

## 1.0 **GENERAL**

### 1.1 **PURPOSE OF STANDARD**

The Tree Protection Design Standards have been prepared to assist developers, designers, and contractors in the design and implementation of a Tree Protection Plan for any City owned trees within the City of Medicine Hat.

Any reference to the Tree Protection Design Standard shall be interpreted to mean the latest or most current edition, unless specifically stated otherwise. The City of Medicine Hat Parks and Recreation Department will maintain this document and publish subsequent editions, as required on the City of Medicine Hat website. Copies of this document will be made available to developers, consultants and contractors for the sole purpose of designing and implementation of a tree protection plan for City owned trees.

### 1.2 **MUNICIPAL SERVICING STANDARDS**

Development within new subdivisions is governed by the Municipal Servicing Standards Manual (MSSM). The Tree Protection Design Standard document establishes the design standards for development of a tree protection plan for any projects within the City of Medicine Hat that involve City owned trees and complements the information provided in the MSSM and the standards drawings and specifications.

The following documents are referenced in the January 8, 2016 version of the Municipal Servicing Standards (MSSM):

<https://www.medicinehat.ca/home/showdocument?id=10560>

- Recommended Tree Species
- Tree Space Design Report – Casey Trees (2008)

The intent is to incorporate this Tree Protection Design Standard in the next edition of the MSSM but to use this design standard as a stand-alone document until the MSSM is updated.

### 1.3 **DEFINITIONS**

For the purpose of these standards, the following definitions apply:

- .1 **City Arborist:** Individual identified as persons responsible for arboriculture services for the City of Medicine Hat. Horticulture Services Foreman/Urban Forestry Foreman or designate.

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- .2 **City Owned Tree:** Any tree which has any part of its trunk located on City Lands.
  - .3 **Certified Arborist:** An arborist certified by the International Society of Arboriculture (ISA) or equivalent certification. They may be required to provide their ISA Certification number and proof of experience. The recommended minimum standard for experience is at least five (5) years in Tree Protection and Mitigation.
  - .4 **Consultant:** The person or entity identified as such in the Articles of Agreement. The term Consultant includes the Consultant or the Consultant's authorized representatives. Reference to the Architect or Engineer in the Contract Documents refers to the Consultant and the Consultant's authorized representative.
  - .5 **City, Contractor, and Consultant:** The parties identified in the Articles of Agreement including their authorized representatives, as designated in writing to each of the other parties.
  - .6 **Dripline:** The location on the ground surface directly beneath the theoretical vertical line from the tips of the outermost branches of the trees.
  - .7 **Diameter at Breast Height (DBH):** The standard method of expressing the diameter of the trunk on a standing tree. It is measured at 1.3 m (4.3 ft.) above grade.
  - .8 **Superintendent of Parks:** The person or designate within the Parks and Recreation Department who is responsible for approving all tree protection plans.

### 1.3 **APPLICATION OF STANDARD**

This standard shall apply for the design of a tree protection plan for all City owned trees. Implementation of the standard shall be in accordance with the City of Medicine Hat Tree Protection Specifications. Although the Tree Preservation Bylaw does not apply to private trees, this standard should be considered best practise and Developers should give consideration to applying the same standard to private trees, in order to protect all trees within the City.

### .1.4 **APPLICATION OF TREE PRESERVATION BYLAW NO. 4218**

The City's urban forest is a valuable asset which provides environmental, historical and aesthetic benefits, and contributes positively towards property values and a high quality of life.

It is in the City's best interest to protect City owned trees from damage, disease or unnecessary removal. All trees situated on City property are protected under provisions of Bylaw No. 4218. The bylaw does not apply to trees on private property.

Adopted Tree Preservation Bylaw City website:

<https://www.medicinehat.ca/government/departments/parks-and-recreation/tree-preservation-bylaw>

Trees protected by Bylaw No. 4218 may not be removed, injured or destroyed in any way without authorization from the City Arborist. Note that the term “tree” refers to all parts of the tree, including all roots.

## **2.0 TREE PROTECTION PLAN PROCESS**

### **2.1 GENERAL REQUIREMENTS**

A Tree Protection Plan (TPP) is necessary to prevent damage to a City owned tree during development. Development of a TPP should be considered when construction activities are within four (4) metres of a City owned tree. This standard outlines the principles and standards that should be followed by any City department, contractor or developer doing work on City property or on adjacent property that is within four (4) metres of a City owned tree.

A Tree Protection Plan outlines the extent of construction and provides details on tree protection measures. It may be a report and/or a drawing, depending on the number of trees requiring protection, and the extent of land disturbance and construction methods of the project.

For any City department project, the Project Manager from that department should contact the City Arborist during the design phase of the project to determine tree protection requirements. If the department engages a Consultant as part of the design package, then the department may direct the Consultant to contact the City Arborist.

The Consultant is responsible for preparing a tree protection plan as part of the construction drawing submission. In cases where the proposed construction would only impact a limited number of trees and there are no construction drawings submitted, the Project Manager or Consultant shall still meet with the City Arborist to determine the tree protection requirements. In cases where it is a utility emergency, the Project Manager should undertake best efforts to notify the City Arborist prior to the start of work.

The City Arborist is the contact for reviewing tree protection plans, and discussing options. All Tree Protection Plans are to be approved by the Superintendent of Parks or designate in consultation with the City Arborist.

## 2.2 **DESIGN STANDARDS**

The Tree Protection Zone (TPZ) is the area around the City owned tree that is marked by fencing in which construction activities are restricted.

The Consultant shall consider the following design principles when establishing the TPZ:

- The TPZ shall extend to the drip line of the tree where possible.
- If the TPZ cannot be extended to the drip line due to construction restraints, site work, and/or changes to the site, then the TPZ shall be determined using Table 1.
- The TPZ may be limited by an existing paved surface, provided the existing paved surface remains intact throughout the construction work.
- Table 1 is a chart showing minimum required distances for determining a Tree Protection Zone. Tree Protection Zone distances are to be measured from the outside edge of the tree base towards the drip line.
- Heritage Trees (as designated by the Heritage Tree Foundation <http://www.heritagetreefoundation.com/>) may require a larger TPZ. For a list of Heritage Trees in Medicine Hat, visit <https://www.medicinehat.ca/home/showdocument?id=2018>.

Table 1 – Tree Protection Zones

DBH (cm)	TPZ Distance Required (m)
10	0.5
15	0.75
20	1.0
25	1.25
30	1.5
35	1.75
40	2.0
45	2.25
50	2.5
55	2.75
60	3.0

Note: The TPZ for any trees a DBH greater than 60 cm DBH shall be set up at the same ratio of 0.5 metres for every 10 cm of DBH of each tree.

Higher standards of tree protection may be required when the size, variety, location, and health of the tree and any circumstances surrounding the construction which may pose a hazard to the tree.

Lesser standards of tree protection shall only be permitted on the recommendation of a Certified Arborist (as defined in this document) and with the written consent of the Superintendent of Parks or designate.

For City projects such as irrigation or utility servicing rehabilitation projects where the minimum distances for a tree protection zone cannot be adhered to OR where a Tree Protection Plan is required for more than 10 City owned trees, the Parks and Recreation department thru the Parks Superintendent in consultation with the City Arborist is prepared to work with the department to develop a tree protection plan using best practises that balances the protection of the trees with the ability to complete the construction.

It is recognized that there may be cases where trees are growing over existing underground utilities that may require inspection and/or installation of new or upgraded utilities. In these cases some modification to the Tree Protection Zone may be required and will be determined as part of a pre-planning session between the consultant and the Parks Superintendent in consultation with the City Arborist. The objective is to avoid severance of anchor roots and minimize damage to the tree(s).

When excavation is required for inspection (only) of underground utilities, and are within the limits of a Tree Protection Zone with potential to damage tree roots, excavation must be completed under the supervision of a Certified Arborist using a hydro vacuum unit or air powered soil excavation tools in order to preserve the integrity of the tree roots.

When new water and sanitary lines must be installed, and there is no suitable location outside of the Tree Protection Zone, horizontal directional drilling is the preferred option for installation within the Tree Protection Zone.

### **2.3 SUBMITTING A TREE PROTECTION PLAN**

The TPP shall be submitted to the Parks and Recreation department as part of the construction drawings design review process. It is recommended that the Consultant meet with the City Arborist to determine tree protection requirements prior to submitting the plan.

GIS based Tree Inventory data for City owned boulevard trees and most Park trees, including type of tree and DBH can be obtained by submitting a GIS Data Request form to the City of Medicine Hat. Where GIS data is not available, the Consultant would need to perform a site survey (location, type of tree and DBH).

The following are items that should be included in the TPP:

- Brief description of the project
- Address of the project
- GIS data for City owned trees, where available, including species, height and canopy dimensions of the tree and DBH
- Location of shrubs and shrub beds, including species
- Identify TPZ including dimensions and offsets of the tree protection barrier fence from the outside edge of the trunk of the City owned tree to be protected
- Identify whether trees will be retained, removed or require pruning
- Provide contact information for the designated individual responsible for ensuring work adheres to the approved TPP
- Any other details relevant to the project such as:
  - Excavation zones, trenching activities
  - Any grade changes within the dripline of a City owned tree
  - Routing of utilities and Irrigation systems
  - Construction material storage or laydown areas
  - Pre and post construction care measures such a watering, mulch or aeration
  - Site access routes
  - Changes to street lighting, fire hydrants or utility boxes
  - Limits of land disturbance with construction method and equipment to be used

## **2.4 TREE PROTECTION BARRIERS**

Tree Protection Zones shall be protected by means of a “tree protection barrier”. The required barrier is a 1.2 metre (4 ft.) high orange plastic web snow fencing attached to wooden fence posts or metal T-bars.

Prior to installation of the tree protection barrier, the contractor shall call Alberta 1-Call for utility locates and City of Medicine Hat Parks and Recreation for irrigation locates to ensure buried utility lines are not impacted.

The fencing must not interfere with access to fire hydrants or obscure intersections or traffic signage. Should the orange plastic web snow fencing create a restriction to traffic sightlines, poultry wire fencing with reflective tape can be used.

“Tree Protection Zone” signs shall be attached to the two most visible sides of the tree protection fencing, where it will be clearly visible by anyone entering or working on the site.

### **3.0 PRACTICES DURING CONSTRUCTION TO REDUCE IMPACT ON TREES**

The Consultant must communicate the requirements of the TPP to all contractors working on the project. In the situation where there is not a consultant designed to the project, it is the responsibility of the Project Manager to communicate the requirements of the TPP to all contractors working on the project.

If a tree protection plan has not been prepared as part of the construction drawing submission, and construction activity is planned within four (4) metres of a City owned tree, the Consultant of the project will contact the City Arborist to review the site conditions and obtain written direction from the City Arborist on how to address the protection of the City owned tree.

The Consultant shall be responsible for contacting the City Arborists when there are any changes to the construction activity, including to but not limited to grade changes, surface treatment or excavations that may have an impact on any City owned trees.

Removing a City owned tree shall be considered a last resort. Removal of a City owned tree requires written authority from the City Arborist and compensation shall be determined as per Section 10 of the Tree Protection Bylaw #4218.

Ensure pre and post construction measures are followed, including but not limited to watering of City owned trees once per week where access to irrigation water has been turned off during construction. The City Arborist can advise as to the proper amount of water that needs to be applied on a regular basis.