



TREE PROTECTION PLAN

A Guide for Public Tree Protection

City of Morden, Parks and Urban Forestry

Tree Protection Plan Guidelines

Introduction

The City's Urban Forest Management Plan (UFMP) falls under the 2018-2022 City of Morden Corporate Plan, section 2 Environmental Management. The purpose of the UFMP is to utilize the city-wide public tree inventory data to provide a framework for sustainably managing and enhancing the City of Morden's urban forest now and in the future.

Multiple benefits are provided by our urban trees and we understand trees have positive effects on; air quality, noise reduction, storm water management, property values, wildlife habitat, energy consumption, climate moderation, and links to the health and well being of our citizens. One way in which to conserve these benefits is through tree protection during the planning, construction and post constructions phases of development.

What is a Tree Protection Plan?

A Tree Protection plan is a written directive included in the construction plans and specifications to control work around protected trees during all phases of the project.¹ A protected tree is designated as such by the City Forester and determined using the criteria in a Tree Resource Assessment. This assessment will take place upon receipt of the application for a development permit in which a tree is located within 6m of the property line. The tree resource assessment will determine the requirement for a Tree Protection Plan. Under this plan, it is the intention for the City and the property owner (or their authorized agent) to formalize an agreement with respect to tree protection for all phases of development. The agreement will outline the construction practices necessary to conserve the benefits by minimizing the impacts from the construction process.

Impacts on trees resulting from construction activities may involve one or more of the following:

- Physical contact with any living parts of the tree.
- Soil compaction.
- Changes in surface grade.
- Changes in exposure.
- Stockpiling of materials in the root zone.
- Changes to the ground water flow, supply or quality.

¹American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Management – Standard Practices (Management of Trees and Shrubs During Site Planning, Site Development, and Construction). ANSI 300 (Part 5) – 2012

Section 1: Tree Ownership Determination

It can be assumed that trees within the street right-of-way are public or city owned trees. However, for the purposes of the Tree Protection Plan all trees within 6m of the property line require a tree ownership determination. This will be provided by the Parks and Urban Forestry department and communicated in writing. This communication will indicate if no public trees exist or provide a Tree Resource Assessment to the property owner.

Section 2: Tree Resource Assessment (TRA)

An ISA certified and Tree Risk Assessment Qualified arborist will conduct a Tree Resource Assessment. The information with the assessment will include:

- Tree Condition
- Tree Genus and Species
- Tree Diameter in cm at DBH
- Tree Canopy (height, width, condition)
- Tree Location(s)
- Tree Risk Assessment
- Tree Appraisal (CTLA Trunk Formula Method)

The TRA can be supplied by the City of Morden, Parks and Urban Forestry department upon written request by the property owner. If a consulting arborist is used for the TRA, the property owner must supply the name and credentials including a copy of certifications or ISA number. Upon completion of the TRA by a consulting arborist a copy must be submitted to the City Urban Forester for approval and is subject to an audit for accuracy.

Section 3: Tree Protection Plan (TPP)

A Tree Protection Plan helps to define the steps taken during the construction process to avoid impacts on tree health and condition while ensuring the continuation of the benefits to the community.

Tree Protection Plan Check List

Site Plan

- Location of all existing trees and shrubs within 6m of the development site, include tree height and diameter.
- Indicate the Tree Protection Zone and Root Protection Zone location and distances for each tree.
- Construction materials storage area(s).

- The excavation zones, trenching, grade changes, underground utilities and irrigation systems, sidewalks, driveways, parking lots, construction access roads, changes to hydrants, lighting, and utilities.
- Soil compaction reduction treatments and areas.
- Drainage plan

☑ Tree Protection Zone (TPZ)

The Tree Protection Zone is the area surrounding a tree defined by a specified distance, in which excavation, compaction, stockpiling and other construction related activities shall be avoided. Its function is to protect all living parts of the tree and the surrounding soil. Table 1 indicates the minimum distances for establishment of a TPZ. In the event of a modification to the TPZ, notification shall be given to the City Forester. The City will determine if the modifications to the TPZ are acceptable and make any further recommendations through communication with the property owner or designate.

Table 1 Tree Protection Zones				
Diameter of Trunk (DBH) in cm		Minimum Protection Distances Required		
		(m)	(ft)	
<10		2.13	7	
10 - 30		2.44	8	
31 - 50		3.05	10	
51 - 60		3.65	12	
61 - 70		4.26	14	
71 - 80		4.87	16	
81 - 90		5.48	18	
91 - 100+		6.10	20	

1. Diameter at Breast Height (DBH) measurement is taken around the trunk at 1.4m from the ground.
2. Roots can extend from the trunk 2-3 times the distance of the drip line.
3. Tree Protection Zone distances are measured from the outside edge of the trunk flare at the base of the tree outwards towards the drip line.
4. Information is based on – Parks and Open Space, City of Oakville Ontario. Tree Protection Specifications for Construction Near Trees, 2008.

☑ Tree Protection Barriers

In addition to the Tree Protection Zone establishment using table 1, a physical barrier must be placed on site at the minimum required distance from the protected tree. Tree protection

barriers must be erected prior to any construction related activities. Approval from the City Forester is required for the alteration and/or removal of the tree protection barrier.

The barrier must be a minimum of 1.5m tall above ground and located on all sides of the tree. The height may be adjusted if existing tree limbs are below 1.5m and adjusted to align with streets, curbs, and pedestrian traffic flow. Barrier material may be orange snow fence with a 2x4 constructed frame/staking or a suitable restrictive substitute.

Signage shall be posted on each side the barrier with the following information

TREE PROTECTION ZONE

No grade changes, materials storage or equipment is permitted in this area

City of Morden (logo)

204.362.3999

Root Protection Zone

The Root Protection Zone is the soil area surrounding a tree defined by a specific measurement, in which excavation, compaction and other construction related activities should be avoided or mitigated. The RPZ is typically made up of the TPZ and may extend beyond the TPZ. It is known that the root system of a tree may extend from the trunk 2-3 times the distance of the drip line. Therefore, it's important to take precautionary measures to reduce soil compaction, and plan excavation, trenching and root pruning activities.

The following calculation will be used to determine the RPZ:

$$\text{Diameter (DBH cm)} \times 12 / 100 = \text{RPZ m}$$

For example a tree with a dbh of 70cm has an RPZ of 8.4m

Excavation or Trenching

Any excavation or trenching as indicated on the site plan within the Root Protection Zone should be planned to minimize root damage.

Preferred methods to avoid damage to roots:

Hand excavation with tools: when a root is encountered, avoid contact with the root and excavate around it.

Pneumatic excavation: tools and equipment are available to use compressed and high pressure air to remove the soil around the roots without damaging the larger roots.

Hydraulic excavation: tools and equipment are available to use high-pressure water to wash and remove soil around the roots without damaging larger roots.

Trenchless pipe installation: tools and equipment are available to install pipes of varying diameter under roots without trenching.

Root Pruning

Roots should not be ripped or torn during excavation. Roots 5cm in diameter or greater require approval by the City Forester and removal by a certified arborist.

If possible avoid root pruning during periods from bud break to leaf development.

Pruning of all Elms is banned between April 1st to June 31st in Manitoba.

Crown reduction pruning is not an acceptable practice to compensate for loss of roots through root pruning activity.

Roots should be pruned or cut prior to excavation by exposing roots using the above methods.

Tree Pruning, Removals

Any planned tree pruning, or removal activities should be identified in the TPP. If pruning is required of City owned trees notification must be given and the City will conduct the pruning activities. In the event that a consulting arborist is hired, the property owner must supply the name and credentials including a copy of certifications or ISA number to the City Forester.

Soil Compaction

Acceptable standards for compaction mitigation in the Root Protection Zone include; spreading a minimum 6 inch layer of woodchip mulch, adding large plywood or steel sheets over the mulch, laying rubberized matting in the travel areas, operating on frozen soils.

It is important to note that equipment/vehicle/skid steer travel within the RPZ is not recommended during high soil moisture conditions OR when continuous travel routes are needed. It is the goal to protect the soil structure and integrity within the RPZ.

Drainage Plan

Changes in ground water flow and surface water will impact trees. Subdrains, catch basins, outfalls, swales, detention and retention ponds should be identified as part of the Tree Protection Plan. Below ground walls or foundations could disrupt the underground water flow. Run-off from a hardscaped surface, such as a parking lot, could introduce contaminants to the soil water.

Contact Information

Provide contact information for a designated person responsible for ensuring the Tree Protection Plan is followed.

Step 1: Pre-Construction Meeting

A Pre-Construction meeting is the first step in the Tree Protection Plan process. This meeting shall give the property owner the opportunity to share site/construction plans, timing and logistics. In turn, this meeting allows the city to review the TRA and establish the TPZ, RPZ and pre-construction, construction and post-construction requirements.

Step 2: Construction

Construction inspections may occur to ensure the Tree Protection Plan is being followed.

Step 3: Post Construction

Post Construction inspection will occur using the data from the Tree Resource Assessment to establish pre-construction condition and take note of damage to any living parts of the tree. At this point the City Forester will advise on the removal of the Tree Protection Zone barrier(s).

Tree Protection Plan Agreement

Please submit a signed copy of this agreement along with a copy of the approved Tree Protection Plan. By signing this document, you agree to the following process:

- Follow all restrictions as described in the approved Tree Protection Plan.
- Notify all contractors working on site of the Tree Protection Plan and ensure they are aware of the work restrictions zones.
- Ensure no construction related activity occurs within the Tree Protection Zone.
- Ensure the condition of pre-construction soil structure and integrity in the Root Protection Zone is maintained.
- Notify the City Forester for amendments, changes, unapproved activities.

I, the owner , authorized agent , authorized consultant , state that, to the best of my knowledge, the information provided in the enclosed Tree Protection Plan is accurate, complete and is based on diligent inquiry and thorough inspection and review of all documents and other information reasonably available pertaining to the subject property.

I have read the Tree Protection Plan outline and agree to follow all guidelines within it. I will carry out development activities in accordance with the approved Tree Protection Plan for my site.

Date

Applicant's Name (please print)

Applicant's Signature

Phone Number

Email Address

Company Name

Site Address

Development Permit/Building Permit Number

References:

Compendium of Best Management Practices for Canadian Urban Forests, Tree Canada

<https://treecanada.ca/resources/canadian-urban-forest-compendium/13-tree-protection-during-construction-trees-and-building-foundations/>

American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Management – Standard Practices (Management of Trees and Shrubs During Site Planning, Site Development, and Construction). ANSI 300 (Part 5) – 2012

Reducing Infrastructure Damage by Tree Roots: A Compendium of Strategies; 2003, by Laurence R. Costello and Katherine S. Jones

International Society of Arboriculture: Municipal Specialist, Study Guide; 2008, by International Society of Arboriculture

International Society of Arboriculture: Arborist Certification, Study Guide; 2010, by International Society of Arboriculture

City of Calgary, Tree Protection Plan; A Step-by-Step Guide;

<http://www.calgary.ca/CSPS/Parks/Documents/Planning-and-Operations/Tree-Management/Tree-Protection/tree-protection-plan-guide.pdf?noredirect=1>

Town of Oakville, Tree Protection During Construction Procedure; <https://www.oakville.ca/townhall/en-tre-001-001.html>