (Table 1) and approved by town staff.



Species of Trees for planting by developers – Table 1

	Deciduous	Conifer
Larger Trees for Larger Lots	Sugar Maple (<i>Acer saacharum</i>) Red Maple (<i>Acer rubrum</i>) Silver maple(<i>Acer saccharium</i>) Freeman maple(<i>Acer xfremani</i>) Red Oak (<i>Quercus rubra</i>) Bur Oak (<i>Quercus macrocarpa</i>) Hackberry (<i>Celtis occidentalis</i>) Freeman Maple (<i>Acer x fremanii</i>)	White Pine (<i>Pinus strobes</i>) White Spruce (<i>Picea glaoca</i>) Norway Spruce (<i>Picea abies</i>) Blue Spruce(developers are encouraged to use this species on the harder sites i.e. Hwy 7)
Medium Sized Trees	White Birch (<i>Betula papyrifera</i>) Little Leaf Linden (<i>Tilia cordata</i>)(developers are encouraged to use this species on the harder site i.e. Hwy 7)	Eastern White Cedar (<i>Thuja occidentalis</i>) Tamarack (<i>Larix laricina</i>)
Smaller Trees for Smaller Lots	Showy Mountain Ash (<i>Sorbus decora</i>) Serviceberry (<i>Amelanchier</i>) Crabapple (<i>Malus</i>) Honey Locust (<i>Gleditisia triacanthos</i>)	

General Tree Planting Guidelines

The International Society of Arborists, the Canadian Nursery Trades Association or Landscape Ontario standards of planting and maintenance are to be followed:

- Excavate to a depth 200mm deeper then the height of the root ball, with a width 750mm greater than the root ball.
- Loosen the planting hole to a depth of 200mm.
- Loosen burlap and cut away minimum at least 50% of the burlap without disturbing the root ball (if in a wire basket cut away as much of the wire basket while the tree is in the hole).
- Place plant material to a depth equal to the depth they were originally growing in the nursery.
- Tamp soil around the root system in layers of 150 mm to eliminate air pockets. When 2/3 of the planting soil has been placed file the hole with water. After the water has penetrated into the soil, complete backfilling.
- Build a 100mm deep saucer around the outer edge of the hole to assist with watering.

- The hardwood trees will be staked following International Society of Arborist standards.
- The trees will be mulched to a depth of 10 mm filling the saucer leaving 50 mm free around the trunk to avoid trunk rot.
- The trees will be watered one week after planting and every 2 weeks thereafter, pending weather conditions, until the area developed is no longer the responsibility of the developer.

Best Management Practices When Excavating Near Tree Roots:

- When excavation must take place within the drip line care of the root system is essential. A trench should be dug by hand or with a root-cutting (stump-grinder) or a stone cutting (cut-off) machine along the furthest reach of the cut. This is to ensure the roots are cut cleanly with no ragged ends so the roots have a chance to heal. When the trench is established, other equipment may be used to complete the work.
- When tree roots are cut and do become exposed during construction, water them immediately and backfill or cover with filter cloth or wood chips so the fine root hairs do not dry out. Ensure the chips or filter cloth is kept moist with a fine spray a number of times during the week and daily if hot dry weather is encountered.

Looking Ahead

The Steering Committee for Prescott's Communities in Bloom 2015/2016 accepted the many values of the Prescott Urban Forest Report 2016 and recommended a continued effort on behalf of our Trees. This second edition of the report is also recommended for consideration during the development of Official Plans, development plans and other related matters involving the care, appreciation and placement of trees and the continued enhancement of our Natural Heritage System.



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