

Tree Protection Guidelines

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Introduction and Purpose

The City of Saskatoon Tree Protection Guidelines (Guidelines) direct the successful protection of trees on City property.

The City has made a strong commitment to the preservation and enhancement of green infrastructure through the [Green Infrastructure Strategy](#), [Urban Forest Management Plan](#) and [Implementation of the Urban Forest Management Plan 2022-2031](#). Trees on City property need to be protected from injury. Damage to City trees impacts their health and longevity, leading to reduced function and increased maintenance costs.

The Guidelines contain the details necessary to develop a City-approved Tree Protection Plan, outline compensation formulas and describe tree protection requirements.

Scope

The Guidelines apply to circumstances where work will occur within 6m of City trees, including trees along streets, in parks or natural stands.

These Guidelines supersede all previous tree protection specifications and requirements. The Council Policy [Trees on City Property](#) (Policy) and Bylaw No. 9957,

[The Tree Protection Bylaw, 2024](#) (Bylaw) provide the framework to inform these Guidelines. The Bylaw requires a Tree Permit be obtained to conduct any work near a City tree.

Exemptions

These guidelines do not apply to exemptions outlined in the Bylaw which includes:

- trees in back lanes;
- trees in areas that are subject to a plan that has been approved by the General Manager, which outlines specific tree protection, management and replacement measures specific to the area including municipal golf courses, campgrounds and the Saskatoon Zoo;
- minor landscaping such as hand digging or mowing;
- Clearing tree roots from sewer lines;
- the placement or parking of heavy equipment, machinery, vehicles or construction materials near a tree if the equipment, machinery, vehicles or materials are placed on a driveway, street or paved path and do not contact any part of a City tree

Definitions

Bylaw – Bylaw No. 9957, *The Tree Protection Bylaw, 2024*.

City Property – means any land owned, leased, controlled or maintained by the City.

Critical Root Zone – Is a circular area of ground from the trunk to the outer edge of dripline.

Diameter/DBH – “diameter at breast height”, as measured at 1.3 metres above ground level. Used to inform the size of the tree protection zone.

Dripline – the outermost edge of tree canopy.

Hazardous – a tree that poses a risk of falling in whole or in part, or that otherwise poses a risk to public safety or property.

Injury includes the following:

- pruning
- applying pesticides, either directly or indirectly to a tree
- applying harmful chemicals, such as gasoline, either directly or indirectly to a tree
- interfering with a tree’s access to water, air or nutrients
- removing or interfering with a tree’s protective device
- carving into or otherwise marking the bark of a tree
- a vehicle or other equipment hitting or otherwise coming into contact with a tree

Landscape Trees – trees in highly maintained areas, such as parks and boulevards.

Major Landscaping – work that involves the removal of large volume of soil with heavy equipment such as a skid steer or excavator and requires a Tree Permit. Examples include installation of artificial turf, pathway construction and building retaining walls

Minor Landscaping – work that does not involve the removal of large volume of soil and does not require a Tree Permit. Examples include overseeding, irrigation, planting shrubs and placing landscape features that does not involve excavation

Natural Stand Trees – trees in natural areas largely dominated by native vegetation, including forests, bluffs and riparian areas.

Near a Tree – means within six metres of the trunk of a tree, measured from the nearest point of the trunk.

Planting Site – a site with sufficient space on City property to support a tree that meets the City’s required distances from existing and future infrastructure.

Protective Device – includes any device or structure used to protect a tree from injury, including anti-compaction devices, barriers and fencing.

Shelterbelt Trees – trees planted closely together in rows.

Tree – means any plant that reaches a height of 4.5 metres or more at maturity and includes any part of a tree, including its root system.

Tree Protection Plan – means a plan, in a form approved by the City, for work being undertaken near a tree on City property that:

- describes the proposed work to be completed, including the nature of the work, timelines for completion and how the proposed worksite will be accessed;
- identifies the measures that will be taken to minimize or eliminate injury to or destruction of trees on City property; and
- includes any other information or documentation as required by the City.

Tree Removal Costs – means the costs of removing a tree, including labour, disposal, clean up and area restoration costs, as determined by the City.

Tree’s Appraised Value – means the monetary value of a tree, as determined by Urban Forestry using the necessary formula

Work – means any work that will or may result in injury to or destruction of a tree on City property, including the following:

- Any work involving heavy equipment, machinery or vehicles
- Construction projects
- Building moves and demolitions
- Installation of large stones, boulders or other significant landscaping features
- Excavations and significant grade changes



General Procedure

This section describes the general procedure to prepare and submit a Tree Protection Plan which is necessary to obtain a Tree Permit. Prior to commencement of any work within six metres of a City tree, a Tree Protection Plan must be prepared and consist of an application and a site plan.

Tree Protection Plans must be created within 18 months and not later than five business days before the project begins and must be submitted to the City for review and approval before any work that could impact trees on City property. As per the Bylaw, no work can occur without prior written approval of the City.

The City may, at its sole discretion, approve or reject any or all parts of a Tree Protection Plan. The City may also, at its sole discretion, waive any or all parts of the Guidelines. The City may also, at its sole discretion, impose additional requirements or conditions upon approval of any or all parts of a Tree Protection Plan.

Prior to commencement of any work within six metres of a City tree, a Tree Protection Plan must be prepared and consist of an application and a site plan.

Exceptions to General Procedure:

- Major landscaping projects require a description submitted through an application and do not require a site plan.
- Contractors involved in capital projects require a site plan to be submitted to treepermits@saskatoon.ca.
- Demolition Permits without a City tree require an application to allow Urban Forestry to confirm that City trees will not be impacted by the proposed demolition.

Tree Permit Application Process

The application process includes the following required elements:

- Project Address
- Start and Estimated End Dates
- Type of Work
- Contact Information
- Tree Protection Details (from Site Plan)

The application identifies the type of work being conducted, such as construction, demolition, utility connections and/or major landscaping. Permission

to work around trees, will align with the information provided in the application. If, for example, the work only describes demolition then a Tree Permit will only be valid during demolition and would not apply to construction or major landscaping.

Tree Protection Details

Applications require site specific information related to the tree protection measures and size of trees that need to be protected.

Site Plan

A Site Plan is a drawing or series of drawings intended to overlay City trees and protection measures atop of the proposed site. Typically, the Site Plan can be overlaid on project construction plans depicting the proposed site disturbance.

The Site Plan consists of basic plan elements (e.g., legend, title block, property lines) and provides information for the following:

- address, property lines, roadways, sidewalks, walkways, buildings
- identify and label each tree on City property within six metres of project boundaries with a number and the tree's diameter
- access locations with dimensions and laydown areas
- location of new utilities, particularly water and sewer connections, if excavating within six metres of a City tree
- location of all tree protection measures including but not limited to fencing, anti-compaction measures for site access and material laydown
- complex sites including multi-unit residential, commercial or industrial properties may also require extent of excavation, final building footprint and height, landscaping plan showing pathways or other infrastructure

Damage to City trees impacts their health and longevity, leading to reduced function and increased maintenance costs.

Submission

A Tree Protection Plan must be submitted with an initial design but may require updating during a project. If there are changes, contact Urban Forestry at treepermits@saskatoon.ca. Upon review and approval of the application, Urban Forestry will issue a Tree Permit.

Tree Compensation

When all opportunities to mitigate tree loss or injury are exhausted, compensation will be required for all trees that are removed or pruned to facilitate development. Compensation will be calculated using the following methods:

- **Landscape Trees:** Compensation owing will be determined in accordance with the Guide for Plant Appraisal by the Council of Tree and Landscape Appraisers 9th Edition, recognized by the International Society of Arboriculture and aligned with the Policy.
- **Shelterbelts:** For shelterbelt trees, compensation owing will be determined by calculating the cost of purchasing, planting and establishing #10 container trees with 2.5 metres spacing and replacing at a 3:1 ratio*.
- **Natural Stands:** For natural stand trees, compensation owing will be determined by calculating the average cost of #1 container plant material based on the previous year's planting projects by the Meewasin Valley Authority combined with other materials, the cost of planting, the cost of establishment and replacing at a 3:1 ratio*. The size of the natural stand shall be measured to include the canopy of the trees that are affected.
 - Area removed x (planting costs + material costs + 3-year establishment) x 3
 - Area removed * 5.33X * 3
 - where X= the average cost of #1 pots
 - 2023 pricing is 144 per square metre

**3:1 ratio aligns with the biomass replacement model used by the Meewasin Valley Authority and the City of Saskatoon Wetland Policy c09-41. A restored natural stand is unlikely to achieve the same level of function as the natural stand it replaces, a significant time lag is expected to occur between when a natural stand is lost and when a restored natural stand achieves a reasonable level of function. Some proportion of a restored natural stand is expected to fail over time.*

Compensation must be allocated to the Tree Replacement Fund and used as directed by the Policy.

Additional Costs

Additional costs may include inspection, material, labour and equipment associated with pruning, removal, disposal, tree relocation and establishment.

Crediting

To replace lost canopy and encourage designs that allow for tree planting, credit will be given for the creation of irrigated planting sites that meet the City's requirements for distances from other infrastructure (e.g., distances from walkways, driveways and utilities) on City property. Crediting will not exceed the maximum compensation owing.

Crediting will be three times the value to purchase, plant and establish a new tree. The City will be responsible for selecting and planting the tree aligned with current tree planting programs. Crediting must also be considered on a case-by-case basis for additional planting infrastructure.

Insurance

Applicants may be required to provide evidence of insurance naming the City as an additional insured on a comprehensive general liability insurance policy applicable to the work that is being performed. If trees on City property are either damaged or destroyed because of the work performed, the City will make a claim under the insurance policy equal to the amount of damages sustained based on the compensation formula. The insurance must be in place for one year after the building permit has closed.

Deposits

Applicants may be required to place a deposit equal to the value of the trees that may be impacted as determined using the appropriate compensation formula and may include an additional twenty percent (20%). The deposit will be held up to two years after the closure of the building permit.



Tree Protection Standards

This section outlines standard specifications for typical tree protection measures, including:

- Tree Protection Zone
- Tree Protection Zone barriers
- Tree Protection Zone signage
- Canopy clearance pruning
- Root zone compaction protection
- Root-sensitive excavation
- Root pruning
- Tree watering
- Tree stem protection
- Tree removal
- Tree relocation
- Soil decompaction and restoration
- Major landscaping

Tree Protection Zone

The Tree Protection Zone (TPZ) is a defined area around an existing tree wherein tree protection measures must be implemented if work is planned within the area, or if there is a reasonable likelihood of inadvertent encroachment of any form in the area throughout a project. Tree protection measures within or at the limit of the TPZ are to prevent or mitigate, to the fullest extent possible, adverse impacts to the tree.

Unless approved by Urban Forestry, the following activities are prohibited within the TPZ prior to, during and following the proposed work:

- Installation of attachment of any items to the tree
- Operation of equipment or machinery
- Storage of equipment, machinery or materials
- Access by any personnel
- Placement of trailers, temporary buildings or structures
- Flushing, storage or dumping of fuel, chemicals or other contaminants
- Stockpiling of soil
- Digging trenching or excavation
- Changes to the existing grade

The size of the TPZ is delineated as a radius measured outward from the base of the tree to be protected and is expressed in metres. The TPZ radius is determined based upon the diameter at breast height (DBH) of the tree's main stem. For multi-stemmed trees, the diameter must be the consolidation of the stems into a single index. Measure the DBH of each stem separately and the overall DBH can be taken as the square root of the sum of all squared stem DBHs (e.g. $\sqrt{[(12\text{cm})^2 + (14\text{cm})^2 + (17\text{cm})^2]} = \sqrt{629} = 25.08\text{ cm}$).

TREE PROTECTION ZONE CALCULATION TABLE	
Trunk Diameter ¹	Ideal Protection Distances ²
<10cm	1.8m
11-40cm	2.4m
41-50cm	3.0m
51-60cm	3.6m
61-70cm	4.2m
71-80cm	4.8m
81-90cm	5.4m
91-100+cm	6.0m

¹Diameter of tree trunk taken at 1.3m

²Tree Protection Zone distances are measured from the outside edge of tree base

Depending on the tree and its growing environment, Urban Forestry may determine that a larger TPZ above the minimum is required. If due to site constraints, the entire TPZ cannot be preserved, this must be captured with the Tree Protection Plan. Additionally, the dripline can be used in addition to the dimensions listed above to protect the critical root zone.

Tree Protection Zone Barriers

Unless approved by the City, a vertical Tree Protection Zone barrier must be installed around every tree before work begins. The barrier must consist of a solid wood frame with orange snow fencing securely stapled to the outside or securely installed metal construction fencing. The barrier must be at least 1.2 metres in height and stay in good condition for the duration of the proposed work in the Tree Protection Plan.

If piling soil against the tree protection barrier, the barrier must be constructed of solid wood (e.g., plywood sheeting 12.5mm thick in sound undamaged condition). An underground utility check must be completed prior to installing anything below grade. Removal of Tree Protection Zone Barriers requires approval of Urban Forestry.

Tree Protection Zone Signage

The applicant is responsible for placing signage on two

sides of the Tree Protection Zone or every 10 metres on large tree protection zones protecting natural stands. The signage must be weatherproof (e.g., laminated, produced on coroplast, etc.) and at least 8.5"x11" in size. A printable version of the sign will be included with the issued Tree Permit.



Canopy Clearance Pruning

Pruning may be required to facilitate access or clearance from infrastructure. Where possible, this requirement should be identified prior to beginning the work and be reflected in the Tree Protection Plan. Other options should be explored including the use of alternative equipment and access points. If pruning must occur, it will be completed by the City, or at the direction of the City, and the costs will be borne by the applicant.

Root Zone Compaction Protection

Root zone compaction protection must be installed where heavy equipment, vehicles or machinery or material storage may occur within 6 metres of a City tree. Acceptable materials include ground protection mats, a combination of 8" wood mulch and 3/4" plywood or other methods directed by Urban Forestry. Mulch must be removed by hand to prevent root damage and compaction during removal.

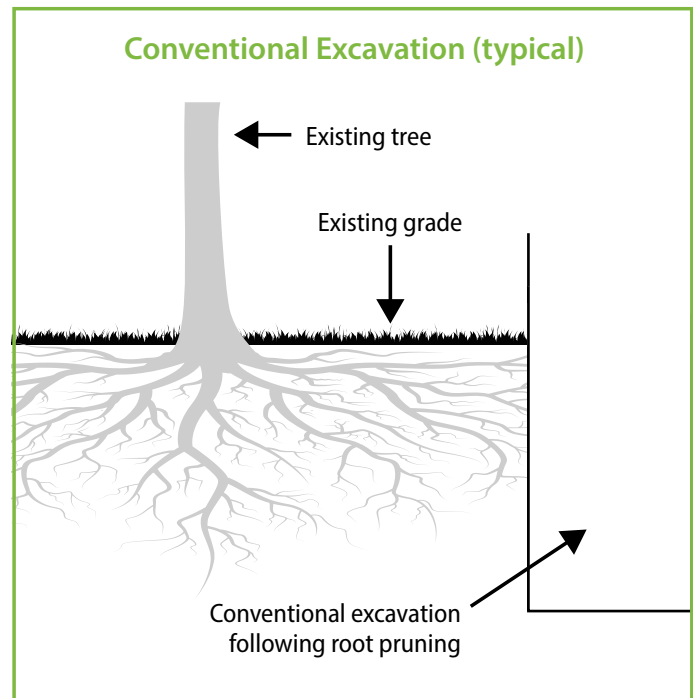
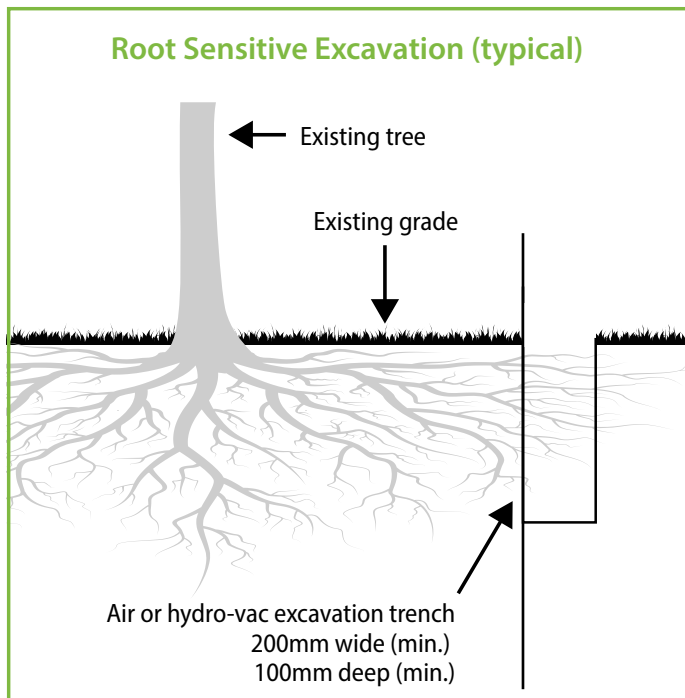
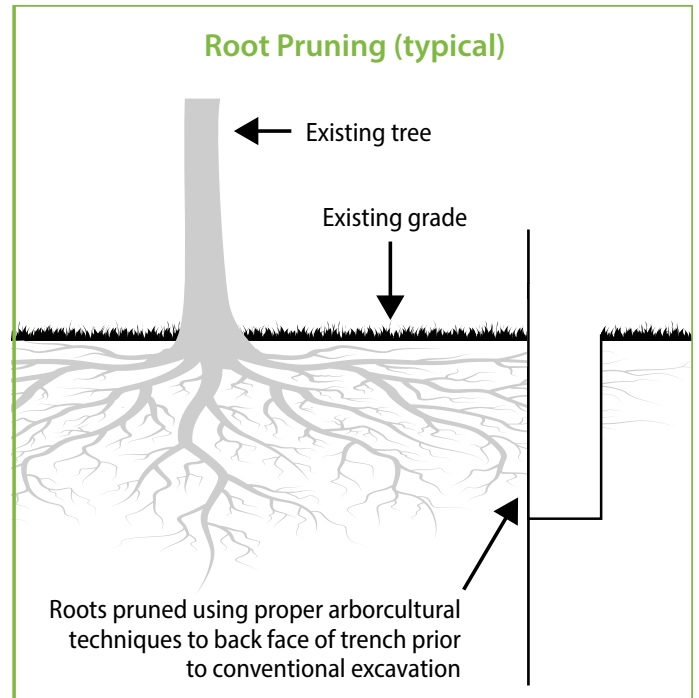
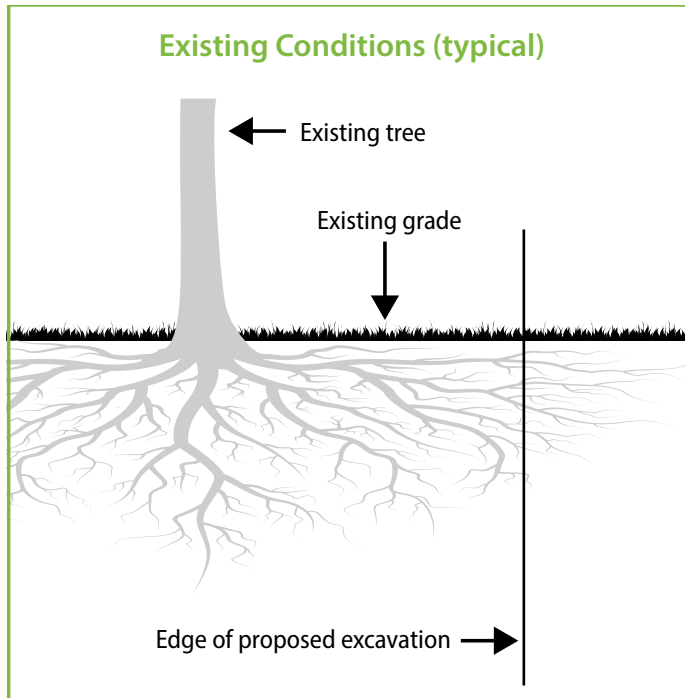
Tree protection measures within or at the limit of the TPZ are to prevent or mitigate, to the fullest extent possible, adverse impacts to the tree.

Root Sensitive Excavation

Root-sensitive excavation must be undertaken utilizing pneumatic soil excavation (e.g., air spade or similar) or hydro-vac excavation. Root-sensitive excavation must be done by excavating a trench about 200mm wide and 600mm deep along the area's edge. The trench must

be set as far from the base of the tree as possible and must extend, at minimum, along the entire length of the proposed excavation within the minimum required TPZ. The hydro-vac operator must use water pressure less than 138 kPa (20 PSI).

Note: Details to be used when existing trees are impacted by new construction.



Root Pruning

Following root sensitive excavation and prior to conventional excavation, all roots must be properly pruned. Root pruning must be undertaken in the following manner:

- Exposed roots must be pruned back to the face of the trench wall to be retained (e.g., the back face of the trench). Urban Forestry should be contacted if encountering a root greater than 75mm to allow for consultation prior to any additional work around the tree.
- All roots must be pruned with clean and sharp hand tools. Shovels, picks or other construction tools must not be used to prune roots. No wound dressings must be applied to the cut roots.
- Prolonged exposure of roots shall be avoided. All pruned roots should be covered with soil as soon as possible and watered immediately. If it's not possible to cover with soil immediately, provide temporary cover to mitigate the loss of moisture.

Tree Watering

Weekly watering throughout the growing season may be required to maintain adequate but not excessive soil moisture by saturating the undisturbed area of the Tree Protection Zone to a depth of 500mm. Mulch may also be required to reduce the loss of moisture. Watering must be done slowly to prevent run-off. Use a soil recovery probe to check the soil moisture and adjust the intervals and frequency of watering in accordance with prevailing moisture and weather conditions. Urban Forestry may be able to provide water for a cost and can be coordinated through a Forestry Technician.

Tree Stem Protection

For trees within one metre of any work, 39mm X 89mm X 2400mm boards can be secured vertically at 300mm intervals around the tree trunk with strapping or an equivalent method of protecting the trunk including the use of plywood.

Tree Removal

All reasonable efforts must be made to minimize the number of tree removals. Tree removals must not be undertaken without written approval of the City typically in the form of a Tree Permit. When tree removal is necessary, the City must either remove the trees or direct the removal of the trees.

Tree Relocation

Trees smaller than 150mm may be eligible for relocation subject to Urban Forestry approval and at a cost to the applicant. Consideration for relocation will only be given in cases where there will be a temporary loss of planting sites, for example in the case of building moves.

Soil Decompaction and Restoration

If there is clear visual evidence of soil compaction (e.g., rutting, vehicle tracks, bare ground, etc.) within the minimum required TPZ of a tree following site disturbance, soil decompaction must be undertaken with the affected area. Mechanical tilling including rototilling is not an acceptable method to decompact the soil. Depending upon the severity and extent of soil compaction, acceptable methods to reduce soil compaction may include one or more of the following:

- Aeration and fracturing of compacted soil using a pneumatic excavation tool (e.g., Air Spade).
- Incorporation of minimum 50mm layer of 1:1 mixture of compost and coarse sand to a minimum depth of 200mm across the entire compacted area. The surface of area to be decompact must be loosened with a pneumatic excavation tool prior to spreading of the compost/sand mixture. The mixture must then be spread over the area and incorporated through tilling with the pneumatic tool.
- If compaction has only occurred across a small area, decompaction can be completed using hand tools for example a garden fork to aerate and loosen soil

Major Landscaping

Major landscaping is work that involves the removal of large volume of soil with heavy equipment such as a skid steer or excavator and requires a Tree Permit.

Examples include:

- building retaining walls
- installing artificial turf, pea gravel, large rocks, sod, etc.
- widening, constructing and refinishing driveways
- pathway construction

Applications involving major landscaping are evaluated on a case-by-case basis but in general, major landscaping will not be permitted within the Tree Protection Zone outlined in the Tree Protection Zone Calculation Table. The trunk diameter can be taken by measuring the tree at 1.3m above the ground or obtained from the Tree Inventory (saskatoon.ca/treeinventory). For additional information on driveways visit saskatoon.ca/driveways.



saskatoon.ca/treeprotection

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