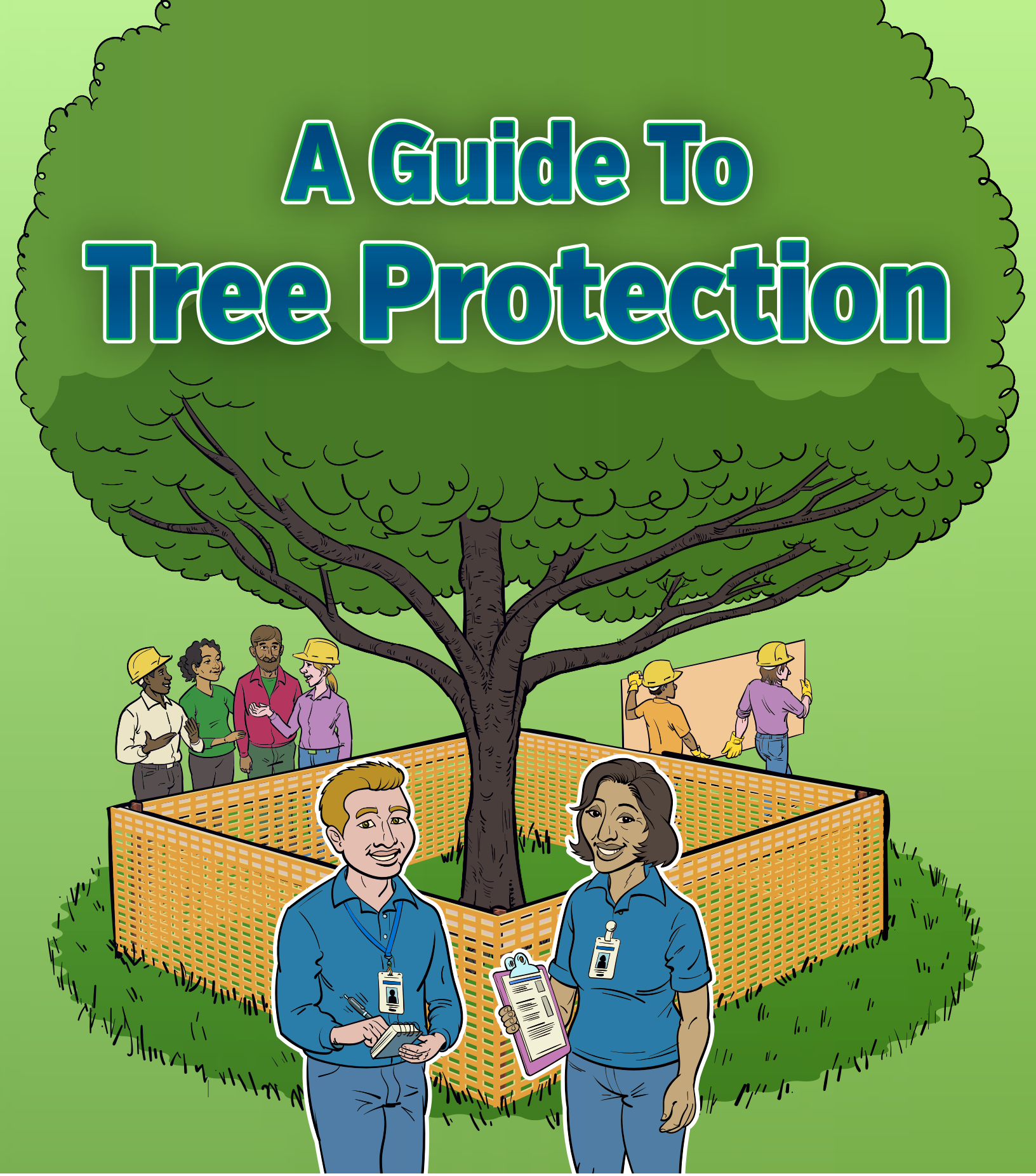
A Guide To Tree Protection



burlington.ca/forestprotection

CITY OF Burlington

818405071

Contents

List of Figures and Tables 3

Introduction 3

01 Why do we protect trees? 4
1.1 Trees help us

02 What rules protect trees in Burlington? 5
2.1 Federal, Provincial and Regional tree rules to be aware of
2.2 City tree policies
2.3 Tree by-laws in Burlington

03 Which trees do Burlington's tree by-laws protect? 6
3.1 How to measure tree diameter

04 When do or don't I need a tree permit? 8
4.1 What about when emergency tree work is needed?
4.2 What if my tree is high-risk, terminal or dead?
4.3 What about my neighbour's tree(s)?

05 How can I work around trees without injuring them? 10
5.1 Give trees their own zone
5.2 Don't forget about the root zone
5.3 How do I identify the Tree Protection Zone (TPZ)?
5.4 What about tree protection fencing?
5.5 What if the TPZ cannot be fully protected?
5.6 What about overhanging branches?
5.7 What about Public Trees?

06 What do I need for my private tree by-law permit application? . . . 14
6.1 What documents do I need?
6.2 When do I need an Arborist Report?
6.3 What is included in an Arborist Report?
6.4 What is a Tree Protection Plan?
6.5 What is a Tree Replacement Plan?

Key technical terms 22

List of Figures and Tables

Figure 1 - The benefits of trees 4
Figure 2a-2f - How to measure trunk diameter 6-7
Figure 3a-3b - TPZ in an open and built-up landscape 11
Figure 4 - Understanding soils and tree injury 11
Figure 5 - Keep the Tree Protection Zone clear and the fencing maintained 13
Figure 6 - Example of a Tree Protection Plan for a new pool 17
Figure 7 - Example of a Tree Protection Plan for an addition 18
Figure 8 - Example of a Tree Replanting Plan 20
Figure 9 - Replacement tree size upon planting 21
Table 1 - How to calculate the minimum Tree Protection Zone 12
Table 2 - How to calculate tree replacements 19
Table 3 - Examples of tree species for replanting 21

Introduction

The purpose of this guide is to help individuals navigate the City's Private Tree By-law and to provide general information about tree protection.

The terms, process or requirements identified in this guide do not replace those laid out in the Private Tree By-law. This guide uses plain language to help individuals understand it and its requirements and does not replace technical advice that can be provided by a **qualified tree professional** which may be required to support a tree permit application.

Note: Text shown in **bold** indicates terms that are defined in the Key Technical Terms at the end of this guide.

Permit Applications

Permit applications under the City's Private Tree By-law are to be completed online. Property owners may submit applications. However, in some cases it may be helpful to have a **qualified tree professional** help with the tree assessment and some aspects of the permit process.

Acknowledgments

Illustrations for this guide were developed by Scott Mooney. Text was developed by Grounded Solutions Services Ltd. and the City of Burlington.

For More Information

Visit the City's Forest Protection & Tree Permits webpage at burlington.ca/forestprotection, call 905-335-7777 or email city@burlington.ca with a specific question or concern.

01 | Why do we protect trees?

1.1 Trees help us

All trees in the City and the soils that support them are called the “urban forest”.

The trees that make up the urban forest provide many valuable benefits, see Figure 1 below:

1. provides wildlife habitat
2. purifies the air
3. captures carbon
4. cools and moderates the urban heat island effect
5. prolongs life of asphalt by shading it
6. intercepts and absorbs rainfall
7. provides a sense of place
8. increases property value
9. creates energy savings in buildings by shading in summer and letting sunlight through in winter
10. improves mental health and wellness

This is why the City is committed to protecting, maintaining and planting trees on its properties, and why the City asks the community to do the same.

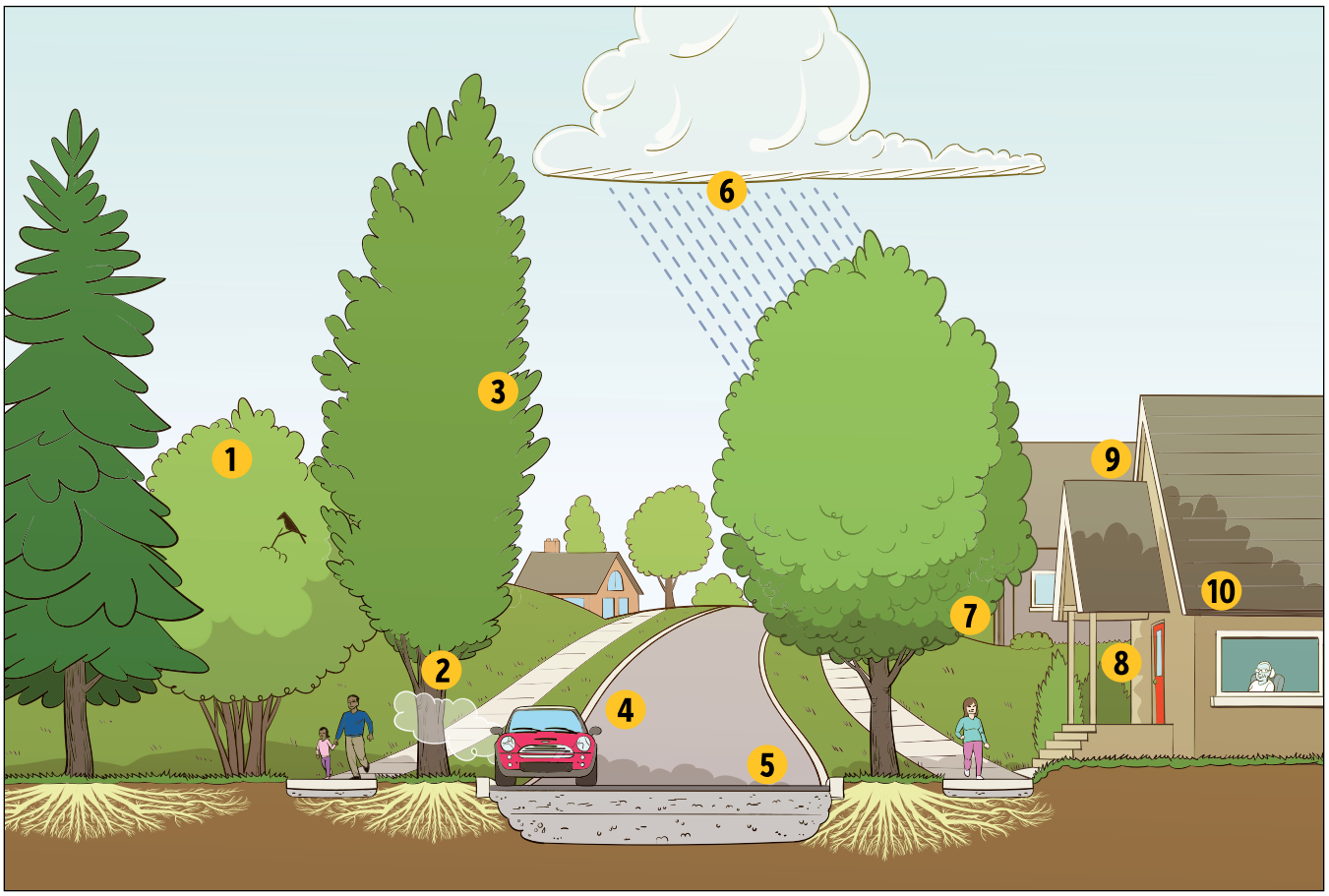


Figure 1 – The benefits of trees.

02 | What rules protect trees in Burlington?

The community values trees in Burlington, particularly mature trees, and the many services they provide. To protect their value, there are policies, regulations and by-laws that have been put in place to make sure that tree protection and replacement are considered.

- there are federal, provincial and regional regulations that apply to trees in Burlington. The ones that need to be considered by property owners most often are described in Section 2.1;
- in Burlington, trees must be considered during the planning process following the City's Official Plan policies described in Section 2.2;
- the City also has two by-laws that apply to trees when projects are undertaken that might **injure** or remove (referred to as "destroy" in the by-laws) trees which are described in Section 2.3;

2.1 Federal, Provincial and Regional tree rules to be aware of

The regulations related to trees that property owners typically need to consider in Burlington include:

- the Region of Halton's Tree By-law, which applies to the destruction or **injury** of trees on private lands in woodlands of at least 0.5 hectares and in the Regional Greenlands;
- the provincial *Forestry Act*, which discusses **boundary (shared) trees** along property lines;
- the *Ontario Heritage Act*, which protects trees on designated heritage properties and landscapes;
- the provincial *Endangered Species Act* which protects trees and tree habitat of species listed as Endangered or Threatened in Ontario; and
- the federal *Migratory Birds Convention Act*, which protects nests while they are being used by migratory birds to breed and raise their young.

2.2 City tree policies

The City's Official Plan includes policies that guide land use planning across the city. Section 4.3 of the City's Official Plan includes policies that require the protection, maintenance and enhancement of the urban forest as part of any active planning application on private lands.

The City's Tree Protection and Canopy Enhancement Policy supports tree protection, maintenance, and canopy enhancement practices across the city. This policy includes a goal of achieving a tree cover target of 35 percent across the city by 2041.

2.3 Tree by-laws in Burlington

The City's Private Tree By-law applies to trees on private lands in the City's Urban Planning Area Boundary (outside of woodlands of at least 0.5 ha, which are covered by the Region's Tree By-law, as noted in Section 2.1). The City's Public Tree By-law applies to all public trees on lands across the City at all times.

In this guide, trees protected under the City's Public Tree By-law or Private Tree By-law are called **"regulated trees"**.

This document includes tips on what to do when a property owner wants to remove or **injure** trees regulated by the City's Private Tree By-law.

03 | Which trees do Burlington's tree by-laws protect?

There are two City by-laws that apply to trees:

- the City's Public Tree By-law applies to trees of all sizes on City lands throughout Burlington, at all times;
- the Private Tree By-law applies to trees with a **diameter at breast height (DBH)** of 20 cm or greater on private lands in the City's Urban Planning Area Boundary (see Section 3.1 on how to measure **DBH**). This by-law applies where someone is looking to remove a tree from their private property, or complete a project on their private property that is expected to **injure** a tree. (For projects subject to the planning process, the **injury** and removal of private trees will be reviewed as part of that process e.g., site plan.)

As noted in Section 2, the Private Tree By-law does not apply to trees in woodlands of at least 0.5 ha (which are covered by the Region's Tree By-law).

3.1 How to measure tree diameter

Follow figures 2a through to 2f below and on the next page for instructions and tips on how to measure tree **diameter at breast height**.

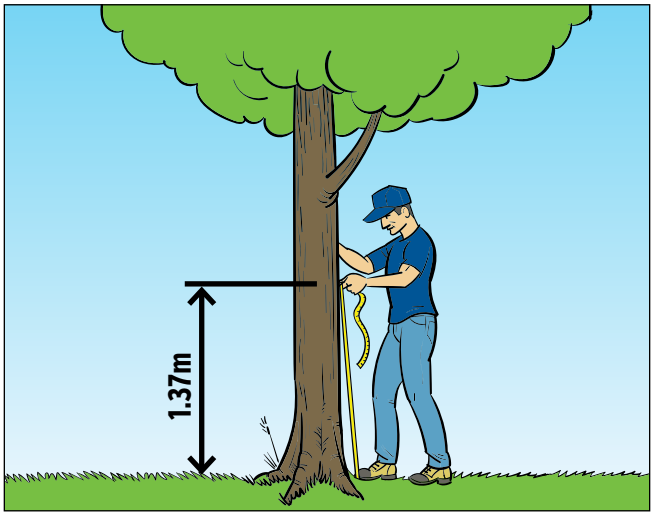


Figure 2a – How to locate "breast height": measure 1.37 m from the base of the trunk of the tree up the tree's trunk.

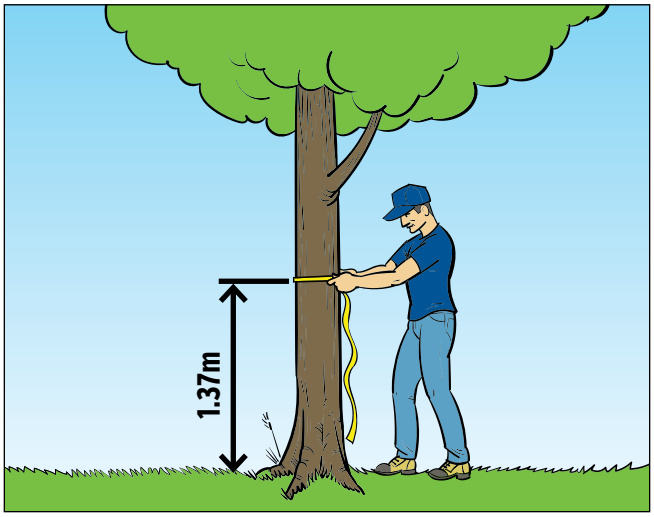


Figure 2b – How to measure trunk diameter: First measure the tree trunk's circumference (all the way around the tree) at breast height. You can use string, rope, a tailor's tape or a metal measuring tape to do this; all will work. Once you have the tree's circumference at breast height, divide that number by 3.14 to get the diameter. For example, a 69 cm circumference divided by 3.14 is 22 cm **diameter at breast height** (**DBH**).

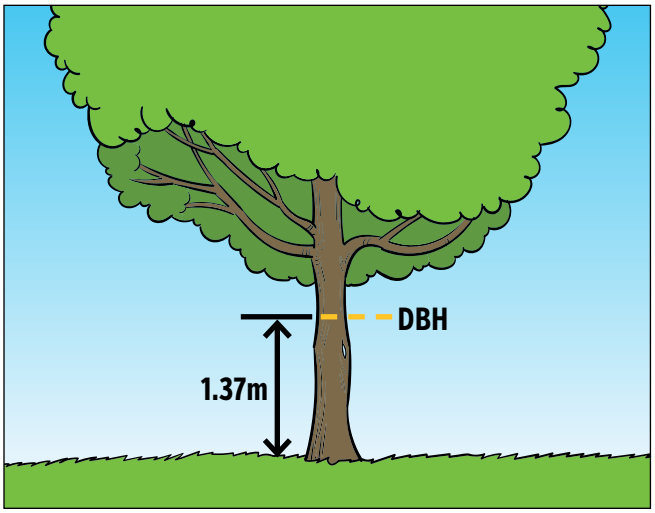


Figure 2c – Where to measure **DBH** when the tree grows straight.

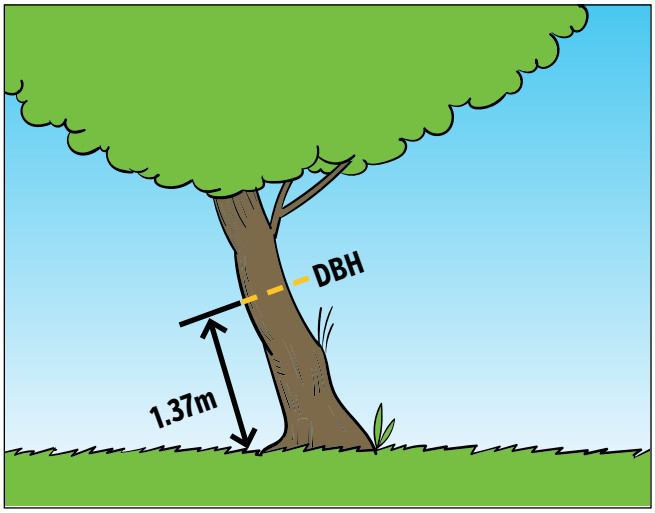


Figure 2d – Where to measure **DBH** when the tree is leaning.

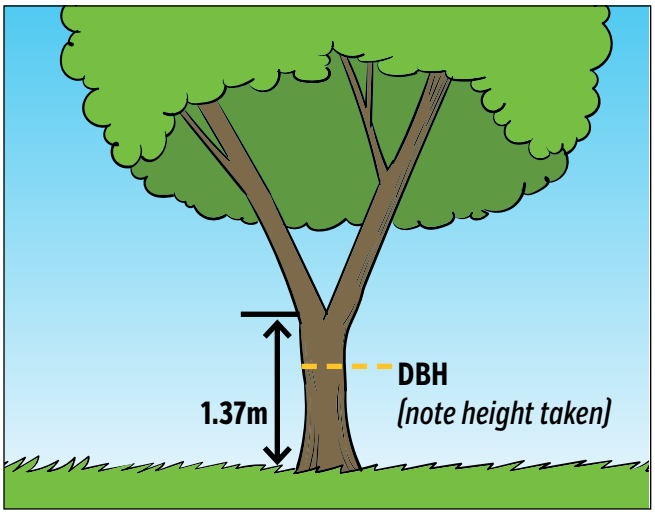


Figure 2e – Where to measure **DBH** when the tree forks at 1.37 m.

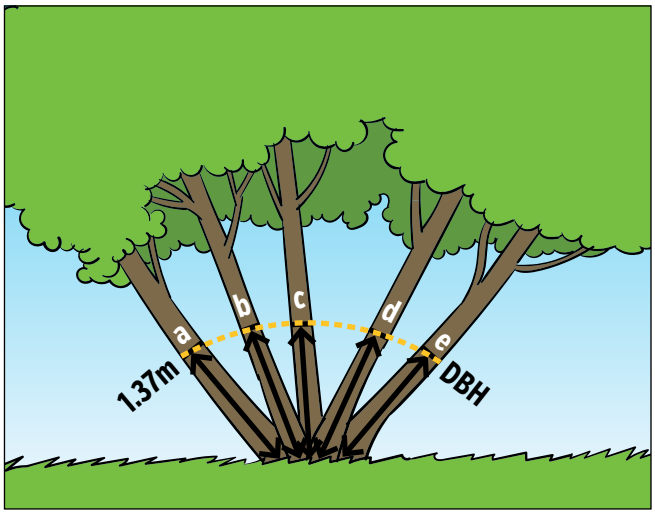


Figure 2f – Where to measure **DBH** when the tree has multiple stems. In this example, **DBH** of a multi-stem tree is $\sqrt{[a^2+b^2+c^2+d^2+e^2]}$.

If a=20, b=10, c=15, d=25, and e=22, then the **DBH** = $\sqrt{[202+102+152+252+222]}$= 43 cm.



Remember all trees on City property are regulated no matter their size. You can use the above instructions to measure these trees.

04 | When do or don't I need a tree permit?

In most cases, you will need a permit under the City's Private Tree By-law if you want to **injure** or remove a **regulated tree** on your property.

You may also require a permit under the City's Private Tree By-law if you are proposing a project that will involve working within a neighbour's tree's minimum **Tree Protection Zone** (see Section 5 and Table 1).

In addition, activities on private property that might cause the **injury** or removal of a City tree will require a permit under the City's Public Tree By-law.

When a Private Tree By-law permit is required

When injuring, destroying or removing on private lands any of the following:

- a tree of 20 cm **DBH** or greater;
- a designated **heritage tree**;
- a tree that is listed as an Endangered or Threatened tree species in Ontario;
- replacement trees planted as part of a condition of a tree permit.

When a Private Tree By-law permit is required, but typical fees and tree replacement requirements are waived

As confirmed by a **qualified tree professional**, when injuring, destroying or removing on private lands any of the following:

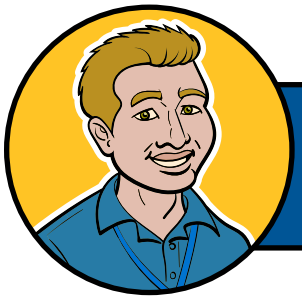
- a tree that is 100% **dead**
- a tree that has a **terminal condition**
- a **high-risk tree**

When a Private Tree By-law permit is <u>not</u> required

When injuring, destroying or removing on private lands any of the following trees:

- less than 20 cm **DBH**;
- in a nursery or orchard;
- classified as invasive (under the *Ontario Invasive Species Act* and/or *Ontario Weed Control Act*);
- tree maintenance (e.g., pruning) using **good arboricultural practices**.

In addition to the above list, there are other cases where a permit is not required as summarized in Section 6.1 of the City's Private Tree By-law. Many of these exemptions are from other regulations that supersede (or trump) the Private Tree By-law, and therefore the City is not authorized to require a permit.



Review the City's Private Tree By-law for specific definitions, permit requirements and permit exemptions.

4.1 What about when emergency tree work is needed?

Emergency tree work may be required when a tree is in active failure, such as a tree toppling over a garage after being severely damaged by a windstorm.

Emergency tree work on private property can occur without a permit. However, you are to notify the City within 72 hours of the work being undertaken and provide proof through photographs and/or an arborist report that shows that the work was urgently needed.

To notify the City, call 905-335-7777 or email city@burlington.ca.

4.2 What if my tree is high-risk, terminal or dead?

A permit is required to remove trees that are **high-risk**, have a **terminal condition** or are **dead**.

These types of tree conditions can be hard for an untrained person to assess. For this reason, the City requires the property owner to obtain written confirmation from a **qualified tree professional** but waives the typical fees and tree replacement requirements. When you make an application for any of these exemptions, please submit photographs and the assessment from the **qualified tree professional** to support your application.

High-risk trees can be especially tricky to assess because they are structurally compromised to the point where they are likely to fail but not immediately. As a result, this assessment must be confirmed by a **qualified tree professional** with a specialized Tree Risk Assessment Qualification (also known as TRAQ) using a Basic Risk Assessment form.

4.3 What about my neighbour's tree(s)?

If a project on your property is expected to **injure** or remove a **regulated tree** on your neighbour's property, you must apply for a permit and have their signed consent to do so (see Section 6). This applies whether (a) that tree is shared with your neighbour and grows across the property line (i.e., a **boundary tree**) or (b) if it is not a shared tree but your project work will occur within the **TPZ** of your neighbour's **regulated tree** and might **injure** their tree.



If you are concerned about a high-risk tree on a neighbour's property it may be a property standards issue. Contact the Municipal By-law Enforcement Department at city@burlington.ca or call 905-335-7777.

05 | How can I work around trees without injuring them?

Wherever and whenever a project – large or small – is planned near one or more **regulated tree(s)**, it is important to consider trees and ask: Can I do the project differently to protect the **regulated tree(s)**? If trees must be **injured** (where work must occur within the **TPZ**) or removed, how can I protect the remaining trees and replace the canopy lost?

Injury to a tree tends to occur when any construction activities happen close to the tree or over its roots without any protective measures in place. Typical construction activities that can **injure** trees, directly or indirectly, include:

- the movement and operation of small and large machinery;
- trenching soil and subsoil excavation;
- storage of fill, soil, building materials, equipment and construction waste; and,
- demolition, grading and building.

Tree **injury** often occurs when appropriate protection around the tree is not installed or maintained, and/or when branches or roots are trimmed back improperly. However, tree **injury** can generally be avoided with above- and below-ground protection as described in this section, and use of **good arboricultural practices** when pruning branches and roots.

5.1 Give trees their own zone

The main way to protect a **regulated tree** from **injury** during construction is to make sure that:

1. a proper **Tree Protection Zone (TPZ)** is identified, and;
2. tree protection fencing (also called vertical hoarding) is securely installed to protect this zone (see Figures 3a and 3b located on the next page).

The **TPZ** is a zone created around a tree to protect the tree trunk, branches, soil and roots from machines and equipment, and other construction-related disturbances. Where work is proposed inside this zone, a tree permit may be required.

5.2 Don't forget about the root zone

Although sometimes ignored, roots and soil are critical to a tree's health and survival and can easily be **injured** during construction. It's much easier to prevent tree **injury** than to fix it!

Larger roots give trees structural support to help them survive windstorms, while fine roots absorb water and nutrients to sustain them.

Soil compaction is the most common cause of below-ground **injury** to trees. Healthy soils have a structure with air pockets that gives space to the many organisms that keep the soil healthy.

When weight is placed on the ground, it causes compaction, which squeezes the air spaces out of the soil. Once the soil is compacted, it is hard for fine roots to get what the tree needs from the soil to remain healthy such as air and water (see Figure 4).

The **TPZ** may not protect all of a tree's roots but is meant to protect the bulk of them. While extensive damage to a tree's rooting area may not result in an immediate response, it can contribute to serious decline over several years. It is also hard to undo the impact from compaction and it is much better to take measures to avoid or limit it in the first place.

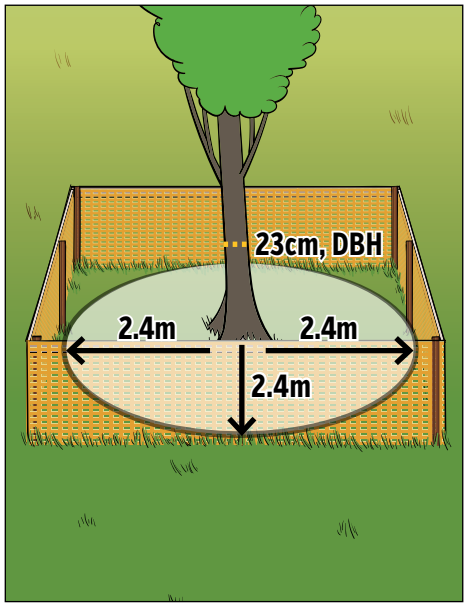


Figure 3a – TPZ in an open landscape: tree protection fencing surrounds the entire TPZ.

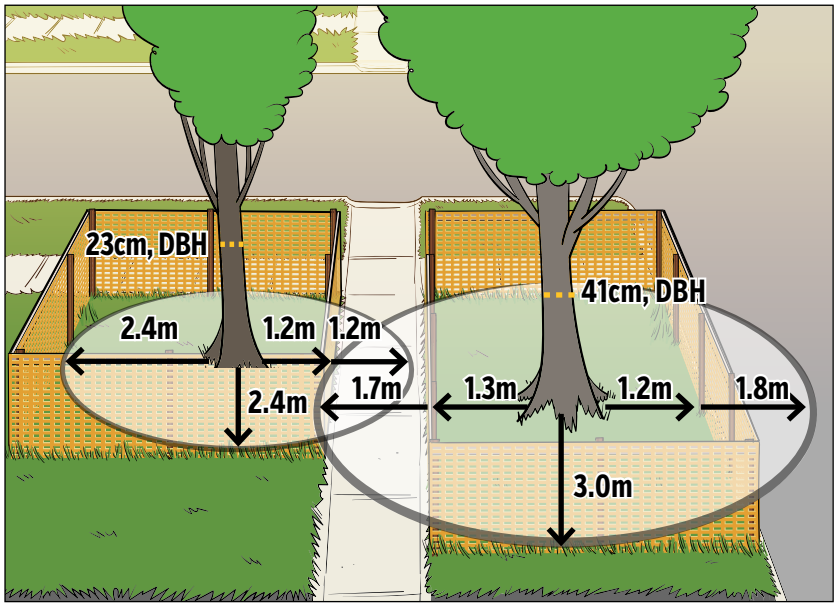


Figure 3b – TPZ in a built-up landscape: tree protection fencing extends up to existing pavement, which also counts as tree protection within the TPZ.

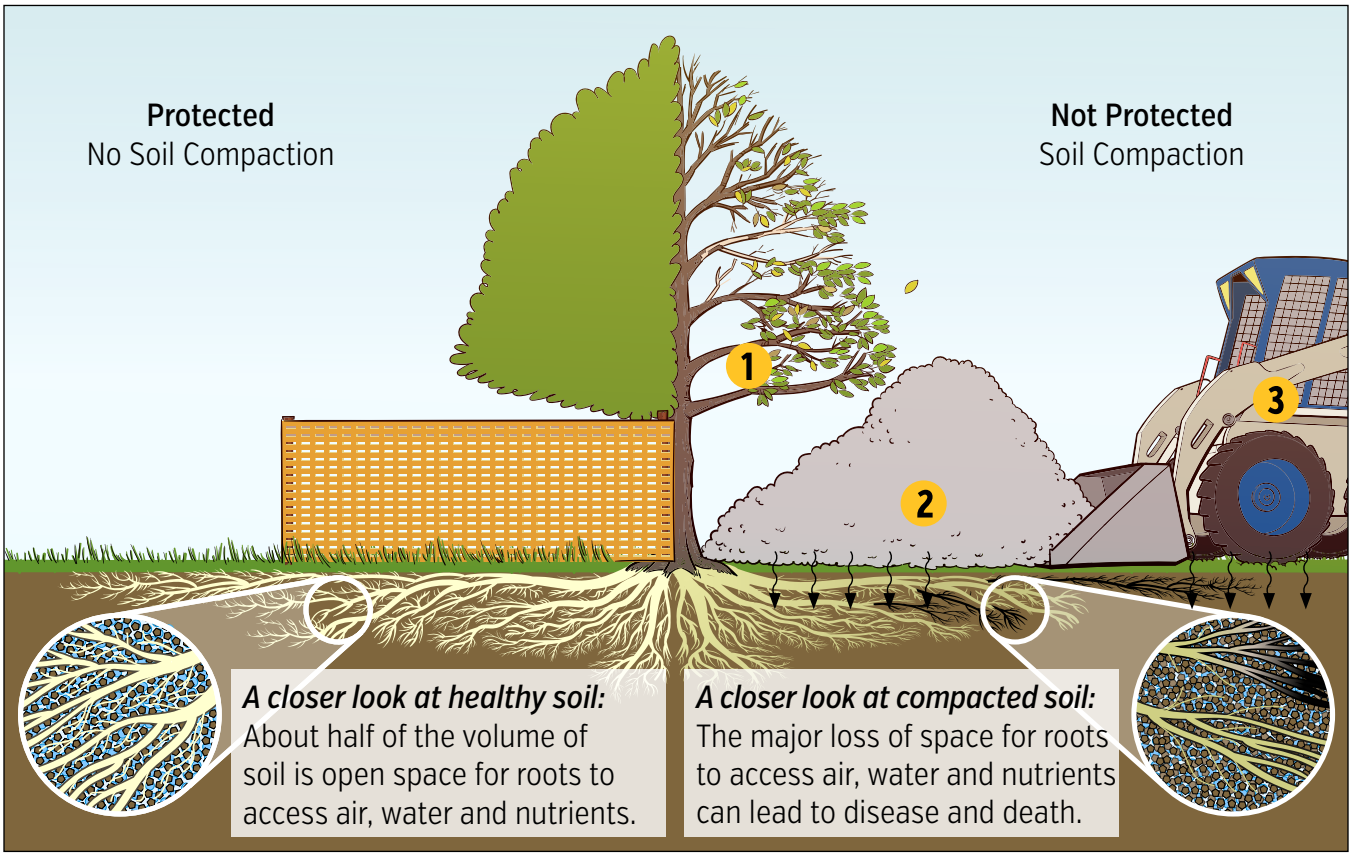


Figure 4 – Understanding soils and tree injury. The numbers on the figure refer to: 1) Die-back over several years because of root loss due to lack of water and nutrients; 2) Weight of temporary pile of material; 3) Weight of machinery.

5.3 How Do I Identify the Tree Protection Zone (TPZ)?

The **TPZ** is measured from outside the base of the tree trunk. The distance measured from the trunk varies depending on the tree's diameter, as shown in Table 1 below. Generally, the zone required expands with the **DBH** of the tree, and ranges from 1.8 m from the trunk of a smaller tree to 6.0 m or larger for trees with a **DBH** of 100 cm or greater.

Trunk Diameter (DBH)	Minimum Tree Protection Zone (TPZ)
Less than 10 cm	1.8 m (5' 11")
11 to 40 cm	2.4 m (7' 10")
41 to 50 cm	3.0 m (9' 10")
51 to 60 cm	3.6 m (11' 10")
61 to 70 cm	4.2 m (13' 9")
71 to 80 cm	4.8 m (15' 9")
81 to 90 cm	5.4 m (17' 9")
91 to 100 cm	6.0 m (19' 8")
Greater than 100 cm	6.0 m (19' 8") + 10 cm (4") per 1 cm DBH

Table 1 – How to calculate the minimum Tree Protection Zone.

5.4 What about tree protection fencing?

Having machines moving back and forth close to trees greatly increases the risk of **injury** to the trunk, branches and roots. Having fill or building supplies piled up against a tree trunk can also harm the tree and its rooting area.

To prevent tree **injury**, the **TPZ** should be clearly demarcated with securely installed fencing (vertical hoarding). For example, snow fencing fastened securely to stakes can make an effective tree protection fence.

Details about acceptable **TPZ** materials and installation methods can be found in the City's Tree Protection Specification (found at burlington.ca/forestprotection).

Ideally, the tree protection fencing can be outside of the identified **TPZ** on all sides of the tree (see Figure 3a). However, in practice, it does not make sense to include paved areas such as existing sidewalks, driveways, patios and/or decks. In these cases, the **TPZ** should exclude these areas (see Figure 3b).

The demarcated **TPZ** should be a "no go" zone for all construction activities. It is a reminder to those working on site to keep all equipment and supplies away from the tree and its main rooting area. Tree protection fencing must stay up throughout your project. You must contact City Forestry Staff before you take down the tree protection fencing.

5.5 What if the TPZ cannot be fully protected?

In some cases, it may not be possible to complete your project without working inside the **TPZ**, at least on a partial and/or temporary basis (e.g., to provide machine access into and out of a narrow lot).

Where you must work inside the **TPZ**, alternate tree protection measures are needed to prevent impacts to the tree in consultation with City Forestry Staff.

Ground protection (horizontal hoarding) is often recommended. This consists of a landscaping fabric laid over the anticipated disturbance zone and covered with a thick layer of mulch and plywood or steel plates laid on top. This allows people and machinery to move through this zone while limiting soil compaction.

Other measures (such as use of hand tools, vertical hoarding closer to the tree trunk and air-spading with proper root pruning) may also be appropriate.

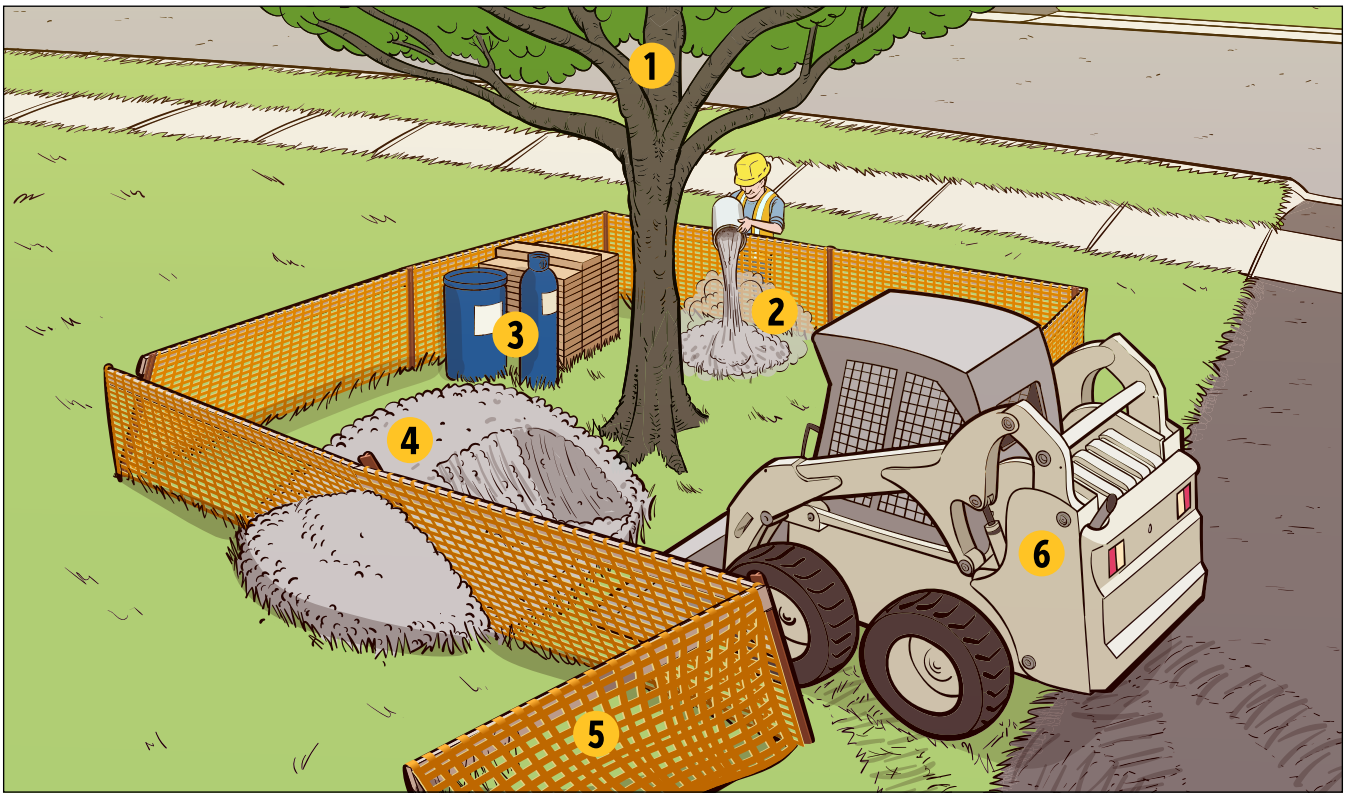


Figure 5 – Keep the Tree Protection Zone clear and the fencing maintained. The numbers on the figure refer to: 1) If pruning is required after fencing is erected, pruning must be done by a qualified tree professional; 2) No dumping of materials; 3) No material or equipment storage; 4) No fill or temporary storage; 5) Fencing must be maintained throughout the entire time of project construction; 6) No dumping of materials or machine access within TPZ.

5.6 What about overhanging branches?

Basic tree maintenance, like pruning, can be done without a permit when using **good arboricultural practices**. If you are unsure, consult with a **qualified tree professional** before maintaining private trees.

5.7 What about public trees?

Please note the maintenance of City trees such as pruning can only be done by City Forestry Staff or their contractors. If your project will be adjacent to City trees, you must discuss this with City Forestry Staff to confirm the project can proceed. If approved, there will be certain requirements to follow such as hiring a **qualified tree professional** that is approved by the City to undertake the work, providing a tree security deposit and submission of other reports or documents.



Using hand tools or accessing areas by foot can help reduce impact to trees. Put notes on your plans so it is clear and understood where you plan to use hand tools and foot traffic. Also note areas where there will be no construction access.

06 | What do I need for my private tree by-law permit application?

The submission requirements for each Private Tree By-law permit depends on: (a) why you are asking for the tree to be removed or **injured**, and (b) the nature of the proposed project (in cases where there is a project).

A complete tree permit application may include one or more of the following:

- forms;
  - an Owner's Authorization Form;
  - a Consent Letter (also called a Letter of Agreement) from the neighbour(s);
- an Arborist Report with;
  - a Tree Protection Plan;
  - a Tree Replacement Plan unless you are opting to pay the tree replacement fees instead of replanting; and/or
- fees;
  - applicable tree **injury**, removal and/or replacement tree fees;
  - tree replacement security deposit;
  - security deposit for City tree(s);
  - additional fees as required (e.g., application processing fee).

This section provides generalized guidance as to when each of the items above is typically required, and what information it should contain. However, each application is unique, and City Forestry Staff may request additional information and/or request a site visit.

The City has also included the tree permit application within the pre-building permit process and the pool permit process to streamline review and approvals.

6.1 What documents do I need?

The City's tree permit application process is online. If you require assistance please contact Service Burlington at 905-335-7777 for accessibility support.

A property owner can complete the permit application themselves or authorize someone to complete it on their behalf. If authorizing someone else, an Owner's Authorization Form needs to be completed and submitted with the application.

If a project on your property might **injure** or remove a **regulated tree** that grows across the property line or is located on your neighbour's property, you need to provide a Consent Letter signed by them. The Consent Letter must contain:

- the name, address and contact details of all the owners and/or co-owners of the trees;
- the exact details of the trees to be **injured** and/or removed (i.e., tree species name, size and location etc.); and
- a statement acknowledging the proposal for the tree(s) to be **injured** and/or destroyed/removed and acceptance of the proposal. For example, I/we understand and are agreeable/consent to the removal of the tree as identified herein that adjoins property X and Y.

A Consent Letter is needed if your tree permit application contains:

- a **regulated tree** that is shared with your neighbour (i.e., a **boundary tree**); and
- a project that will be located within the **TPZ** of your neighbour's **regulated tree**.

6.2 When do I need an Arborist Report?

An Arborist Report will generally not be required if a property owner wishes to remove one tree and is not completing any sort of project (i.e., the application is to only remove a tree). For these singular tree applications, photographs are required along with information on the species and location of the tree such as on a sketch. It is also helpful to know if there is any access or safety issues such as a locked gate or loose dog, as we will still assess trees if you are not home. This information can be provided within the application or with a follow up email to the email address provided in the tree permit application confirmation page after submitting the online application.

When you are not completing a project, and you are looking to remove and/or **injure** multiple trees, a report and/or document that provides the following is required:

- a reasonably accurate sketch of the property clearly showing the location of all trees;
- a table of the species, size (**DBH**) and ownership of all tree(s); and
- clear supporting photos of the full tree for each tree.

High-risk, terminal or dead trees

If a property owner wishes to remove one or more trees considered **high-risk**, **terminal** or **dead** then an Arborist Report or letter confirming the tree('s) condition is needed. The confirmation must be completed by a **qualified tree professional**.

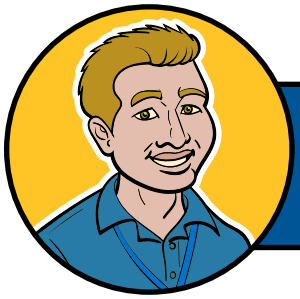
Trees injured or removed for a project

If a property owner wishes to remove one or more trees because of a project (e.g., new house, pool, etc.), or the proposed work is expected to impact a **regulated tree** on an adjacent property (i.e., works will be within the tree's minimum **TPZ**, as per Table 1), then a permit application with a complete Arborist Report is required.

6.3 What is included in an Arborist Report?

An Arborist Report must be prepared by a **qualified tree professional**. A complete Arborist Report typically includes:

- the address of the subject site;
- the author, contact information, and relevant qualifications (e.g., ISA certification #, RPF)
- a brief description of the proposed work;
- a description of the trees to be removed, if any and why;
- the date(s) that the assessment was completed. Ensure assessments were completed within the last year (365 days). Where reports are revised, include revised report number and date;
- the species, size, condition and ownership of all the trees on your property and within 6 m of the property limit (using the City's accepted standards);
- a description of the trees to be protected and the measures proposed to protect them (with a Tree Protection Plan);
- a description of any trees to be **injured** where work will be within the minimum **TPZ** and include the reason for encroachment (see Table 1);
- measures to be implemented to avoid negative impacts to trees due to work required within the minimum **TPZ** (e.g., branch and/or root pruning, etc.);



In some cases, not all of the above listed report elements will be required. This will need to be determined in consultation with City Forestry Staff.

- plan for tree replacement (see Section 6.5) to compensate for trees to be removed (with a Tree Replacement Plan);
- recommended post-construction care and/or monitoring for the **regulated trees** and the replacement trees as required; and
- photographs of the full tree(s).

6.4 What is a Tree Protection Plan?

A Tree Protection Plan is a two-dimensional metric scaled plan typically prepared by a **qualified tree professional** that shows:

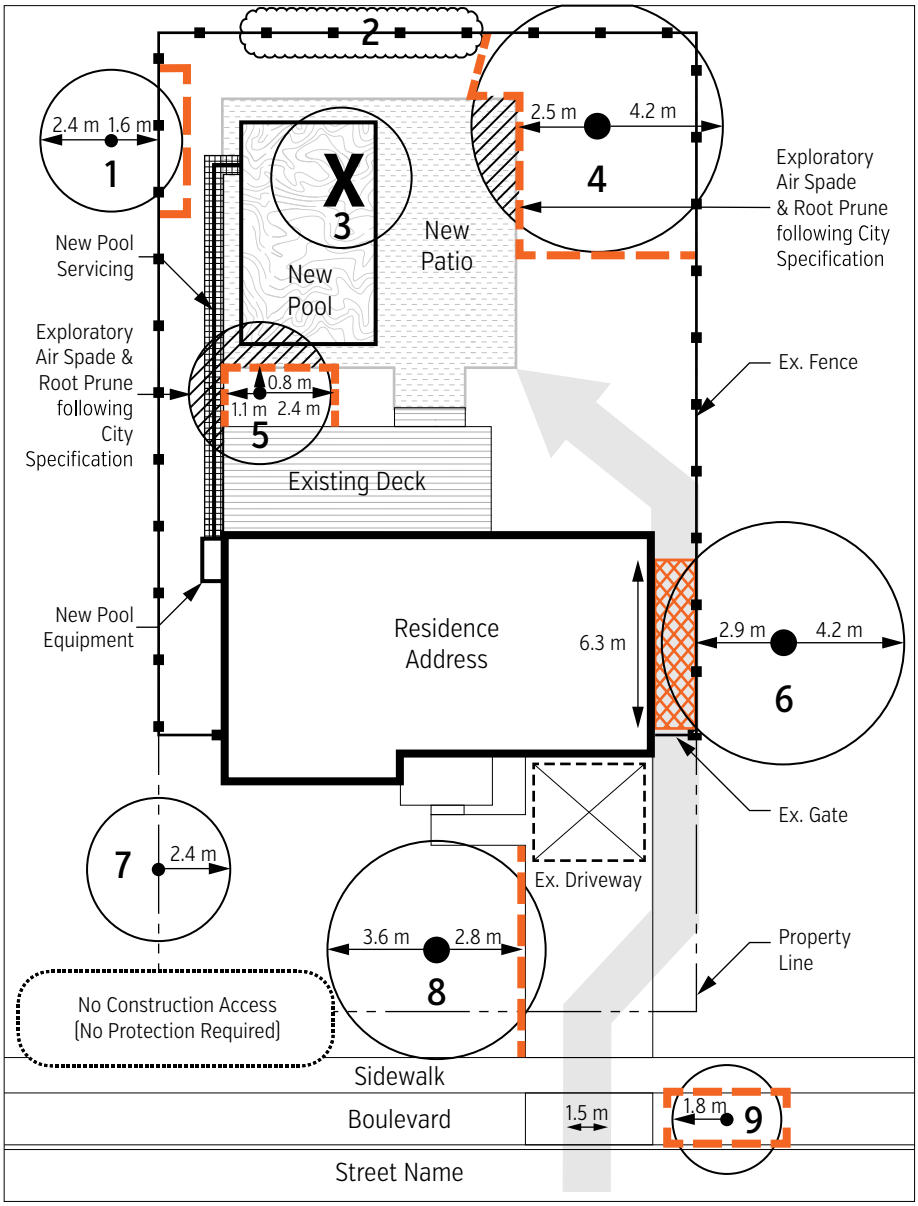
- Existing conditions including property lines, building footprints, and other site elements (such as a driveway, pool, desk, patio and fence) including the front of the property to the street curb;
- Proposed conditions including any new structures or additions, a new pool, over-dig for all excavations, a new paved surface such as new or widened driveway or deck and grade changes drawn to scale with dimensions;
- Existing and proposed servicing and utility information such as trenches with dimensions, bore pit locations with dimensions;
- Details on servicing decommissioning and abandonment;
- A separate tree inventory table as needed or include the table on the plan. The tree inventory should include the unique identifier for the tree, size, species, ownership, address if not the subject lot, condition for the trees, recommendations and any notes;
- The location of each regulated tree on the property, those within six (6) metres of the property and those within the municipal right of way. Trees that make up a hedge are to be individually shown on the plan;
- The trunk for the tree shall be scaled along with a scaled circle measured out from the edge of the trunk of the tree to show the **TPZ** with dimensions;
- Which trees are to be **injured**, removed or fully protected through the proposed project;
- Proposed construction access routes and material storage areas and their dimensions;
- The location and extent of tree protection measures to be installed (e.g., tree protection fencing and horizontal tree protection) with dimensions;
- The distance measurement between the trunk of the tree and site of **injury**;
- A label for all mitigative work around trees as necessary (e.g., exploratory air-spade and root prune); and
- A scale bar and legend that provides labels for all information included on the drawing. Do not include other elements that are not applicable.

It is important that all plans provided are drawn to scale and include all relevant information. This helps the City check that what is being proposed can actually be implemented on site.

Examples of Tree Protection Plans are provided in Figure 6 and 7.

Tree Protection Plan

(To be read in conjunction with the Arborist Report)



Legend

- Tree Trunk, Identification, & Tree Protection Zone (TPZ)
- Tree Protection Fencing
- Root Protection Hoarding
- Construction Access (max. width required for equipment)
- Material Storage Area
- X — Tree Removal
- Area of Tree Injury (work occurs inside TPZ)
- Area of Overdig (approx. 0.6 m wide)

IMPORTANT

This is an example drawing only. It shows the key forestry details necessary for approval. Extra details may be needed based on the scope of your project. Connect with other departments to learn about their requirements.

Drawing Details

Drawn: June 1, 2022
Version: 02 (Revised July 5, 2022)
Scale = 1:250 (1 cm = 2.5 m)

N.B. Print on 8.5"x11" without scaling or fitting; otherwise only scale bar below is correct scale.

0 5 10 m

Tree Inventory Table

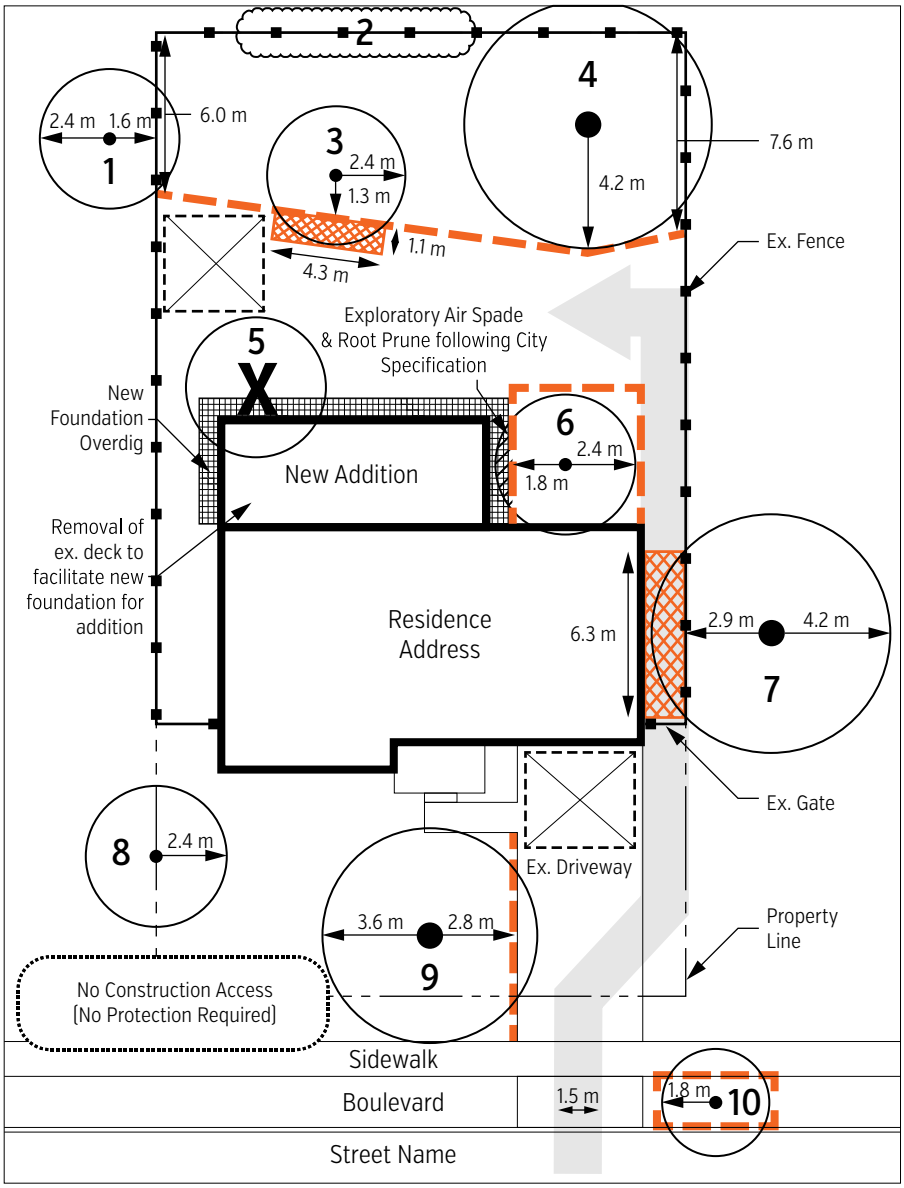
(To be read in conjunction with the Arborist Report)

Tree #	Tree Species	Tree DBH (cm)	Tree TPZ (m)	Tree Health	Tree Structure	Tree Ownership	Recommendation (see Arb. Report)	Notes (see Arborist Report for more detail)
1	Tulip Tree	25	2.4	Good	Good	Neighbour	Protect	
2	White Cedar	< 20	NA	Good	Good	Boundary / Shared	No Action Required	9 stems in hedge; none regulated
3	Ironwood	20	2.4	Good	Good	Subject Property	Remove	Within footprint of pool
4	Sugar Maple	65	4.2	Good	Fair	Subject Property	Injure & Protect	Root prune following City Spec.
5	Ironwood	21	2.4	Good	Good	Subject Property	Injure & Protect	Root prune following City Spec.
6	Black Maple	60	4.2	Fair	Good	Neighbour	Protect	
7	Yellowwood	20	2.4	Poor	Fair	Boundary / Shared	No Action Required	
8	White Birch	51	3.6	Fair	Fair	Subject Property	Protect	3 stems: $\sqrt{29^2 + 29^2 + 30^2}$ = 51 cm DBH
9	Serviceberry	10	1.8	Good	Good	City	Protect	

Figure 6 – Example of a Tree Protection Plan for a new pool.

Tree Protection Plan

(To be read in conjunction with the Arborist Report)



Legend

- Tree Trunk, Identification, & Tree Protection Zone (TPZ)
- Tree Protection Fencing
- Root Protection Hoarding
- Construction Access (max. width required for equipment)
- Material Storage Area
- X — Tree Removal
- Area of Tree Injury (work occurs inside TPZ)
- Area of Overdig (approx. 0.6 m wide)

IMPORTANT

This is an example drawing only. It shows the key forestry details necessary for approval. Extra details may be needed based on the scope of your project. Connect with other departments to learn about their requirements.

Drawing Details

Drawn: June 1, 2022
Version: 02 (Revised July 5, 2022)
Scale = 1:250 (1 cm = 2.5 m)

N.B. Print on 8.5"x11" without scaling or fitting; otherwise only scale bar below is correct scale.

0 5 10 m

Tree Inventory Table

(To be read in conjunction with the Arborist Report)

Tree #	Tree Species	Tree DBH (cm)	Tree TPZ (m)	Tree Health	Tree Structure	Tree Ownership	Recommendation (see Arb. Report)	Notes (see Arborist Report for more detail)
1	Tulip Tree	25	2.4	Good	Good	Neighbour	Protect	
2	White Cedar	< 20	NA	Good	Good	Boundary / Shared	No Action Required	9 stems in hedge; none regulated
3	Ironwood	20	2.4	Good	Good	Subject Property	Protect	
4	Sugar Maple	65	4.2	Good	Fair	Subject Property	Protect	
5	Ironwood	21	2.4	Good	Good	Subject Property	Remove	Significant injury to structural roots
6	Redbud	22	2.4	Good	Good	Subject Property	Injure & Protect	Root prune following City Spec.
7	Black Maple	60	4.2	Fair	Good	Neighbour	Protect	
8	Yellowwood	20	2.4	Poor	Fair	Boundary / Shared	No Action Required	
9	White Birch	51	3.6	Fair	Fair	Subject Property	Protect	3 stems: $\sqrt{29^2 + 29^2 + 30^2}$ = 51 cm DBH
10	Serviceberry	10	1.8	Good	Good	City	Protect	

Figure 7 – Example of a Tree Protection Plan for an addition.

6.5 What is a Tree Replacement Plan?

A Tree Replacement Plan should build on the base information in the Tree Protection Plan (see Section 6.4). However, instead of showing the trees to be removed, it shows the trees to be planted as replacement for those removed.

The location of the trees to be planted, each with a unique identifier, should be shown with a table showing the species and size of each. A simplified example is provided in Figure 8.

How are tree replacements calculated?

When the City permits the removal of one or more **regulated tree(s)** on private property, and the tree is not **high-risk**, **terminal** or **dead**, a plan for tree replacement is required.

To compensate for canopy loss you can either:
- plant replacement trees on private property, or;
- pay a replacement tree fee to allow for tree planting somewhere else in the City (also called cash-in-lieu); or
- a combination of both.

The total amount of replacement trees is based on the number and diameter of tree(s) approved for removal using a ratio-based system, as shown in the table below:

Trunk diameter (DBH) of tree approved for removal	Tree replacement ratio
20 to 35 cm	2:1
36 to 74 cm	3:1
75 cm or more	4:1

Table 2 – How to calculate tree replacements.

For example, removing two 30 cm **DBH** trees requires four replacement trees to be planted or four times the private tree replacement fee.

If you agree to plant replacement trees as a permit condition, the City will collect a replacement tree security and set a date by which the trees need to be planted. Once the trees are planted, you can contact City Forestry Staff to confirm you have satisfied the condition and request your deposit be refunded. Please be prepared to provide photographs of your replacement trees.

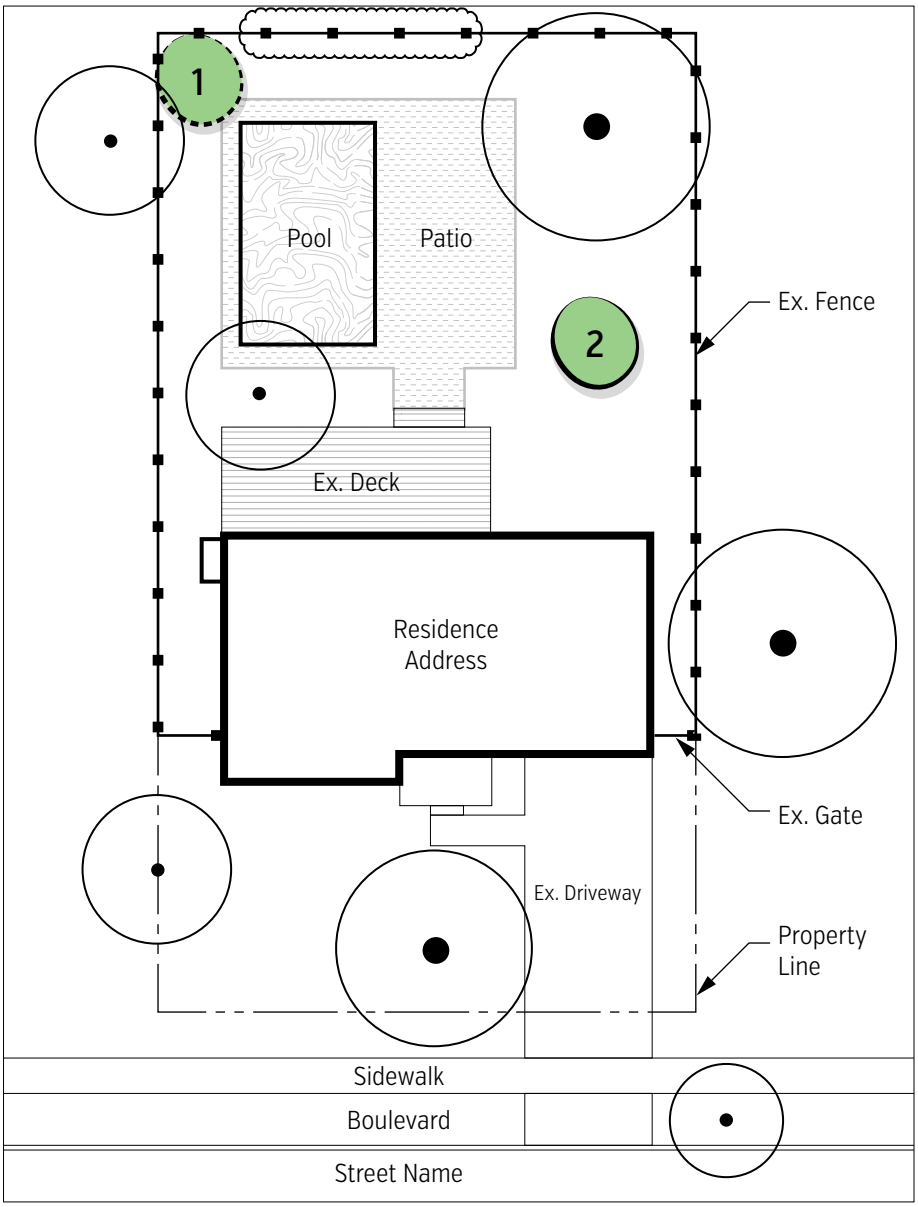
If replacement trees are not planted within the time on the tree permit, the replacement tree security will be deposited into the City's Tree Planting Initiative Reserve Fund.

Where can replacement trees be planted?

Replacement trees can be planted on the lot where the trees were removed or on an alternate private property within the City's Urban Planning Area Boundary (with a Letter of Consent from the alternate landowner).

The permit holder is responsible for planting and caring for the required replacement trees for the first two years. All replacement trees are regulated under the Private Tree By-law.

Tree Replanting Plan



Legend

Deciduous (Broadleaf) Replacement Tree

Coniferous (Evergreen) Replacement Tree

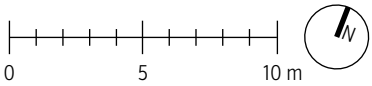
Drawing Details

Drawn: June 1, 2022

Version: 01

Scale = 1:250 (1 cm = 2.5 m)

N.B. Print on 8.5"x11" without scaling or fitting; otherwise only scale bar below is correct scale.



Tree Replanting Table

Tree #	Tree Species	Tree Size
1	Eastern Hemlock	125 cm tall
2	Hackberry	30 mm caliper

Tree Replanting Calculation

(To be read in conjunction with the Tree Protection Plan (TPP))

Trunk Diameter (DBH) of the Tree Removed	Compensation Ratio	Number of Trees Removed	Number of Trees to be Replaced
20-35 cm	2:1	1 (Tree #3 in Pool TPP)	2
36-74 cm	3:1	0	0
>= 75 cm	4:1	0	0

Figure 8 – Example of a Tree Replanting Plan.

What are examples of trees to plant?

Below is a list of species to consider when choosing which trees to replant with. For a larger selection please visit our website at burlington.ca/forestprotection.

Small	Medium	Large
Blue beech	Yellow birch	Bur oak
Serviceberry (tree)	Balsam fir	Tulip tree
Eastern redbud	Ironwood	Hemlock
Ohio buckeye	Hackberry	White pine
Yellowwood	Black gum	Sycamore

Table 3 – Examples of tree species for replanting.

Other important tree replacement requirements to consider

Replacement trees must be:

- a minimum at the time of installation:
  - 125 cm tall for evergreen species;
  - 30 mm caliper for broadleaf species;
- A tree with the ability to reach a minimum height of 4.5m at maturity. Dwarf, weeping, top-grafted ornamental, and shrub-form varieties do not qualify;
- a similar species type to the tree that was removed. For example where you remove a maple tree, one of your tree replacements must be a broadleaf species; and
- suited to the site conditions.

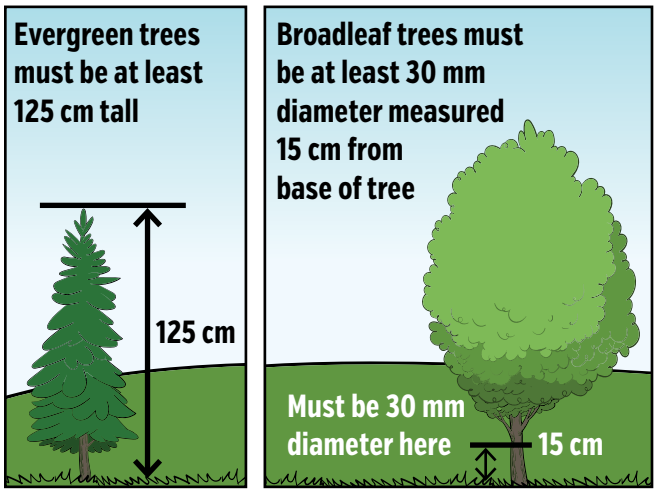


Figure 9 – Replacement tree size upon planting.

New Tree Planting Care Tips

To keep the trees healthy follow these tips:

- water the tree regularly to keep the soil moist, but not soaking wet. Over-watering can create as many issues for the newly planted tree as drought can. Water the tree once every 3 to 5 days with a good soaking. Consider any rainstorms that have happened or are forecasted;
- keep lawn mowers and string trimmers away from the stem of the tree. Injuries make the tree more susceptible to insect and disease infestations and weaken the trunk. Severe bark damage can result in the eventual death of a tree;
- woodchip mulch should be left in place to protect the tree from damage, it reduces water loss and allows water and nutrients to penetrate the soil more easily. An approximately 10 cm (4") layer, placed from just off the trunk to the outer dripline, can improve moisture retention;
- do not volcano mulch or place dirt or grass clippings abutting the trunk of the tree. Any debris touching the trunk of the tree traps dirt and moisture at the trunk promoting rot;
- do not install plants in the mulched area. Any plants (including grass) compete for resources that are all vital during the tree's establishment period.



Remember to put the right tree in the right place. That is, make sure that the tree(s) you wish to plant will have the right light, water, soil, and space to grow. Also, remember that trees cannot be planted on City property.

Key Technical Terms

IMPORTANT: The definitions for the terms below are based on the definitions in the City's Private Tree By-law, but have been simplified for use in this guide. They do not replace or alter the meaning of the terms as set out in the Private Tree By-law.

"boundary tree" is a tree with any part of its trunk growing across the property line between two or more properties.

"DBH" stands for **"diameter at breast height"** and is a measurement around the tree's trunk (or trunks) that is taken at a height measured 1.37 m from the ground. See Section 2 for how to measure **DBH**.

"dead" means no living tissue in the tree, including no live buds or leaves; often small branches are brittle and bark will begin to fall off.

"emergency tree work" means work on a tree (such as pruning, cutting off a major limb or cutting down the entire tree) that is needed to (a) remove an immediate danger (such as a tree limb that is about to fall and could **injure** someone or damage property, such as a car or a house), or (b) allow for emergency repairs (such as repairs to a building).

"good arboricultural practice" means care provided to a tree that is consistent with established professional standards such as proper pruning of dead, damaged or structurally weak branches. In the City of Burlington, those are the American National Standards (known as ANSI A300) and best management practices as identified by the International Society of Arboriculture.

"heritage tree" can mean different things but in the City of Burlington specifically means trees that are designated as **heritage trees** under the *Ontario Heritage Act* or trees that are recognized as **heritage trees** by Forests Ontario and the Ontario Urban Forest Council.

"high-risk tree" means a tree that has become structurally weakened to the point where, there is a high risk for the tree to break or fall down (either the entire tree or parts of the tree)but the tree will not likely break or fall down immediately. This is a review done by a **qualified tree professional**.

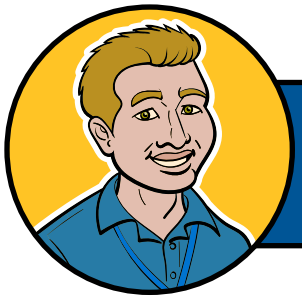
"injure" or **"injury"** means any act that harms the tree's health or structure. Common examples include: cutting branches or roots in a way that is not consistent with good practice, failing to provide the required **Tree Protection Zone (TPZ)** (see Section 2), and working or storing materials in the **TPZ** which can cause damage to the trees root system.

“qualified tree professional” means a professional who has the appropriate certifications, qualifications and expertise related to trees. In Burlington a **qualified tree professional** is one of the following: Registered Consulting Arborist with the American Society of Consulting Arborists, Board Certified Master Arborist or Arborist Municipal Specialist with the International Society of Arboriculture (ISA), Registered Professional Forester, ISA Certified Arborist and/or ISA Qualified Tree Risk Assessor. A **qualified tree professional** is required to prepare your Arborist Report.

“regulated tree” - although the term **“regulated tree”** is not found in the City’s Private Tree By-law definitions, for the purposes of this guide, this term refers to a tree protected by one of the City’s tree by-laws. In Burlington, this includes all trees on City property, trees of at least 20 cm **DBH** on private property within the Urban Boundary, trees that are considered **heritage trees**, trees that are listed in the *Ontario Endangered Species Act*, and replacement trees that were planted as a condition of a tree permit.

“terminal condition” means a tree that is in decline or dying that is both advanced and irreversible due to a non-living factor (such as mechanical damage or fire) or living factors (such as a pest or disease) that causes the majority of the tree canopy to decline and/or die.

“Tree Protection Zone (TPZ)” is a zone created around a tree to protect the tree trunk, branches, soil and roots from machines and equipment, and other construction-related disturbances.



Still have questions?
Visit burlington.ca/forestprotection or
call 905-335-7777, or email city@burlington.ca