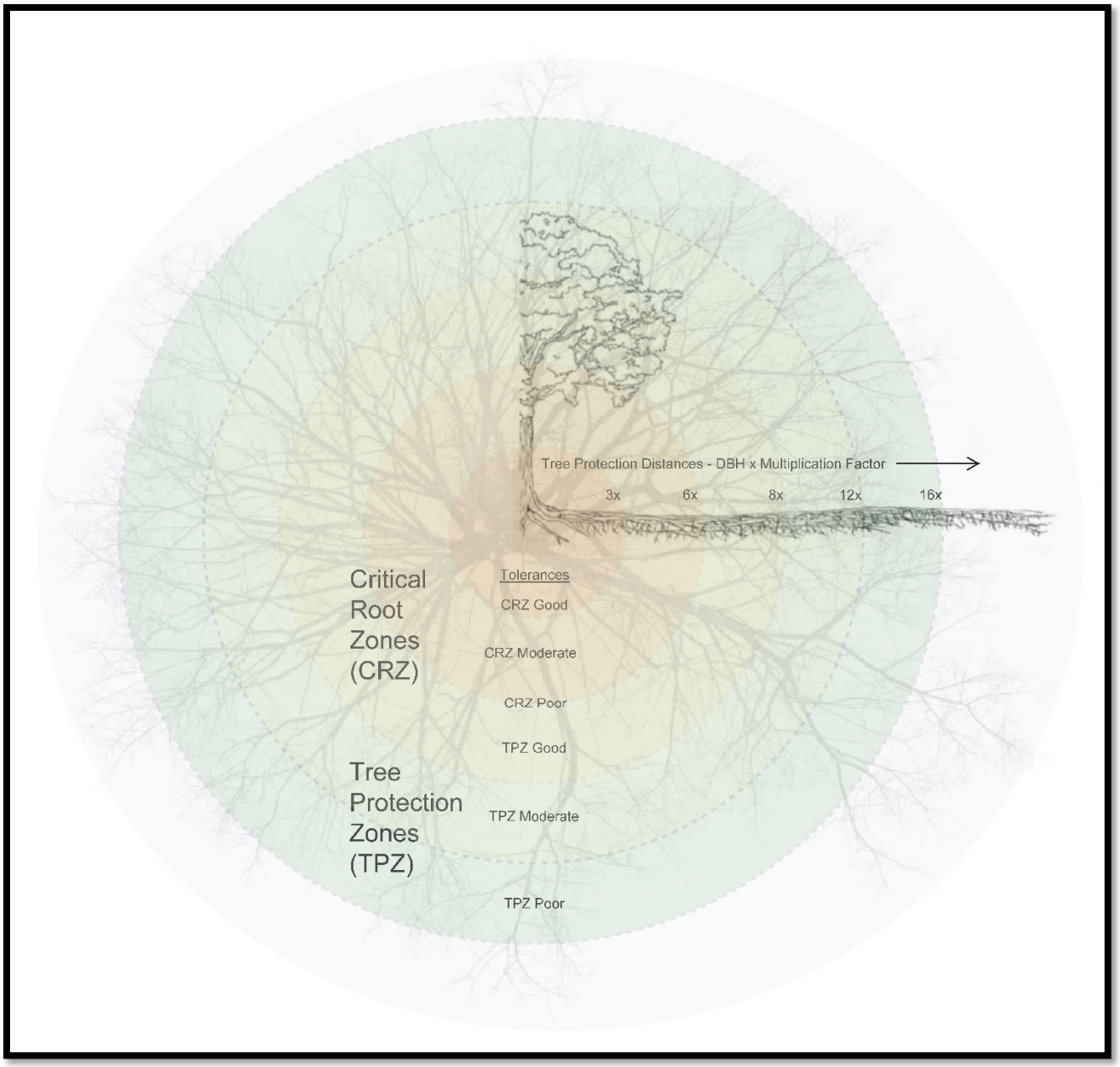
Town of New Tecumseth
Tree Preservation and Protection
Quick Reference Guide



Using this Quick Reference Guide (Tree Guide) does not absolve anyone from reading, understanding, and incorporating the information and requirement in the full documents listed below:

1. Tree Management Policy 01-2022
2. Tree By-law 2022-063
3. Technical Tree Guidelines

Tree Policy ID 01-2022 | Tree By-law 2022-063 | Tree Guidelines

This Tree Guide highlights the Town's directions with trees and the preservation of the urban forest canopy as it relates to development. This Guide is designed to understand how to calculate protection distances for trees, tree compensation calculations, and to provide needed details. It is any applicant's obligation to read the Tree Management Policy, subsequently the Tree By-law (2022-063), and lastly the comprehensive set of Technical Tree Guidelines in their entirety. This Guide **does not absolve anyone from reading, understanding, and applying the requirements from within the full documents if not mentioned or listed within this Guide.** Clarification from Town officials are to be sought out if required.

All information can be found on the Town website here or go to the website tabs under "Living in our Community", then to "Trees and Urban Forestry", and finally to "Tree Bylaw, Guidelines, and Permit Application

Contents

1 DEFINITIONS

1. **Arborist (Qualified)** means a professional who possesses the technical competence gained through experience, related education, and training to provide for or supervise the management of trees and other woody plants in residential, commercial, and public landscapes.

   This arborist is recognized to perform authorized physical work on Town trees or to prepare arborist reports to assess trees or for plans to qualify for the reimbursement program.

   Related training or current certification shall be by one of the following*:

   - Certified Arborist' by the Ministry of Training, Colleges, and Universities (MTCU), or
   - Certified Arborist or Tree Worker (for physical work) by the International Society of Arboriculture (ISA), or
   - A person with other similar proven qualifications and/or experience as approved, and under the sole discretion of the Town.

   And

   - *Tree Risk Assessment Qualification (TRAQ, ISA) or equivalent is required for where risks/hazards are required to be assessed.

2. **Arboricultural consultant (AC)** means a professional who brings an objective, comprehensive viewpoint to their clients and has gained recognized qualifications and expertise in the care and management of trees and who provides technical information and advice on best management of tree resources, diagnosis and disorders, tree appraisal, forensic investigations, expert witness reports and testimony, protection of trees from construction injury, root pruning methods, and other arboriculture-related recommendations, such as planning and mitigation actions for one or more trees. Sometimes referred to as a Consulting Arborist.

   Certifications or qualifications (in good standing) will include:
   - Registered Consulting Arborist (RCA) with the American Society of Consulting Arborists (ASCA), or
   - Board Certified Master Arborist or Municipal Arborist with the International Society of Arboriculture (ISA), or
   - Registered Professional Forester (RPF) as defined in the Professional Foresters Act, 2000, S.O. 2000, c. 18, or
   - Graduate of an accredited university with a degree in Urban Forestry, Arboriculture or related (e.g., Landscape Architect, Biologist, etc.) with an ISA Certified Arborist certification, or
   - Graduate of an accredited college with a diploma in urban forestry, arboriculture, or equivalent (e.g., Forest technician/technologist, etc.) and 5 years of in-field experience directly relating to assessing trees with an ISA Certified Arborist certification, or
   - ISA Certified Arborist in good standing for a minimum of 9 years (i.e., 3 recertification cycles)

   Additionally:
   - Tree Risk Assessment Qualification (TRAQ, ISA) or equivalent for any tree risk assessment.

3. **Critical root zone (CRZ)** means the area of soil around a tree where the minimum amount of roots considered critical to the structural stability or health of the tree are located.

4. **Development** means the construction, erection, or placing of one or more buildings or structures on land or the making of an addition or alteration to a building or structure requiring approvals under the Planning Act and/or subject to Agreement of, and at the sole discretion with, the Town. This includes, but is not limited to Site Plan Applications, Plan of Subdivision/Condominium, Property Access Permits, Road Occupancy Permits, Site Alternation and Fill Applications, including lands described in section 4.5.11 of the Official Plan, wooded areas not within the EP1 and EP2 designation.

5. **dbh** means acronym for tree diameter at breast height. Measured at 1.4 meters (4.6 feet) above ground (unless otherwise noted for justified reasons).
6. Injury or injure means to harm, damage, or impair the above or below ground portions of a tree(s) and includes, but is not limited to, harm, damage, or impairment caused by changing grades around trees, compacting soil over root areas, severing roots, improper application of chemicals, improper or unapproved pruning, or the removal of branches and bark that would adversely affect the health or structure of a tree, and the failure to protect a tree.
7. **Protected tree** means:
    - a Town tree;
    - a designated Significant or Heritage tree; or
    - a tree 20cm dbh or greater that is part of development applications (on or within 6m of the property or construction limits.)
8. **Tree Protection Zone (TPZ)** means the setback required to maintain overall physiological health of the tree and the structural integrity of the tree's roots, based on generally accepted arboricultural principles.

2 Tree Management Policy ID# 001-2022

This is the guiding document that initiated the Town's directions on the preservation, protection, and enhancement of trees and the Urban Forest. The Tree and Natural Vegetation Management Policy By-law (2019-086) was originally adopted in 2019. has been rescinded, and replaced with the Tree Management Policy (01-2022).

2.1 Policy Statement

(s.1) The Town of New Tecumseth (hereafter the "Town") is committed to preserving, protecting, and enhancing the urban forest by improving biodiversity, increasing the tree canopy, and fostering sustainable practices.

2.2 Policy

1. (s.5.2.2) All Town stakeholders shall reference the Town's Technical Tree Guidelines for all matters relating to trees as it relates to specifications for tree preservation and enhancement guidelines and procedures including but not limited to arborist guidelines, tree preservation, tree protection, tree planting details, tree inventories, tree selection, tree pruning, tree removal, tree compensation, etc.
2. (s.5.2.4.1) All proposed Town property (e.g., parks, boulevard, etc.) should have requisite number of trees planted to achieve a minimal goal of 30% UTC after 20 years maturity where possible.

3 Tree By-Law 2022-063

This by-law is passed under Section III of the Provincial Offences Act and is the "teeth" to help ensure the goals of the Town are directed in a positive way by providing the consequences for contravening the Policy and Guidelines.

3.1 Applicability and Scope (s.2.1)

This By-law applies to all properties within the boundaries of the Town.

3.2 General Provisions (s.3)

The Director is authorized to stop any work causing injury or destruction to a protected tree that is taking place without permission from the Town. Further, the Director may have issued a permit to authorize work on a Town tree.

3.3 Prohibited Acts (s.4)

No person shall:

1. injure or destroy, or cause to be injured or destroyed, a protected tree;
2. undertake or cause any unauthorized activities within the tree protection zone of a protected tree;
3. remove or have removed protected trees within two years of a development/demolition application.

3.4 Enforcement of By-Law (s.5)

Where a person has contravened this By-law, the Director may make an order directing the person to comply with any conditions required to correct the contravention and/or cease the activity which is the subject of the contravention.

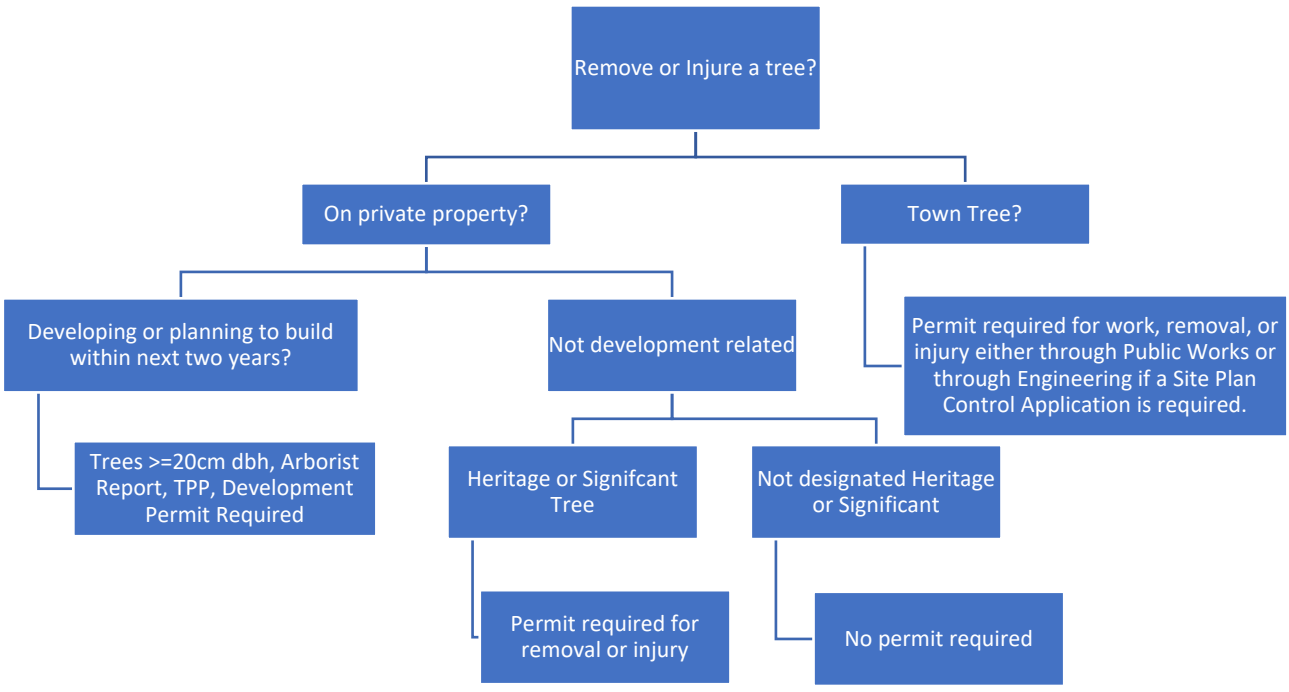
3.5 Offence and Penalty (s.6)

1. The minimum fine for an offence is $500 and the maximum fine for an offence is $100,000.
2. Failure to install and maintain required tree protection hoarding during demolition and/or development, $500 per tree/per day.
3. If a person is convicted of an offence for contravening the provisions of this By-law the payment shall be two (2) times the value of the compensation based on its estimated pre-casualty condition.

4 Technical Tree Guidelines

The Guidelines were developed to provide the technical information and details on how to protect trees. Below and herein are the highlights.

4.1 Tree-Related Plan Flowchart (s.7)



4.2 Steps for Development (e.g., Site Plan Control, Building Permits, etc.)

1. Applicant applies for various development applications through the Town.
2. Submits tree declaration if no protected trees are within 6m of construction limits or submits arborist report and tree preservation plan.
3. Applications comes through various departments for approvals and comments. Public Works Application Review Team weekly meeting (ART) comments on Tree Permits, Road Occupancy Permit (ROP), Property Access Permit (PAP), Municipal Consent (MC).
4. Compensation applied and paid as required or tree preservation requirements are detailed and approved accordingly through department issuing original application.
5. Fees for permits and compensation applied and paid by applicant.
6. Authorization or permit issued to proceed.

4.3 Planning Phases (s.7.5)

There are six phases described in the guidelines to detail the expectations at different intervals within the construction process with regards to trees; these are listed below:

1. **Planning phase** – initial site evaluation
2. **Design phase** – determining trees to preserve or remove
3. **Pre-construction phase** - establishing TPZ's, other preservation requirements, and removals before construction
4. **Construction phase** – verify all preservation and protection is in place.
5. **Landscape phase** – review of tree's condition and make recommendations as needed.
6. **Post-Construction phase** – warranty period, monitoring trees, and adjustments as needed.

4.4 Technical Elements of Tree Preservation (s.7.6)

1. The Town may request a security deposit in an amount appropriate to secure the protection of Town trees and/or the re-planting of trees required as a condition for development.
2. If there are no Protected Trees within six metres of the work, a TREE DECLARATION letter (e.g., email), based on the work and plans, is required to validate the claim.
3. An Arborist may prepare a tree preservation plan and/or report however, an **AC** is required to sign off for any arborist report (tree preservation plan, tree inventory, tree assessment, compensation plan, etc.) required for any subdivision development required for the Town.
4. Trees on the property line (i.e., boundary tree) shall not be injured without written approval from the abutting property owner (i.e., co-tree owner).
5. Tree Permit Fee of $120 per tree, for the removal of a healthy Town tree. (Fees and Charges By-law, currently and as amended)

The arborist report will include:

a) Summary of work and findings.
b) History information to the site.
c) Documentation on the methods of the tree inventory.
d) Tree inventory table showing observations and any additional information relating to the trees on the site. Tree condition assessment for health, structure, and form summarized with an overall rating using the following criteria:
   - **Excellent** (90% rating) - Nearly perfect or ideal for the species, free of defects.
   - **Good** (75% rating) - Normal Vigour, well developed structure, minor asymmetries.
   - **Fair** (50% rating) - Reduced vigour, multiple moderate defects, major asymmetries.
   - **Poor** (25% rating) - Unhealthy and declining, multiple significant defects, largely asymmetric.
   - **Very Poor** (15% rating) - Poor vigour, dying, multiple severe defects, visually unappealing.
   - **Dead** (5% rating) – used in the health assessment, 90% declined, no chance of recovery within next year.
   - High Risk Tree (0% rating)

e) Recommendations on the review of the site proposal and analysis of the potential impacts included in the report. Compensation calculated and proposed showing work.

f) Tree Preservation Plan (TPP) to show tree numbers corresponding with tree inventory including protection distances for each tree, trees to be removed, new trees to be planted, etc.

4. How To Calculate Minimum Tree Protection Zone (TPZ) Distances for Trees

Step 1 – Identify species, assess condition (health, structure, form, then overall condition), and measure the tree

Step 2 – Reference the Relative Tolerance of Development Impacts Table (s.9.1), and the Tree Protection Distances Table (s 7.6.8, TPD Factor).

Step 3 – Using the formula - **dbh x TPD factor x 2 + dbh**

Example:

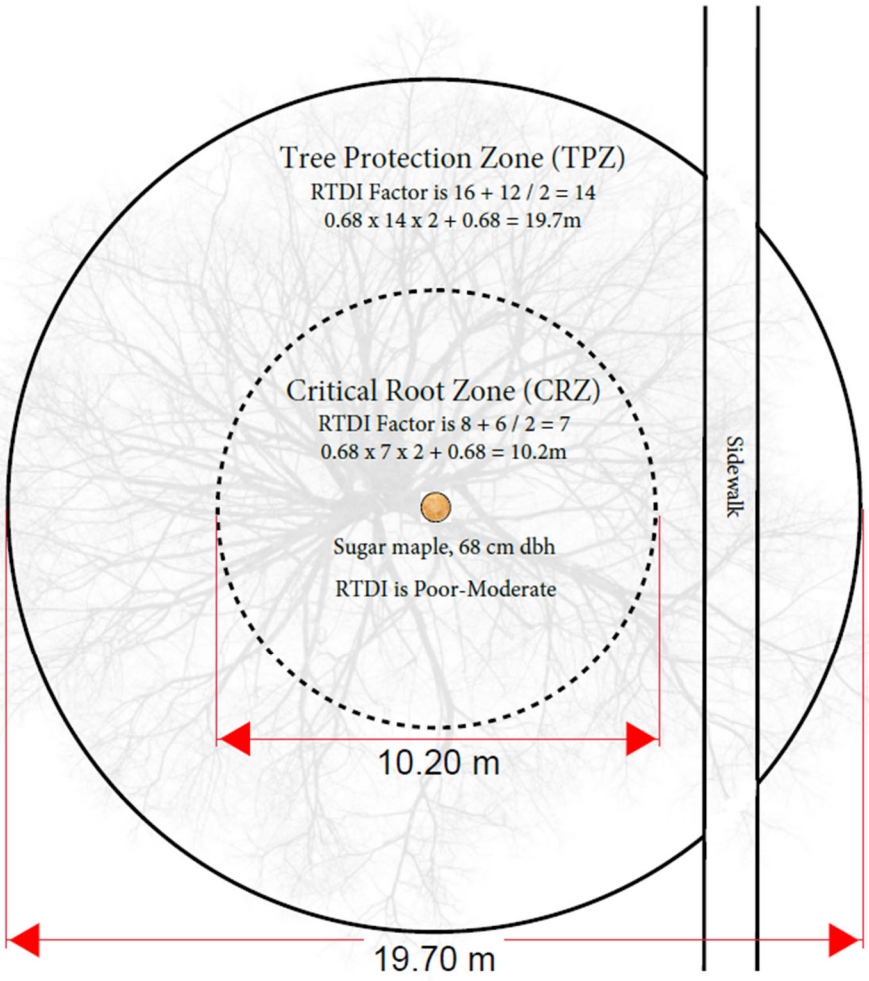
68cm sugar maple, (mature)

Poor to moderate factor = 14

TPZ = 0.68m x 14 x 2 + 0.68m = 19.7m

CRZ = 0.68m x 7 x 2 + 0.68m = 10.2m

TPZ measured from the edge of the trunk (dbh x TPD factor) = 9.5m



5. Relative Tolerance of Development Impacts Table (RTDI) (s.9.1 and 9.4)
Trees are listed using their Latin name. If the species is not listed, research is required.

Botanical Name	RTDI
Abies balsamea	M-G
Abies concolor	M
Acer campestre	G
Acer ginnala	G
Acer negundo	G
Acer platanoides 'Crimson King'	M-G
Acer pseudoplatanus	M-G
Acer rubrum	M-G
Acer saccharinum	P-M
Acer saccharum	P-M
Acer tataricum	G
Acer x freemanii	G
Aesculus flava	P
Aesculus glabra	P
Alnus incana	G
Amelanchier canadensis	G
Betula nigra	M-G
Carpinus betulus 'Fastigiata'	M-G
Carpinus caroliniana	M
Carya cordiformis	G
Carya ovata	P
Celtis occidentalis	G
Cercidiphyllum japonicum	P-M
Chamaecyparis lawsonia	G
Crataegus crusgalli 'inermis'	G
Elaeagnus angustifolia	G
Fagus grandifolia	P
Fagus sylvatica	P
Gleditsia triacanthos 'inermis'	G
Gymnocladus dioicus	G
Juglans cinerea	P
Juglans nigra	P
Juniperus virginiana	M-G
Larix decidua	M
Larix laricina	M
Liriodendron tulipifera	M

Botanical Name	RTDI
Magnolia acuminata	M
Malus spp.	M-G
Morus alba	M-G
Nyssa sylvatica	M-G
Ostrya virginiana	M
Picea spp.	M-G
Pinus spp.	M-G
Platanus x acerfolia	M-G
Platanus occidentalis	M-G
Populus Deltoides	M-G
Populus grandidentata	P-M
Populus spp.	G
Prunus serotina	P-M
Pseudotsuga menziesii	M
Pyrus spp.	M
Quercus alba	M
Quercus bicolor	G
Quercus coccinea	P-M
Quercus inbricaria	G
Quercus macrocarpa	M
Quercus muehlenbergii	G
Quercus palustris	M-G
Quercus rubra	M-G
Quercus velutina	M-G
Robinia pseudoacacia	G
Salix spp.	M-G
Sassafras albidum	G
Sorbus aucuparia	M
Taxodium distichum 'Shawnee Brave'	G
Thuja occidentalis	G
Tilia spp.	P-M
Tsuga canadensis	P
Ulmus spp.	M-G
Viburnum lentago	M-G
Zelkova serrata	M-G

6. Tree Protection Distances Table (TPD) (s.7.6.7 and 7.6.8)
Cross reference the RTDI with the below table:

RTDI Factor	DBH Range (cm)	Relative Age	Critical Root Zone (CRZ) Factor	Minimum Tree Protection Zone (TPZ) Factor	~ Max Root Loss Tolerance Threshold (%)	~ Life Expectancy (%)
Good	<20	Young	3	6	40	<20
	20-40	Maturing	4	8	25	20-60
	41-100	Mature	5	10	20	60-80
	>100	Overmature	6	12	15	>80
Moderate	<20	Young	4	8	30	<20
	20-40	Maturing	5	10	20	20-60
	41-100	Mature	6	12	15	60-80
	>100	Overmature	7	14	10	>80
Poor	<20	Young	6	12	20	<20
	20-40	Maturing	7	14	15	20-60
	41-100	Mature	8	16	15	60-80
	>100	Overmature	9	18	10	>80

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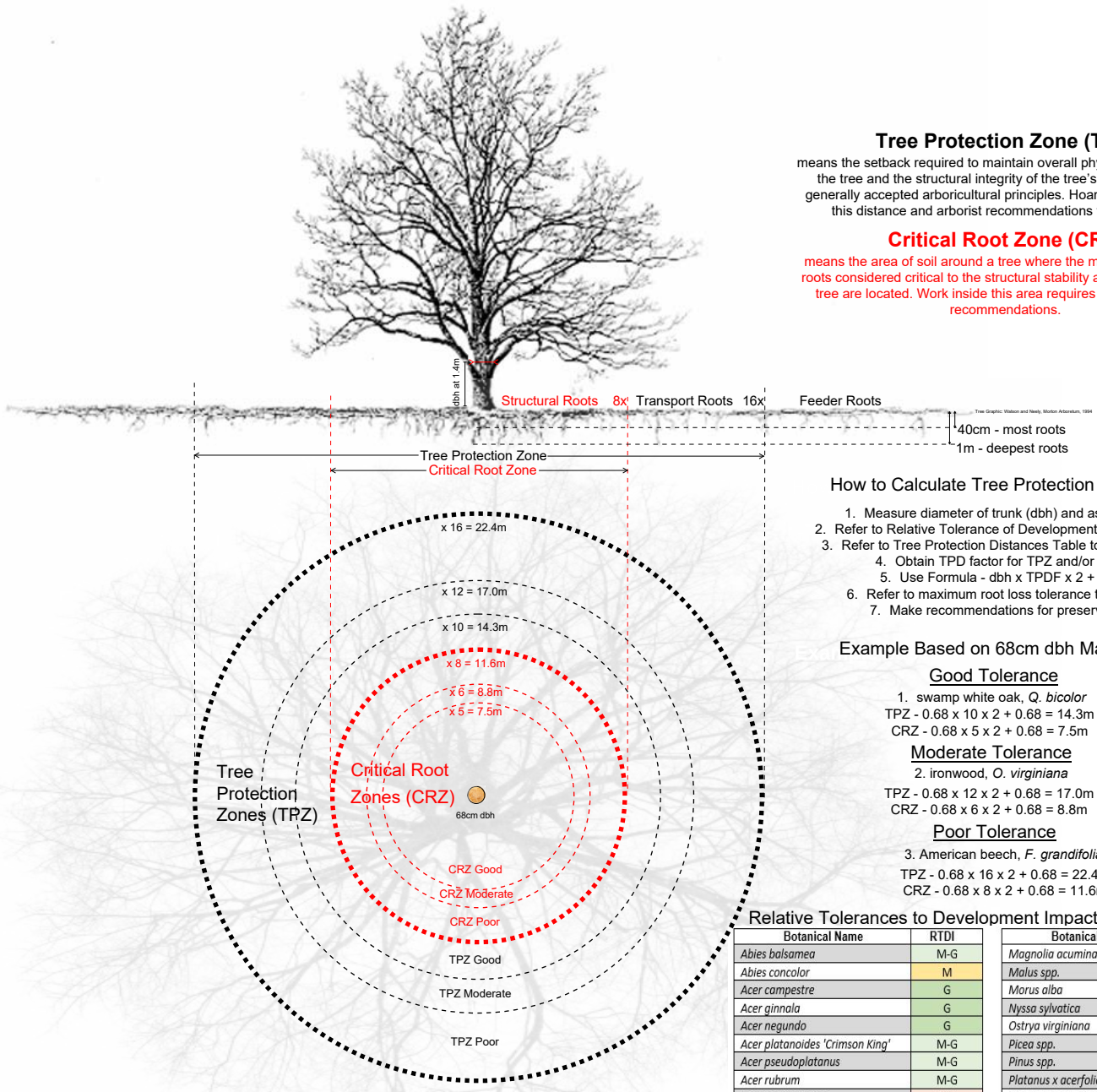
Tree Protection Distances
Example - Based on Tolerance



Tree Protection Zone (TPZ)

means the setback required to maintain overall physiological health of the tree and the structural integrity of the tree's roots, based on generally accepted arboricultural principles. Hoarding is required at this distance and arborist recommendations for protection.

Critical Root Zone (CRZ)

means the area of soil around a tree where the minimum amount of roots considered critical to the structural stability and/or health of the tree are located. Work inside this area requires detailed arborist recommendations.

How to Calculate Tree Protection Distances

1. Measure diameter of trunk (dbh) and assess tree
2. Refer to Relative Tolerance of Development Impacts Table
3. Refer to Tree Protection Distances Table to obtain factor
4. Obtain TPD factor for TPZ and/or CRZ
5. Use Formula - dbh x TPDF x 2 + dbh
6. Refer to maximum root loss tolerance threshold.
7. Make recommendations for preservation

Example Based on 68cm dbh Mature Tree

Good Tolerance

1. swamp white oak, *Q. bicolor*

TPZ - 0.68 x 10 x 2 + 0.68 = 14.3m
CRZ - 0.68 x 5 x 2 + 0.68 = 7.5m

Moderate Tolerance

2. ironwood, *O. virginiana*

TPZ - 0.68 x 12 x 2 + 0.68 = 17.0m
CRZ - 0.68 x 6 x 2 + 0.68 = 8.8m

Poor Tolerance

3. American beech, *F. grandifolia*

TPZ - 0.68 x 16 x 2 + 0.68 = 22.4m
CRZ - 0.68 x 8 x 2 + 0.68 = 11.6m

Tree Protection Distances (TPD) Table

RTDI Factor	DBH Range (cm)	Relative Age	Critical Root Zone (CRZ) Factor	Minimum Tree Protection Zone (TPZ) Factor	~ Max Root Loss Tolerance Threshold (%)	~ Life Expectancy (%)
Good	<20	Young	3	6	40	<20
	20-40	Maturing	4	8	25	20-60
	41-100	Mature	5	10	20	60-80
	>100	Overmature	6	12	15	>80
Moderate	<20	Young	4	8	30	<20
	20-40	Maturing	5	10	20	20-60
	41-100	Mature	6	12	15	60-80
	>100	Overmature	7	14	10	>80
Poor	<20	Young	6	12	20	<20
	20-40	Maturing	7	14	15	20-60
	41-100	Mature	8	16	15	60-80
	>100	Overmature	9	18	10	>80

An **Arborist Report** and Tree Preservation Plan is required when there is a proposed **Development** and there is a **Protected Tree** within 6m of the limits of impact.

Protected Tree is a Town tree, a Significant or Heritage Tree, or a tree 20cm dbh or larger that is part of or within 6m of a development.

Development means the construction, erection, or placing of one or more buildings or structures on land or the making of an addition or alteration to a building or structure requiring approvals under the Planning Act and/or subject to Agreement of, and at the sole discretion with, the Town. This includes, but is not limited to Site Plan Applications, Plan of Subdivision/ Condominium, Property Access Permits, Road Occupancy Permits, Site Alternation and Fill Applications, including lands described in section 4.5.11 of the Official Plan, wooded areas not within the EP1 and EP2 designation.

Relative Tolerances to Development Impacts (RTDI) Table

Botanical Name	RTDI
Abies balsamea	M-G
Abies concolor	M
Acer campestre	G
Acer ginnala	G
Acer negundo	G
Acer platanoides 'Crimson King'	M-G
Acer pseudoplatanus	M-G
Acer rubrum	M-G
Acer saccharinum	P-M
Acer saccharum	P-M
Acer tataricum	G
Acer x freemanii	G
Aesculus flava	P
Aesculus glabra	P
Alnus incana	G
Amelanchier canadensis	G
Betula nigra	M-G
Carpinus betulus 'Fastigiata'	M-G
Carpinus caroliniana	M
Carya cordiformis	G
Carya ovata	P
Celtis occidentalis	G
Cercidiphyllum japonicum	P-M
Chamaecyparis lawsonia	G
Crataegus crusgalli 'inermis'	G
Elaeagnus angustifolia	G
Fagus grandifolia	P
Fagus sylvatica	P
Gleditsia triacanthos 'inermis'	G
Gymnocladus dioicus	G
Juglans cinerea	P
Juglans nigra	P
Juniperus virginiana	M-G
Larix decidua	M
Larix laricina	M
Liriodendron tulipifera	M

Botanical Name	RTDI
Magnolia acuminata	M
Malus spp.	M-G
Morus alba	M-G
Nyssa sylvatica	M-G
Ostrya virginiana	M
Picea spp.	M-G
Pinus spp.	M-G
Platanus x acerfolia	M-G
Platanus occidentalis	M-G
Populus Deltoides	M-G
Populus grandidentata	P-M
Populus spp.	G
Prunus serotina	P-M
Pseudotsuga menziesii	M
Pyrus spp.	M
Quercus alba	M
Quercus bicolor	G
Quercus coccinea	P-M
Quercus inbricaria	G
Quercus macrocarpa	M
Quercus muehlenbergii	G
Quercus palustris	M-G
Quercus rubra	M-G
Quercus velutina	M-G
Robinia pseudoacacia	G
Salix spp.	M-G
Sassafras albidum	G
Sorbus aucuparia	M
Taxodium distichum 'Shawnee Brave'	G
Thuja occidentalis	G
Tilia spp.	P-M
Tsuga canadensis	P
Ulmus spp.	M-G
Viburnum lentago	M-G
Zelkova serrata	M-G

5 Tree Compensation

5.1 Aggregate Caliper Method with Depreciation (7.6.13)

Protected Trees that require compensation will use the following aggregate caliper method:

(A x B) ÷ C = D

A. dbh of subject tree in cm
B. Condition of subject tree (pre-casualty), expressed as a percentage:
C. A replacement tree will be based on 5cm (50mm) caliper with a value of $500
D. Number of trees to replace through replanting on site or as cash in lieu

Example:

2 x 120cm dbh maples (*Acer sp.*) Both trees - Health is Fair; Structure is Poor; Form is Fair

a. dbh x ((Health % + Structure % + Form %) ÷ 3) ÷ Replacement tree size = number of trees
b. ((2 x 120) x ((50% + 25% + 50%) ÷ 3)) ÷ 5
c. (240 x 0.42) ÷ 5
d. 20 trees at $500/tree (round only in the last stage and to the nearest whole number)

Solution:

For Plans of Subdivision and Site Plan Control Applications, $10,000 in compensation is required plus adequate tree planting to meet the requirements of the Tree Management Policy, Tree Guidelines, and Engineering Design Standards.

For infills, 3 x 50mm approved trees are planted on the property, therefore 17 trees require compensation at $500/tree, $8,500 cash-in-lieu will be required for the difference for trees not planted.

Note: As per section 7.3.6.1 of the TOWN TREE BYLAW, if these trees were removed without authorization, 40 trees would be required for compensation.

8. Additional Tree Replacement Details

a) The value for all replacement trees shall be $500 per tree.

b) Exemptions will be made on a case-by-case basis, for trees assessed by a Qualified Tree Risk Assessor (ISA TRAQ, in good standing) rating the tree with a risk rating of High or Extreme and that cannot be reasonably mitigated.

c) Compensation for naturalized trees will be subject to approval via proposal submitted by an Arboricultural Consultant and can use the Area Based Canopy Compensation Method or the Mass Planting Approach.

d) Protected Trees shown or proven to be causing damage to infrastructure (i.e., house, septic, etc.) will be reviewed on a case-by-case basis to determine if preservation, protection, or compensation is required.

5.2 Area Based Canopy Compensation (7.6.13.2)

The area of the treed area is to be measured at the dripline of the unit(s). To determine the compensation required a factor of 1 tree for every 20m² is to be applied. This is shown in the equation below:

Area being removed (m²) ÷ 20m² = number of compensation trees required

For example, if a total of 200m² is being removed, a total of 10 trees would be required to be planted (200/20). This may be provided by the establishment of any combination of conifer or deciduous species that meet the minimum tree size and consist of appropriate tree species.

5.3 Mass Planting Approach (s.7.6.13.2)

The number of plantings is to be based on the equivalent value as the proportion of the required compensation tree plantings from the compensation method being used (aggregate caliper or area-based canopy compensation). This is shown in the equation below:

Outstanding wholesale value of Aggregate Caliper or Area Based Canopy Compensation ÷ wholesale value of mass planting proposed = number of plantings

For example, a site requires the equivalent of 30 compensation trees that are 60mm caliper in size, based on an aggregate caliper method. 15 of these trees are to be provided and the applicant would like to substitute shrubs in place of the other 15 trees. One tree is equivalent to five shrubs or perennial herbaceous plant. Therefore, 75 shrubs are required in addition to the 15 trees to replace the 30 trees required.

6 Tree Injury Calculator

(s.7.6.14) Protected Trees that are injured without authorization shall be compensated based on the following formula (as per section 7.3.8 of the Tree By-law):

((A x B) x C) x D = injury amount

A. dbh of subject tree
B. Condition of subject tree (pre-casualty), expressed as a percentage:
C. Severity of injury, assessed in the sole discretion of the Town, expressed as a percentage:
   - **i. Low Risk Factor (25% of Assessed Value):**
     - Minimal work inside TPZ (including grading, excavation, servicing, etc.);
     - Hoarding shown on plan and installed as per Town Standard.
     - Tracked machine inside TPZ (root zone impact <25%) .
     - Construction foot traffic inside TPZ (root zone impact <25%).
     - Materials stored inside TPZ (compaction <25%).
   - **ii. Moderate Risk Factor (50% of Assessed Value):**
     - Minimal work inside TPZ (including grading, excavation, servicing, etc.).
     - Hoarding shown on plan and installed as per Town Standard.
     - Tracked machine inside TPZ (root zone impact 25-50%).
     - Construction foot traffic inside TPZ (root zone impact 25-50%).
     - Materials stored inside TPZ (compaction 25-50%).
   - **iii. High Risk Factor (75% of Assessed Value):**
     - Significant work inside TPZ (including grading, excavation, servicing, etc.)
     - Hoarding shown on plan and installed as per Town Standard.
     - Wheeled machine inside TPZ (root zone impact <25%)
     - Tracked machine inside TPZ (root zone impact 50-75%).
     - Construction foot traffic inside TPZ (root zone impact 50-75%).
     - Materials stored inside TPZ (compaction 50-75%).
     - Trunk damages to <25% of circumference.
   - **iv. Severe Risk Factor (90% of Assessed Value):**
     - Excessive work inside TPZ (including grading, excavation, servicing, etc.);
     - Hoarding shown on plan and not installed as per Town Standard
     - Wheeled machine inside TPZ (root zone impact >25%)
     - Construction foot traffic inside TPZ (root zone impact >75%)
     - Materials stored inside TPZ (compaction >75%)
     - Trunk damages to 25-50% of the circumference (>50% is considered an unauthorized removal)

D. $50 - Where dollar value per centimetre equals new tree value ($500) divided by new tree caliper size of 5cm divided in half to use a per centimetre cost of injured tree value. $500 ÷ 5 ÷ 2 = $50/cm

Tree Injury Calculator Example:

75cm protected sugar maple in good overall condition has around 50% of its roots compacted by a wheeled skid steer, with the hoarding removed in sections.

Solution:

((dbh x condition value) x Injury Factor) x dollar value/cm = injury amount

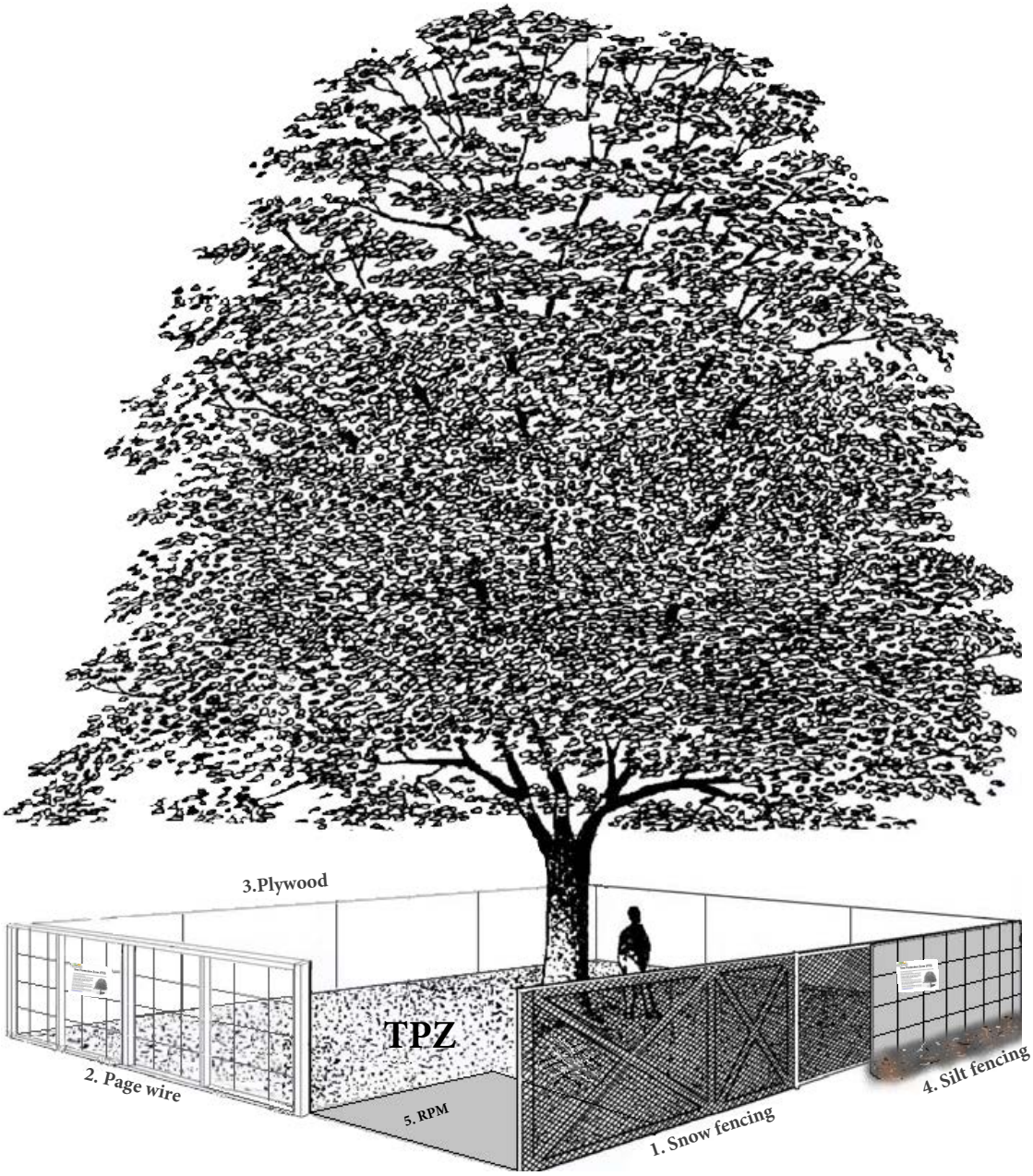
((75cm x 75%) x 90%) x $50 = $2,531.25

As the hoarding was removed without authorization, as per section 7.3.5 of the Tree By-law, an additional set fine of $500 is applied. A total fine of $3,031.25.

$2,531.25 will be used towards mitigating the compaction on-site through a third-party contractor retained and approved by the Town. The mitigation was determined to be root invigoration using a supersonic air tool with a bio-char additive, and subsequently covered with woodchips.

Tree Protection Barrier Detail
TP-1

a.k.a.: Hoarding, Tree Protection Fencing (TPF)



1. **Orange plastic web snow fencing (1.2m high) on a wood frame of 2"x4" s, or supported on metal "T" bars, 2.0m O/C.**
2. **Page wire fencing can be used where orange plastic web snow fencing creates restriction to sight lines.**
3. **If some fill or excavated material must be temporarily located near the tree protection barrier, a plywood barrier must be used to ensure no material enters the TPZ.**
4. **Silt fencing with wire is acceptable for use, where appropriate, as tree protection barriers.**
5. **Root Protection Matting (RPM) can be plywood, or combination of geotextile with aggregate or steel plates to prevent compaction within TPZ.**

Tree Protection Zones (TPZ)

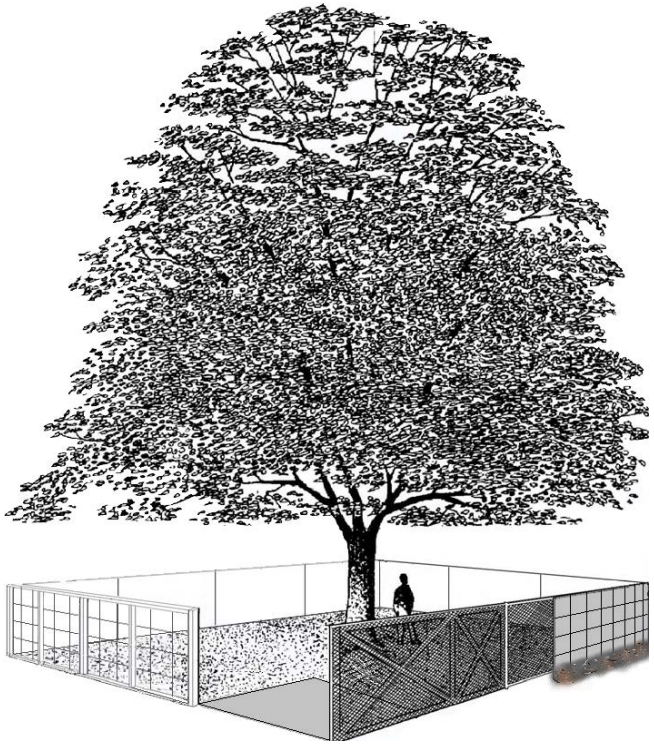
No construction activities including grade changes, surface treatments or excavation of any kind are permitted within the tree protection zone (TPZ). No root cutting is permitted. No storage of materials or fill is permitted within the TPZ. No movement or storage of vehicles or equipment is permitted within the TPZ. The area(s) identified as a TPZ must always be protected and remain undisturbed.

Tree By-law 2022-063, s.6.3.5-Failure to install and maintain required tree protection hoarding during demolition and/or development, $500 per tree/per day.)

New Tecumseth
Alliston · Beeton · Tottenham

Tree Protection Zone (TPZ)

This TPZ has been made to regulate the removal and injury of “Protected Trees” under Tree By-law 2022-063.

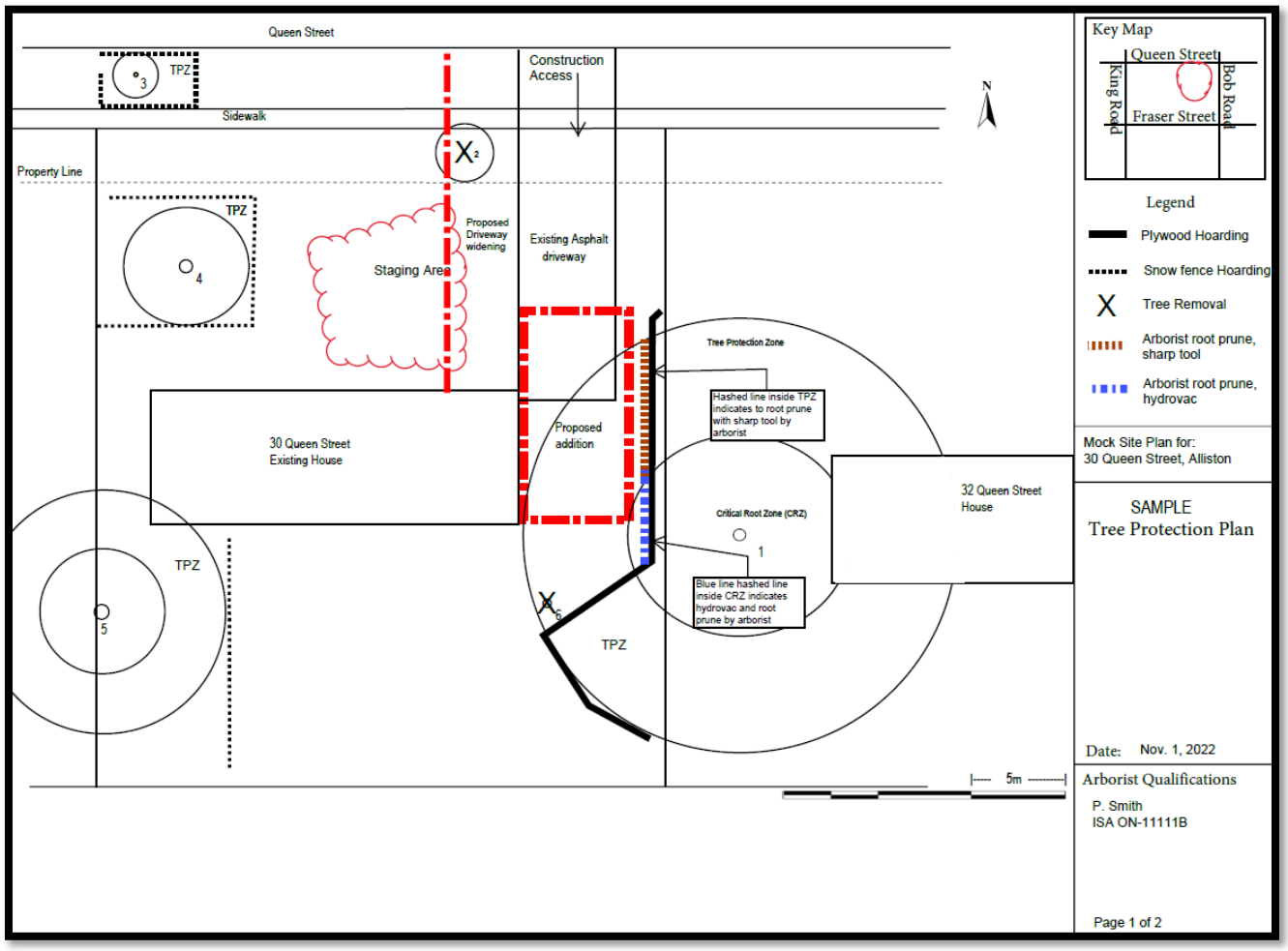


All construction related activities, including grade alteration, excavation, soil compaction, material or equipment traffic or storage, disposal of liquid, removing or altering this barrier, are NOT permitted within this TPZ.

As per Tree By-law 2022-063 – Failure to install and maintain required tree protection hoarding during demolition and/or development, $500 per tree per day.

Concerns or inquiries regarding this TPZ can be directed to By-law Enforcement: 705-435-3900 or by-law@newtecumseth.ca

7.3 Sample Tree Preservation/Protection Plan



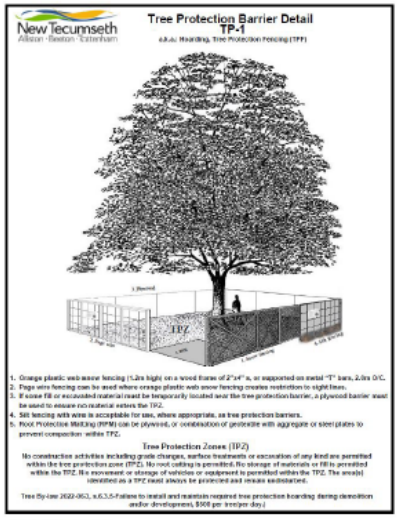
7.4 Exploded View of Tree Preservation Comments

Tree #	Species	dbh (cm)	Tree Ownership	Preservation Comments
1	maple, sugar	68	2. Neighbors	Written authorization from tree owner for proposed injury is approved and attached within arborist report. Install TPF as detailed on the TPP; Qualified arborist to root prune with a sharp tool along outside of TPF within the TPZ and to use supersonic air excavation (e.g., hydrovac or AirSpade) to expose roots and prune with sharp tool within CRZ; 20% root loss is expected; as tree is healthy, will have some moderate stress, monitor tree, will survive construction if preservation methods are adhered to.
2	honeylocust	24	5. Town Owned	Request permission from Town to remove tree to widen driveway. Tree Permit fee ($114.5), Property Access Permit fee ($207), and Road Occupancy Permit fee ($130) required and included in application. Tree compensation payable to the Town is $1,200 (24cm x 0.5 ÷ 5cm x $500); $1,651.50 total cost to remove tree payable to Town
3	maple, Freeman	8	5. Town Owned	Install hoarding as detailed, no injury to tree
4	oak, white	32	1. Private	Install hoarding as detailed, no injury to tree
5	spruce, white	57	6. Shared	Install hoarding as detailed, no injury to tree
6	hackberry, common	19	1. Private	Not a regulated tree, remove

Tree Protection Notes

The following notes are to be fully understood and included in the arborist report and/or on the accompanying tree protection plans as submitted for review:

1. No construction activities including grade changes, surface treatments or excavation of any kind are permitted within the area identified on the Tree Protection Plan or Site Plan as a tree protection zone (TPZ). No root cutting is permitted. No storage of materials or fill is permitted within the TPZ. No movement or storage of vehicles or equipment is permitted within the TPZ. The area(s) identified as a TPZ must always be protected and remain undisturbed.
2. It is the applicant's responsibility to discuss potential impacts to trees located near or wholly on adjacent properties or on shared boundary lines with their neighbours. Should such trees be injured to the point of instability, decline, or death, the applicant may be held responsible through civil action. The applicant would also be required to replace such trees to the satisfaction of the Town.
3. Tree protection barriers shall be installed to standards as detailed to the satisfaction of the Town.
4. Where required, Tree Preservation Signs must be attached to all sides of the barrier as required.
5. Prior to the commencement of any site activity such as site alteration, demolition or construction, the tree protection measures specified must be installed to the satisfaction of the Town.
6. Once all tree/site protection measures have been installed, Town staff must be contacted to arrange for an inspection of the site and approval of the tree/site protection requirements. Photographs that clearly show the installed tree/site protection shall be provided for Town review.
7. Where changes to the location of the approved TPZ, sediment control, or where temporary access to the TPZ is proposed, the Town must be contacted to obtain approval prior to alteration.
8. Tree protection barriers must remain in place and in good condition during demolition, construction, and/or site disturbance, including landscaping, and must not be altered, moved, or removed until authorized by the Town.
9. All additional tree protection or preservation requirements, above and beyond the installation of tree protection barriers, must be undertaken or implemented as detailed in the approved arborist report and/or the approved tree protection plan and to the satisfaction of the Town.
10. If the TPZ must be reduced to (temporarily) facilitate construction access, the tree protection barriers must be maintained at a lesser distance, the exposed portion of TPZ must be protected using a root protection method (s.7.6.11) approved by the Town.
11. Any root pruning indicated on this plan must adhere to the root pruning protocol (s.7.6.12) defined within these guidelines or other protocol as recommended by an Arboricultural Consultant.
12. The applicant/owner shall protect all by-law regulated trees in the area of consideration that have not been approved for removal throughout development works to the satisfaction of the Town.
13. Convictions of offences respecting the regulations in the Tree By-law are subject to fines. A person convicted of an offence under this by-law is liable to a minimum fine of $500 and a maximum fine of $100,000 per tree, and /or a Special Fine of $100,000. The landowner may be ordered by the Town to stop the contravening activity or ordered to undertake work to correct the contravention.
14. Failure to install and maintain required tree protection hoarding during demolition and/or development, $500 per tree/day.
15. Prior to site disturbance, the owner must ensure that the works are in conformance with all Acts including but not limited to the Migratory Bird Convention Act and that no migratory bird nests will be impacted by the proposed work.



Tree Inventory

Tree Map Number	Species	dbh (cm) @ 1.4m	Tree Ownership	Relative Tolerance	Maturity	Relative Root Loss Tolerance	TPZ Factor	TPZ Diameter with Tree (m)	CRZ Diametre - with Tree (m)	Overall Condition	Preservation Comments
1	maple, sugar	61	2. Neighbors	F-M	Mature	15%	14	19.7	10.2	Good	Written authorization from tree owner for proposed injury is approved and attached within arborist report. Install TPF as detailed on the TPP; Qualified arborist to root prune with a sharp tool along outside of TPP within the TPZ and to use supersonic air excavation (hydrovac or airspade) to expose roots and prune with sharp tool within CRZ; 20% root loss is expected, as tree is healthy, will have some moderate stress, monitor tree, will survive construction if preservation methods are adhered to.
2	honeylocust	24	3. Town Owned	G	Young	40%	6	3.1	1.7	Fair	Request permission from Town to remove tree to widen driveway. Tree Permit fee ($114.5), Property Access Permit fee ($207), and Road Occupancy Permit fee ($130) required and included in application. Tree compensation payable to the Town is $1,200 (20cm x 0.5= 5cm x $500)
3	maple, Freeman	8	3. Town Owned	G	Young	40%	9	2.5	0.6	Good	Install hoarding as detailed, no injury to tree
4	oak, white	82	1. Private	M	Maturing	20%	10	6.7	3.5	Poor	Install hoarding as detailed, no injury to tree
5	spruce, white	57	4. Shared	M-G	Mature	17.5%	11	13.1	6.8	Poor	Install hoarding as detailed, no injury to tree
6	hackberry, common	14	1. Private	G	Young	NA	9	2.5	1.3	Good	Not a regulated tree, remove

Mock Site Plan for:
30 Queen Street, Alliston

SAMPLE
Tree Protection Details and Notes

Date: Nov. 1, 2022

Arborist Qualifications

P. Smith
ISA ON-11111B

Page 2 of 2

7.5 Tree Protection Notes

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2. It is the applicant's responsibility to discuss potential impacts to trees located near or wholly on adjacent properties or on shared boundary lines with their neighbours. Should such trees be injured to the point of instability, decline, or death, the applicant may be held responsible through civil action. The applicant would also be required to replace such trees to the satisfaction of the Town.
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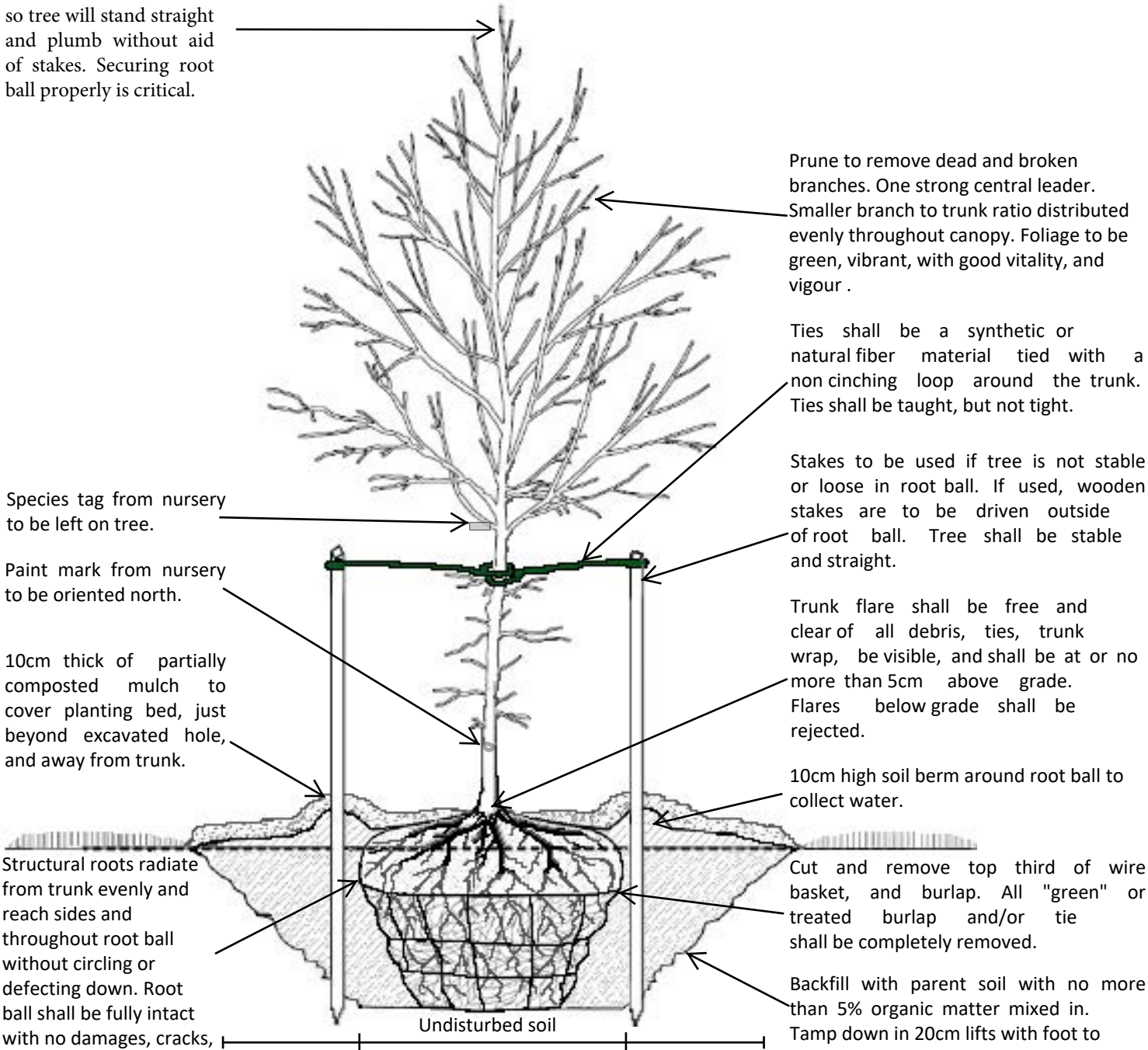
9. All additional tree protection or preservation requirements, above and beyond the installation of tree protection barriers, must be undertaken or implemented as detailed in the approved arborist report and/or the approved tree protection plan and to the satisfaction of the Town.
10. If the TPZ must be reduced to (temporarily) facilitate construction access, the tree protection barriers must be maintained at a lesser distance, the exposed portion of TPZ must be protected using a root protection method (s.7.6.10) approved by the Town.
11. Any root pruning indicated on this plan must adhere to the root pruning protocol (s.7.6.11) defined within these guidelines or other protocol as recommended by an Arboricultural Consultant.
12. The applicant/owner shall protect all by-law regulated trees in the area of consideration that have not been approved for removal throughout development works to the satisfaction of the Town.
13. Convictions of offences respecting the regulations in the Tree By-law are subject to fines. A person convicted of an offence under this by-law is liable to a minimum fine of $500 and a maximum fine of $100,000 per tree, and /or a Special Fine of $100,000. The landowner may be ordered by the Town to stop the contravening activity or ordered to undertake work to correct the contravention.
14. Failure to install and maintain required tree protection hoarding during demolition and/or development, $500 per tree/day.
15. Prior to site disturbance, the owner must ensure that the works are in conformance with all Acts including but not limited to the Migratory Bird Convention Act and that no migratory bird nests will be impacted by the proposed work.

Root ball to be secured so tree will stand straight and plumb without aid of stakes. Securing root ball properly is critical.



Prune to remove dead and broken branches. One strong central leader. Smaller branch to trunk ratio distributed evenly throughout canopy. Foliage to be green, vibrant, with good vitality, and vigour .

Ties shall be a synthetic or natural fiber material tied with a non cinching loop around the trunk. Ties shall be taught, but not tight.

Stakes to be used if tree is not stable or loose in root ball. If used, wooden stakes are to be driven outside of root ball. Tree shall be stable and straight.

Species tag from nursery to be left on tree.

Paint mark from nursery to be oriented north.

10cm thick of partially composted mulch to cover planting bed, just beyond excavated hole, and away from trunk.

Trunk flare shall be free and clear of all debris, ties, trunk wrap, be visible, and shall be at or no more than 5cm above grade. Flares below grade shall be rejected.

10cm high soil berm around root ball to collect water.

Structural roots radiate from trunk evenly and reach sides and throughout root ball without circling or defecting down. Root ball shall be fully intact with no damages, cracks, flat areas, etc.

Cut and remove top third of wire basket, and burlap. All "green" or treated burlap and/or tie shall be completely removed.

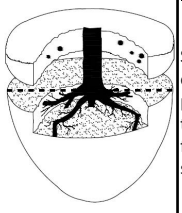
Backfill with parent soil with no more than 5% organic matter mixed in. Tamp down in 20cm lifts with foot to remove air pockets and stabilize root ball.

Undisturbed soil

Planting hole shall be a minimum of 2x root ball width to allow for rapid new root growth into loosened soil.

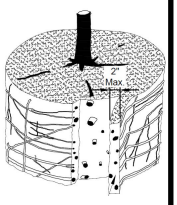
Root Ball Correction

Pull back soil from top of root ball to ensure trunk flare is exposed. Shave with a sharp spade without damaging trunk or large roots.



Container Shave Correction

Shave max. 5cm of outer periphery and top to expose flare with sharp spade or saw.



- Tree shall be handled only by root ball to not sever root hairs in soil.
- Trees shall be 50-60mm caliper as measured at 15cm above grade.
- Trees shall be watered at the time of planting with a minimum of 40 litres of water with use of waterbag.

Town of New Tecumseth
Standard Tree Planting Detail

New Tecumseth
Alliston · Beeton · Tottenham

Drawing No.
TP-2023-1