



Tecumseh Urban Forestry and Naturalization Management Plan

April 2026



Executive Summary

The Town of Tecumseh's **Urban Forestry and Naturalization Management Plan (UFNMP)** provides a comprehensive 20-year strategic framework to manage, protect, and enhance the Town's collective "green infrastructure". As the Town navigates growth and climate change, this Plan transitions Tecumseh from a reactive management style to a proactive, sustainable model that recognizes trees as vital municipal assets.

Vision and Pillars

The UFNMP is guided by a vision where Tecumseh nurtures a **resilient and flourishing urban forest**, recognizing trees and natural areas as shared community assets. Implementation is built upon five core pillars:

- **Knowledge-Based Decisions:** Using data and inventory to guide management.
- **Adaptability:** Remaining responsive to environmental changes and new information.
- **Collaboration:** Strengthening the connection between the Town, residents, and Indigenous partners.
- **Resilience:** Building an urban forest capable of withstanding climate stressors.
- **Sustainability:** Ensuring the long-term health and growth of the canopy.

Current State of the Forest

- **Canopy Cover:** As of 2025, Tecumseh has a total tree canopy cover of **12.1%**.
- **Distribution:** Approximately **90%** of the Town's tree cover is located on private lands, highlighting the critical role of community stewardship.
- **Assets:** The Town directly manages over **9,424 trees** on boulevards, in addition to those in parks.

Key Recommendations & Strategies

The Plan outlines 27 specific recommendations categorized into four strategic themes:

1. Management & Maintenance

- **Proactive Care:** Transitioning to a 7–8 year pruning cycle for street trees and a 10-year cycle for park trees.
- **New Leadership:** Creating a full-time **Town Arborist** position to oversee operations and asset management.

- **Young Tree Health:** Implementing a structural pruning program to ensure newly planted trees survive to maturity.

2. Establishment & Enhancement

- **Planting Targets:** Increasing annual planting to **500+ trees per year**.
- **Right Tree, Right Place, Right Reason:** Adopting standardized species selection and planting specifications to build biodiversity and climate resilience.
- **Naturalization:** Identifying tree and vegetation planting opportunities in public spaces to enhance the urban forest and restore ecological connectivity.

3. Urban Forest Protection

- **Public Tree By-law:** Approving a new by-law to protect and compensate for the loss of municipal tree assets.
- **Construction Safeguards:** Implementing tree protection guidance and processes for building permits and capital projects.

4. Outreach & Stewardship

- **Partnerships:** Strengthening ties with Indigenous Nations, school boards, and local stewardship groups.
- **Public Education:** Enhancing the Town's digital resources to help residents care for trees on private property.

Implementation and Monitoring

The UFNMP is designed for long-term success through a structured approach to tracking progress. The Town will monitor key performance indicators, such as tree survival rates, canopy coverage updates, and service delivery timelines. Regular assessments will allow for adaptive management, ensuring policies and operations are adjusted based on real-world outcomes and environmental shifts.

Implementation is prioritized across three distinct horizons to ensure manageable progress. **Short-term (1-2 years)** priorities focus on foundational policy updates, including the adoption of the Public Tree By-law and the creation of a Town Arborist position.

Medium-term (3-8 years) actions expand operational capacity, such as establishing an in-house maintenance crew and launching cyclical pruning programs. Finally, **Long-term (8+ years)** goals involve large-scale landscape connectivity, land securement for naturalization, and the full consolidation of urban forest operations.

Acknowledgements

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- B Tree Planting & Establishment Specifications and Standard Design Details
 - B.1. Street Trees
 - B.2. Park Trees
 - B.3. Naturalization Projects
- C Monitoring & Maintenance Standards for Naturalization Plantings
- D Tree Protection & Preservation Guidelines, Specifications and Standard Design Details

Land Acknowledgement

We acknowledge that we are on land and surrounded by water, originally inhabited by Indigenous Peoples who have travelled this area since time immemorial. This territory is within the lands honoured by the Wampum Treaties; agreements between the Anishinaabe, Haudenosaunee, Lenni Lenape and allied Nations to peacefully share and care for the resources around the Great Lakes. Specifically, we would like to acknowledge the presence of the Three Fires Confederacy Ojibwe, Odawa, Potawatomi and Huron/Wendat Peoples and Caldwell First Nation. We are dedicated to honouring Indigenous history and culture while remaining committed to moving forward respectfully with all First Nations, Inuit and Métis.

1.0 The Context for Urban Forest Management in Tecumseh

1.1 Introduction



Figure 4 Town of Tecumseh

Situated in the northwest corner of Essex County, the Town of Tecumseh (the “Town”) has a combination of both urban and rural characteristics.

The Town has a total land area of 95.3 km², includes parts of six subwatersheds, and borders five other municipalities: the Municipality of Lakeshore, the Towns of Essex, Amherstburg, LaSalle, and the City of Windsor.

The Town is located in the Carolinian forest zone and includes a variety of natural heritage features including forest and swamp vegetation communities. The majority of the Town’s landscape is rural with urban settlement areas to the north and in the Oldcastle Hamlet and Maidstone Hamlet Areas. The Town has a tree canopy cover area of approximately 11.56 km². This includes 9,424 trees located on Town boulevards of various species, sizes, and ages, as well as trees located in parks, residential properties, forests and hedgerows.

Trees across the Town are all considered part of the *urban forest*. This includes individual trees and wooded natural areas that are located in parks, along roadways, and on residential, industrial, commercial and institutional properties. These trees are living assets that form part of the Town’s *green infrastructure*. These *green infrastructure* assets are critical to supporting community health and well-being, while also

contributing to local climate resilience and biodiversity by filtering air pollution, providing shade, reducing energy use and providing exposure and access to trees and nature for passive recreation, physical and mental health.

Like many other municipalities, the Town's urban forest and natural areas face many pressures including changes in land use, conflicts with infrastructure, *invasive species*, climate change, and pollution. To maintain, enhance, and protect the urban forest under these conditions requires careful planning, effective management, adequate resource allocation, and ongoing cooperation among different Town divisions and between the Town, its residents and other local stakeholders.

This Urban Forest and Naturalization Management Plan (UFNMP) is to provide comprehensive strategic guidance to help Tecumseh effectively manage these challenges over the next two decades.

1.2 Plan Purpose and Contents

The success of Tecumseh's environment is a collective endeavor, with nature flourishing throughout the community. While this plan addresses public green assets, the entire urban forest relies on the actions of residents, neighborhoods, and organizations. Promoting awareness of the urban forest's environmental, social, and economic value allows Tecumseh to flourish as a place where people and nature coexist. Everyone can help create a vibrant, resilient environment, enhancing quality of life and strengthening our natural heritage.

The purpose of this Plan is to review and assess the current management of the Town's urban forest, and to recommend

specific strategies for maintaining, monitoring, and increasing canopy and natural cover, and improving the effectiveness of urban forestry and natural area management.

This Plan and the guidance that frames it has been developed based on information from a review of the Town's current resources and practices, consideration of best practices and precedents in other municipalities, input from key stakeholders and Indigenous rights-holders, and extensive consultation with Town staff.

The Plan includes:

- A Vision
- Pillars
- Themes and associated goals
- Recommendations for advancing urban forestry in Tecumseh

Following an overview of the local context and study rationale, this Plan presents its framework (i.e., vision, pillars, themes and goals) and then outlines recommendations in the following areas:

- Urban forest management and maintenance
- Urban forest establishment and enhancement
- Urban forest protection
- Outreach, stewardship and partnerships

3 | 1.0 The Context for Urban Forest Management in Tecumseh

Each of these areas outlines (a) current practices, (b) feedback gathered during engagement and consultations, (c) established best practices and relevant precedents, and (d) opportunities for improvement prior to listing the related recommended directions with implementation guidance.

In addition to the Plan framework, as outlined above, this Plan has been prepared in parallel with policies and technical guidance tailored to the Town to facilitate plan implementation. Specifically, these are a:

1. Public Tree By-law
2. Species Selection Guide
3. Tree Canopy and Naturalization Policy
4. Ecological Restoration Plan for Fairplay Woods
5. Monitoring and Maintenance Guidelines for Naturalization Plantings
6. Tree Planting and Establishment Specifications and Standard Design Details
7. Tree Protection and Preservation Guidelines, Specifications and Standard Design Details



1.3 Local Context

1.3.1 Biophysical Context: Woodland and Tree Canopy Cover

Canopy cover represents the amount of land area covered by tree and forest canopy as seen from above. It is one of the most common measures of the urban forest, although it does not capture or reflect the composition (e.g., species, ages, etc.) or condition of the trees and shrubs that make up the urban forest, which is also an important measure.

Having a healthy and well-distributed urban forest is broadly recognized as a cornerstone of community sustainability and as one of the best ways to help mitigate and adapt to the ongoing climate change, biodiversity loss, and pollution that threaten community health and well-being. There is no single “optimal” amount of tree canopy cover for all municipalities, as what exists and what is possible varies widely depending on the local biophysical and land use context.

Tecumseh, and much of Essex County, was largely cleared for agriculture centuries ago, with a few wooded natural areas, wetlands and grasslands remaining on the landscape. Today, Tecumseh continues to support extensive agricultural lands interspersed with fragments of woodlands and other natural areas that have persisted or regenerated over time. Although the Town’s current tree canopy and forest cover is relatively low (12.1%), all of the 38 wooded natural areas identified in the Town’s Natural Heritage Inventory completed in 2011 are still on the landscape today except for two of the smallest woodlots,

which is a testament to the good stewardship of the local landowners and the Town over the past fifteen years.



Figure 5 Existing Canopy Cover Within the Municipal Boundary

Currently, the Town's 4.1 km² of wooded areas, amounts to approximately 4% of the Town's land base, which is a notable increase from 2011 when it had 3.4 km² ha of largely wooded natural areas. In addition, recently completed tree canopy analyses identified an additional 7.4 km² of tree cover outside Tecumseh's natural areas for a total tree canopy cover of 12.1% in 2025. As in most of southern Ontario, a minority of that cover is owned and managed by the Town (approximately 8.8%), and the majority is on land outside of the Town direct management responsibility (approximately 90%).

Error! Reference source not found. below provides details on how canopy cover in Tecumseh is distributed by ward, while **Table** details how canopy cover throughout the Town is distributed by land use type.

Table 1: Canopy Cover Distribution by Ward

Ward Number	Total Area of Ward (km ²)		Tree Canopy Cover Area (km ²)	Canopy Coverage in Ward (%)
1	2.24		0.49	21.92%
2	4.11		0.96	23.28%
3	2.86		0.34	11.73%
4	4.35		0.51	11.82%
5	80.61		9.19	11.4%
Total	94.17		11.49	

Table 2: Canopy Cover Distribution by Land Use Type

Land Use Type	Total Area of Land Use Type (km ²)	Tree Canopy Cover Area (km ²)	Canopy Coverage in Land Use (%)
Agricultural	63.28	4.19	6.62%
Business, Commercial, Industrial, Institutional	9.69	0.85	8.80%
Natural Environment & Parks	5.38	3.71	69.06%
Residential	15.45	2.80	18.14%
Utility and Transportation Corridor	1.23	0.11	9.27%
Total	95.03	11.67	

Since the gains in woodland cover since 2011, Tecumseh's woodland cover and overall tree canopy are considered average among comparators in the County (e.g., in 2011 natural area cover in the County ranged from 2.6% in Lakeshore to 11.3% in Amherstburg). However, Tecumseh's canopy cover is lower than other municipalities in southern Ontario which report between 15% and 30%. Notably, the urban forestry recommended for municipal canopy cover is 30% or greater.

Given this context, it is recognized as a key purpose of this Plan to support retention of the existing trees and wooded natural areas in Tecumseh, and to identify and advance a range of strategies for enhancing and expanding the quality and extent of

that tree cover as the Town continues to accommodate growth and development and support a thriving agricultural sector.

1.3.2 Planning Context: Federal, Provincial and Regional

With respect to its land use, natural heritage and urban forest policies, the Town must be consistent with the Provincial Policy Statement, in conformity with the County of Essex Official Plan and adhere to any applicable Federal, Provincial or regional regulations and policies.

There are several environmental acts and regulations that can apply to treed area and other natural areas in the Town, but the primary acts and regulations which direct and inform activities related to wooded natural areas and trees at local scale are as follows:

- The provincial *Planning Act* and related *Provincial Planning Statement* (“PPS”) are the foundations for guiding land-use planning, including planning related to the natural heritage system.
- The *Municipal Act*, which defines the scope of municipal powers, includes the ability to have woodland and/or tree by-laws (Section 135) and a requirement (Section 270.1) for municipalities to adopt a policy which sets out how they will protect and enhance their tree canopy and natural vegetation.
- The *Species Conservation Act* enacts a “registration-first” approach for activities impacting species at risk, including several Carolinian zone tree species listed as Endangered or Threatened.

- The Conservation Authorities Act insofar as it relates to trees and natural areas within lands also identified as natural hazards (e.g., floodplains).

The purpose of the *Planning Act* as stated in Section 1.1 is:

- a) to promote sustainable economic development in a healthy natural environment within the policy and by the means provided under this Act; and
- b) to provide for a land use planning system led by provincial policy.

Furthermore, the first “provincial interest” defined in the *Planning Act* is: Section 2 (a) the protection of ecological systems, including natural areas, features and functions. This includes the urban forest.

In addition, Ontario’s Regulation 588/17 (Asset Management Planning for Municipal Infrastructure) requires municipalities to plan for and track the status of their infrastructure assets, including its *green infrastructure*. Under this act, green infrastructure includes natural heritage features and systems, parklands, street trees, urban forests, and natural channels.

1.3.3 Planning Context: Local

Tecumseh’s current Strategic Plan (2023-2026) includes a mission of: “Working together for sustainable community growth and service delivery to support an exceptional quality of life” and includes a number of actions that are supportive of and aligned with the local objectives for urban forestry and naturalization outlined in the Plan (see **Table** below).

One of the key tools that municipalities have for protecting and regulating activities in their natural heritage systems and urban forests are Official Plans and the Zoning By-laws, enacted under the *Planning Act*.

The Town's Official Plan (2021) includes goals and policies that seek to protect and enhance the quality of life in Tecumseh by, among other things, policies for protecting and enhancing its Natural Heritage System (NHS) and treed assets. These include policies:

- Requiring environmental studies for developments proposed within or adjacent to NHS components
- Not permitting development with lands designated as Natural Environment, and
- Supporting replacement and/or compensation of treed assets in cases where they cannot be protected.

The Official Plan also encourages land stewardship on private lands and commits the Town to stewardship of trees on its lands, including proper woodland management and protection, and the use of native, non-invasive plant species in restoration, enhancement and naturalization projects.

Beyond the Official Plan, the Town has a public tree maintenance and removal policy (Policy 108), and a Commemorative Tree Program Agreement (Policy 106), outlined in more detail in the Urban Forest Protection section.

Table 3: How this Urban Forest and Naturalization Master Plan (UFNMP) supports implementation of the Town's Strategic Plan (2023-2026)

Priority Area in Strategic Plan	Action in Strategic Plan	How this UFNMP helps implement this strategic action
Sustainable Growth	Pursue available infrastructure funding and partnerships.	Funding from the Federal government's "Grow Canada's Community Canopies" program was pursued to help implement this Plan.
	Maintain and update the Town's lifecycle program.	This Plan includes actions to better track and improve the longevity of Town trees and wooded natural areas.
	Continue with energy conservation and climate change adaptation.	Sustaining and enhancing local tree canopy contributes directly to moderating local heat islands, improving air quality, sequestering carbon and helping the community adapt to climate change stressors.
	Prepare for and implement ... sustainable residential, commercial, and industrial growth and community amenities.	Protecting existing natural areas and including tree planting in all new communities, as recommended through this Plan, are key to sustainable, livable communities.
	Maintain and build on the Town's Asset Management Plan.	Trees and natural areas on Town lands are assets and important infrastructure elements. This Plan recommends formal recognition and tracking of these assets.
Community Health and Inclusion	Plan future amenities in public spaces to enhance and build on the existing features to better service the needs of citizens.	This Plan recommends increased tree establishment and naturalization in public spaces.
	Strengthen Indigenous Relations through education, friendship, and amenities.	Development of this Plan included Indigenous engagement, and local Indigenous communities are identified as potential partners for implementation.

Priority Area in Strategic Plan	Action in Strategic Plan	How this UFNMP helps implement this strategic action
	Move forward with climate change adaptation through strategies and infrastructure investment.	This Plan recommends increasing capacity and investment in urban forestry to help improve and expand ongoing tree maintenance and establishment programs and support community and partner actions supportive of growing tree canopy.
Service Experience	Communicate in inclusive, transparent, and collaborative ways.	This Plan, and the related engagement, show how the Town has listened and is working to implement suggested direction and actions.
	Provide meaningful opportunities for public engagement.	
	Work towards continuous improvement in Town operations across all departments.	The principle of adaptative management is embedded in this Plan.

1.4 Study Rationale

The Town is already actively maintaining and replacing trees on Town lands, working with others to protect and restore trees and natural areas, and working to identify and implement opportunities for native species naturalization on public parklands. However, to date this work has been largely reactive and in response to opportunities as they arise.

So why develop an UFNMP now?

Key reasons are related to the following and outlined below:



1.4.1 Advancing Town Strategic Direction

The need for an Urban Forest and Naturalization Management Plan is supported by Council directives. The Town's Strategic Plan (2023-2026) identifies several actions to advance sustainable growth and community health. How these actions are supported by this Plan is outlined in **Table** . In addition, Section 3.14.1 of the Town's Official Plan (2021) promotes expanding the urban forest specifically to mitigate climate change and the Strategic Master Plan for Parks and Recreation Services (2010), recommends conducting a tree canopy study, requiring tree planting in all new development, advancing planning for Fairplay Woods, and advancing

reforestation of parks and along boulevards and trails, which are key components of this Plan.

1.4.2 Growth and Urbanization

The Town currently has a population of just under 25,000 which is expected to increase to over 30,000 by 2030, with most of this growth anticipated within the urban centres. It is in this context that the Town is seeking a formal framework with an established vision, goals and recommended directions to guide and prioritize available resources to ensure tree canopy cover, as well as the health of the urban forest, grows with the community in a sustainable and strategic manner.

1.4.3 Community Support for the Initiative

An Urban Forest and Naturalization Management Plan has been sought by local environmental advocates for many years. This Plan has been developed in close collaboration with Town staff and incorporates and addresses the feedback received through engagement with local First Nations, stakeholders and other members of the community.

While this Plan is primarily intended to guide the Town's activities on its own lands, it is also intended to be a resource for local stakeholders, partners and the community.

1.4.4 Services Provided by the Urban Forest

The value of trees in urban and urbanizing settings is well-documented, and includes important environmental, economic and community services and benefits. The urban forest serves as a vital component of public health infrastructure, providing tangible physical and psychological benefits to the community. Well-documented examples are as follows.

- Trees play a critical role in disease prevention by filtering air pollution to improve local air quality (Nowak et al., 2014) and creating shade that mitigates the urban heat island effect (Yin et al., 2024; Schwaab et al., 2021), lowering the risks of heat stroke (Kilbourne 1982) and skin cancer caused by ultraviolet radiation (Toronto Cancer Prevention Coalition 2010).
- Access to treed areas promotes mental well-being by reducing stress levels, lowering blood pressure, and accelerating recovery times for those healing from surgery (Shin et al., 2013; Park et al., 2011; Morita et al., 2007; Ohtsuka et al., 1998; Ulrich 1984).
- Urban forests foster social cohesion and safety; they are linked to reduced aggressive behavior (Joung et al., 2015) and increased positive social interaction, while simultaneously encouraging physical activity and outdoor play among residents of all ages.

Cumulatively, these benefits contribute to community sustainability. While some benefits cannot be easily measured or assigned a monetary value, recent research has developed standard methods for quantifying some environmental benefits to illustrate the value of trees in terms of the green infrastructure services they provide. Although such a study has yet to be completed for Tecumseh, urban forest studies conducted in other municipalities have estimated that trees provide environmental services annually valued in the millions for air pollution removal and residential energy savings alone (e.g., Town of Oakville 2006; Port Colborne 2024).



1.4.5 Climate Change Mitigation and Adaptation

Urban forests function as essential green infrastructure that simultaneously mitigates the causes of climate change and helps communities adapt to its impact.

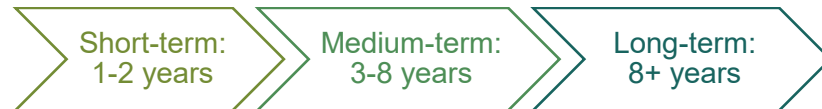
- Trees actively combat climate change by removing atmospheric carbon and sequestering it in their biomass, serving as a practical and cost-effective method for reducing greenhouse gas emissions.
- The urban canopy moderates the local climate by mitigating the *urban heat island effect* through shading and evapotranspiration; this cooling effect not only protects residents from extreme heat but also significantly lowers the energy consumption required for heating and cooling buildings, thereby reducing the emissions associated with energy production.
- Urban forests bolster resilience against extreme weather events by intercepting rainfall and improving soil water storage, which reduces stormwater runoff and alleviates pressure on municipal sewer systems during floods.
- Finally, integrating trees into the urban landscape protects "*grey*" infrastructure, such as extending the service life of asphalt by moderating surface temperatures, while biologically diverse plantings ensure the forest itself remains resilient to climate-induced stressors like drought and pests.



2.0 Setting the Direction: Vision, Pillars and Goals

The timeframe for this Plan spans 20 years because trees are a long-lived resource, and this span is considered a realistic timeline during which the vision and goals can be advanced and realized. The recommendations in this Plan are expected to translate into immediate changes and inform day-to-day urban forest management policies and operations through three implementation phases, as well as annual work plans developed by Town staff.

This document lays out suggested priorities for this long-term framework focusing on the first decade by associating each recommendation with one of the following implementation phases, with the understanding that some priorities may need to be adjusted in response to available resourcing and / or other changes in the local context.



The following vision, guiding principles, goals, and recommendations have been informed by consultations with Town staff, First Nations, and members of the community. These have also been developed with careful consideration for best practices and for Tecumseh's unique environmental and social context. The themes that run through these statements are intended to be realized through the implementation of the recommendations laid out in this Plan.

2.1 Vision

Tecumseh nurtures a resilient and flourishing urban forest by recognizing trees and natural areas as shared community assets, guiding decisions with knowledge and adaptability, and strengthening the connection between people and the natural environment that enriches their lives.

2.2 Pillars

The following five principles are pillars of urban forestry that will guide the implementation of this Plan over the long term.



Shared Stewardship

1. The Town values the urban forest as a collective resource, cared for by residents, staff, and partners who help sustain Tecumseh's natural heritage.



Green Infrastructure Excellence

The Town treats trees and natural areas as essential infrastructure that supports ecological resilience, climate adaptation, and community well-being.



Knowledge Driven

The Town makes informed decisions grounded in strong data and flexible approaches that respond to changing environmental conditions.



Protect and Grow the Canopy

The Town safeguards existing trees and plants wisely for the future, ensuring the right tree thrives in the right place for the right reasons to strengthen long-term canopy cover.



Community Connection

The Town cultivates meaningful connections between people and nature, enhancing public spaces, cultural identity and a sense of belonging.

2.3 Themes and Goals

Tecumseh's vision for its urban forest will be realized through the pursuit and achievement of this Plan's seven goals. Each

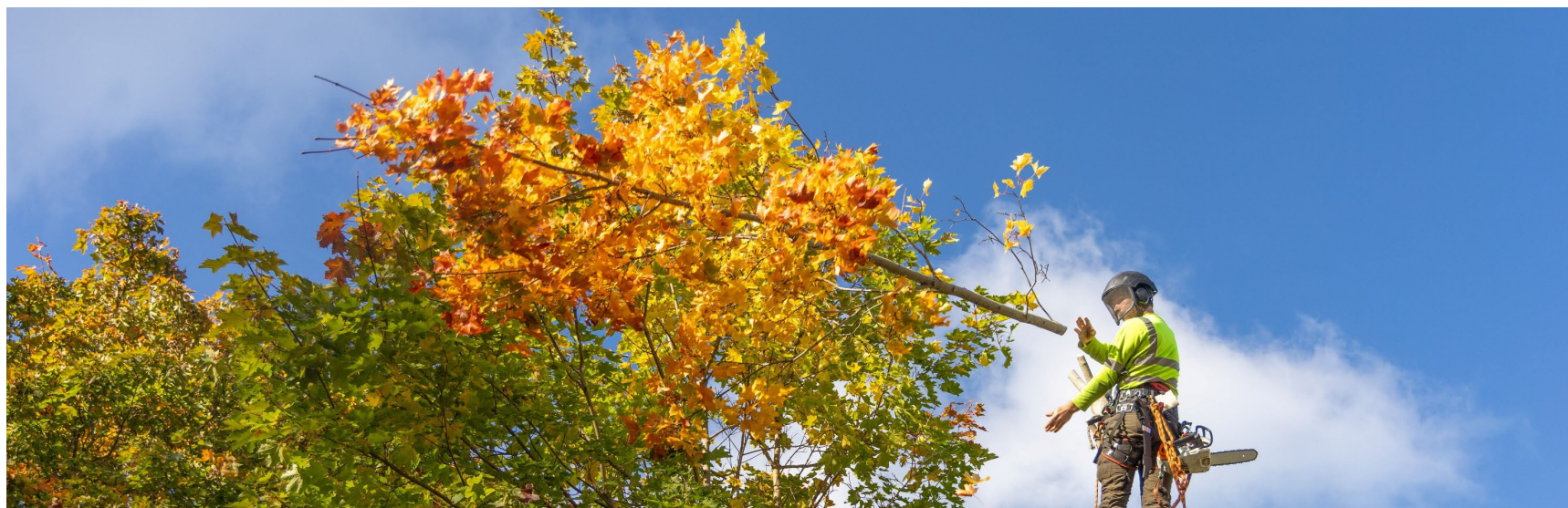
goal is related to an urban forestry theme identified through consultation with the Town. The goals of this Plan include:

Urban Forestry Theme	Goal
Urban Forest Management & Maintenance	Transition from Reactive to Proactive Urban Forest Management: Shift the Town's operational paradigm from reactive maintenance to a cyclical, proactive and adaptive approach to improve urban forest health, protect public safety, and increase the provision of urban forest services and benefits.
Urban Forest Establishment & Enhancement	Improve Naturalization and Ecological Connectivity: Prioritize the restoration of natural areas and identify opportunities to "turn off the mowers" in parks to create naturalized areas with native species to support ecosystem functions and seek to connect fragmented natural areas. Improve tree establishment, restoration and naturalization practices: to build resilience to climate change, pollution, and biodiversity loss (including consideration for soil conditions, species selection and post-planting maintenance). Strengthen Urban Forest Establishment Policies: Implement technical specifications and design details, guidelines, and policies to ensure consistent and effective tree planting and establishment.
Urban Forest Protection	Strengthen Urban Forest Protection Policies and Practices: Develop and implement technical specifications and design details to ensure consistent and effective implementation of tree protection on Town lands.
Outreach, Stewardship and Partnerships	Undertake Collaborative Outreach and Stewardship: Explore and implement opportunities for joint stewardship with Indigenous Nations and the broader community to share learnings about and help manage the urban forest and local natural heritage.

Recommendations are the steps that should be taken to achieve strategic goals. Recommendations of the Plan include:

Urban Forestry Theme	Goal	Recommendation
Urban Forest Management & Maintenance	Transition from Reactive to Proactive Urban Forest Management	• Create a new full-time “Town Arborist” position • Establish an in-house tree maintenance crew • Consolidate urban forest maintenance operations under a single civic division. • Adopt Levels of Service (LoS) standards for core urban forestry operations • Enhance maintenance of newly planted Town trees • Establish a cyclical tree pruning program. • Develop pruning specifications • Integrate urban forestry assets with the Town’s asset management system(s). • Expand and maintain the urban forest asset inventory. • Undertake proactive tree risk management and monitoring in natural areas. • Undertake proactive tree risk management and monitoring along streets and in parks. • Enhance urban forest pest, disease, and invasive species management.
	Improve Naturalization and Ecological Connectivity	• Develop a program and associated criteria to support the securement of lands suitable for naturalization.
	Improve tree establishment, restoration and naturalization practices	• Approve and implement the new monitoring and maintenance standards for naturalization plantings.
Urban Forest Establishment & Enhancement	Standardize Urban Forest Establishment	• Approve and implement the new tree planting/ establishment specifications and standard design details for Town street trees, park trees, and naturalization projects. • Approve and implement the new Tree Canopy & Natural Vegetation Policy. • Develop urban forest-related design guidelines for private projects. • Approve and implement the new tree replacement and woodland compensation/ replacement guidelines and associated protocols.

Urban Forestry Theme	Goal	Recommendation
Urban Forest Protection	Standardize Urban Forest Tree Protection	• Improve the current planning, capital project and Building Permit review procedures to provide more opportunities for protecting and enhancing the urban forest. • Improve on-site tree protection monitoring
	Formalize Governance through Public Policy and Education	• Approve and implement the new Public Tree By-Law • Approve and implement the new tree protection specifications and standard design details
Outreach, Stewardship, and Partnerships	Undertake Collaborative Outreach and Stewardship	• Formalize existing and develop new community programs • Enhance existing, and develop new, urban forest educational and outreach materials and programs • Support and pursue urban forest partnerships





3.0 Urban Forest Management & Maintenance

3.1 Key Issues

Forestry services fall under the Community and Recreation Services branch of the Town. The Town employs a Manager of Parks and Horticulture and two working arborists but does not currently have a “forestry department” *per se*, which is typical of municipalities of this size. As a result, tree maintenance and emergency operations are often contracted externally.

The Town of Tecumseh manages and maintains publicly owned street and park trees to enhance tree health and longevity, manage tree-related risk to persons and property at an acceptable level, monitor and control urban forest pests and diseases within acceptable thresholds, and support the provision of valuable urban forest services and benefits to the community.

Typical municipal urban forestry operations include tree inspection, tree pruning (i.e., selective removal of branches), tree removal and stump grinding, and pest or disease monitoring and treatment. In many municipalities, urban forestry operations are undertaken in a hybrid reactive/proactive approach, where trees may be inspected and maintained in response to service requests or on a

planned, cyclical basis. In smaller communities, tree management tends to be more reactive in nature and more operations are undertaken by external contractors under the direction of a municipal contract administrator.

3.2 Current Practices in Tecumseh

3.2.1 Program Delivery

Tecumseh’s urban forest management program is primarily delivered by the Parks and Horticulture division of the Community and Recreation Services department. In addition to overseeing general turfgrass and horticultural maintenance, the divisional Manager is responsible for tree maintenance in Town parks and has been delegated responsibility for trees in the municipal road right-of-way, which is otherwise the purview of the Public Works and Engineering Services department.

Parks and Horticulture operations are delivered by a crew of four (4) full-time and five (5) seasonal staff, as well as up to sixteen (16) summer students. Divisional staff occasionally undertake basic tree work, but most street and park tree maintenance is completed by Town contractors. Public Works staff support emergency storm cleanup work and occasionally conduct elevation and clearance pruning in the right-of-way.

3.2.2 Tree Maintenance

At present, public tree maintenance in Tecumseh is not completed on a planned or proactive basis, such as on a multi-year pruning cycle. There is also currently no proactive young tree structural pruning program in place for newly planted trees.

Most public tree maintenance in Tecumseh is undertaken on a reactive basis, typically in response to externally initiated customer service requests. Where required, prioritized work orders are generated following tree inspection undertaken by the divisional Manager or, in some cases, a contractor. Service requests are managed using the Town's *Cityworks* asset management system (AMS) and batched work orders are completed by qualified tree service contractors on a competitive pricing basis. Town staff report that the tree inspection and maintenance backlog is generally manageable and that there is not a significant number of outstanding work orders. Emergency work orders are also typically completed by contractors on an as-needed basis.

In addition to response-based operations, tree pruning is also required to maintain electric utility line clearance and is conducted by Essex Powerlines (the local electrical utility provider). The Town is not generally advised of Essex Powerlines' line clearing pruning schedule or about completed work, and it is noted that utility pruning primarily focuses on maintaining line clearance to the occasional detriment of tree structure or condition.

3.2.3 Levels of Service

Urban forest maintenance is guided by Town Policy No. 108 – Tree Maintenance and Removal. This policy outlines procedural guidance for tree planting, pruning, removal and replacement, emergency management, and other urban forestry operations. This policy requires the application of “best management practices” for tree pruning and that pruning be undertaken by or, at minimum, under the direction of an International Society of Arboriculture (ISA) Certified Arborist.

The Town's 2024 Asset Management Plan (AMP) establishes basic Community and Technical Levels of Service (LoS) for the Town's tree assets. These include, among others, replacement and tree planting targets, tree condition, and an “as requested, and required” tree pruning frequency. However, these LoS do not provide guidance for ‘on-the-ground’ operations, instead addressing higher-level urban forestry objectives and focusing largely on tree establishment or replacement.

Notwithstanding Policy 108 and the AMP, the Town has not adopted divisional LoS standards for core urban forest maintenance operations. While service requests received by the Town are required to be initially inspected within 30 days of receipt, forestry work orders are prioritized based on the divisional Manager's assessment and dispatched to contractors in batches.

3.2.4 Asset Management

The Town maintains a geospatial inventory database of approximately 9,400 public trees and new trees are added to the inventory when planted. The database is not currently integrated with *Cityworks* AMS to track service requests and generate work orders tied to individual assets or regularly maintained to track tree maintenance history or removals.

3.2.5 Natural Areas

The Town's ownership of wooded natural areas is limited to Fairplay Woods. Woodland tree management by the Town is currently primarily focused on reactive management in response to observed conditions, such as risk or significant pest or disease infestation.

3.2.6 Risk Management

Currently, Town-owned trees are inspected in response to externally initiated service requests by the Manager of Parks and Horticulture, who maintains ISA Tree Risk Assessment Qualification (TRAQ) and undertakes an informal risk assessment as part of each inspection. This tree risk assessment considers the likelihood of whole-tree or tree part failure and target impact and the potential consequences to derive a tree risk rating and inform maintenance prioritization, and trees posing elevated levels of risk are prioritized for management. Priority tree risk is managed through tree pruning or removal and structural support methods such as cabling and bracing are not currently implemented by the Town or its contractors.

3.2.7 Urban Forest Health

3.2.7.1 Tree Pests and Diseases

Tree pest and disease management in Tecumseh's urban forest may be undertaken reactively in response to service requests or observed conditions.

Recently, oak trees in Lacasse Park experienced a spongy moth (*Lymantria dispar*) infestation, resulting in extensive defoliation. In this case, the infestation was monitored and allowed to resolve naturally with no tree loss, lending support to the Town's generally non-interventionalist approach to pest management if criteria for active management are not met.

The Town has not recently implemented any concerted management programs for specific urban forest pest or disease threats and does not actively undertake detection or population monitoring efforts. However, staff and contractors generally maintain awareness of the signs and symptoms of priority pests and diseases, which is essential for effective rapid response. More concerted efforts may be required in the advent of priority pest or disease threats such as Asian longhorned beetle (*Anoplophora glabripennis*) or oak wilt (*Bretziella fagacearum*), among others. A detailed vulnerability assessment of Tecumseh's inventoried public tree population is presented in **Table**.

3.2.7.2 Invasive Species

The Town has recently undertaken *Phragmites* control in the stormwater management channel of 26-hectare (65-acre) Lakewood Park and has contracted some giant hogweed (*Heracleum mantegazzianum*) and wild parsnip (*Pastinaca*

sativa). However, these invasive plants are primarily associated with wetlands, and their management is generally considered outside the scope of urban forest management and is primarily undertaken to protect infrastructure or human health and safety. The Town does not generally manage other invasive plant species in Town parks or natural areas, and, at present, there is no assessment, inventory, or mapping of invasive plant species in place in Tecumseh. However, management of invasive plant species in Fairplay Woods is being advanced as part of this UFNMP and should be encouraged on private lands in the Tecumseh.

3.3 Consultation Input

Town staff responsible for the coordination of Tecumseh's urban forest maintenance operations reported that the current reactive approaches adequately address priority tree maintenance needs, as evidenced by the limited tree inspection and maintenance backlog. Staff also reported consistently high quality of work performed by the Town's tree maintenance contractors.

However, staff acknowledged the benefits of gradually integrating a more proactive approach to tree inspection and maintenance, particularly for improved risk and pest and disease management. They also identified the absence of a young tree structural pruning program as a key operational gap as newly planted trees are currently not pruned to develop good long-term structure, which may contribute to reduced tree health conditions and increased risk levels in the future.

Town staff also recognized the value of improved coordination of existing tree pruning operations, establishment of divisional

Levels of Service standards for core maintenance operations, and the addition of a working arborist position to conduct proactive tree inspection, pruning, pest and disease monitoring and management, and other important maintenance activities.



Table 4: Town of Tecumseh Inventoried Tree Population Priority Urban Forest Pest and Disease Vulnerability Assessment

Pest/disease	Type	Status	Severity (Effects)	Trees at risk
Asian longhorned beetle (ALHB, <i>Anoplophora glabripennis</i>)	Wood-boring insect	Eradicated from Ontario (maintain awareness)	High (extensive mortality)	3,542 (37.6%)
Emerald ash borer (EAB, <i>Agrillus planipennis</i>)	Wood-boring insect	Established in Ontario	High (extensive mortality)	39 (>1%)
Dutch elm disease (DED, <i>Ophiostoma</i> sp.)	Fungal disease	Established in Ontario	High (extensive mortality)	233 (2.5%)
Oak wilt (<i>Bretziella fagacearum</i>)	Fungal disease	Detected but not established in Ontario	High (extensive mortality)	399 (4.2%)
Beech bark disease (<i>Cryptococcus fagisuga</i> and <i>Neonectria faginata</i> complex)	Fungal disease and insect complex	Established in Ontario	High (widespread mortality)	66 (>1%)
Hemlock woolly adelgid (HWA, <i>Adelges tsugae</i>)	Aphid-like insect	Detected but not established in Ontario	High (extensive mortality)	4 (>1%)
Spongy moth (<i>Lymantria dispar</i>)	Defoliating insect	Established in Ontario	Moderate-High (widespread mortality with repeat infestations)	3,724 (39.5%)
Spotted lanternfly (<i>Lycorma delicatula</i>)	Planthopper insect	Detected but not established in Ontario	Moderate (mortality of preferred hosts, weakening of trees, agricultural impacts)	3,542 (37.6%)

3.4 Best Management Practices

3.4.1 Program Administration

Due to significant differences in governing legislation, organizational structures, available resources, resident needs and values, and other factors, it is difficult to identify definitive best practices for urban forest program organizational structure and administration. In most municipalities, urban forest management is provided under a joint, service delivery model, whereby urban forestry operations are undertaken by both in-house (municipal) staff and contractors.

A key driver of urban forest management success is interdepartmental coordination. Some municipalities have established urban forest working groups or teams to bring together staff from various departments on a scheduled or project-specific basis. Common issues for consideration include capital project planning, joint review of applicable policies and standards, collaborative program delivery, and increasing the 'tree friendliness' of municipal operations.

To facilitate collaboration, the City of Brampton established the 'Green City Working Team' composed of urban forestry, environmental planning, and other staff, which meets regularly to review tree-related aspects of planning applications and to develop effective urban forest policies, programs, and standards.

3.4.2 Tree Maintenance

Optimally, established trees in the urban forest should be maintained on a proactive basis, whereby tree inspection and/or pruning is undertaken in a planned, systematic, and repeated manner. While a 4- to 5-year cycle is commonly cited as a best practice, it is recognized that resource constraints may preclude this level of maintenance frequency. Sisinni *et al.* (1995) identify 10 years as the maximum effective cycle length.

Where tree maintenance operations are primarily undertaken by contractors, high-quality specifications supported by inspection and verification of work performance can protect tree health and condition. All contractors should have industry standard qualifications. York Region developed its own comprehensive tree pruning specifications based on the ANSI A300 standard. These specifications form part of the Region's tree pruning contracts and contractor performance and compliance with the specifications are audited by staff foresters.

Where urban forest maintenance is primarily reactive, programs should be supported by an effective service request and work order management system that is integrated with the tree inventory, clear criteria and Levels of Service to support work prioritization and completion, and effective communications with residents about expected service delivery outcomes.

Proactive young tree structural pruning is among the most cost-efficient and effective arboricultural practices to promote tree health, condition, risk management, and long-term performance. Early interventions to develop good long-term tree structure, such as well-spaced branches and central leaders, can significantly reduce future maintenance needs and lower incidence of future branch and tree failure, thereby reducing risk.

Young trees should be inspected and, if necessary, pruned approximately three (3) times within 10 years of planting (a “3-in-10” cycle). Ideally, structural pruning should continue until trees reach mature stature, albeit at a lower frequency than in the earlier years of the structural pruning program. In Red Deer, AB, staff undertake the Structural Tree Pruning Program (STPP) for young trees, which involves pruning every 2 to 5 years until good tree structure is developed. The STPP is informed by previous years’ planting lists and prioritizes trees in high-traffic and occupancy areas due to program resource constraints.

Coordination of tree pruning with local public utilities can mitigate excessive pruning, reduce maintenance costs, and promote tree health. In Oakville, the local utility (Oakville Hydro) contracts the Town’s Urban Forestry Services division to conduct utility pruning on a three-year cycle, thereby avoiding duplication of effort, reducing overall pruning dose, and promoting high-quality pruning that balances utility clearance with concerns for tree health and condition.

3.4.3 Service Level Standards

Establishing departmental Level of Service (LoS) standards for core urban forestry operations provides guidance for program resourcing and implementation, sets benchmarks for expected performance, and helps manage customer service expectations. Pragmatic LoS standards also support risk management by establishing guidelines for maintenance prioritization. Recommended LoS for urban forestry operations are outlined in the following section (see **Table**).

3.4.4 Asset Management

In the context of urban forestry, asset management is closely related to service requests, work order, and inventory management, and is facilitated by integrating asset information (e.g., tree inventory) and work order systems. Using data to track work order history, maintenance costs, and asset lifecycles provides the information necessary to identify program delivery gaps, develop budgets and work plans, and monitor the ‘state of the infrastructure’.

York Region has included street trees and other urban forest assets (e.g., growing media) in its Green Infrastructure Asset Management Plan. The plan reports on the state and value of the infrastructure assets, outlines levels of service, asset management and financing strategies, and establishes measures for continuous improvement. The plan has helped to secure an additional \$0.5 million in annual capital funding and improvements in data collection and management processes for urban forestry assets.

3.4.5 Natural Areas

Unless guided by site-specific management plans, tree maintenance in natural areas is typically undertaken on a reactive or as-needed basis. However, periodic visual tree risk assessment and mitigation within 1.5x potential tip-out distance of wooded edges (where forests abut other land uses, including potentially ‘high-target’ areas such as residential properties or roadways) and along sanctioned trails has been established as a best practice by some municipalities. A periodic Level 1 ‘walk-by’ inspection cycle, scheduled according to factors such as site use intensity, is considered optimal for such sites. The City of Mississauga has undertaken a visual assessment and inventory of trees within potential tip-out distance of all City-managed woodlands abutting prioritized land uses, such as roads and residential and commercial properties.



3.4.6 Risk Management and Monitoring

The potential for risk must be accepted to experience the benefits that trees provide, and risk cannot be eliminated entirely from the urban forest due to the proximity between trees, property, and people. Key elements of an effective municipal tree risk management program include:

- An up-to-date tree inventory with adequate attributes to inform maintenance planning and risk management,
- Proactive tree maintenance at an appropriate frequency relative to site conditions,
- Inspection of priority trees by qualified risk assessors on both a proactive and reactive basis,
- Young tree structural pruning to develop good tree structure,
- Effective urban forest pest and disease management to promote tree health and identify potential stressors, and
- A lifecycle asset management approach to track maintenance history helps identify species or population-level risk trends, and document inspections.

In many cases, tree risk can be managed and mitigated to an acceptable level without necessitating tree removal. Conservation-oriented approaches to risk mitigation include crown or limb reduction pruning, cabling, bracing, and target-based management such as signage, relocation, restriction, or exclusion.

3.4.7 Urban Forest Health

The Invasive Species Centre, the Ontario Invasive Plant Council, and Ontario's Invading Species Awareness Program provide accessible resources to help members of the public identify and report urban forest pests, diseases, and invasive species. Members of the public can also use online resources such as EDDMapS and the iNaturalist app to report suspected and confirmed sightings of priority urban forest health threats.

3.4.7.1 Pests and Diseases

Integrated Pest Management (IPM) is a common term to describe a variety of complementary treatments to manage and mitigate the effects of pests and diseases. Key elements of an effective IPM approach for urban forestry include:

- Maintaining and enhancing knowledge of existing and potential pest and disease threats,
- Preventing establishment through efforts such as early detection and rapid response (EDRR)
- Enhancing resilience through urban forest diversity,
- Promoting tree health and vitality,
- Determining acceptable levels of infestation and establishing thresholds for action,
- Employing appropriate control measures, including mechanical, chemical, and biological methods,
- Promoting public awareness and action,
- Engaging with appropriate regulatory and program partners.

Establishing rapid response plans for the highest-priority threats, such as Asian longhorned beetle and oak wilt, can help ensure effective response to contain and mitigate the damage posed by these threats.

3.4.7.2 Invasive Species

Invasive plant species can be notoriously difficult to manage, and few municipalities have developed or undertaken comprehensive invasive management strategies. Such strategies commonly advocate a targeted approach that prioritizes high value or sensitive natural areas or areas that are not highly invaded and where there is a higher likelihood of successful management. Elements of successful invasive species management programs include:

- Prioritizing invasive species that pose the greatest threats to native vegetation and ecological function,
- Educating landowners about the potential threat posed by non-native species and encouraging responsible plant selection and private land stewardship,
- Identification of safe and easily understood management techniques that can be implemented by volunteers (under municipal coordination),
- Implementation of targeted invasive species controls for the priority species and areas identified,
- Development of cooperative initiatives adjacent municipalities and other local agencies and partners, and
- Sustained and adequate resourcing for multi-year control programs, where required.

In 2022 Credit Valley Conservation (CVC) launched the Nature Invaders Scavenger Hunt program to encourage landowners to look for invasive plants and submit findings through the iNaturalist app. The goal of the program is to raise awareness of invasive species, help landowners identify common invasive plants on their properties, and provide landowners with resources to control and remove invasive plants.

Richmond Hill engages residents in invasive species pulls through its Community Stewardship Program (CSP). Waterloo's volunteer Pollinator Working Group undertakes invasive species removal projects such as buckthorn pulls. Engagement opportunities are posted on the Citywide online events calendar where interested volunteers can register to participate.

3.5 Opportunities for Improvement

3.5.1 Program Delivery

The existing urban forest administrative and program delivery structure is generally effective for the Town's current reactive approach to public tree management but could be further enhanced to align with best practices for a more proactive management paradigm.

To support more effective program delivery, the Town should transition urban forestry operations into a forestry division within the Parks and Horticulture section, with formalized responsibility for program planning, budgeting, and delivery. Currently, responsibility for street and park tree maintenance technically rests with the Public Works department and

Community and Recreation Services department, with resources allocated from the former to the latter to support contracted street tree maintenance. "Rehoming" urban forest maintenance (and establishment) programs to a single division supported by a dedicated urban forestry program budget would likely streamline program planning, facilitate implementation, and enhance effectiveness and efficiency.

3.5.2 Tree Maintenance

The Town's current reactive tree maintenance approach reflects the operational reality of a division with limited staffing, equipment, and resources, and the low service request backlog reflects the skill and dedication of a lean but effective team. However, a reactive tree maintenance paradigm can pose significant challenges in the form of increased per-tree inspection and maintenance costs, higher levels of tree risk, worse tree health outcomes, and less predictable operational planning. Enacting a gradual transition towards a mixed proactive/reactive management paradigm, whereby priority trees (e.g., large street trees, newly planted trees) are inspected and pruned proactively while maintaining capacity for timely inspection and prioritized work order completion. This transition could need to be supported through a gradual increase in resources and capacity to equip an in-house tree maintenance crew and a dedicated urban forestry technician (tree inspector) position.

In addition to routine maintenance pruning and non-technical tree removals, young tree structural pruning can also be undertaken efficiently by an in-house forestry crew. Under a 'best practices' structural pruning program, young trees should

be inspected and, if necessary, pruned at least three times within the first 10 years following planting, with pruning focused on developing strong central leaders, stem taper, and appropriate branch spacing, and mitigating co-dominant unions.

3.5.3 Levels of Service

Levels of service (LoS) standards define the types of operations a municipality delivers and establishes metrics for quality and timeliness of service delivery. Formalized LoS would facilitate communication of expected outcomes and timelines to residents, establish benchmarks against which performance can be measured and improvements tracked, and provide the basis for forecasting lifecycle management costs and allocating adequate and sustained resources for program delivery. Accordingly, the Town should establish more specific and pragmatic LoS standards for key urban forest maintenance operations such as tree inspection, prioritized pruning and removal, and stumping, among others. Current LoS standards appropriate for the scope and scale of urban forest management in Tecumseh are outlined in **Table**.

3.5.4 Asset Management

Bidirectional integration of the Town's geospatial tree inventory with its *Cityworks* asset management system (AMS) would ensure that the Town's tree inventory remains up to date, reflecting the status of its urban forestry assets. It would also facilitate and inform data-driven tree maintenance program planning, identify long-term tree maintenance needs and tree health and condition trends, enhance tree risk management and monitoring, improve operational efficiency and customer

service, and support performance analysis, reporting, and lifecycle budgeting. This improvement would leverage the full potential of Tecumseh's existing AMS as an integrated tree inventory, service request, and work order management tool.

3.5.5 Natural Areas

Due to the limited extent of ownership by the Town of public natural areas, there is minimal scope for significant improvement to tree maintenance practices in woodlands. However, a regular program of periodic tree inspection would support more effective tree risk management and urban forest health (pest, disease, and invasive species) monitoring and management.

Table 5: Level of Service Standards for Key Municipal Urban Forest Maintenance Operations

Forestry Maintenance Operation	Target Level of Service (LoS)
Tree Inspection	Standard: 30 days Emergency: 24 hours
Pruning or Removal (reactive, based on ISA BMP risk rating)	Low/Mod.: 6 months High/Extreme: 24 hours
Pruning (cyclical)	Street trees: 7-8 years Park trees: 10 years
Stump removal	6 months
Asset inventory update (after maintenance/removal)	5 days

3.5.6 Risk Management

Reactive, response-based tree risk management can increase municipal liability exposure as indicators of tree structural problems may remain undetected. Reactive risk management programs are typically less efficient, as emergency work is typically more costly than proactive inspection and maintenance, and can contribute to uneven levels of service delivery, inconsistent risk assessments, reduced long-term tree condition, and overly cautious management which favours tree removal instead of more conservation-focused approaches.

Transitioning to a more proactive approach to tree risk management will help to promote a safer and more structurally diverse urban forest over time. Proactive risk management actions can include periodic “windshield survey” visual assessments of all Town-managed street and park trees and more frequent and detailed assessments in priority areas such as along public trails, in high-traffic zones, or in areas with large and older trees; integration of tree risk ratings into future tree inventory updates; and conservation-focused approaches such as advanced assessments, cabling, bracing, and crown reduction pruning for trees with high conservation values. Integrating tree risk ratings with targeted Levels of Service (see **Table**) can also support more effective and consistent tree risk management.

3.5.7 Urban Forest Health

3.5.7.1 Pests and Diseases

Due to the relatively limited potential impact of currently established urban forest pests and diseases on Tecumseh’s

public urban forest, the Town’s current approach to managing these threats has been largely effective in mitigating impacts to tree health and condition.

However, as shown in **Table** , at least two priority urban forest pests threaten nearly 40% of the Town’s tree inventory. The ever-present threat of emerging pest and disease threats to both Town-owned and private trees means that Town urban forestry staff and contractors should maintain situational awareness about pest and disease detections and populations through sources such as the Canadian Food Inspection Agency (CFIA), the Invasive Species Centre, and the Ontario Invading Species Awareness Program. In addition, other outdoor Town staff should be provided with basic training on the identification of priority threats and encouraged to maintain vigilance and report suspected infestations to support rapid response.

The Town should also develop rapid response plans for priority threats, including identifying response partners, resource requirements, and initial response efforts. Key elements of these response plans for selected priority pests and diseases are outlined in **Table** .

3.5.7.2 Invasive Species

Directions and opportunities for improvement for invasive plant species management on Town lands are presented in the Canopy Improvement & Naturalization Strategy (see **Section 8.0**).

Table 6: Rapid Response Plan Elements for Priority Urban Forest Pests and Diseases

Pest/Disease	Management Goal	Key Partners¹	Urgency	Priority Actions
Asian longhorned beetle	Eradication or containment	CFIA, MNRF, CAs, industry, public	Very High	Surveys; tree removal and disposal; quarantine; public awareness; tree replacement
Oak wilt	Containment, minimize spread	CFIA, MNRF, CAs, public	Very High	Surveys; tree removal and disposal; quarantine; public awareness; tree replacement
Spotted lanternfly	Prevention, early detection, rapid control	CFIA, MNRF, OMAFRA, industry, public	High	Surveillance; localized control; public awareness
Hemlock woolly adelgid	Slow spread, protect high-value trees	CFIA, MNRF, CAs	Moderate to High	Stand monitoring; tree treatment
Dutch elm disease	Containment, minimize spread	Municipal	Moderate (local)	Individual tree management; routine surveying

Notes:

1 – CFIA: Canadian Food Inspection Agency, MNRF: Ontario Ministry of Natural Resources and Forestry, OMAFRA: Ontario Ministry of Agriculture, Food and Agribusiness, CAs: Conservation Authorities

3.6 Recommendations

Implementation note: Short-term = 1 to 2 years; Medium-term = 3 to 8 years; Long-term = over 8 years

Urban Forest Management & Maintenance Recommendations		Implementation	Guidance
Program Delivery and Tree Maintenance			
1	Create a new full-time “Town Arborist” position	Short-term	Create a new “Town Arborist” position in the Parks and Horticulture division of the Community and Recreation Services department to coordinate and oversee the full range of urban forestry operations (e.g., tree inspections and monitoring, inventory and asset management, young tree structural pruning, implementation of the new Public Tree By-law, and adherence to Town standards and specifications).
2	Establish an in-house tree maintenance crew	Medium-term	Create an in-house tree maintenance crew with the necessary equipment to undertake core maintenance of Town trees (e.g., proactive/cyclical street and park tree inspections, maintenance pruning, removals, and pest and disease management). The work completed by this crew is to be supplemented by contractors as needed to complete selected service requests.
3	Consolidate urban forest maintenance operations under a single division	Long-term	Consolidate responsibility for urban forest program administration, including all public tree maintenance operations, to a forestry section within the Parks and Horticulture division to streamline activities and coordination. Allocate adequate resources (e.g., operating budgets, capital equipment, etc.) to fulfil program objectives for reactive and proactive public tree maintenance and other core operations in accordance with the UFNMP.
4	Adopt Levels of Service (LoS) standards for core urban forestry operations	Medium-term	Establish recommended Levels of Service standards for core urban forestry operations including, at minimum, tree inspection, tree pruning (reactive and cyclical), tree removal, stump removal, and asset inventory updating.
5	Develop tree pruning specifications	Short-term	Develop high-quality tree pruning contract specifications based on ANSI A300 Tree Care Standards - Clause 5: Pruning and International Society of

Urban Forest Management & Maintenance Recommendations		Implementation	Guidance
			Arboriculture (ISA) Best Management Practices - Pruning (3rd edition, 2017 or most current).
6	Enhance maintenance of newly planted Town trees	Short-term to Medium-term	Short-term: Ensure adequate post-planting maintenance (e.g., watering, seasonal staff/students) to sustain current levels of tree watering as more trees are planted each year. Medium-term: Use the new in-house tree maintenance crew (see Recommendation #2) to implement a Young Tree Structural Pruning program with a target '3-in-10' (i.e., 3 inspections/pruning rounds in 10 years following planting) service level.
7	Establish a cyclical tree pruning program	Medium-term to Long-term	Medium-term Establish a 7- to 8-year street tree maintenance cycle. Combine inventory updating with annual pruning. Long-term: Establish a park tree pruning cycle (target LoS 10 years) for actively managed park areas.
Tree Inventory and Asset Management			
8	Integrate urban forestry assets with the Town's asset management systems	Short-term	Expedite integration of the existing geospatial tree inventory with the Town's existing <i>Cityworks</i> enterprise asset management system. Integrate the tree inventory into a dashboard to facilitate tracking of the maintenance history and status of Town trees. Obtain staff training and establish processes and procedures for 'near real-time' updating of the tree inventory as service requests are received and work orders are dealt with. Use this data to report on program performance and inform adaptive management and resourcing.

Urban Forest Management & Maintenance Recommendations		Implementation	Guidance
			Ensure new trees continue to be added to the inventory, including trees planted/assumed through operations, capital projects, and development (Site Plan, subdivision, etc.)
9	Expand and maintain the urban forest asset inventory	Short-term	Expand the inventory to include all actively managed Town trees (i.e., street, park, and facility) as well as Town naturalization planting areas (polygons) and plantable spaces/sites. Share data internally to enable access/comment by other relevant departments and facilitate long-term and operational planning. Investigate opportunities for collaboration with other departments on cost-sharing of mobile LiDAR scanning of Town right-of-way assets to enhance inventory updating and analysis. Establish a tree inventory update frequency and allocate adequate resources for inventory maintenance and updates.
Natural Areas and Risk Management			
10	Undertake proactive tree risk management and monitoring in natural areas	Short-term	Complete annual Level 1 Limited (e.g., walkthrough) inspection of trees along Town-sanctioned trails and natural area edges and undertake risk mitigation as required.
11	Undertake proactive tree risk management and monitoring along streets and in parks	Short-term	Undertake annual Level 1 Limited (e.g., windshield visual survey, walk-by, etc.) inspection of trees along Town streets and actively managed park areas. Identify trees for Level 2 Basic or Level 3 Advanced tree risk assessment or risk mitigation. Identify priority zones for more frequent Level 1 assessment, if required. Integrate tree risk ratings into future tree inventory updates. Implement conservation-focused tree risk management for high-value trees where appropriate.
Urban Forest Health			
12	Enhance urban forest pest, disease, and invasive species management	Short-term	Obtain training/education for appropriate Town staff on the identification of priority urban forest pests, diseases, and invasive plant species to support early detection and rapid response (EDRR). Prepare rapid response protocols for high-priority and emergent threats.



4.0 Urban Forest Establishment & Enhancement

4.1 Key Issues

The successful establishment of new plantings is a critical issue because the Town has recently undergone an expansion in its planting operations and has targeted planting approximately 500 trees per year. However, there has been insufficient discussion regarding the "next step" of maintenance required to keep these assets alive, such as watering and structural pruning within the first seven years. Furthermore, species selection is not actively considered in some developments, potentially leading to poor aesthetics and resilience. Better species guidelines are needed to avoid monocultures that are vulnerable to pests and to ensure trees are compatible with infrastructure constraints.

Establishing consistent planting standards is vital because the Town's current planting specifications are outdated and a consistent approach to tree planting and establishment needs to be implemented. There is a lack of distinct technical guidance for different planting environments, such as boulevards versus parks, which is needed to guide future work.

While Policy 108 provides some authority to manage public trees, it lacks sufficient mechanisms to protect Town-owned

trees during capital projects. Furthermore, damage to public trees often occurs incrementally through root compaction or limb damage rather than outright removal. There is also a need for standardized tree protection zones, as current implementation is inconsistent across different capital projects.

4.2 Current Practices in Tecumseh

4.2.1 Policies & Guidelines

Town Policy 108 is the Town's Tree Maintenance and Removal Policy and sets out standards and procedures for the maintenance and removal of trees located on Town-owned property. Policy 108 also includes a list of favorable trees for planting and a list of trees that are prohibited to be planted. Policy 108 establishes the Town's goal to increase the urban tree canopy and the authority to plant trees on Town property but does not include broader urban forestry objectives and strategies or speak to opportunities on Town lands outside of boulevards.

Policy 106 details the Commemorative Tree Program that provides members of the public with an opportunity to have a tree planted in a public park in memory of a person(s) or event of significance. The policy is administered by the Town's Parks and Horticulture Division. The policy lists tree species that are to be used as commemorative trees and states that species will be selected based on site-specific conditions.

The Strategic Master Plan for Parks and Recreation Services (2010–2030) establishes a long-term framework for managing Tecumseh's recreational assets, driven by a vision to facilitate "community health, wellness, and enhancement of the natural

environment". The plan prioritizes accessibility, affordability, and environmental stewardship to enhance the quality of life for residents. The plan also aims to increase parkland provisioning by focusing on the acquisition and development of "Community Parks". Specific initiatives include the development of a master plan for the 26.3-hectare Lakewood Park and the enhancement of public access to the Lake St. Clair waterfront. Furthermore, the plan emphasizes the protection of natural heritage, calling for a conservation master plan for Fairplay Woods and an annual reforestation program to increase tree canopy cover.

4.2.2 Tree Planting & Naturalization

Currently, the majority of tree planting and naturalization areas throughout the Town are selected on an ad-hoc basis. However, the Town has initiated block plantings of street trees where staff have identified appropriate space for planting within boulevards. In addition, prior to the authoring of this Plan, there were no standardized guidelines in place for the consistent application of acceptable planting and maintenance standards.

4.3 Consultation Input

Consultations with Town staff have been supportive of development of a public tree by-law to enhance the existing Policy 108 and better protect Town-owned trees. Through consultation with Town staff, it was also heard that there is a need to develop criteria for prioritizing tree and naturalization planting locations, as well as develop standard guidelines for planting, establishment, and maintenance activities.

4.4 Best Management Practices

4.4.1 Species Selection

Selecting the appropriate species of trees for planting in urban areas can be challenging. Urban conditions differ greatly from those in natural areas, so some of the most common and hardy forest species, such as sugar maple, fare poorly on municipal streets. In addition, practices should be adopted to ensure that the right trees are established in the right places for the right reasons. This will reduce future maintenance costs and promote tree longevity. With that said, species selection should be based on a wide range of considerations. This includes but is not limited to the size of the planting site, the proximity to streets, structure, or other infrastructure, light availability, soil characteristics, and maintenance requirements. Planting a diversity of native and non-invasive tree species is perhaps the most important consideration since doing so builds resiliency to stressors such as insect infestations.

Sugar maple, red maple, red oak, bur oak, bitternut hickory, basswood and white pine are few of the native woodland trees found in Tecumseh. Some Carolinian species that naturally occur in the Town include flowering dogwood, black oak, chinquapin oak and sassafras.

Additional tree, shrub and herbaceous species, along with their characteristics, can be found in the **Species Selection Table in Appendix A**.

4.4.2 Tree Planting Specifications & Design Details

Many municipalities in southern Ontario have developed tree planting specifications and design details to ensure consistent and effective approaches to planting that improve the long-term survival of newly planted trees. Broadly, this supports the expansion of the urban forest. Tree planting specifications and design details typically consider factors including but not limited to species and sizes, spacing requirements, soil type, and maintenance requirements.



4.5 Opportunities for Improvement

4.5.1 Policies & Guidelines

A public tree protection by-law has been simultaneously developed to align with this Plan. The new Public Tree By-law strengthens protection and management of Town-owned trees by providing a clear, consistent framework for regulating injury and removal. It defines tree injury and removal, establishes a permitting process, and mandates replacement or financial compensation for loss of municipal urban forest assets. This by-law aligns with existing policies, like the Official Plan and the new Tree Canopy & Natural Vegetation Policy, so that Town-owned trees are protected, managed, and replaced to support the Town's broader urban forest goals.

For new plantings on public lands, the diversity of tree species selected should be maximized. Specifically, no single species should make up more than 20% of a planting plan list.

4.5.2 Tree Planting & Naturalization

An analysis of potential planting areas throughout the Town has been conducted. Results show that most planting opportunities are along roadways and in parks. In the northern part of the Town, it is recommended that street tree planting continue outwards from current locations. In parks, it is recommended that high-usage parks be identified and that these parks are assessed for additional tree and naturalization planting opportunities. Lakewood Park and Rocheleau Park already have areas that are becoming naturalized. These areas should undergo regular maintenance and monitoring to support the survival of beneficial species and prevent invasive

species from becoming established. The Town also has many small parks that are spaces for additional tree and naturalization plantings including but not limited to the installation of pollinator gardens and/or mini forests. Prioritizing planting at these parks should consider:

- Their current usage and future or planned usage;
- The extent of existing tree cover;
- Their proximity to other parks that may or may not offer similar amenities;
- The presence of invasive species;
- Their size and connectivity to other natural areas within the NHS;
- The overall community in which they are located.

Additional details regarding prioritizing tree planting and naturalization areas are included in the Canopy Improvement and Naturalization Strategy.

In addition, enacting procedures to inspect a representative sample of planting stock prior to establishment will help ensure that site-appropriate and healthy trees are planted to begin with.

4.5.3 Tree Planting Specifications & Details

Planting trees appropriately can help them establish successfully and prevent declines in health early on. To ensure that trees are installed in a consistent manner, a standard

approach to tree planting should be used. **Appendix B** of this Plan includes tree planting standards for Town street trees, park trees, and naturalization projects. They include:

- Appropriate species and sizes
- Spacing requirements
- Soil type, quality, and amendment options
- Watering requirements
- Maintenance requirements as trees establish



4.6 Recommendations

Implementation note: Short-term = 1 to 2 years; Medium-term = 3 to 8 years; Long-term = over 8 years

Urban Forest Establishment & Enhancement Recommendations		Implementation	Guidance
Guidelines and Specifications			
13	Adopt and implement the new tree planting/ establishment specifications and standard design details for Town street trees, park trees and naturalization projects.	Short-term	Adopt and implement the new tree planting/establishment specifications and standard design details for Town street trees, park trees, and naturalization projects (see Appendix B). Make these specifications and standards accessible and available on the Town's website.
14	Adopt and implement the new monitoring and maintenance standards for naturalization plantings.	Short-term	Adopt and implement the new monitoring and maintenance guidelines for naturalization (ecological restoration) projects (see Appendix C). Prioritize survival/performance surveying, watering, weeding, mulching, stand tending/thinning, and structural pruning (as needed). Ensure that naturalization projects account for monitoring and maintenance requirements.
15	Develop urban forest-related design guidelines for private projects.	Medium-term	Develop urban landscape design guidelines for private developments that encourage tree canopy development and use of vegetation for natural screening and establish minimum streetscape tree planting requirements. These guidelines should address minimum tree spacing along boulevards, minimum soil volumes for trees, plantings required to screen and shade parking areas, and guidance to promote urban forest species and structural diversity and

Urban Forest Establishment & Enhancement Recommendations		Implementation	Guidance
			resilience in a context of climate change. For naturalization areas, these guidelines should include strategies to ensure long-term success (e.g., site preparation, planting designs and densities, stock sizes, post-planting maintenance, salvaging native plants, soil and other natural materials such as logs and rocks). Draw on guidelines and specifications developed for Town trees (e.g., see Appendices A through D)
16	Adopt and implement the new Town tree replacement guidelines and associated protocol.	Short-term	Adopt and implement the tree replacement approach outlined in the new Public Tree By-law (see Recommendation 20). Refer to the County's new Natural Heritage Compensation Guidelines as needed if removal and replacement of significant woodlands (or other natural areas) is being contemplated. Make these guidelines accessible and available on the Town's website.
Municipal Policy and By-laws			
17	Adopt and implement the new Tree Canopy & Natural Vegetation Policy.	Short-term	Use the Town's new Tree Canopy and Natural Vegetation Policy (see Appendix F) as an outreach tool to promote how the Town plans to advance the objectives and achieve the vision outlined in this UFNMP, with a focus on Town lands. Leverage the four cornerstones of this policy (i.e., Protect, Maintain, Establish and Enhance, and Engage and Collaborate) as a basis for community outreach related to this UFNMP. Ensure that other tree-related policies and guidelines refer to this overarching policy. Make the policy available on the Town's website.

Urban Forest Establishment & Enhancement Recommendations		Implementation	Guidance
Natural Area Establishment & Enhancement			
18	Prioritize tree planting in naturalization areas	Short-term	Identify priority areas for naturalization based on assessments and guidance provided in the Canopy Improvement & Naturalization Strategy in this UFNMP. This program focuses on Town lands but may also include other lands where opportunities for tree planting restoration partnerships exist.
19	Develop a program and associated criteria to support the securement of lands suitable for naturalization	Long-term	Explore and consider opportunities for securing lands suitable for tree protection and/or establishment as opportunities arise (e.g., through the planning process, land trusts, etc.) Develop transparent criteria for evaluating such opportunities and consider precedents from other jurisdictions. Lands aligned with the Essex Region's Natural Heritage System Strategy should be among the priorities considered for securement.



5.0 Urban Forest Protection

5.1 Key Issues

Trees impacted by development, capital projects, or other site alterations are one of the most significant challenges faced by trees in many communities in southern Ontario. During site disturbance, existing trees can experience soil compaction and contamination, sustain root and stem damage and injury, suffer from changes in grading and water availability, or be removed.

Tree injury and removal reduce the amount and value of urban forest services and benefits and can reduce tree canopy cover across the municipality. Therefore, protecting existing trees against removal and injury, where possible and appropriate, is a key component of a successful municipal urban forest management program. Mechanisms for effective woodland and tree protection include, among others, strong Official Plan policies, tree protection by-laws, tree-friendly development guidelines and planning processes, compensation and security mechanisms, effective site inspection and enforcement, and incentives to protect trees and replace trees that need to be removed.

Essex County recently explored developing a natural heritage areas preservation by-law (including woodlands) but decided to update its Official Plan with policies having a comparable intent. These include policies that require a Tree Inventory and Preservation Plan as part of any development application, and both policies and guidance for compensation (either through

replacement, restoration and / or cash-in-lieu) for cases where trees, woodlands and other natural areas are approved for removal.

5.2 Current Practices in Tecumseh

5.2.1 Town Tree Protection

Trees owned by the Town of Tecumseh are protected under By-law 2024-078, commonly referred to as the “Boulevard Maintenance By-law”. Section 6 of the by-law prohibits damage, injury, or destruction of trees located on boulevards or any other municipal property.

Occasionally, the Town receives requests to remove municipally-owned trees from the right-of-way to facilitate privately initiated projects. Requests are assessed on a case-by-case basis and, if approved, are subject to compensation requirements (see Compensation – Town trees). However, the Town’s initial position—supported by Policy 108—is to favour the retention of healthy Town trees wherever possible.

In the rare cases where removal of a Town-owned tree is approved, the Town seeks compensation for the loss of the municipal asset. Currently, there is no schedule or policy in place to determine compensation value, and it is typically negotiated on a case-by-case basis.

Utility works in the right-of-way may also be subject to a Municipal Access Agreement (MAA). The most recent versions of executed MAAs in Tecumseh do not include specific requirements for Town tree protection as it is recognized that line clearing and other municipal services are a priority, and Town does not wish to interfere with their provision.

5.2.2 Standards and Specifications

Currently, the Town does not maintain any standards or specifications to guide the design and implementation of tree protection measures for Town trees. As such, tree protection planning for capital works or other projects may inadvertently impact Town trees.

5.2.3 Official Plan and Secondary Plan Policies

The Town's Official Plan (2021) includes goals and policies that seek to protect and enhance the quality of life in Tecumseh by, among other things, protecting and enhancing its natural heritage and tree assets. Specifically, this includes policies in Section 4.9.2 that commit the Town to:

- Working with property owners and agencies to preserve and enhance natural features.
- Encouraging the retention of woodlots in agricultural areas
- Encouraging the identification of opportunities for creating new habitats and naturalization, and
- Collaborating with landowners to protect trees where possible and encouraging the replacement of trees that need to be removed on their lands.

Other tools identified in the Official Plan that may be used to confirm the treed assets on site and identify opportunities for protection and replacement include Tree Preservation and Protection Plans, Landscaping Plans, and Natural Features Plans. The Official Plan also encourages the use of native, non-invasive plant species in naturalization.

As outlined in the Town's Official Plan and mapped on Schedule "C", the Town has a Natural Heritage System (NHS) consisting of three categories, which are aligned with the County's NHS framework, as follows:

- Natural Environment includes significant wetlands, significant woodlands, significant habitat of endangered species and threatened species, and other significant and high priority natural heritage features.
- Natural Environment Overlay including secondary priority natural heritage features, and
- Restoration Opportunities Overlay including priorities for potential natural areas restoration, as identified through previous technical studies.

The Official Plan does not permit development within areas designated as Natural Environment and requires an EIA for proposed development adjacent to or within any of the categories above. Although the Town does not have its own EIS Guidelines, it has been able to secure tree replacements through Site Plan Control / Development Agreements on a site-specific basis.

The Town's Official Plan also:

- Encourages local landowners to be good stewards of their trees and natural areas, including participation in established management and conservation programs, and
- Commits the Town to developing a policy for restoration and compensation where avoiding an impact to a natural heritage feature or NHS is unavoidable (as provided as part of this Plan).

In January 2025, the County released Natural Heritage Compensation Guidelines that provide procedural and technical guidance where, through a *Planning Act* or *Environmental Assessment Act* process, a natural heritage feature (either wholly or partially) has been approved for removal. This guidance underscores that all feasible options for avoidance and mitigation must be clearly assessed before compensation is considered.

The Town has also, and is expected to continue to, implement tree and woodland protection through its Secondary Plans, as appropriate. For example, the recently approved Tecumseh Hamlet Secondary Plan includes principles and policies supportive of providing a generous and equitable distribution of tree canopy in the public spaces across this area. In this Secondary Plan this is to be implemented through:

- Designation of McAuliffe Woods as a protected Natural Environment feature with a 15 m buffer of native trees and shrubs
- Continuous plantings of street trees including some “green streets” with double rows of trees
- Parks planted with primarily native trees, and
- Integration of trees along the trail network.

5.2.4 Trees and *Planning Act* Applications

In accordance with Section 10.20 of the Town of Tecumseh Official Plan (2021), development applications subject to the *Planning Act* and related planning regulations may be required to submit a Tree Inventory and/or Tree Preservation and Protection Plan. Where healthy, mature trees are known to be

present on development sites, the Town typically seeks to work with applicants to try and secure protection and / or replacement of significant specimens on a case-by-case basis.

To date, the Town has not developed or adopted guidelines or standards to guide the development of tree protection plans and on-site implementation.



5.2.5 Woodland and Tree By-laws

Forest Conservation By-laws (which apply to trees in woodlands) and Tree Protection By-laws (which apply to individual trees) are enabled under the *Municipal Act*. Where they exist, it is typical for regional or upper tier municipalities to enact and enforce woodland by-laws (e.g., Halton Region, Simcoe County) and for local area municipalities to enact and enforce individual tree by-laws.

Currently, there are no woodland or tree by-laws at the County or Town level and regulation of woodlands and trees on private lands through by-laws is not considered an effective use of limited resources for the Town or County. Instead, both the County and Town have elected to work through policies and guidelines. Furthermore, Town staff have agreed that the available resources should first and foremost be directed towards improving practices and procedures on Town lands.

The Town, however, has recognized that:

- Regulating Town trees through the Town's Boulevards By-law presents some challenges and limitations (e.g., trees are protected incidentally and there is no mechanism in this by-law to require replacement or compensation) that could be addressed through a by-law focused on Town trees, and
- The County's updated policies and guidelines for Natural Heritage Compensation can inform Town practices where applicable.

5.2.6 Capital Projects

Much of the urban infrastructure in the road right-of-way is located close to existing trees and some level of tree injury or removal is often unavoidable during capital works such as road or sewer reconstructions. As such, tree protection on Town capital projects may be initiated by project managers where the potential for impacts upon trees is identified in the preliminary stages of project planning. While the Town has previously engaged third-party arborists to prepare tree protection plans and, in some instances, to monitor construction, tree protection tends to be applied inconsistently

from project to project and is not guided by a consistent internal process or formal policy. Overall, tree protection measures are more likely to be applied rigorously on larger-scale or higher-profile projects and would benefit from established guidelines, standards, and procedures.

5.2.7 Building Permits

The Town requires building permits for a variety of site disturbance actions that are not regulated under the *Planning Act*. Among these include building construction, demolition, and change of use; sewage system repairs or installations; swimming pools; and lot grading.

Currently, the Town has no regulatory or procedural tools at its disposal to regulate the injury or removal of trees under the building permit process. While applicants are generally required to comply with the Boulevard Maintenance By-law, building permit applications are not required to disclose potential impacts on Town or other trees, and the scope of application review is limited to impacts on the building site. Consequently, disturbances such as site access and materials storage, compaction, grading, and excavation, among others, may impact trees without the knowledge of Town staff or the implementation of appropriate tree protection and mitigation measures.

5.3 Consultation Input

Town staff and community members expressed support for clearer and stronger regulation of trees in the municipal right-of-way and on other Town properties, recognizing that current by-laws do not adequately define prohibited actions, establish standards and procedures for effective tree protection, or outline compensation requirements for Town trees.

Staff recognized the absence of Town tree protection guidelines and standards as a significant gap, contributing to inconsistent implementation of tree protection on capital projects and developments affecting Town trees. The absence of a consistent internal process to review applications for potential impacts on Town trees was also identified as a significant gap to be addressed.

Staff also identified a need for clear compensation guidelines, noting that current approaches may not adequately compensate for the loss of the value of Town tree assets and the costs incurred for tree removal, stumping, and replacement.

5.4 Best Management Practices

5.4.1 Planning Tools for the Urban Forest

There is not a specific set of “best practices” as it relates to planning tools for the urban forest, as these depend largely on the local municipal biophysical, land use, social and economic context. However, there are some general “best practice” approaches for municipalities in southern Ontario which can

be gathered from a scan of urban forest management plans for other local municipalities.

Such approaches applicable to Tecumseh include the following.

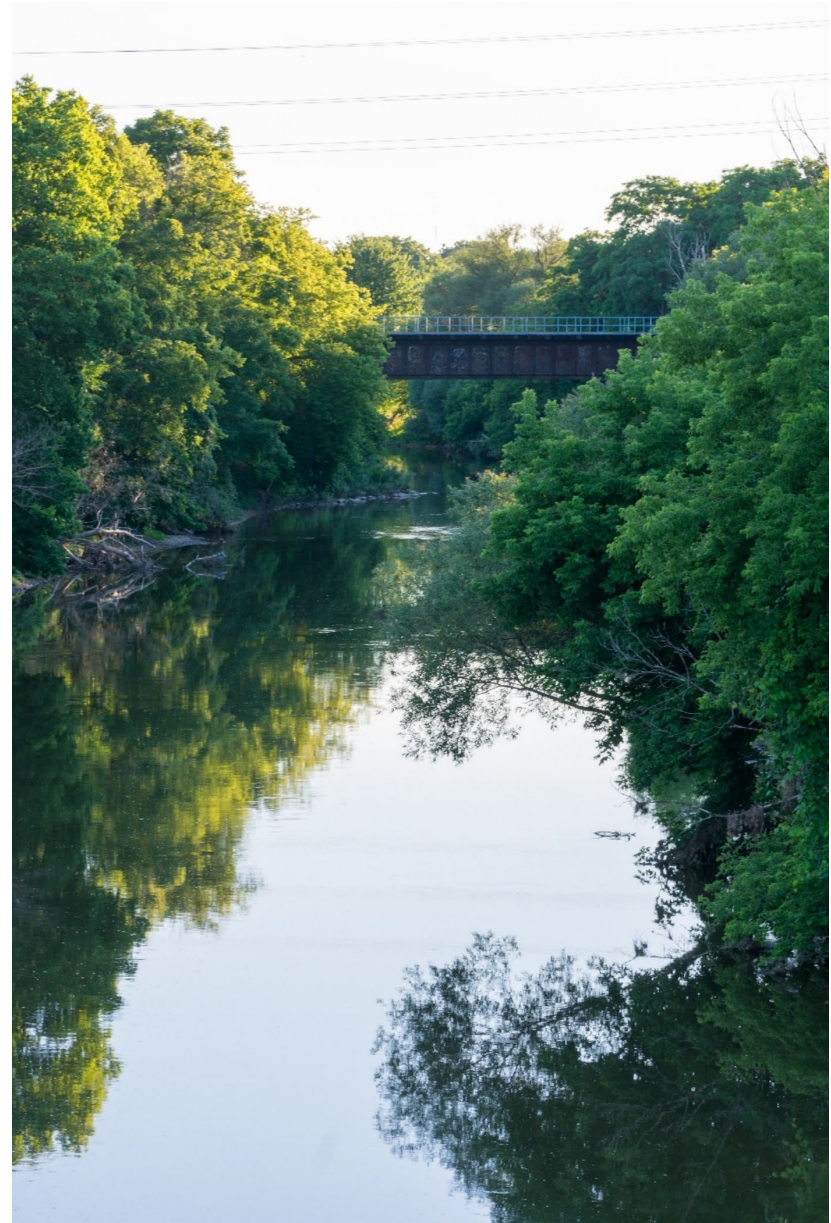
- Establish an internal working group of staff whose work relates to or impacts trees in the municipality.
- Ensure natural heritage policies support protection of the urban forest in ways that are fully aligned with applicable Federal, Provincial, and regional policies (i.e., in this case the County). For example, this includes:
 - Enhancing and expanding the urban forest when fish habitat impacts are being addressed as required under the Federal Fisheries Act, and
 - Aligning with regulations that require accounting for green infrastructure under Ontario Regulation 588/17.
- Leverage available resources for tracking and managing urban forest pests and diseases from Federal and Provincial agencies and associated organizations (e.g., Ontario Invasive Plant Council).
- Develop and implement a range of planning tools that work together to advance urban forest objectives (e.g., Official Plan policies supported by zoning, tree by-laws, guidelines and technical standards and specifications).
- Make explicit connections between natural heritage / urban forest policies with community health and climate change mitigation and adaptation.
- Take a no net loss or a net gain approach to what cannot be protected.

- Lead by example, even when not required by regulations or policies.
- Ensure that enhanced or new planning tools (e.g., tree by-law) are implemented with internal and external education, and the ability to adequately implement and enforce the tool.

5.4.2 Capital Projects

As best practice, municipalities should lead by example. Although capital projects are generally planned and managed internally, municipalities should apply standards and expectations that are aligned with best practices, including requiring tree inventory and preservation plans and reports, implementation of tree protection measures, and on-site monitoring.

For example, Urban Forestry divisions in Toronto and other Ontario municipalities require other departments undertaking capital projects that may adversely affect City trees to prepare tree preservation plans. Permits to injure or remove trees may be conditional upon compensation replanting or cash-in-lieu, arborist supervision of work in Tree Protection Zones, and routine site monitoring and reporting. While efforts are made to maintain flexibility and collaboration, municipal departments are treated in a comparable manner as external applicants in the context of tree protection.



5.4.3 Building permits

Permit application forms and technical submission requirements for a wide range of site works may not adequately address impacts to existing trees. Tree declaration requirements implemented in “parallel” to the permit application process are an effective tool to identify applications that may impact trees without delaying the permit approval process, which may be governed by Provincially legislated timelines. Municipalities that require tree declarations to be submitted in conjunction with a range of municipal permit applications include, among others, Burlington, Guelph, Mississauga, New Tecumseth, Toronto, and Vaughan.

5.4.4 Tree Protection Specifications and Details

Many municipalities in southern Ontario have standardized tree protection specifications that are applied to protect trees that may be impacted from development and/ or construction activities. These specifications typically include the establishment of a *Tree Protection Zone* (TPZ) inside of which activities that could result in the injury or destruction of a protected tree are prohibited.

Typical prohibited activities include but are not limited to:

- Demolition, construction, replacement or alteration of permanent or temporary buildings or structures, parking pads, driveways, sidewalks, walkways, paths, trails, dog runs, pools, retaining walls, patios, decks, terraces, sheds or raised gardens
- Installation of large stones or boulders

- Alteration of grade
- Storage of materials
- Access, parking or movement of vehicles, equipment, or pedestrians
- Cutting, breaking, tearing, crushing, exposing or stripping tree’s roots, trunk and branches
- Stringing of cables or installing lights on trees
- Excavation

5.4.5 Compensation - Town Trees

Requiring compensation for the approved or unapproved removal or injury of regulated or otherwise significant trees is a relatively widespread practice among municipalities. “Best Principles” associated with natural heritage and significant tree compensation include that it should only be considered as a “last resort”:

- After all other options in the mitigation hierarchy (i.e., avoid, minimize, mitigate) are exhausted;
- Where no other applicable regulations or policies require *in situ* protection;
- Where other options have been formally evaluated and exhausted through technical study; and
- Where adequate land area is available and is suitable for the proposed compensation.

Specific municipal approaches for assessing the value of tree / treed area compensation vary widely, and there is no single ‘gold standard’ best practice. Examples of common and well-established approaches are illustrated in **Table** .

Table 7: Descriptions of Common Tree Replacement and Compensation Methods

Method	Description	Pros	Cons
Tree Replacement Ratio	A ratio of replacement trees is planted to compensate for injury or removal (e.g., 3:1 replacement to removal ratio). May be adjusted according to the size of the removed tree.	Easy to calculate, implement, and verify. May result in increased leaf area and canopy over time, but only if planted trees are of large stature and survive to maturity.	Often does not adequately replace lost canopy, leaf area, or function/value. May under- or over-compensate, depending on size of removed tree, if a 'flat rate' unadjusted ratio is used.
Aggregate Caliper	The area of removed tree(s) stem, typically at DBH, is replaced by the equivalent combined caliper of replacement trees. May be adjusted based upon condition or other factors of the removed tree.	Relatively easy to calculate, implement, and verify. A large number of trees is typically planted for a single mature tree.	May be highly costly for the applicant if a large number of trees are removed. May not account for (good or poor) condition of removed trees. Some or many replacement trees may not survive to maturity, thereby not replacing lost canopy and services/benefits.
Appraised Value (e.g., CTLA Trunk Formula Technique)	A mathematical formula is used to appraise the value of a tree. Compensation equal to that value is paid for tree removal.	Broad industry acceptance. Well-suited to individual amenity trees.	Poorly suited to woodland, forest, or tree stand valuation. Elements of appraisal are subjective and open to interpretation and bias. This approach does not lead to lost canopy, leaf area, or function replacement. May over- or under-value trees.
Cash-in-lieu	Used in conjunction with other methods; a monetary sum is paid instead of actual tree planting. Most effective if funds are deposited in tree planting-directed accounts. Per-tree value should reflect actual cost to establish a tree, incl. supply, planting, warranty, maintenance, etc.	Easy to calculate and implement if a standard formula or value for determining replacement cost is used.	Like ratio-based compensation, it rarely accounts for the true value of tree(s) being removed. Results in fewer trees planted. Funds may "disappear" (i.e., not be directed to tree establishment) if deposited in general accounts.

5.5 Opportunities for Improvement

5.5.1 Official Plan Policies

The Town's Official Plan policies related to natural heritage (including wooded natural areas) have been working reasonably well for the Town to date and will continue to be updated as needed to conform with applicable policies at the regional and provincial levels.

The County's recently released Environmental Impact Assessment Guidelines and Natural Heritage Compensation Guidelines can help inform the implementation of these policies, as applicable.

These policies and guidelines can help the Town ensure a no net loss approach to the existing NHS and also help implement principles and standards for a net-benefit compensation approach on lands it owns and secures.

5.5.2 Town Tree Protection

A dedicated, standalone Town tree by-law can strengthen tree protection and improve outcomes while establishing a basis for:

- consistent, transparent, and defensible process for reviewing applications to injure or remove Town trees, and
- requiring replacement and / or financial compensation where Town trees are approved for removal or where they are injured or removed without permission.

As noted above, Town staff and many of those engaged on development of the UFNMP have agreed that a public tree by-

law focused exclusively on Town-owned trees would help strengthen Town tree protection and replacement. Community members also support the creation of a tree by-law to strengthen the protection of Town trees. A Public Tree By-law has been recommended and drafted, in consultation with Town staff, as part of this Plan, and is available under a separate cover.

This new Public Tree By-law strengthens protection of the Town's trees by, among other things:

- Clearly defining tree injury or removal
- Outlining a permitting structure for consideration and approval of tree injury or removal
- Providing a transparent and defensible approach for tree replacement (when removals are permitted), as well as a related methodology for cash-in-lieu compensation for damage to or loss of Town urban forest assets, and
- Providing a legal basis for issuing fines, or potentially pressing charges, when activities result in injury or destruction of Town trees without a permit.

Current iterations of Municipal Access Agreements (MAAs) between the Town and local underground utility providers do not stipulate tree protection requirements. As such, trees are generally not considered in utility access permit review, potentially resulting in inadequate tree protection and damage to Town trees during infrastructure installation and maintenance operations. Establishing guidelines for tree protection and integrating these guidelines into future MAAs, or at least referencing them, could improve Town tree protection outcomes during utility works.

5.5.3 Standards and Specifications

The absence of guidelines, standards, and specifications for tree protection plans and measures may contribute to a lack of clarity among Town staff and development plan and building permit applicants about the Town's requirements for public tree protection and compensation.

New tree protection guidelines, specifications and details have been developed as part of this Plan (see **Appendix D**). These specifications and design details address various tree protection requirements in both urban and natural areas, and include:

- Defined Tree Protection Zones (TPZs);
- Tree protection barriers (hoarding/ fencing) performance specifications (e.g., fencing materials and dimensions);
- Prohibited activities within TPZs; and
- Root zone protection, monitoring, and enforcement.

5.5.4 Town Processes

To ensure effective protection (or adequate compensation if tree injury and/or removal are required), internal procedures should be established to ensure that planning applications that may adversely affect Town trees are consistently circulated for review and comment by the Manager of Parks and Horticulture.

Requirements for tree inventories and protection plans should be publicly available (e.g., on-line) and shared with the appropriate parties through means such as but not limited to application checklists and consultation(s). This will create

awareness of municipal tree protection and compensation requirements. In addition, proposals that may impact the Town's natural heritage and/or trees should be circulated to qualified Town staff (or peer reviewers) for review and comment.

5.5.5 Woodlands and Natural Areas

Bringing woodlands (such as Fairplay Woods) and other natural areas into Town ownership, when feasible, is one of the best ways to ensure (a) their long-term protection and (b) that they can be accessible community amenities contributing to local health and quality of life.

For all such areas there should be, as resources permit, a strategy for their management to ensure these assets are able to continue to provide the ecological and community services for which they are valued. Key components of such a strategy should include:

- A methodology for establishing a baseline inventory and condition assessment of each of these assets in a consistent, technically sound and cost-effective way;
- An approach for tracking and updating these assessments on a regular (e.g., every five years) basis, including ongoing tracking the status of high impact tree pests or diseases; and
- Identification of priority natural areas for management and, among these priority areas, priority activities needed to sustain and enhance these areas as safe, biodiverse and thriving community assets (e.g., high risk tree management, priority invasive plant species removal and restoration with native species, formal trail

clearing and closure of informal trails, installation of educational signs, etc.).

Town-owned natural areas that are publicly accessible can provide great opportunities for engaging the community and other partners in management activities that are deemed safe and suitable for volunteers. Examples include manual removal of a woodland invasive plant such as garlic mustard and common buckthorn, followed by planting of native ground covers and mulching to suppress invasive plant re-establishment.

5.5.6 Capital Projects

As noted in Best Practices, the Town should lead by example. This means that capital projects should adhere to the applicable best management practices. Accordingly, all capital project plans for works in proximity to trees should be supported by plans that include tree inventories and assessments, proposed tree protection measures, and plans for on-site monitoring to ensure the measures are implemented as approved.

When Town urban forest and other infrastructure owners collaborate at the project design stage to identify and address tree-related constraints, opportunities to avoid impacts to trees can be more easily identified, and mitigative or compensatory measures to redress required tree injuries and removals can be understood early in the process.



Capital project plans should:

- Conform to County policies and guidelines for wooded and other natural heritage areas, as applicable;
- Conform to Town tree protection standards (for measures such as hoarding, compaction protection, root-sensitive excavation and root pruning, and others, as may be required to adequately protect trees (see Appendix D);
- Where tree injury or removal are necessary, provide adequate compensation in accordance with Town and/or County guidance (as applicable), with compensation being included in initial capital project budgets, and
- Provide for regular inspection throughout the project by the Manager of Parks and Horticulture to ensure tree protection and replacement are implemented as intended.

5.5.7 Building Permits

Currently, the building permit process does not provide any opportunity for the Town to assess or mitigate the potential impacts of proposed works upon public trees. While building permit application forms cannot be modified and the approvals process cannot be delayed addressing tree-related issues, there are opportunities to identify impacts through the building permit process. Specifically, the Town can implement a “tree declaration” requirement parallel to the building permit process, whereby applicants are asked to complete a brief form or questionnaire declaring whether proposed works (including off-site works such as site access) are within a

specified distance (typically 6 to 12 metres) of by-law regulated (i.e., Town-owned) trees.

Applications which may impact trees continue to be processed normally but are also forwarded for review by urban forestry staff, who should consider them in the context of the Town’s Public Tree By-law.



5.6 Recommendations

Implementation note: Short-term = 1 to 2 years; Medium-term = 3 to 8 years; Long-term = over 8 years

Urban Forest Protection Recommendations		Implementation	Guidance
20	Approve and implement the new Public Tree By-law	Short-term	Approve and implement the draft Public Tree By-law. Implementation should include: • Updates to the Town's Administrative Fees and Charges By-law • Information about the new By-law on the Town's website • Development of internal processes and forms required to administer the By-law, and • An outreach campaign to educate Town staff, external parties, and members of the community about the new By-law.
21	Implement new tree protection specifications and standards	Short-term	Implement the tree protection specifications and standard design details that are included in Appendix D . Require that tree-related submissions for all development and building permit applications (where appropriate) conform to new specifications and standards. Make the specifications accessible and available on the Town's website.

Urban Forest Protection Recommendations		Implementation	Guidance
22	Improve the current Planning, capital project and Building Permit review procedures to provide more opportunities for protecting and enhancing the urban forest	Short-term	Develop criteria for review of proposed tree injury and/or removal applications for Town-owned trees through Building Permits, curb-cut/driveway access requests, and other applicable permit processes or externally initiated requests using criteria that aligns with the new Public Tree By-law. Embed criteria into updated Canopy Cover and Natural Vegetation Management Policy. Include the Manager of Parks and Horticulture in circulations of relevant applications and capital project plans at preliminary stages to assess compliance with the applicable Town tree protection policies and standards. Carry forward tree-related review comments as conditions of approval through application stages and on-site implementation. Develop a 'Tree Declaration'* form and procedure for all <i>Planning Act</i> and non-<i>Planning Act</i> applications to facilitate screening for potential impacts upon Town trees. As a minimum standard, implement desktop review of all Tree Declarations using current tree inventory data, aerial/street imagery, etc. to verify and assess submissions. Undertake field verification, as necessary.
23	Improve on-site tree protection monitoring	Short-term	Develop internal procedures and provide adequate resources for enhanced levels of on-site monitoring of implementation of approved tree protection plans for public trees affected by construction (e.g., Building Permits) and capital projects in proximity to trees.

*Note: Tree Declaration review cannot delay application reviews with legislated timelines and should operate as a parallel but separate process administered by Parks and Horticulture or other appropriate division. This will require an internal process to 'flag' positive Tree Declarations and circulate application details for expedited tree-related review by the Manager of Parks and Horticulture or other appropriate staff.



6.0 Outreach, Stewardship, and Partnerships

6.1 Key Issues

Like many southern Ontario municipalities, the majority of Tecumseh's urban forest is located on lands that are not owned by the Town (approximately 90%). This means that residents and other landowners or managers have the greatest influence over the health and growth of the urban forest. Therefore, educating and engaging these community stakeholders in proper tree care is essential for protecting and replenishing Tecumseh's urban forest.

While most individuals value trees, many do not fully grasp the tangible benefits of a healthy urban forest. Furthermore, those who wish to care for their trees often lack the necessary information or resources. The Town can help address this knowledge gap through education, and by providing support and developing partnerships with groups dedicated to tree stewardship.

6.2 Current Practices in Tecumseh

The Town recognizes the vital role the community and local organizations play in caring for the urban forest. The Town also

recognizes the importance of providing information to the community on why they should care for their trees and how best to do so.

The Town's website has a Parks and Trails page with some information about naturalization projects taking place in select parks. The Town also has an Urban Forestry Project page on their website that provides information on current street tree planting projects and information on the benefits of trees.

The Town currently hosts an annual Earth Day planting event at Lakewood Park in partnership with Lakeview Montessori School. Typically, 60-80 students participate in the event, and 200 trees and shrubs are planted.

Friends of Tecumseh Forest is a newly established local group that has an interest in becoming directly involved in stewardship activities, such as invasive species removal in some of the Town's naturalization areas.

6.3 Consultation Input

A common theme that came out of the consultations for this Plan was the importance of early and on-going engagement with residents, and local community groups about the importance of Tecumseh's urban forest and the benefits that trees provide.

6.4 Best Management Practices

A number of municipalities in southern Ontario offer a range of resources to foster engagement and support stewardship of their urban forests. Typically, municipalities with larger urban forestry teams offer the broadest range of information and services, but some mid- and smaller-sized municipalities find creative ways to engage their communities. Some examples are provided below.

The Canadian Urban Forest Network's Compendium of Best Management Practices states: "Any urban forestry program has to integrate people as part of the program itself." It identifies maintaining an urban forestry section on the municipal website as a key component of municipal outreach, along with engagement through events such as field tours, planting days and open houses.

Other municipal urban forest web pages provide information about and links to a wide range of urban forestry initiatives. These include the municipal tree by-laws and policies, tree protection guidelines and basic tree care information, major tree pest threats in the area, woodlot management approaches and the urban forest, naturalization/natural heritage, and invasive species management plans and studies.

Some municipalities provide website content with information and links to a variety of urban forestry related resources. For example, the value of the urban forest and descriptions and links to the management Plan, Urban Forest Study, and Residential Subsidized Tree Planting Program. Additional information provided includes information on common invasive

pests of trees, a list of trees that are commonly planted in the town, the town's tree by-laws, and frequently asked questions about tree pruning.

Municipal urban forest webpages often include information or link to various initiatives, including tree by-laws and policies, protection guidelines, common pests and threats, woodlot management, and plans for naturalization/natural heritage and invasive species. Some also detail the urban forest's value, the strategy or management plan to increase a healthy tree canopy cover, associated supporting studies and resources, subsidized planting programs, a list of common or acceptable trees for planting, and frequently asked questions about basic tree care such as pruning, watering, and limiting activities or exposure to harmful substances in the root zone.

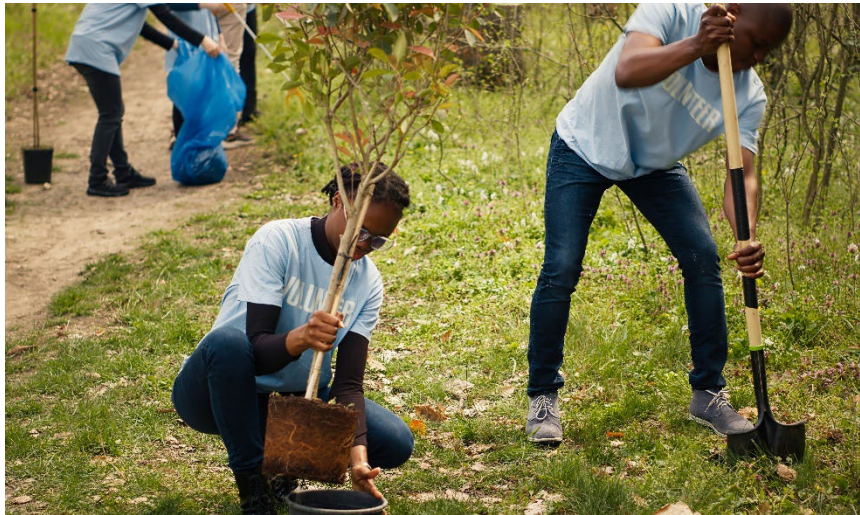
6.5 Opportunities for Improvement

The Town should promote the value and sustainable management of the urban forest in these ways:

- Provide more information on the Town's website;
- Provide pamphlets and posters about key topics in public spaces;
- Hosting or co-sponsoring public workshops, seminars, presentations, surveys, site walks and/ or demonstrations;
- Using the local media and other local organizations to advertise stewardship events; and

Urban forestry resources should include the following information:

- A description of the Town's urban forest management practices;
- Key areas of interest or concern, such as invasive species early detection and management response, good tree care practices, and lists of native plant species suitable for yards;
- Opportunities for residents to support urban forest sustainability; and
- Town-sponsored or endorsed events related to urban forestry.



The Town should involve more residents and neighbourhood groups in the stewardship of trees on their lands by engaging in educational public workshops, seminars, presentations, visits to schools, site walks and demonstrations several times per year. This could include adding educational materials to existing plantings events.

Partnerships for both education and hands-on stewardship activities should be developed through engagement with Indigenous communities and Nations, and local groups and organizations such as Friends of Tecumseh Forest, school boards (i.e., Greater Essex County District School Board (GECDSB) and Windsor-Essex Catholic District School Board (WECDSB), and Conseil scolaire catholique Providence (CSC Providence), and the Essex Region Conservation Authority (ERCA).

6.6 Recommendations

Implementation note: Short-term = 1 to 2 years; Medium-term = 3 to 8 years; Long-term = over 8 years

Outreach, Stewardship, and Partnerships Recommendations		Implementation	Guidance
24	Formalize existing, and develop new, community programs.	Medium-term	Expand existing planting partnerships to other schools and sites. Formalize an annual tree planting program and allocate resources to secure trees, identify planting sites, and coordinate with Greater Essex County District School Board/Windsor-Essex Catholic District School Board and local schools. Investigate opportunities to engage with equity-deserving groups and schools in priority communities. Expand the Commemorative Tree Program to sites outside of Lakewood Park, including identifying suitable sites and appropriate species.
25	Enhance existing, and develop new, urban forest educational and outreach materials and programs	Medium-term	Improve the Town's urban forestry/trees webpage. Develop a communications plan for sharing and promoting this UFNMP, including developing social media content. Provide educational programming (in-house or with external partner support), including in conjunction with other Town-led or community-based events.
26	Support and pursue urban forest partnerships	Medium-term	Explore opportunities to develop partnerships with external/ community-based organizations and interest groups to support urban forestry initiatives, joint delivery programs, etc. Identify ways to promote/support ERCA's existing tree programs (such as Landowner Grant Program, Tree Ordering, and Plant a Tree for a Loved One), to expand program uptake in Tecumseh, and to jointly develop and deliver innovative programs for private landowners with smaller properties. Engage with Indigenous communities to determine interest and capacity to support and inform naturalization, specifically habitat restoration.



7.0 Implementation and Monitoring

7.1 Leads and Partners

Each action item assigns one or more Town of Tecumseh departments or divisions the responsibility of leading action item implementation and providing accountability to the community and Town Council. Where multiple leads are identified, these divisions will collaborate to implement the action items. External supporting partners may also be identified and may be called upon to participate in implementation or may be consulted for input.

7.1.1 Town of Tecumseh

PH	Parks and Horticulture (in CRS)
CRS	Community and Recreation Services
DS	Development Services
FS	Financial Services
LCS	Legislative and Clerk Services
PWE	Public Works and Engineering
TCS	Technology and Client Services

7.1.2 External partners

CEA	Citizens Environmental Alliance
CSLT	Canada South Land Trust
ERCA	Essex Region Conservation Authority
FN	First Nations/Indigenous organizations
FTF	Friends of Tecumseh Forests
GECDSB	Greater Essex County District School Board
WECDSB	Windsor-Essex Catholic District School Board
WEHBA	Windsor-Essex Home Builders' Association

7.2 Monitoring - Metrics and Targets

Table summarizes key urban forest metrics and targets that the Town of Tecumseh and its urban forest partners should monitor and pursue throughout the course of implementing the UFNMP action items. Given that Tecumseh has distinctly urban and rural components with quite different land uses, including extensive prime agricultural lands in the rural areas, quantifying the amount of tree canopy cover town-wide is not a particularly useful metric. Therefore, at this time, the Town has elected to focus on tracking the number of new trees planted annually as well as the care and condition of these trees. Where applicable, re-assessment and reporting and target achievement timelines are outlined. Where known, existing baseline metrics are also provided.

Table 8: Existing Urban Forest Targets in the Town of Tecumseh Asset Management Plan v.4.0 (2024) and New Targets and Metrics Recommended in the UFNMP

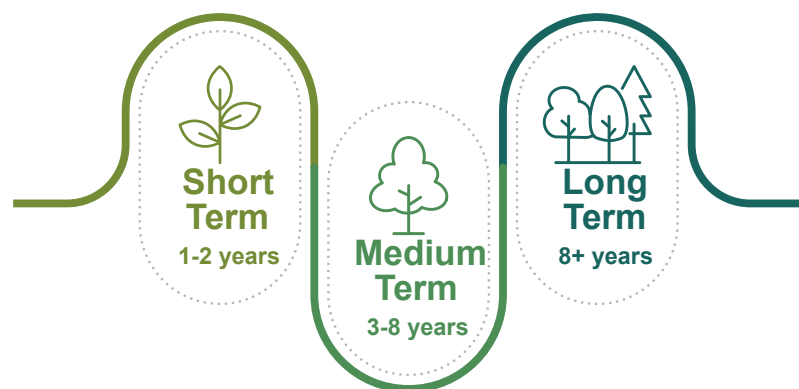
Metric	Assessment Method and Criteria	Assessment/ Reporting Freq.	Baseline	Target	Timeline for Achievement
Existing targets per Town of Tecumseh Asset Management Plan (AMP) v.4.0 – 2024					
Number of trees within Town right-of-way per residential household	Not specified	Not specified	1.5 trees	N/A	Not specified
Number of trees planted per year	Not specified	Not specified	~400 trees (blvd. and park trees)	N/A	Not specified
Percentage of Town trees in fair or better condition	Not specified	Not specified	98%	100%	Not specified

Metric	Assessment Method and Criteria	Assessment/ Reporting Freq.	Baseline	Target	Timeline for Achievement
Percentage of Town trees in poor or dead/dying condition	Not specified	Not specified	1.6%	<1%	Not specified
Frequency of pruning and/or trimming of trees	Not specified	Not specified	As requested and required	Street trees: 7-8 years Park trees: 10 years	Not specified
UFMP adjustments to AMP targets					
Number of trees planted per year	Program assessment	Annual	~400 (blvd. and park trees)	500	Short-term
Percentage of tree canopy coverage	Geospatial land cover analysis; percent land cover	Every 5 years	12%	Target to be established	Timeline to be determined
Frequency of pruning and/or trimming of trees	Program assessment	Ongoing	None (reactive)	Cyclical: Street - 7-8 years Park - 10 years Reactive: per LoS targets	Medium-term (street) Long-term (park)

Metric	Assessment Method and Criteria	Assessment/ Reporting Freq.	Baseline	Target	Timeline for Achievement
UFNMP targets					
Service request (initial response)	Program assessment, service response time	Ongoing	30 days	21 days	Medium-term
Service request (completion)	Program assessment, service request completion time	Ongoing	N/A	Low: 2 months Medium: 4 months High/Extreme: 24 hrs. >90% of service requests within target completion	Medium-term
Community tree planting events	Program analysis; Community tree planting events per year	Annual	2 events per year	3 to 4 events per year	Short-term Medium-term

7.3 10-year Implementation and Financial Plan

The UFNMP lays out a long-term framework (i.e., 10+ years) and the preceding implementation phases through the timing identified in the recommendations.



10-year Implementation and Financial Plan – General Timeline

The Town of Tecumseh UFNMP is structured around a long-term framework extending beyond a decade. To bridge the gap between strategic vision and sustained action, a dedicated 10-year implementation framework has been developed to move the plan through its various conceptual stages into successful execution. This comprehensive plan aligns with the 27 specific UFNMP recommendations with action items, designed to enhance and protect the local urban forest.

To ensure a structured rollout, each action item is assigned a specific implementation timeline that represents its priority level. These targets are divided into short-term (1-2 years), medium-term (3-8 years), and long-term (8+ years) horizons. Responsibility for these items is clearly defined by identifying implementation leads, which typically consist of one or more Town departments held accountable for the primary execution of the work. Furthermore, the plan identifies essential implementation partners, ranging from other internal Town departments to external agencies, community organizations, and residents who will assist the leads in achieving their objectives.

From a fiscal perspective, the plan outlines the financial requirements necessary to sustain these efforts over the next decade. It identifies estimated capital and operating costs for the assets and expenditures required for each recommendation. Additionally, it specifies necessary staffing increases and equipment acquisitions for recommendations that require new departmental positions or specialized urban forestry tools. To support these investments, the plan identifies potential funding sources, including internal municipal budgets and external grants. Detailed notes are included throughout the framework to provide further technical and procedural context for each action item.

7.4 Recommendations

Implementation note: Short-term = 1 to 2 years; Medium-term = 3 to 8 years; Long-term = over 8 years

Monitoring Recommendations	Implementation	Guidance
27 Monitor and report on the "State of the Urban Forest"	Short-term to Long-term	Monitor key urban forest metrics and targets (see Table) on an ongoing and/or periodic basis, as directed by the UFNMP. Report to Council on monitoring results every two years. Implement adaptive management by integrating monitoring results into reviews, updates, and revisions to urban forest programs, policies, targets, and budget and work plans.





8.0 Canopy Improvement and Naturalization Strategy

Currently, the Town lacks a formal process for selecting and prioritizing tree planting and naturalization sites. To effectively improve and increase the Town's tree canopy and vegetative cover, it is essential to develop and implement a proactive and standardized approach for site selection, species and stock selection, and sourcing planting material. Furthermore, aligning planting and seeding techniques, as well as maintenance activities, with established best practices will enable successful individual tree plantings and comprehensive naturalization projects, leading to a healthy, resilient, and diverse urban forest. This strategy provides guidance on thoughtful and strategic site and species selection, appropriate stock selection, optimized planting techniques, and effective maintenance activities. This will ensure that urban forest cover not only increases but is also sustainably maintained as a valuable Town asset for years to come.

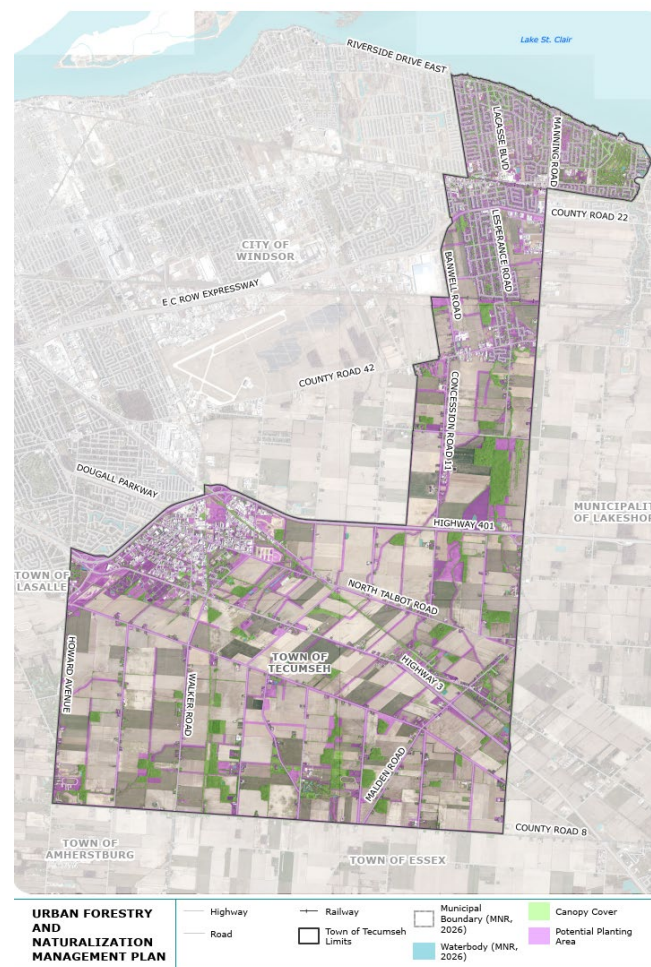


Figure 6 Potential Planting Areas

8.1 Tree Planting Prioritization

8.1.1 Site Selection & Analysis

Prioritizing areas for tree and naturalization plantings involves identifying areas where trees would provide the most environmental, social, and practical benefits. A preliminary analysis was conducted to determine potential tree planting areas. To determine these areas, land cover data was compared against aerial imagery and known land use types. The land cover features that were analyzed include both human-made and natural features. Human-made features include:

- Buildings;
- Roads;
- Driveways;
- Sidewalks;
- Railways;
- Swimming pools;
- Parking areas;
- Paved surfaces; and
- Sports grounds;

Natural features include:

- Forests;
- Grass areas;
- Bare land;
- Water;
- Shrubs; and
- Tree canopy.

All human-made features were deemed as not being potential planting areas due to their impermeable nature and/ or pre-existing uses. However, in the future, parking and paved surfaces have the potential to be converted to plantable space.

Of the natural features considered, grass areas (excluding farmland) were deemed as suitable potential planting areas since these areas are not human-made features and do not have existing tree cover. Most potential planting areas are along roadways and in parks. (**Figure 3**). Based on this analysis, there are 2,025 ha (20.25 km²) of area available for planting.

A specific location identified for naturalization planting is Fairplay Woods. Fairplay Woods is a 51.2 ha area of Carolinian forest that is owned by the Town and is part of the municipal Natural Heritage System. The Town is looking to expand the forested and naturalized areas immediately east of Fairplay Woods. This will include a variety of planting techniques including the installation of pollinator gardens, mini forests, and reforestation plantings.

However, other factors to consider when prioritizing planting areas include:

- Tree equity: plant in areas that are not currently fully receiving the benefits that trees provide.

Opportunity: identify low-income areas that lack canopy cover and prioritize tree planting in these neighborhoods.

- Urban heat island mitigation: Plant where urban heat island effects are greatest.

Opportunity: identify areas where surface temperatures reach greater than 31 degrees Celsius and prioritize these areas for planting

- Biodiversity and habitat value: Plant where there are opportunities to increase biodiversity and improve habitat.

Opportunity: Continue to undertake ecological restoration projects to increase biodiversity and improve habitat

Opportunity: Engage with First Nations to identify areas of cultural significance that would benefit from tree and/ or naturalization plantings



8.1.1.1 Site Characteristics

The characteristics of the planting site will determine what species are suitable and will be successful. Characteristics that should be considered are the size of the site, light availability, soil type, the presence of invasive species, existing vegetation, hydrology, and topography.

Hardiness

Cold hardiness is one of the first characteristics that should be considered when planning a planting project. The hardiness zone of the planting site can be determined by using the Canadian plant hardiness index.

Determine light availability

The amount of sunlight available at the planting location is one factor that will determine what species are suitable for the site. A site with full sunlight exposure will require species that can tolerate these conditions. A site that is partially sunny/shaded or fully shaded will require species that are tolerant of moderate to considerable amounts of shade. **Table** below is a summary of the different light levels that may be present at a planting site. This table is adapted from the Landscape Ontario Horticultural Trades Association (LOHTA; 2019).

Table 9: Description of Light Levels (LOHTA, 2019)

Light Level	Description
Full sun	Greater than six hours of direct sunlight per day
Part sun/ shade	Less than six hours of direct sunlight or filtered light throughout the majority of the day
Full shade	Less than six hours of filtered sunlight; very little to no direct sunlight per day

Determine soil characteristics

Healthy soils function as a complete ecosystem, supporting organisms that not only live in the soil but that also sustain plant and animal life. Providing trees with healthy soils early on

aid in tree establishment, and long-term health. Soil type, quality and compaction can be a concern when planning planting activities. As such, an assessment of existing soils at planting locations is recommended prior to species selection and planting. To assess soil quality, four properties should be considered - physical, chemical, biological, and hydrological (Delgado 2024).

Soil assessments can vary in detail depending on the goals of the site but should at least provide a high-level indication of soil type. Based on the extent and results of soil assessments, appropriate plant species can be chosen, and site-specific recommendations for soil amendments can be made prior to planting.



The Four Pillars of Soil Analysis

Structural Foundations (Physical)

Defines soil structure and texture, influencing the movement of air and nutrients.

Water Retention & Flow (Hydrological)

Evaluates infiltration rates to determine how much water is available to plants.



The Living Ecosystem (Biological)

Measures organic matter and organisms responsible for nutrient release and soil recovery.

Chemical & Nutrient Balance (Chemical)

Identifies pH levels (acidity/alkalinity) and the presence of essential nutrients or contaminants.

NotebookLM

Spacing Requirements

In urban areas, the space required for a tree's crown and roots to grow to maturity should be considered. This proactive approach to species selection will help reduce conflicts between trees and infrastructure. Planting the right tree in the right space for the right reason may also reduce pruning costs.

Determine if invasive plant species are present and pre-planting removal or mitigation requirements.

A non-native invasive plant species is defined as a species that is not endemic to the area and has been introduced either intentionally or accidentally. These species have negative impacts to the local ecosystem and grow in dense monocultures, thereby outcompeting native vegetation and resulting in less biodiversity. Invasive species in Ontario are regulated under the Invasive Species Act (2015) and the Weed Control Act (1990). The Ontario Invasive Plant Council offers Best Management Practices (BMPs) with guidance on identifying and managing invasive plant species in Ontario. In certain instances, managing these invasive plants may necessitate the use of pesticides, which is governed by the *Pesticides Act*. **Table** below lists common non-native invasive species and management options for these species.



Table 10: Summary of Common Non-Native Invasive Species and Management Options

Common and Scientific Name	Restricted (Invasive Species Act 2015)	Noxious (Weed Control Act 1990)	Management Options
Herbaceous			
Dog-strangling vine <i>Vincetoxicum rossicum</i>	Yes	Yes	Mechanical (digging) Chemical
Japanese knotweed <i>Fallopia japonica</i>	Yes	Yes	Mechanical (digging and/or cutting) in tandem with chemical treatment.
Invasive phragmites <i>Phragmites australis</i>	Yes	No	Mechanical (spading) Chemical Flooding
Garlic mustard <i>Alliaria petiolata</i>	No	No	Mechanical (hand pulling) Chemical
Giant hogweed <i>Heracleum mantegazzianum</i>	No	Yes	Mechanical (hand pulling and digging) Chemical
Wild parsnip <i>Pastinaca sativa</i>	No	Yes	Mechanical (mowing) Chemical
Woody			
European buckthorn <i>Rhamnus cathartica</i>	No	Yes	Mechanical (hand pulling, digging and/or girdling) Chemical Solarization of individual stems
Norway maple <i>Acer plantanoides</i>	No	No	Mechanical (digging and/or cutting) Chemical Girdling Solarization of individual stems

Common and Scientific Name	Restricted (Invasive Species Act 2015)	Noxious (Weed Control Act 1990)	Management Options
Manitoba maple <i>Acer negundo</i>	No	No	Mechanical (hand pulling, digging and/or girdling) Chemical Solarization of individual stems
White mulberry <i>Morus alba</i>	No	No	Mechanical (hand pulling and digging) Chemical
Black locust <i>Robinia pseudoacacia</i>	No	No	Mechanical (hand pulling and digging) Chemical
Invasive honeysuckles <i>Lonicera</i> spp.	No	No	Mechanical (hand pulling, digging and/or girdling) Chemical
Siberian elm <i>Ulmus pumila</i>	No	No	Mechanical (hand pulling, digging, and/ or girdling) Chemical Solarization of individual
Tree of heaven <i>Ailanthus altissima</i>	No	No	Mechanical (hand pulling, digging and/ or girdling) Chemical Solarization of individual stems

Integrated Pest Management (IPM) should be applied when strategizing the appropriate control methods for invasive species in specific areas. IPM involves using the best available information and a variety of approaches to control invasive plant species (Sherman, 2015). It is a balanced approach for managing invasive species and should consider the following (Invasive Plant Council of British Columbia and Fraser Basin Council, 2012; Sherman, 2015):

- Correctly identifying invasive plant species and applying control strategies based on knowledge of their biology, ecology and response to management;
- Conducting inventories and mapping, and monitoring invasive plant populations and damage;
- Making control decisions based on knowledge of potential damage, cost of control methods, and the environmental impact of both the invasive plant and the control decision;
- Using control strategies that may include a combination of methods such as biological, cultural, mechanical and chemical controls to reduce the invasive plant population to an acceptable level;
- Undertaking control during the proper time of year; and,
- Evaluating the effectiveness and impacts of management decisions.

8.1.2 Stock Selection

Plant materials selected for tree planting and naturalization should be #1 Nursery Stock meeting the most recent edition of the Canadian Nursery Stock Standards and the Canadian Nursery Trade Guide. Plant materials should be free of disease, insects, defects, or injuries and be structurally sound with a strong, fibrous root system. If trees or shrubs exhibit minor instances of dead and damaged branches these should be pruned in accordance with *good arboricultural practices* prior to planting.

Avoid nursery stock trees that exhibit any of the following:

- Damaged root balls;
- Crooked trunk;
- Double leaders;
- Trunk damage by abrasion, rodent/ animal damage, sun scald, or frost cracks;
- Girdled trunks;
- Poorly developed crown;
- Height/ caliper that does not conform to planting specifications;
- Poor pruning;
- Excessively dry leaves;
- Crossing branches or weak branch crotches;
- Disease or insect infest; and/ or
- Not healthy or showing signs of vigor, at the discretion of the supervising arborist.

Native plants should be sourced from nurseries within Ontario, preferably within a 100 km radius of the Town that grow their stock from local seed sources. Locally sourced stock will be better adapted to local conditions and is likely to result in more vigorous, healthy specimens (City of Toronto, 2020).

8.1.3 Species Selection

One of the key principles of this Plan is planting success and maximizing the ecological and community benefits of the urban forest by selecting the most suitable species for a specific location and purpose—the right tree (or other vegetation) in the right place for the right reason. This approach considers various site-specific limitations and opportunities to support optimal long-term growth and survival. To do this successfully, a variety of factors need to be considered including:

- The total amount of space available to the tree or vegetation for optimal growth;
- Available light;
- Available water sources;
- Soil conditions and characteristics;
- Maintenance requirements and duration;
- Proximity to streets, structures or infrastructure.

Table 1 included in **Appendix A** is a Species Selection Guide based on recommendations from existing Town documents including Policy 108, and the Town’s Parks and Recreation Master Plan. It is also based on recommendations from the Essex Region Conservation Authority (ERCA). This guide can be used when developing site-specific planting plans and contains information on native tree, shrub, herbaceous, vine,

grass, and fern species selected to enhance the ecological function of the restored areas. It includes characteristics of each species such as light requirements and salt tolerance, as well as soil moisture regime, and wildlife use. This table should not be considered an exhaustive list of native species appropriate for use in ecological restoration, and as such, other native species can be considered for restoration and naturalization planting plans.

8.1.4 Planting Design

1. Consider the goals of the site. The goals of the site will dictate the size and species diversity of plants required. For example, a planting site aiming to restore a forest edge will require a distinct set of species than a planting site aiming to maximize the number of caliper shade trees in a park.
2. Consider the site conditions, including but not limited to the size of the site, available light and water, soil conditions, presence of existing vegetation, and proximity to structures or infrastructure.
3. Consider maintenance requirements. In some situations, lower maintenance species may be preferable. However, if the site is undergoing regular maintenance, then this may be an opportunity to select a greater plant diversity.
4. Consider pre-planting preparations requirements. This may include invasive species management, earthworks/grading, or soil importation or amendments.

5. The priority should be to select native species with non-invasive, non-native species being used as an alternative only when necessary or preferred based on the site goals and conditions. Non-native invasive species should not be used under any circumstances.

8.1.5 Soil Preparation

Soil preparation may be necessary if the soil on-site is compacted and/ or if *organic matter* is less than 5% (LOHTA 2019). Compaction can be determined by manually probing the soil with high-tensile wire or more detailed analysis can be conducted at a lab. To determine the amount of organic matter, a soil sample typically needs to be sent to a lab. This is recommended in urban environments as urban soils tend to have deficiencies in organic matter.

Compacted soil does not allow for adequate water infiltration or aeration, thus negatively impacting plant growth. Studies have shown that often a combination of decompaction and the incorporation of organic amendments can improve tree establishment and growth rate (LOHTA 2019). If compaction is severe, there are several decompaction methods that can be considered. One method is *subsoiling*, whereby heavy equipment pulls chisels or tines through the soil. Subsoiling is typically used for medium to large planting areas that are flat or have a gentle slope. In highly compacted soils of urban areas, subsoiling is recommended to a depth of 60 to 90 cm to ensure that water can drain past the root balls of newly planted trees (LOHTA 2019).

Another method of soil preparation is the *Backhoe Turning Method*. In this method, an organic amendment is applied, and

an excavator bucket is used to scoop the native soil with the amendment, breaking up the soil, and mixing the amendment with the native soil (LOHTA 2019). This method is suitable for small to medium sized sites.

For sites where deep decompaction is not necessary, light-duty tools such as chisel plows, rotary spaders, and rototillers can be used to break up the soil.

The application of soil amendments is most effective when applied during site preparation, prior to planting. Organic amendments are recommended when preparing urban soils for planting, as urban soils typically lack sufficient organic matter. The addition of organic amendments is strongly recommended if the existing soil has less than 5% organic matter (LOHTA 2019). The below is adapted from LOHTA (2019) and summarizes the benefits and limitations of some available organic amendments.

Table 8-10: Summary of Benefits and Limitation of Common Organic Amendments (LOHTA, 2019)

Organic Amendment Type	Benefits	Limitations
Compost	- Widely available - Improves soil fertility - Improves soil structure - Improves moisture retention - Microbially active	- Weed seeds may be present - Components of different batches may vary
Mulch	Widely available	Should not be directly

Organic Amendment Type	Benefits	Limitations
	Improves moisture retention Improves soil structure Slow release of nutrients Inexpensive	incorporated into soil due to high carbon to nitrogen ratio
Biochar	Improves moisture and nutrient retention Stable and persistent	Expensive Limited availability May not apply uniformly

8.1.6 Planting Techniques

Planting should take place under suitable weather conditions and in a suitable growing season. Installation of plant material should follow ANSI A300 Tree Care Standards (2023) or equivalent.

For installation of trees, pits should be dug a minimum of 300mm wider than the diameter of the root ball with the tree placed centered in the pit on undisturbed soil. Then the pit should be backfilled with the original material. If there is a lack of soil, screened topsoil should be used. Mulch should then be applied to the area around the base of the tree. Mulch should consist of organic materials and should not contain materials from any invasive species. Details on proper mulch application are detailed in the Maintenance Plan section.

8.2 Maintenance Plan

Maintenance of newly planted trees and naturalization areas should consist of the following items:

- Watering
- Mulch application and re-application
- The application of mycorrhizal inoculants
- Weeding and invasive species management

8.2.1 Watering

Watering trees, shrubs and herbaceous plants maintains the volumetric water content within the range of available water for root uptake on and around the root system. Available water is defined as the range of volumetric water content between field capacity and permanent wilting point, which varies depending on soil composition. Watering needs will vary with species, plant size, and soil type. Watering regularly following planting is key to planting success, especially in the summer months and during drought conditions. Drought is defined as a shortage of precipitation over an extended period, usually a season or more. Drought is slow to occur and caused by a combination of factors such as lack of rain, elevated temperatures and increased demand for water. In the context of planting projects, drought can reduce soil moisture and groundwater levels which can affect plant growth and survivorship. Watering regimes should be tailored to the specific needs of the planting site. However, the following general watering regime is recommended:

- As a general guideline, water new tree, shrub, and herbaceous plantings twice weekly starting from May to

October, and at least once in April for the first two years following planting and when the planting location receives less than 25 mm of rain per seven-day period.

- Watering frequency should be adjusted as needed to account for actual rain and drought. For example, watering more frequently during extended periods with no rain and high average daytime temperatures exceeding 25 degrees Celsius.
- In the third year following planting, it is recommended that plants are watered once per month, if required, during extended periods with no rain and high average daytime temperature exceeding 25 degrees Celsius.
- Where planting areas are exposed to road and boulevard de-icing salts, it is recommended that each planting area is saturated with water once between April 1 and May 1, after soil has thawed to the extent that water is draining through the planting areas. This will dilute and leech salt away from tree roots. This is recommended primarily for trees and shrubs planting along Town boulevards.
- For street trees, the application of 13 gallon (50 L) tree watering bags, which offer a slow release of water, should be considered for stock of appropriate size located in appropriate areas such as along municipal right of ways and where access permits. Tree watering bags supply water directly to the base of the tree, decreasing waste and reducing water run-off and evapotranspiration. Bags typically need to be filled once per week, depending on the amount of rain

received. Apply 40 to 50 L of water per tree at each watering. If watering bags are used, then fill them up to the active drain holes. Watering bags should be removed no later than 2-3 years after planting.

- Where no watering bags are used, apply 40 to 50 L of water at a slow rate, so each tree receives a thorough soaking, and water does not wash away the surrounding soil/mulch exposing the root system. Do not use high pressure water probes.
- Document and report drainage problems, such as ponding or run-off, to the Manager of Parks and Horticulture. Drainage and soil moisture can be maintained using a mulch layer, which helps improve soil structure and prevents surface compaction, and by light cultivation of top layer of soil.

8.2.2 Mulch Application & Re-application

Mulch is placed around new plantings to maintain moisture, reduce competition from weeds, and improve soil structure. Organic mulch is preferred as they release essential nutrients and improve soil structure during decomposition. Where possible, it is preferable to use wood chips generated through Town projects.

When applying mulch to the area around trees or shrubs, coverage should be approximately two to four inches (5-10cm). Mulch is not placed directly against the stem of a tree or shrubs as this can lead to infections, rot, adventitious roots, and insect damage. The size of the area to be mulched is dependent upon the size of the tree. It is recognized that the

broader the area that is mulched, the more effective it will be at reducing competition and retaining soil moisture. The International Society of Arboriculture (ISA) recommends that a mulch circle of at least six feet (1.8m) in diameter is applied to a one-inch to two-inch caliper tree.

Although replacement of mulch may be necessary, it is advised that trees and shrubs not be over-mulched as this can restrict oxygen and water availability to the roots, leading to root rot or girdling roots. Over-mulching can also limit nitrogen availability and affect soil pH.

8.2.3 Mycorrhizal Inoculants

Mycorrhizae play a key role in the natural forest ecosystem and exist in a symbiotic relationship with tree roots to absorb water and essential minerals. Inoculation of the soil in the immediate vicinity of recent plantings with spores of mycorrhizal fungi has been shown to increase the success of these plants (Lilly, 2010).

Dixon et al. (2015) demonstrated the positive effects of a water-based root zone mycorrhizal inoculum. In their study, it was demonstrated that the application of a one-time drench inoculation of the root ball following planting can markedly increase drought tolerance.

It is recommended that a water-based root zone mycorrhizal inoculum be applied to large caliper tree stock immediately following planting to ameliorate the potential for drought stress. Use of a product that offers application as a one-time drench inoculation of the root ball or container is recommended.

8.2.4 Weeding and Invasive Species Management

The frequency of weeding and invasive species management is project specific. However, it is recommended that it takes place on a monthly basis until plantings are well established. Mechanical weeding may be accomplished by hand-pulling or using motorized equipment. If using motorized equipment, ensure that operators are aware of the locations of the plantings. In addition, it may be beneficial to have trees protected with tree guards to prevent accidental damage.

Invasive species should be managed using an IPM approach as discussed earlier. Refer to the Ontario Invasive Plant Council's Best Management Guides for specific management techniques. If pesticides are to be applied, ensure that they are applied by a licensed professional and adhere to appropriate regulations.





9.0 Glossary

Adaptive Management: A systematic, iterative process for continuous improvement by learning from operational outcomes. It treats interventions as experiments, comparing predicted and actual results. The cycle involves setting objectives, modeling, monitoring key indicators, evaluating data, and adjusting strategies. This keeps the management planning process dynamic and responsive to the latest information and changing conditions.

Backhoe Turning Method: A low-impact technique for tree or stump removal in constrained areas. It uses a backhoe to gently loosen, lift, and rotate the root ball out of the ground, minimizing excavation size and collateral damage to surrounding infrastructure or landscaping. The goal is efficient removal while preserving soil structure and minimizing disruption.

Good Arboricultural Practices: Professional, science-based standards and techniques for tree care, promoting health, safety, and longevity. Key components include:

- **Proper Pruning:** Using industry standards (e.g., ANSI A300) to maintain tree structure, avoiding topping.
- **Tree Planting:** Selecting the "right tree, right place," ensuring proper depth, root preparation, and initial care.
- **Pest and Disease Management:** Utilizing Integrated Pest Management (IPM), prioritizing monitoring and cultural/biological controls.

- **Tree Protection:** Implementing robust measures (Tree Protection Zones - TPZs) during construction to shield trees.
- **Soil Management:** Improving soil health through aeration, fertilization, and maintaining organic mulch.
- **Risk Assessment:** Systematically assessing and mitigating potential tree failure hazards for public safety.

Adherence to these practices, often guided by certified arborists, is vital for sustainable urban forest management.

Green infrastructure: A planned network of natural and semi-natural areas managed to provide ecosystem services and protect biodiversity. It falls into two categories:

- **Natural Assets:** The focus of naturalization, including woodlands, wetlands, meadows, and riparian zones.
- **Engineered/Enhanced Assets:** Human-designed systems mimicking natural processes, such as bioswales, engineered wetlands, green roofs, and street trees in structural soil.

Grey infrastructure: Built systems constructed from hard materials such as concrete, steel, and/ or stone. These built systems provide essential services such as water management, transportation, and energy.

Invasive species: A species that is not endemic to the area and has been introduced either intentionally or accidentally. These species have negative impacts to the local ecosystem

and grow in dense monocultures, thereby outcompeting native vegetation and resulting in less biodiversity.

Native species: Plant or animal species that occur naturally in a particular region, ecosystem, or habitat without direct or indirect human intervention. In the context of the Urban Forestry and Naturalization Management Plan, this refers to species indigenous to the local geographic area.

Organic matter: Material derived from living organisms, such as decomposing plant and animal tissue, and includes leaves, dead wood, and microbial biomass found in soil. It is essential for soil health and structure.

Subsoiling: A deep-tillage practice that breaks up compacted layers of soil (hardpan) below the surface layer without inverting the soil. This practice improves aeration, water infiltration, and root penetration, particularly in highly compacted urban soils.

Tree Protection Zone: the minimum setback (including above, below and at ground level) required to protect biological health and maintain the structural integrity of a Town Tree.

Urban forest: All the trees, forests, and associated vegetation within an urban area, including trees in parks, along streets, in residential yards, and in naturalized areas. It encompasses the entire woody perennial plant component of the urban ecosystem.

Urban heat island effect: A phenomenon where urban areas experience higher temperatures than surrounding rural areas due to the abundance of heat-absorbing surfaces (like asphalt and concrete), lack of vegetation, and waste heat from human activities and infrastructure.

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Appendix A

Species Selection Guide

Appendix A: Species Selection Guide

The following table is to be used as a guide when developing site-specific planting plans and contains information on native tree, shrub, herbaceous, vine, fern, and grass species selected to enhance biodiversity and the ecological function of the restored area. It includes characteristics of each species such as light requirements and salt tolerance, as well as preferred soil conditions and wildlife use. This table should not be considered an exhaustive list of native species appropriate for use in ecological restoration, and as such, other native species can be considered for restoration plantings. Furthermore, while the species in this list are appropriate for many municipal street and park applications, and private land applications, other native and non-invasive non-native species could be considered depending on the site location and context.

Legend:

Wildlife Use:



= attracts breeding and migratory birds



= attracts pollinators



= mast species

Light Requirements:



= full sun



= part-sun



= part-shade



= full shade

Characteristics:



= trees that are suitable for urban environments/ street tree



= salt tolerant



= drought tolerant



= cold tolerant



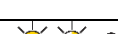
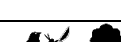
= deer resistant

Table_7.Species.Selection.Guide

Scientific Name	Common Name	Preferred Soil Conditions	Wildlife Use	Light Requirements	Characteristics
Trees					
<i>Acer rubrum</i>	Red maple	Intermediate/ moist			
<i>Acer saccharinum</i>	Silver maple	Moist			
<i>Acer saccharum</i>	Sugar maple	Moist			
<i>Betula alleghaniensis</i>	Yellow birch	Moist			
<i>Betula nigra</i>	River birch	Moist			
<i>Betula papyrifera</i>	Paper birch	Moist			
<i>Carpinus caroliniana</i>	Blue beech	Moist			
<i>Carya cordiformis</i>	Bitternut hickory	Dry/ moist			
<i>Carya ovata</i>	Shagbark hickory	Intermediate			
<i>Celtis occidentalis</i>	Common hackberry	Intermediate/ moist			
<i>Fagus grandifolia</i>	American beech	Dry/ moist			
<i>Gledistia triacanthos</i>	Honey locust	Intermediate/ moist			

<i>Juniperus virginiana</i>	Red cedar	Dry			
<i>Liriodendron tulipifera</i>	Tulip tree	Intermediate			
<i>Ostrya virginiana</i>	Eastern hop-hornbeam/ Ironwood	Dry/ moist			
<i>Picea glauca</i>	White spruce	Dry/ moist			
<i>Pinus strobus</i>	Eastern white pine	Dry/ intermediate/ moist			
<i>Populus grandidentata</i>	Large-toothed aspen	Dry/ intermediate/ moist			
<i>Populus tremuloides</i>	Trembling aspen	Dry/ wet			
<i>Prunus serotina</i>	Black cherry	Moist			
<i>Quercus alba</i>	White oak	Dry/ moist			
<i>Quercus bicolor</i>	Swamp white oak	Moist			
<i>Quercus macrocarpa</i>	Bur oak	Dry/ moist/ wet			
<i>Quercus muhlenbergii</i>	Chinquapin oak	Dry			
<i>Quercus rubra</i>	Northern red oak	Dry/ moist			
<i>Quercus velutina</i>	Black oak	Dry			
<i>Sassafras albidum</i>	Sassafras	Moist			

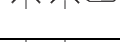
<i>Thuja occidentalis</i>	Eastern white cedar	Moist			
<i>Tilia americana</i>	American basswood	Dry/ moist			
<i>Tsuga canadensis</i>	Eastern hemlock	Moist			
Shrubs					
<i>Amelanchier laevis</i>	Smooth serviceberry	Dry/ moist			
<i>Aronia melanocarpa</i>	Black chokeberry	Moist			Flood tolerant
<i>Ceanothus americanus</i>	New Jersey tea	Dry/ moist			
<i>Cephalanthus occidentalis</i>	Buttonbush	Moist/ wet			
<i>Cornus alternifolia</i>	Alternate-leaved dogwood	Moist/ wet			
<i>Cornus amomum</i>	Silky dogwood	Moist/ wet			
<i>Cornus racemosa</i>	Gray dogwood	Moist			
<i>Cornus rugosa</i>	Round-leaved dogwood	Dry/ moist			
<i>Cornus sericea</i>	Red-osier dogwood	Moist			
<i>Corylus americana</i>	American hazelnut	Dry/ moist			
<i>Diervilla lonicera</i>	Bush honeysuckle	Dry/ moist			
<i>Hamamelis virginiana</i>	Witch hazel	Moist			

<i>Lindea benzoin</i>	Spicebush	Dry/ moist/ wet			
<i>Physocarpus opulifolius</i>	Ninebark	Dry/ moist			
<i>Prunus virginiana</i>	Chokecherry	Moist			
<i>Rhus typhina</i>	Staghorn sumac	Dry/ moist			
<i>Ribes americanum</i>	Wild black currant	Moist			
<i>Ribes cynosbati</i>	Prickly gooseberry	Intermediate/ moist			
<i>Rosa blanda</i>	Smooth rose	Dry/ moist			
<i>Rubus allegheniensis</i>	Allegheny blackberry	Dry/ moist			
<i>Rubus idaeus</i>	Wild red raspberry	Dry/ moist			
<i>Rubus occidentalis</i>	Black raspberry	Dry/ moist			
<i>Rubus odoratus</i>	Purple-flowering raspberry	Dry/ moist			
<i>Salix bebbiana</i>	Bebb's willow	Moist/ wet			
<i>Salix discolor</i>	Pussy willow	Moist			
<i>Salix interior</i>	Sandbar willow	Moist/ wet			
<i>Sambucus canadensis</i>	Common elderberry	Moist/ wet			
<i>Sambucus racemosa</i>	Red elderberry	Moist/ wet			

<i>Spirea alba</i>	White meadowsweet	Moist			
<i>Viburnum acerifolium</i>	Maple-leaved viburnum	Moist			
<i>Viburnum lentago</i>	Nannyberry	Dry/ moist			
Vines					
<i>Clematis virginiana</i>	Virgin's bower	Moist			
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Moist			
Ferns					
<i>Adiantum pedatum</i>	Northern maidenhair fern	Moist/ dry			
<i>Athyrium filix-femina</i> ssp. <i>angustum</i>	Northeastern lady fern	Moist/ dry			
<i>Dryopteris marginalis</i>	Marginal wood fern	Dry			
<i>Matteuccia struthiopteris</i>	Ostrich fern	Moist/ wet			
<i>Onoclea sensibilis</i>	Sensitive fern	Moist/ wet			
<i>Polystichum acrostichoides</i>	Christmas fern	Intermediate/ wet			
Herbaceous					
<i>Anaphalis margaritacea</i>	Pearly everlasting	Dry			
<i>Anemone acutiloba</i>	Sharp-lobed hepatica	Intermediate/ dry			
<i>Anemone canadensis</i>	Canada anemone	Moist			

<i>Aquilegia canadensis</i>	Wild columbine	Dry			
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	Intermediate/ wet			
<i>Asarum canadense</i>	Wild ginger	Dry/ moist			
<i>Asclepias incarnata</i>	Swamp milkweed	Wet/ moist			
<i>Asclepias syriaca</i>	Common milkweed	Dry/ moist			
<i>Caulophyllum thalictroides</i>	Blue cohosh	Moist			
<i>Chelone glabra</i>	White turtlehead	Moist			
<i>Coreopsis lanceolata</i>	Lance-laved coreopsis	Intermediate/ dry			
<i>Desmodium canadense</i>	Showy tick trefoil	Dry/ moist			
<i>Eupatorium perfoliatum</i>	Common boneset	Intermediate/ moist			
<i>Eurybia macrophylla</i>	Large-leaved aster	Dry/ moist			
<i>Eutrochium maculatum</i> ssp. <i>maculatum</i>	Spotted Joe-pye weed	Moist/ wet			
<i>Fragaria virginiana</i>	Wild strawberry	Intermediate/ dry			
<i>Geranium maculatum</i>	Spotted geranium	Intermediate/ moist			
<i>Geum triflorum</i>	Prairie smoke	Intermediate/ dry			
<i>Helianthus divaricatus</i>	Woodland sunflower	Dry			

<i>Heliopsis helianthoides</i>	Sweet ox-eye	Dry/ moist			
<i>Hydrophyllum virginiana</i>	Virginia waterleaf	Intermediate/ dry			
<i>Lobelia siphilitica</i>	Great blue lobelia	Moist/ wet			
<i>Maianthemum canadense</i>	False Solomons-seal	Dry/ moist			
<i>Maianthemum stellatum</i>	Starry false Solomons-seal	Dry/ moist			
<i>Mimulus ringens</i>	Square-stemmed monkeyflower	Wet			
<i>Monarda fistulosa</i> ssp. <i>fistulosa</i>	Wild bergamot	Intermediate/ dry			
<i>Oenothera biennis</i>	Common evening primrose	Dry/ intermediate			
<i>Podophyllum peltatum</i>	Mayapple	Intermediate/ moist			
<i>Pycnanthemum virginianum</i>	Virginia mountain mint	Dry/ moist			
<i>Rudbeckia hirta</i>	Black-eyed Susan	Intermediate/ moist			
<i>Rudbeckia laciniata</i>	Cut-leaved coneflower	Moist			
<i>Sanguinaria canadensis</i>	Bloodroot	Intermediate			
<i>Silphium perfoliatum</i>	Cup plant	Moist/ wet			
<i>Solidago caesia</i>	Blue-stemmed goldenrod	Intermediate/ dry			

<i>Solidago canadensis</i> ssp. <i>canadensis</i>	Canada goldenrod	Intermediate/ moist			
<i>Solidago flexicaulis</i>	Zigzag goldenrod	Intermediate/ moist			
<i>Solidago nemoralis</i> ssp. <i>nemoralis</i>	Gray-stemmed goldenrod	Intermediate/ dry			
<i>Spirea tomentosa</i>	Steeplebush	Intermediate/ moist			
<i>Symphotrichum cordifolium</i>	Heart-leaved aster	Intermediate/ moist			
<i>Symphotrichum ericoides</i> ssp. <i>ericoides</i>	White heath aster	Intermediate/ dry			
<i>Symphotrichum lanceolatum</i> ssp. <i>lanceolatum</i>	Panicked aster	Intermediate/ moist			
<i>Symphotrichum lateriflorum</i>	Calico aster	Intermediate/ moist			
<i>Symphotrichum novae-angliae</i>	New England aster	Intermediate/ moist			
<i>Symphotrichum puniceum</i>	Swamp aster	Moist			
<i>Thalictrum dioicum</i>	Early meadow-rue	Intermediate			
<i>Thalictrum pubescens</i>	Tall meadow-rue	Intermediate/ wet			
<i>Tiarella cordifolia</i>	Heart-leaved foamflower	Intermediate			
<i>Trillium erectum</i>	Red trillium	Intermediate/ moist			
<i>Trillium grandiflorum</i>	White trillium	Intermediate/ moist			

<i>Verbena hastata</i>	Blue vervain	Moist/ wet			
Grasses					
<i>Andropogon gerardii</i>	Big bluestem	Moist/ dry			
<i>Danthonia spicata</i>	Poverty oatgrass	Dry			
<i>Deschampsia cespitosa</i>	Tufted hair grass	Dry			
<i>Elymus canadensis</i>	Canada wild rye	Moist/ dry			
<i>Elymus hystrix</i>	Bottlebrush grass	Moist/ dry			
<i>Elymus virginicus</i> ssp. <i>virginicus</i>	Virginia wildrye	Moist			
<i>Panicum virgatum</i>	Switch grass	Moist/ dry			
<i>Schizachyrium scoparium</i> (<i>Andropogon</i> sp.)	Little bluestem	Moist/ dry			
<i>Sorghastrum nutans</i>	Indian grass	Moist/ dry			
<i>Sporobolus heterolepis</i>	Prairie dropseed	Dry			

Appendix B

Tree Planting & Establishment Specifications and Standard Design Details

Part 1 GENERAL

1.1 SUMMARY

- .1 Section Includes:
 - .1 Materials and installation for plant material, accessories, mulch, planting, tree support, mulching and maintenance.
 - .2 Sustainable requirements for construction and verification.

1.2 RELATED SECTIONS:

- .1 Section 31 22 19 - Topsoil and Fine Grading.

1.3 REFERENCES

- .1 Agriculture and Agri-Food Canada (AAFC).
 - .1 Current Plant Hardiness Zones in Canada.
- .2 Canadian Nursery Landscape Association (CNLA).
 - .1 Current Canadian Standards for Nursery Stock.
- .3 Department of Justice Canada (Jus).
 - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
 - .2 Transportation of Dangerous Goods Act (TDGA), 1992, c.34.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .5 Tree Care Industry Association (TCIA)
 - .1 ANSI A300 Tree Care Standards (2023)

1.4 DEFINITIONS

- .1 Mycorrhiza: association between fungus and roots of plants. This symbiosis, enhances plant establishment in newly landscaped and imported soils.

1.5 SUBMITTALS

- .1 Submit product data for:
 - .1 Fertilizer.
 - .2 Anti-desiccant.
 - .3 Guying assembly including clamps, collar, guying wire, anchors and wire tightener.
 - .4 Mulch
 - .5 Trunk protection.
- .2 Co-ordinate submittal requirements with the Landscape Landscape Architect prior to construction.

- .3 Submit samples for:
 - .1 Mulch.
 - .2 Planting soil medium.

1.6 QUALITY ASSURANCE

- .1 The work in this Section shall be executed by a licensed Contractor with membership in Landscape Ontario, and who is known to have been responsible for satisfactory installations during a period of at least five years.
- .2 Sustainable Requirements:
 - .1 N/A

1.7 STORAGE AND PROTECTION

- .1 Protect plant material from frost, freezing, excessive heat, wind and sun during delivery.
- .2 Secure and manage stockpiled plant material from theft.
- .3 Immediately store and protect plant material which will not be installed within 1 hour after arrival at site in an approved shaded site storage location.
- .4 Plant material delivered to site shall be installed within 5 days of arrival on site. Plant material not installed within 5 days of arrival on site will not be accepted.
- .5 Stockpiled plant material shall be watered daily prior to installation.
- .6 Protect plant material from damage during transportation:
 - .1 When delivery distance is less than 30 km and vehicle travels at speeds under 80 km/h, tie tarpaulins around plants or over vehicle box.
 - .2 When delivery distance exceeds 30 km or vehicle travels at speeds over 80 km/h, use enclosed vehicle where practical.
 - .3 Protect foliage and root balls using anti-desiccants and tarpaulins, where use of enclosed vehicle is impractical due to size and weight of plant material.
 - .4 Plant material delivered in an enclosed vehicle shall be kept cool for the duration of transport.
- .7 Protect stored plant material from frost, wind and sun and as follows:
 - .1 For bare root plant material, preserve moisture around roots by heeling-in or burying roots in sand or topsoil and watering to full depth of root zone.
 - .2 For pots and containers, maintain moisture level in containers. Heel-in fibre pots.
 - .3 For balled and burlapped and wire basket root balls, place to protect branches from damage. Maintain moisture level in root zones.
- .8 Waste Management and Disposal:

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling.
- .3 Separate for reuse and recycling and place in designated containers Steel, Metal, and Plastic waste in accordance with Waste Management Plan.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, and Regional and Municipal regulations.
- .6 Divert unused metal materials from landfill to approved metal recycling facility.
- .7 Fold up metal and plastic banding, flatten and place in designated area for recycling.
- .8 Divert discarded plastic plant containers materials from landfill to approved plastic recycling facility.
- .9 Dispose of unused fertilizer at approved official hazardous material collection site.
- .10 Dispose of unused anti-desiccant at approved official hazardous material collections site.
- .11 Divert unused wood and mulch materials from landfill to approved recycling or composting facility.

1.8 SCHEDULING

- .1 Obtain approval for the planting program schedule from the Landscape Architect 7 days in advance of shipment of plant material.
- .2 Plant only under conditions that are conducive to the health and best physical condition of plant materials.
- .3 Schedule of planting program to include:
 - .1 Quantity and type of plant material.
 - .2 Shipping dates.
 - .3 Arrival dates on site.
 - .4 Planting dates.
 - .5 Duration of planting operations.
- .4 Coordinate shipping of plants and planting operations to ensure minimum time lapse between digging and planting.
- .5 Extended planting operations over a long period of time with a limited crew will not be accepted.

1.9 WARRANTY

- .1 The Contractor hereby warrants that plant material as itemized on plant list will remain free of defects for Two (2) full years from the date of Substantial Performance.

- .2 One year and end-of-warranty inspections will be conducted by the Landscape Architect. Attendance by the Contractor is mandatory.
- .3 The Landscape Architect reserves the right to extend Contractor's warranty responsibilities for an additional one year if, at end of initial warranty period, leaf development and growth is not sufficient to ensure future survival.

Part 2 PRODUCTS

2.1 SUSTAINABLE REQUIREMENTS

- .1 N/A

2.2 PLANTING SOIL MEDIUM

- .1 Planting medium to be 6 parts topsoil, 2 parts decomposed weed-free manure, 1 part peat moss and 0.75 kg superphosphate per cubic metre of the mixture.

2.3 PLANT MATERIAL

- .1 Plant material to conform to the following schedule.
- .2 Substitutions for specified plants require the Landscape Architect's written approval.
- .3 Type of root preparation, sizing, grading and quality: comply to Canadian Standards for Nursery Stock.
 - .1 Source of plant material: grown in Zone 7 in accordance with Plant Hardiness Zones in Canada.
 - .2 Plant material must be planted in zone indicated as appropriate for its species.
 - .3 Plant material in location appropriate for its species.
- .4 Plant material: free of disease, insects, defects or injuries and structurally sound with strong fibrous root system.
- .5 Trees: with straight trunks, well and characteristically branched for species except where specified otherwise.
- .6 Trees larger than 200 mm in caliper: half root pruned during each of two successive growing seasons, the latter at least one growing season prior to arrival on site.
- .7 Bare root stock: nursery grown, in dormant stage, not balled and burlapped or container grown.
- .8 Collected stock: not permitted.
- .9 Conifers: spring dug, selected by Landscape Architect prior to digging.

2.4 WATER

- .1 Free of impurities that would inhibit plant growth.

2.5 STAKES

- .1 Steel T-bar, 38 x 38 x 2300 mm.

2.6 WIRE TIGHTENER

- .1 Not applicable.

2.7 CLAMPS

- .1 Not applicable.

2.8 ANCHORS

- .1 Roofing nail, galvanized, 25 mm long.

2.9 GUYING COLLAR

- .1 Not applicable.

2.10 TRUNK PROTECTION

- .1 Burlap: clean, minimum 2.5 kg/m² mass and 150 mm wide, and twine fastener.
- .2 Rodent guard:
 - .1 Welded wire mesh or PVC trunk guard. No dark coloured materials.
 - .2 Bottom of guard to be 50 mm below finished grade. Check and adjust guards every fall to ensure they are mouse tight, free of trash and not interfering with root or trunk development.

2.11 MULCH

- .1 Shredded cedar or pine bark mulch: shredded bark fibre varying in size from 25 to 50 mm in length, with minimum of 75% of bark material, free of small branches and leaves.

2.12 FERTILIZER

- .1 Synthetic commercial type as recommended by soil test report.

2.13 ANTI-DESICCANT

- .1 Wax-like emulsion.

2.14 FLAGGING TAPE

- .1 Fluorescent, orange or green colour.

2.15 SOURCE QUALITY CONTROL

- .1 Make arrangements for inspection of the plant material by the Landscape Architect at the source of the supply, minimum 7 days prior to the scheduled shipment of the material.
- .2 Obtain written approval from Landscape Architect of plant material prior to planting.
- .3 Imported plant material must be accompanied with necessary permits and import licenses. Conform to Federal, Provincial or Territorial regulations.

Part 3 EXECUTION

3.1 PRE-PLANTING PREPARATION

- .1 Examine site before commencement of work and inform the Landscape Architect and Client if site conditions will not permit completion of work as specified in this section.
- .2 Ensure plant material on site is acceptable to the Landscape Architect.
- .3 Deliver all materials in their original containers with all labels intact and legible. Containers with additives shall clearly indicate contents, weight, analysis, and manufacturer's name.
- .4 Remove damaged roots and branches from plant material.
- .5 Apply anti-desiccant to conifers and deciduous trees in leaf in accordance with manufacturer's instructions.
- .6 Planting layout to be approved by Landscape Architect prior to construction.

3.2 EXCAVATION AND PREPARATION OF PLANTING BEDS

- .1 Establishment of sub-grade for planting beds is specified in Section 31 22 19 - Topsoil Placement and Grading.
- .2 Preparation of planting beds is specified in Section 31 22 19 - Topsoil Placement and Grading.
- .3 For individual planting holes and planting beds:
 - .1 Stake out location of caliper tree pits and tree whip and shrub beds and obtain approval from the Landscape Architect prior to excavating. The proposed location of trees and plants on drawings is approximate only and may require adjustment due to site conditions.
 - .2 Excavate to depth and width as indicated.
 - .1 Minimum diameter of pits to be 300mm wider than the width of the rootball for tree plantings or the width of the rootball for shrubs.
 - .2 Minimum depth to be 450mm for shrubs and 750mm for tree plantings.

- .3 Remove rocks, roots, debris and toxic material from excavated material that will be used as planting soil for trees and individual shrubs. Dispose of excess material.
- .4 Scarify sides and bottom of tree pits and tree whip and shrub beds. The bottom of the tree pit shall be scarified to a depth of 150 mm.
- .5 Remove water which enters excavations prior to planting. Notify the Contract Administrator if water source is ground water.

3.3 PLANTING

- .1 For whip size stock
 - .1 Place 50 mm backfill soil in bottom of planting bed. Plant tree whips and shrubs with roots placed straight out in hole.
 - .2 Apply mycorrhizal inoculant on all tree whips
 - .3 Plant trees with roots spread out horizontally in hole.
 - .4 Backfill planting bed with native soil. Tamp soil to eliminate air pockets
- .2 For jute burlapped root balls, cut away top one third of wrapping and wire basket without damaging root ball. Do not pull burlap or rope from under root ball.
- .3 For container stock or root balls in non-degradable wrapping, remove entire container or wrapping without damaging root ball.
- .4 Plant vertically in locations as indicated. Orient plant material to give best appearance in relation to structure, roads and walks.
- .5 For caliper trees and shrubs:
 - .1 Backfill soil in 150 mm lifts. Tamp each lift to eliminate air pockets. When two thirds of depth of planting pit has been backfilled, fill remaining space with water. After water has penetrated into soil, backfill to finish grade.
 - .2 Form watering saucer as indicated.
 - .3 Install filter fabric over tree saucers prior to mulching.
 - .4 Install filter fabric over entire shrub bed areas and cut slits to accommodate shrub root balls prior to mulching.
- .6 For ground covers, backfill soil evenly to finish grade and tamp to eliminate air pockets. Do not install filter fabric in areas to be planted with ground covers.
- .7 Install all plant material 75 mm high relative to finished grades to allow for natural settlement.
- .8 Water plant material thoroughly.
- .9 After soil settlement has occurred, fill with soil to finish grade.
- .10 Dispose of burlap, wire and container material off site.

3.4 TRUNK PROTECTION

- .1 Install trunk protection on deciduous trees as indicated.

- .2 Install trunk protection prior to installation of tree supports when used.

3.5 TREE SUPPORTS

- .1 Install tree supports as indicated.
- .2 Use single stake tree support for deciduous trees less than 3 m and evergreens less than 2 m.
 - .1 Place stake on prevailing wind side. Do not drive stake through the rootball.
 - .2 Drive stake minimum 1000 mm into undisturbed soil beneath roots. Ensure stake is secure, vertical and unsplit.
 - .3 Install ArborTie^R GREEN as per manufacturer's instructions.
- .3 Use 3 stake tree supports for deciduous trees greater than 3 m and evergreens greater than 2 m.
 - .1 Install ArborTie^R GREEN above branch to prevent slipping at approximately 2/3 height for evergreens and 1/2 height for deciduous trees. Collar mounting height not to exceed 2.5 m above grade.
 - .2 Install flagging tape to guys as indicated.

3.6 PRUNING

- .1 After tree supports have been installed, prune all plants to remove dead and broken branches.
- .2 Preserve the natural character of the plant. Do not remove the leader.
- .3 Use clean, sharp tools and make cuts clean and flush without leaving stubs.
- .4 Cut back to living tissue all cuts, scars and bruises and shape so as not to retain water.

3.7 MULCHING

- .1 Ensure soil settlement has been corrected prior to mulching.
- .2 Spread mulch as indicated.

3.8 MAINTENANCE OF PLANTING DURING ESTABLISHMENT PERIOD

- .1 Perform following maintenance operations from time of planting to Substantial Performance.
 - .1 Water plants to maintain soil moisture conditions for optimum establishment, growth and health of plant material without causing erosion.
 - .1 For evergreen plant material, water thoroughly in late fall prior to freeze-up to saturate soil around root system.
 - .2 Remove weeds monthly.
 - .3 Replace or respread damaged, missing or disturbed mulch.

- .4 For non-mulched areas, cultivate as required to keep top layer of soil friable.
- .5 Remove dead or broken branches from plant material.
- .6 Keep trunk protection and guy wires in proper repair and adjustment.
- .7 Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.

3.9 ACCEPTANCE

- .1 All plant material will be accepted by the Landscape Architect when the planting operations has reached Substantial Performance, provided that the plant material exhibits healthy vigorous growth and is free from disease, insects and fungal organisms.
- .2 All plant material installed less than 90 days prior to frost will be reviewed for Substantial Performance in the following spring, 30 days after the start of the growing season, provided that acceptance conditions are fulfilled.

3.10 MAINTENANCE of PLANTING DURING WARRANTY PERIOD

- .1 From time of Substantial Performance as deemed by the Contract Administrator to end of the 2 year warranty period, perform following maintenance operations.
 - .1 Water plants to maintain soil moisture conditions for optimum growth and health of plant material without causing erosion.
 - .2 Reform damaged watering saucers.
 - .3 Remove weeds monthly.
 - .4 Replace or respread damaged, missing or disturbed mulch.
 - .5 For non-mulched areas, cultivate monthly to keep top layer of soil friable.
 - .6 Apply fertilizer in early spring as indicated by soil test.
 - .7 Remove dead, broken or hazardous branches from plant material.
 - .8 Keep trunk protection and tree supports in proper repair and adjustment.
 - .9 Remove trunk protection, tree supports and level watering saucers at end of warranty period.
 - .10 Submit monthly written reports to the Landscape Architect identifying:
 - .1 Maintenance work carried out.
 - .2 Development and condition of plant material.
 - .3 Preventative or corrective measures required which are outside Contractor's responsibility.
 - .11 An inspection of plant material will occur after the first year following Substantial Performance. Replacements may be required at that time depending on the extent of plant deficiencies noted. Replacements shall be planted as soon as possible, during the proper planting season, in accordance with accepted horticultural practices.

10

3.11 END OF WARRANTY

- .1 Remove and replace dead plants and plants not in healthy growing condition.
 Make replacements in same manner as specified for original plantings.
- .2 Remove trunk protection and tree supports.
- .3 Adjust rodent protection, leave intact.
- .4 Final inspection of plant material at the end of the warranty period may require
 extended warranties depending on the number of replacements required.

END OF SECTION

Appendix B.1

Street Trees

Part 1 GENERAL

1.1 SUMMARY

- .1 Section Includes:
 - .1 Materials and installation for plant material, accessories, mulch, planting, tree support, mulching and maintenance.
 - .2 Sustainable requirements for construction and verification.

1.2 RELATED SECTIONS:

- .1 Section 31 22 19 - Topsoil and Fine Grading.

1.3 REFERENCES

- .1 Agriculture and Agri-Food Canada (AAFC).
 - .1 Current Plant Hardiness Zones in Canada.
- .2 Canadian Nursery Landscape Association (CNLA).
 - .1 Current Canadian Standards for Nursery Stock.
- .3 Department of Justice Canada (Jus).
 - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
 - .2 Transportation of Dangerous Goods Act (TDGA), 1992, c.34.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .5 Tree Care Industry Association (TCIA)
 - .1 ANSI A300 Tree Care Standards (2023)

1.4 DEFINITIONS

- .1 Mycorrhiza: association between fungus and roots of plants. This symbiosis, enhances plant establishment in newly landscaped and imported soils.

1.5 SUBMITTALS

- .1 Submit product data for:
 - .1 Fertilizer.
 - .2 Anti-desiccant.
 - .3 Guying assembly including clamps, collar, guying wire, anchors and wire tightener.
 - .4 Mulch
 - .5 Trunk protection.
- .2 Co-ordinate submittal requirements with the Landscape Landscape Architect prior to construction.

- .3 Submit samples for:
 - .1 Mulch.
 - .2 Planting soil medium.

1.6 QUALITY ASSURANCE

- .1 The work in this Section shall be executed by a licensed Contractor with membership in Landscape Ontario, and who is known to have been responsible for satisfactory installations during a period of at least five years.
- .2 Sustainable Requirements:
 - .1 N/A

1.7 STORAGE AND PROTECTION

- .1 Protect plant material from frost, freezing, excessive heat, wind and sun during delivery.
- .2 Secure and manage stockpiled plant material from theft.
- .3 Immediately store and protect plant material which will not be installed within 1 hour after arrival at site in an approved shaded site storage location.
- .4 Plant material delivered to site shall be installed within 5 days of arrival on site. Plant material not installed within 5 days of arrival on site will not be accepted.
- .5 Stockpiled plant material shall be watered daily prior to installation.
- .6 Protect plant material from damage during transportation:
 - .1 When delivery distance is less than 30 km and vehicle travels at speeds under 80 km/h, tie tarpaulins around plants or over vehicle box.
 - .2 When delivery distance exceeds 30 km or vehicle travels at speeds over 80 km/h, use enclosed vehicle where practical.
 - .3 Protect foliage and root balls using anti-desiccants and tarpaulins, where use of enclosed vehicle is impractical due to size and weight of plant material.
 - .4 Plant material delivered in an enclosed vehicle shall be kept cool for the duration of transport.
- .7 Protect stored plant material from frost, wind and sun and as follows:
 - .1 For bare root plant material, preserve moisture around roots by heeling-in or burying roots in sand or topsoil and watering to full depth of root zone.
 - .2 For pots and containers, maintain moisture level in containers. Heel-in fibre pots.
 - .3 For balled and burlapped and wire basket root balls, place to protect branches from damage. Maintain moisture level in root zones.
- .8 Waste Management and Disposal:

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling.
- .3 Separate for reuse and recycling and place in designated containers Steel, Metal, and Plastic waste in accordance with Waste Management Plan.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, and Regional and Municipal regulations.
- .6 Divert unused metal materials from landfill to approved metal recycling facility.
- .7 Fold up metal and plastic banding, flatten and place in designated area for recycling.
- .8 Divert discarded plastic plant containers materials from landfill to approved plastic recycling facility.
- .9 Dispose of unused fertilizer at approved official hazardous material collection site.
- .10 Dispose of unused anti-desiccant at approved official hazardous material collections site.
- .11 Divert unused wood and mulch materials from landfill to approved recycling or composting facility.

1.8 SCHEDULING

- .1 Obtain approval for the planting program schedule from the Landscape Architect 7 days in advance of shipment of plant material.
- .2 Plant only under conditions that are conducive to the health and best physical condition of plant materials.
- .3 Schedule of planting program to include:
 - .1 Quantity and type of plant material.
 - .2 Shipping dates.
 - .3 Arrival dates on site.
 - .4 Planting dates.
 - .5 Duration of planting operations.
- .4 Coordinate shipping of plants and planting operations to ensure minimum time lapse between digging and planting.
- .5 Extended planting operations over a long period of time with a limited crew will not be accepted.

1.9 WARRANTY

- .1 The Contractor hereby warrants that plant material as itemized on plant list will remain free of defects for Two (2) full years from the date of Substantial Performance.

- .2 One year and end-of-warranty inspections will be conducted by the Landscape Architect. Attendance by the Contractor is mandatory.
- .3 The Landscape Architect reserves the right to extend Contractor's warranty responsibilities for an additional one year if, at end of initial warranty period, leaf development and growth is not sufficient to ensure future survival.

Part 2 PRODUCTS

2.1 SUSTAINABLE REQUIREMENTS

- .1 N/A

2.2 PLANTING SOIL MEDIUM

- .1 Planting medium to be 6 parts topsoil, 2 parts decomposed weed-free manure, 1 part peat moss and 0.75 kg superphosphate per cubic metre of the mixture.

2.3 PLANT MATERIAL

- .1 Plant material to conform to the following schedule.
- .2 Substitutions for specified plants require the Landscape Architect's written approval.
- .3 Type of root preparation, sizing, grading and quality: comply to Canadian Standards for Nursery Stock.
 - .1 Source of plant material: grown in Zone 7 in accordance with Plant Hardiness Zones in Canada.
 - .2 Plant material must be planted in zone indicated as appropriate for its species.
 - .3 Plant material in location appropriate for its species.
- .4 Plant material: free of disease, insects, defects or injuries and structurally sound with strong fibrous root system.
- .5 Trees: with straight trunks, well and characteristically branched for species except where specified otherwise.
- .6 Trees larger than 200 mm in caliper: half root pruned during each of two successive growing seasons, the latter at least one growing season prior to arrival on site.
- .7 Bare root stock: nursery grown, in dormant stage, not balled and burlapped or container grown.
- .8 Collected stock: not permitted.
- .9 Conifers: spring dug, selected by Landscape Architect prior to digging.

2.4 WATER

- .1 Free of impurities that would inhibit plant growth.

2.5 STAKES

- .1 Steel T-bar, 38 x 38 x 2300 mm.

2.6 WIRE TIGHTENER

- .1 Not applicable.

2.7 CLAMPS

- .1 Not applicable.

2.8 ANCHORS

- .1 Roofing nail, galvanized, 25 mm long.

2.9 GUYING COLLAR

- .1 Not applicable.

2.10 TRUNK PROTECTION

- .1 Burlap: clean, minimum 2.5 kg/m² mass and 150 mm wide, and twine fastener.
- .2 Rodent guard:
 - .1 Welded wire mesh or PVC trunk guard. No dark coloured materials.
 - .2 Bottom of guard to be 50 mm below finished grade. Check and adjust guards every fall to ensure they are mouse tight, free of trash and not interfering with root or trunk development.

2.11 MULCH

- .1 Shredded cedar or pine bark mulch: shredded bark fibre varying in size from 25 to 50 mm in length, with minimum of 75% of bark material, free of small branches and leaves.

2.12 FERTILIZER

- .1 Synthetic commercial type as recommended by soil test report.

2.13 ANTI-DESICCANT

- .1 Wax-like emulsion.

2.14 FLAGGING TAPE

- .1 Fluorescent, orange or green colour.

2.15 SOURCE QUALITY CONTROL

- .1 Make arrangements for inspection of the plant material by the Landscape Architect at the source of the supply, minimum 7 days prior to the scheduled shipment of the material.
- .2 Obtain written approval from Landscape Architect of plant material prior to planting.
- .3 Imported plant material must be accompanied with necessary permits and import licenses. Conform to Federal, Provincial or Territorial regulations.

Part 3 EXECUTION

3.1 PRE-PLANTING PREPARATION

- .1 Examine site before commencement of work and inform the Landscape Architect and Client if site conditions will not permit completion of work as specified in this section.
- .2 Ensure plant material on site is acceptable to the Landscape Architect.
- .3 Deliver all materials in their original containers with all labels intact and legible. Containers with additives shall clearly indicate contents, weight, analysis, and manufacturer's name.
- .4 Remove damaged roots and branches from plant material.
- .5 Apply anti-desiccant to conifers and deciduous trees in leaf in accordance with manufacturer's instructions.
- .6 Planting layout to be approved by Landscape Architect prior to construction.

3.2 EXCAVATION AND PREPARATION OF PLANTING BEDS

- .1 Establishment of sub-grade for planting beds is specified in Section 31 22 19 - Topsoil Placement and Grading.
- .2 Preparation of planting beds is specified in Section 31 22 19 - Topsoil Placement and Grading.
- .3 For individual planting holes and planting beds:
 - .1 Stake out location of caliper tree pits and tree whip and shrub beds and obtain approval from the Landscape Architect prior to excavating. The proposed location of trees and plants on drawings is approximate only and may require adjustment due to site conditions.
 - .2 Excavate to depth and width as indicated.
 - .1 Minimum diameter of pits to be 300mm wider than the width of the rootball for tree plantings or the width of the rootball for shrubs.
 - .2 Minimum depth to be 450mm for shrubs and 750mm for tree plantings.

- .3 Remove rocks, roots, debris and toxic material from excavated material that will be used as planting soil for trees and individual shrubs. Dispose of excess material.
- .4 Scarify sides and bottom of tree pits and tree whip and shrub beds. The bottom of the tree pit shall be scarified to a depth of 150 mm.
- .5 Remove water which enters excavations prior to planting. Notify the Contract Administrator if water source is ground water.

3.3 PLANTING

- .1 For whip size stock
 - .1 Place 50 mm backfill soil in bottom of planting bed. Plant tree whips and shrubs with roots placed straight out in hole.
 - .2 Apply mycorrhizal inoculant on all tree whips
 - .3 Plant trees with roots spread out horizontally in hole.
 - .4 Backfill planting bed with native soil. Tamp soil to eliminate air pockets
- .2 For jute burlapped root balls, cut away top one third of wrapping and wire basket without damaging root ball. Do not pull burlap or rope from under root ball.
- .3 For container stock or root balls in non-degradable wrapping, remove entire container or wrapping without damaging root ball.
- .4 Plant vertically in locations as indicated. Orient plant material to give best appearance in relation to structure, roads and walks.
- .5 For caliper trees and shrubs:
 - .1 Backfill soil in 150 mm lifts. Tamp each lift to eliminate air pockets. When two thirds of depth of planting pit has been backfilled, fill remaining space with water. After water has penetrated into soil, backfill to finish grade.
 - .2 Form watering saucer as indicated.
 - .3 Install filter fabric over tree saucers prior to mulching.
 - .4 Install filter fabric over entire shrub bed areas and cut slits to accommodate shrub root balls prior to mulching.
- .6 For ground covers, backfill soil evenly to finish grade and tamp to eliminate air pockets. Do not install filter fabric in areas to be planted with ground covers.
- .7 Install all plant material 75 mm high relative to finished grades to allow for natural settlement.
- .8 Water plant material thoroughly.
- .9 After soil settlement has occurred, fill with soil to finish grade.
- .10 Dispose of burlap, wire and container material off site.

3.4 TRUNK PROTECTION

- .1 Install trunk protection on deciduous trees as indicated.

- .2 Install trunk protection prior to installation of tree supports when used.

3.5 TREE SUPPORTS

- .1 Install tree supports as indicated.
- .2 Use single stake tree support for deciduous trees less than 3 m and evergreens less than 2 m.
 - .1 Place stake on prevailing wind side. Do not drive stake through the rootball.
 - .2 Drive stake minimum 1000 mm into undisturbed soil beneath roots. Ensure stake is secure, vertical and unsplit.
 - .3 Install ArborTie^R GREEN as per manufacturer's instructions.
- .3 Use 3 stake tree supports for deciduous trees greater than 3 m and evergreens greater than 2 m.
 - .1 Install ArborTie^R GREEN above branch to prevent slipping at approximately 2/3 height for evergreens and 1/2 height for deciduous trees. Collar mounting height not to exceed 2.5 m above grade.
 - .2 Install flagging tape to guys as indicated.

3.6 PRUNING

- .1 After tree supports have been installed, prune all plants to remove dead and broken branches.
- .2 Preserve the natural character of the plant. Do not remove the leader.
- .3 Use clean, sharp tools and make cuts clean and flush without leaving stubs.
- .4 Cut back to living tissue all cuts, scars and bruises and shape so as not to retain water.

3.7 MULCHING

- .1 Ensure soil settlement has been corrected prior to mulching.
- .2 Spread mulch as indicated.

3.8 MAINTENANCE OF PLANTING DURING ESTABLISHMENT PERIOD

- .1 Perform following maintenance operations from time of planting to Substantial Performance.
 - .1 Water plants to maintain soil moisture conditions for optimum establishment, growth and health of plant material without causing erosion.
 - .1 For evergreen plant material, water thoroughly in late fall prior to freeze-up to saturate soil around root system.
 - .2 Remove weeds monthly.
 - .3 Replace or respread damaged, missing or disturbed mulch.

- .4 For non-mulched areas, cultivate as required to keep top layer of soil friable.
- .5 Remove dead or broken branches from plant material.
- .6 Keep trunk protection and guy wires in proper repair and adjustment.
- .7 Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.

3.9 ACCEPTANCE

- .1 All plant material will be accepted by the Landscape Architect when the planting operations has reached Substantial Performance, provided that the plant material exhibits healthy vigorous growth and is free from disease, insects and fungal organisms.
- .2 All plant material installed less than 90 days prior to frost will be reviewed for Substantial Performance in the following spring, 30 days after the start of the growing season, provided that acceptance conditions are fulfilled.

3.10 MAINTENANCE of PLANTING DURING WARRANTY PERIOD

- .1 From time of Substantial Performance as deemed by the Contract Administrator to end of the 2 year warranty period, perform following maintenance operations.
 - .1 Water plants to maintain soil moisture conditions for optimum growth and health of plant material without causing erosion.
 - .2 Reform damaged watering saucers.
 - .3 Remove weeds monthly.
 - .4 Replace or respread damaged, missing or disturbed mulch.
 - .5 For non-mulched areas, cultivate monthly to keep top layer of soil friable.
 - .6 Apply fertilizer in early spring as indicated by soil test.
 - .7 Remove dead, broken or hazardous branches from plant material.
 - .8 Keep trunk protection and tree supports in proper repair and adjustment.
 - .9 Remove trunk protection, tree supports and level watering saucers at end of warranty period.
 - .10 Submit monthly written reports to the Landscape Architect identifying:
 - .1 Maintenance work carried out.
 - .2 Development and condition of plant material.
 - .3 Preventative or corrective measures required which are outside Contractor's responsibility.
 - .11 An inspection of plant material will occur after the first year following Substantial Performance. Replacements may be required at that time depending on the extent of plant deficiencies noted. Replacements shall be planted as soon as possible, during the proper planting season, in accordance with accepted horticultural practices.

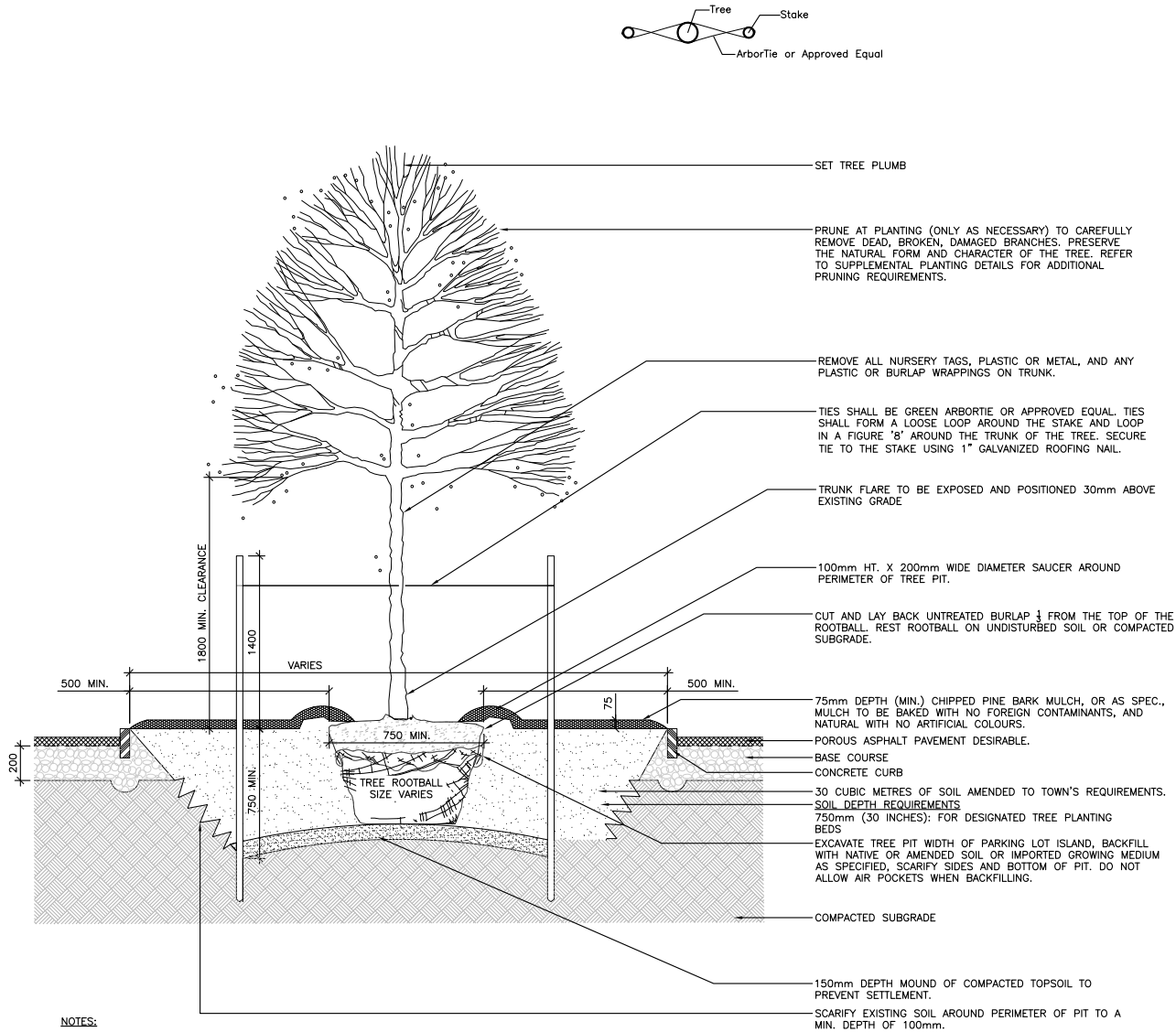
10

3.11 END OF WARRANTY

- .1 Remove and replace dead plants and plants not in healthy growing condition.
 Make replacements in same manner as specified for original plantings.
- .2 Remove trunk protection and tree supports.
- .3 Adjust rodent protection, leave intact.
- .4 Final inspection of plant material at the end of the warranty period may require
 extended warranties depending on the number of replacements required.

END OF SECTION

FileName:c:\pw working directory\projects 2024\dlilon_31aabd0128437\tree on parking lot island.dwg



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. DO NOT SCALE DRAWINGS.
3. TOPSOIL IN PLANTING AREAS SHOULD BE COMPACTED TO 80-85% SPD (MAXIMUM 150mm LIFTS).
4. ALL PLANT MATERIAL TO BE COVERED DURING TRANSPORTATION AND AN ANTI-DESSICANT SHALL BE APPLIED PRIOR TO SHIPMENT TO PREVENT MOISTURE LOSS.
5. DAMAGED PLANT MATERIAL WILL NOT BE ACCEPTABLE. ALL TREES NOT MEETING TOWN OF TECUMSEH PLANTING REQUIREMENTS WILL BE REMOVED AND REPLACED AT NO EXPENSE TO THE TOWN OF TECUMSEH.
6. CONTAINER GROWN STOCK SHALL HAVE AN INCREASED WATERING REGIMEN TO HELP PREVENT MOISTURE LOSS. CONTAINERS TO BE REMOVED IN FULL PRIOR TO INSTALLATION. SIDES TO BE LOOSENED UP SLIGHTLY PRIOR TO INSTALLATION TO ENCOURAGE ROOT GROWTH.
7. NO OPEN TREE PITS OR EXCAVATIONS, OR PLANT MATERIAL SHALL BE LEFT ON SITE OVERNIGHT.
8. ALL TREES 70mm CALIPER OR LESS SHALL BE STAKED. STAKES TO BE REMOVED AT THE CLOSE OF THE SECOND GROWING SEASON OR UPON THE EXPIRATION OF THE WARRANTY PERIOD.
9. SAUCER TO BE SOAKED WITH WATER AND MULCHED IMMEDIATELY FOLLOWING PLANTING.
10. CONTRACTOR TO TEST EXISTING AND EXCAVATED SOIL TO DETERMINE IF IT IS AN ACCEPTABLE GROWING MEDIUM, OR IF AMENDMENT IS REQUIRED PRIOR TO BACKFILLING, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR. REFER TO SPECIFICATIONS 32 93 10 FOR FURTHER INFORMATION ON TESTING REQUIREMENTS.
11. ALL TREES REQUIRE A MINIMUM OF 30 CUBIC METRES OF PLANTING SOIL.
12. MIN. 3m DISTANCE FROM OTHER INFRASTRUCTURE.
13. PARKING LOT ISLAND MIN. 3000mm, HOWEVER WIDTH MAY BE LESS FOR RE-PLANTING IN EXISTING AREAS.
14. SEE SPECIFICATIONS 32 93 10 FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.



DATE

FEBRUARY 2026

PROJECT

Tecumseh Urban Forestry
Planting Details

TITLE

TREE PLANTING IN TYPICAL PARKING LOT ISLAND

SCALE

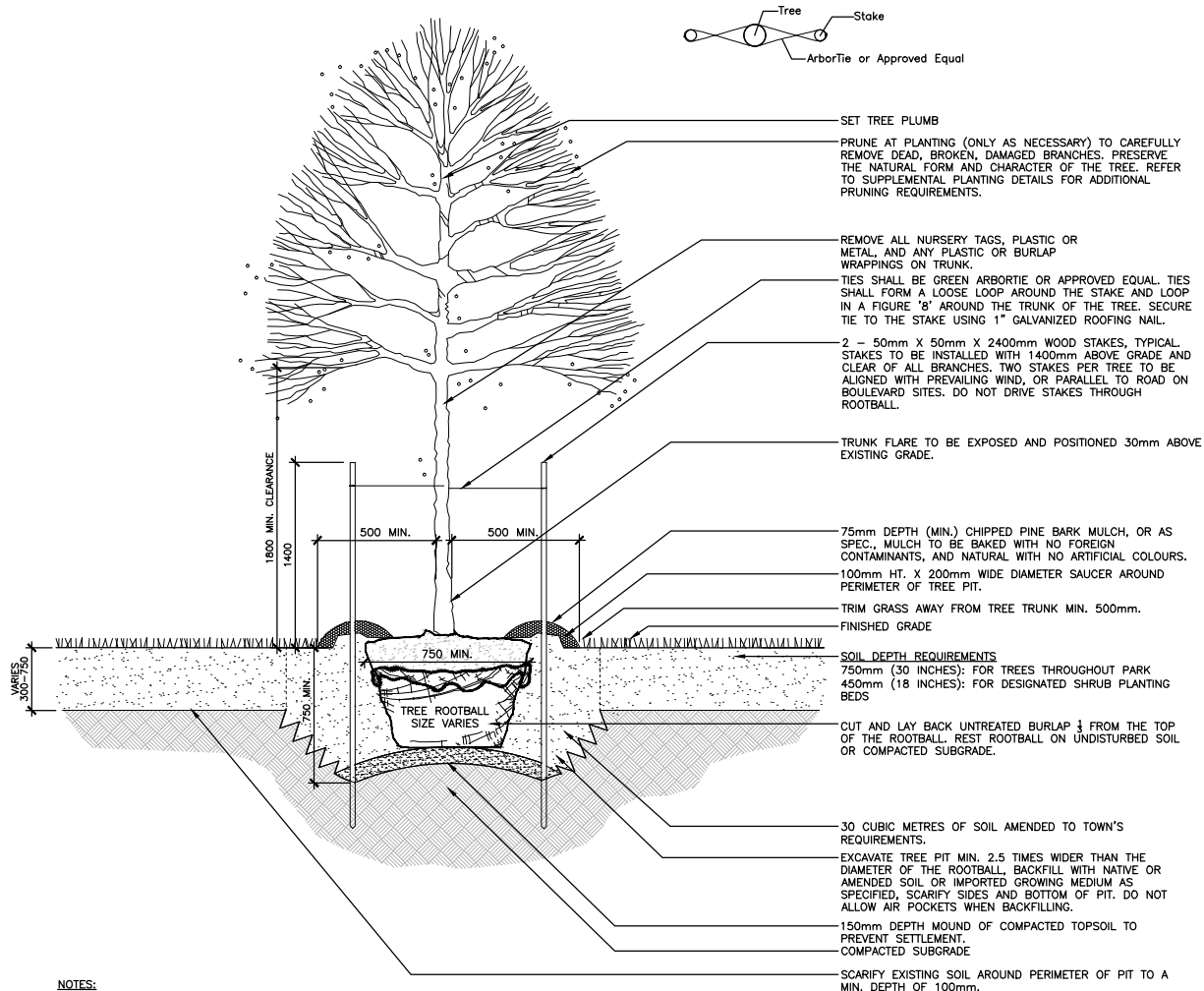
N.T.S.

FIGURE NO.

010

Appendix B.2

Park Trees



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. DO NOT SCALE DRAWINGS.
3. TOPSOIL IN PLANTING AREAS SHOULD BE COMPACTED TO 80-85% SPD (MAXIMUM 150mm LIFTS).
4. ALL PLANT MATERIAL TO BE COVERED DURING TRANSPORTATION AND AN ANTI-DESSICANT SHALL BE APPLIED PRIOR TO SHIPMENT TO PREVENT MOISTURE LOSS. ALL USE OF ANTI-DESSICANT IS SUBJECT TO TOWN APPROVAL.
5. DAMAGED PLANT MATERIAL WILL NOT BE ACCEPTABLE. ALL TREES NOT MEETING TOWN OF TECUMSEH PLANTING REQUIREMENTS WILL BE REMOVED AND REPLACED AT NO EXPENSE TO THE TOWN OF TECUMSEH.
6. ALL TREATED OR SYNTHETIC BURLAP WRAPPINGS TO BE REMOVED COMPLETELY. ALL TWINE LEFT ON BURLAP TO BE BIODEGRADABLE.
7. CONTAINER GROWN STOCK SHALL HAVE AN INCREASED WATERING REGIMEN TO HELP PREVENT MOISTURE LOSS. CONTAINERS TO BE REMOVED IN FULL PRIOR TO INSTALLATION. SIDES TO BE LOOSENED UP SLIGHTLY PRIOR TO INSTALLATION TO ENCOURAGE ROOT GROWTH.
8. NO OPEN TREE PITS OR EXCAVATIONS, OR PLANT MATERIAL SHALL BE LEFT ON SITE OVERNIGHT.
9. ALL TREES 70mm CALIPER OR LESS SHALL BE STAKED. STAKES TO BE REMOVED AT THE CLOSE OF THE SECOND GROWING SEASON OR UPON THE EXPIRATION OF THE WARRANTY PERIOD.
10. SAUCER TO BE SOAKED WITH WATER AND MULCHED IMMEDIATELY FOLLOWING PLANTING.
11. CONTRACTOR TO TEST EXISTING AND EXCAVATED SOIL TO DETERMINE IF IT IS AN ACCEPTABLE GROWING MEDIUM, OR IF AMENDMENT IS REQUIRED PRIOR TO BACKFILLING, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR. REFER TO SPECIFICATIONS 32 93 10 FOR FURTHER INFORMATION ON TESTING REQUIREMENTS.
12. ALL TREES REQUIRE A MINIMUM OF 30 CUBIC METRES OF PLANTING SOIL.
13. SEE SPECIFICATIONS 32 93 10 FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.



DATE

FEBRUARY 2026

PROJECT

Tecumseh Urban Forestry
Planting Details

SCALE

N.T.S.

TITLE

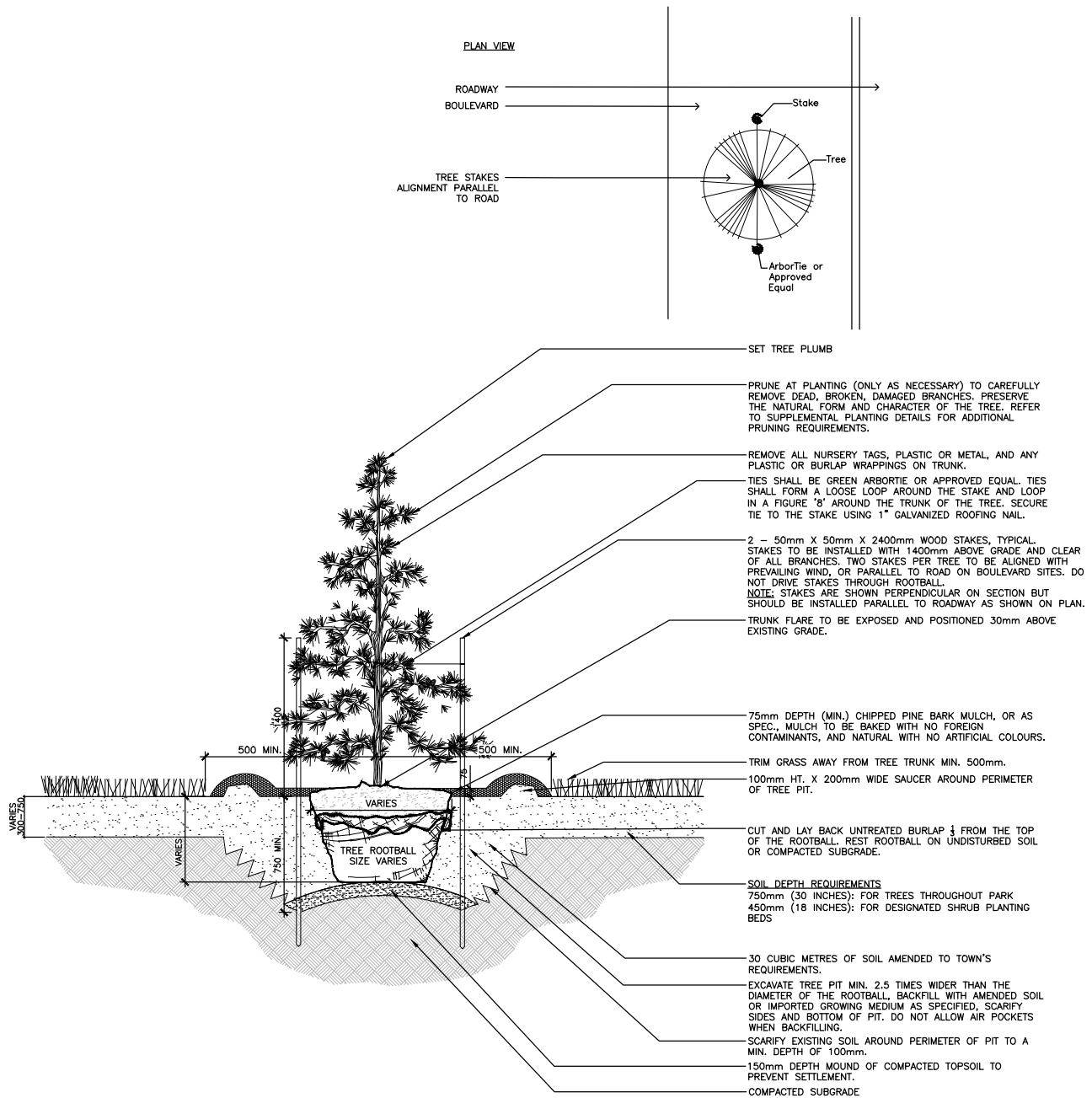
TREE PLANTING IN PARKS

FIGURE NO.

001

Appendix B.3

Naturalization Projects



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. TOPSOIL IN PLANTING AREAS SHOULD BE COMPACTED TO 80-85% SPD (MAXIMUM 150mm LIFTS).
3. ALL PLANT MATERIAL TO BE COVERED DURING TRANSPORTATION AND AN ANTI-DESSICANT SHALL BE APPLIED PRIOR TO SHIPMENT TO PREVENT MOISTURE LOSS.
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6. NO OPEN TREE PITS OR EXCAVATIONS, OR PLANT MATERIAL SHALL BE LEFT ON SITE OVERNIGHT.
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9. CONTRACTOR TO TEST EXISTING AND EXCAVATED SOIL TO DETERMINE IF IT IS AN ACCEPTABLE GROWING MEDIUM, OR IF AMENDMENT IS REQUIRED PRIOR TO BACKFILLING, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR. REFER TO SPECIFICATIONS 32 93 10 FOR FURTHER INFORMATION ON TESTING REQUIREMENTS.
10. SEE SPECIFICATIONS 32 93 10 FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.



DATE

FEBRUARY 2026

PROJECT

**Tecumseh Urban Forestry
Planting Details**

SCALE

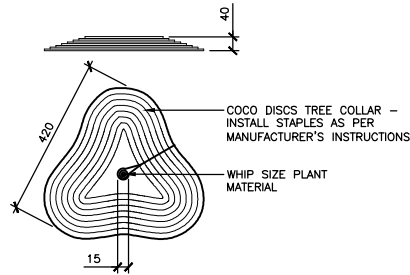
N.T.S.

TITLE

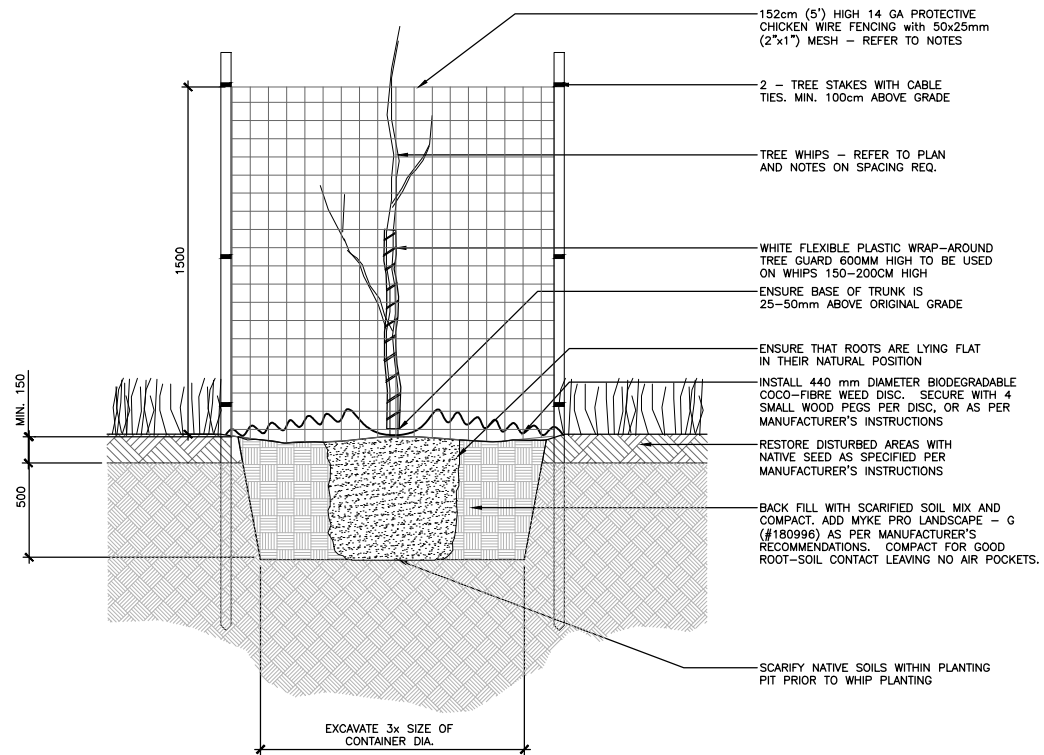
CONIFER TREE PLANTING

FIGURE NO.

002



PLAN
1:20



ELEVATION
1:40

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. DO NOT SCALE DRAWINGS.
3. TOPSOIL IN PLANTING AREAS SHOULD BE COMPACTED TO 80-85% SPD (MAXIMUM 150mm LIFTS).
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6. ALL TREATED OR SYNTHETIC BURLAP WRAPPINGS TO BE REMOVED COMPLETELY. ALL TWINE LEFT ON BURLAP TO BE BIODEGRADABLE.
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11. CONTRACTOR TO TEST EXISTING AND EXCAVATED SOIL TO DETERMINE IF IT IS AN ACCEPTABLE GROWING MEDIUM, OR IF AMENDMENT IS REQUIRED PRIOR TO BACKFILLING, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR. REFER TO SPECIFICATIONS 31 22 19 FOR FURTHER INFORMATION ON TESTING REQUIREMENTS.
12. SEE SPECIFICATIONS 32 93 10 FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.



PROJECT

**Tecumseh Urban Forestry
Planting Details**

SCALE

N.T.S.

TITLE

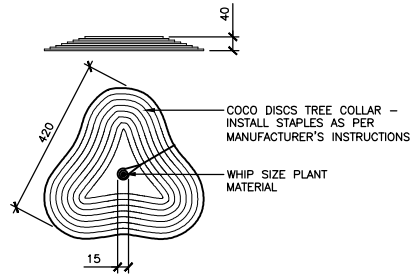
POTTED TREE PLANTING

FIGURE NO.

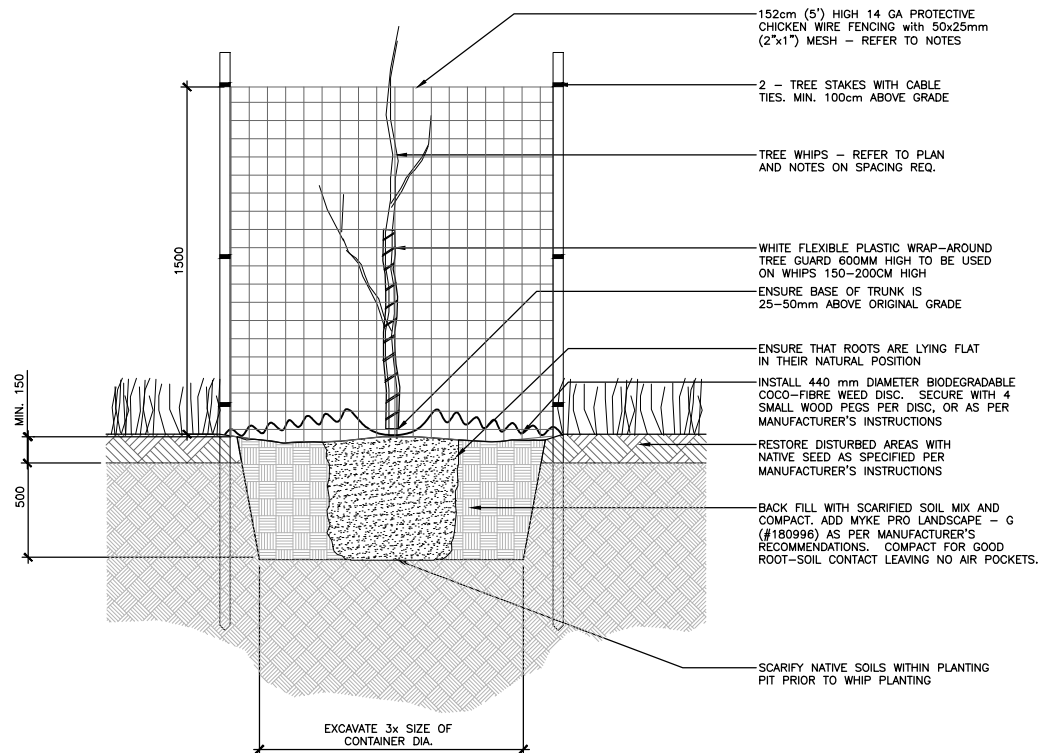
007

DATE

FEBRUARY 2026



PLAN
1:20



ELEVATION
1:40

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
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10. SAUCER TO BE SOAKED WITH WATER AND MULCHED IMMEDIATELY FOLLOWING PLANTING.
11. CONTRACTOR TO TEST EXISTING AND EXCAVATED SOIL TO DETERMINE IF IT IS AN ACCEPTABLE GROWING MEDIUM, OR IF AMENDMENT IS REQUIRED PRIOR TO BACKFILLING, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR. REFER TO SPECIFICATIONS 31 22 19 FOR FURTHER INFORMATION ON TESTING REQUIREMENTS.
12. SEE SPECIFICATIONS 32 93 10 FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.



PROJECT

**Tecumseh Urban Forestry
Planting Details**

SCALE

N.T.S.

TITLE

POTTED TREE PLANTING

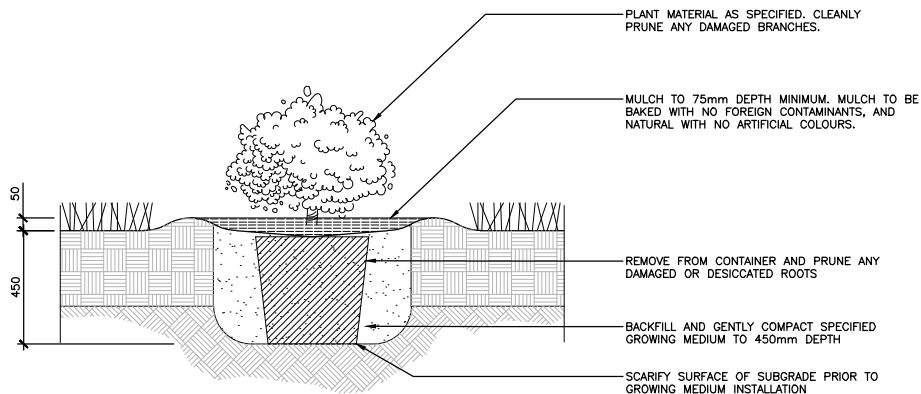
FIGURE NO.

007

DATE

FEBRUARY 2026

File Name: c:\pw working directory\projects 2024\dillon_31\aaab\d0128437\shrub planting.dwg



NOTES:

1. ALL DIMENSIONS SHOWN IN MILLIMETRES.
2. THE ABOVE DETAIL DOES NOT REPRESENT ANY PARTICULAR SPECIES.
3. REMOVE ALL NURSERY TAGS, PLASTIC OR METAL.
4. BASE OF PLANT TO HAVE SAME ELEVATION RELATIVE TO FINISHED GRADE AS PREVIOUSLY OCCUPIED PRIOR TO TRANSPLANTING.
5. HEIGHT OF PLANT MUST MEET CONTRACT REQUIREMENTS.
6. SAUCER TO BE SOAKED WITH WATER AND MULCHED IMMEDIATELY FOLLOWING PLANTING.
7. SEE SPECIFICATIONS 32 93 10 FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

TOWN OF Tecumseh ONTARIO · CANADA	PROJECT	Tecumseh Urban Forestry Planting Details	SCALE	N.T.S.
	TITLE	SHRUB PLANTING	FIGURE NO.	005
DATE	FEBRUARY 2026			

NOTE:

1. SEE SPECIFICATIONS 32 93 10 FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

PRUNE AT PLANTING (ONLY AS NECESSARY) TO CAREFULLY REMOVE DEAD, BROKEN, DAMAGED BRANCHES. PRESERVE THE NATURAL FORM AND CHARACTER OF THE TREE. REFER TO SUPPLEMENTAL PLANTING DETAILS FOR ADDITIONAL PRUNING REQUIREMENTS.

TRUNK CALIPER SHALL MEET ANSI Z60 CURRENT EDITION FOR ROOT BALL SIZE.

ROOT BALL MODIFIED AS REQUIRED.

ROUND-TOPPED SOIL BERM 4" HIGH X 8" WIDE (100mm X 200mm) ABOVE ROOT BALL SURFACE SHALL BE CENTERED ON THE DOWNHILL SIDE OF THE ROOT BALL FOR 240°. BERM SHALL BEGIN AT ROOT BALL PERIPHERY.

MODIFIED SOIL. DEPTH VARIES. (SEE SOIL PREPARATION PLAN)

BOTTOM OF ROOT BALL RESTS ON EXISTING OR RECOMPACTED SOIL.

CENTRAL LEADER

ORIGINAL SLOPE SHOULD PASS THROUGH THE POINT WHERE THE TRUNK BASE MEETS SUBSTRATE/SOIL.

PRIOR TO MULCHING, LIGHTLY TAMP SOIL AROUND THE ROOT BALL IN 6" (150mm) LIFTS TO BRACE TREE. DO NOT OVER COMPACT. WHEN THE PLANTING HOLE HAS BEEN BACKFILLED, POUR WATER AROUND THE ROOT BALL TO SETTLE THE SOIL.

100mm LAYER OF MULCH. MULCH SHOULD BE NO MORE THAN 25mm ON TOP OF ROOT BALL. (SEE SPECIFICATIONS FOR MULCH)

ORIGINAL GRADE

NOTES:

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3. TOPSOIL IN PLANTING AREAS SHOULD BE COMPACTED TO 80-85% SPD (MAXIMUM 150mm LIFTS).
4. ALL PLANT MATERIAL TO BE COVERED DURING TRANSPORTATION AND AN ANTI-DESSICANT SHALL BE APPLIED PRIOR TO SHIPMENT TO PREVENT MOISTURE LOSS. ALL USE OF ANTI-DESSICANT IS SUBJECT TO TOWN APPROVAL.
5. MAXIMUM ALLOWABLE DEGREE OF LEAN FOR A TREE IS <25 DEGREES.
6. DAMAGED PLANT MATERIAL WILL NOT BE ACCEPTABLE. ALL TREES NOT MEETING TOWN OF TECUMSEH PLANTING REQUIREMENTS WILL BE REMOVED AND REPLACED AT NO EXPENSE TO THE TOWN OF TECUMSEH.
7. ALL TREATED OR SYNTHETIC BURLAP WRAPPINGS TO BE REMOVED COMPLETELY. ALL TWINE LEFT ON BURLAP TO BE BIODEGRADABLE.
8. CONTAINER GROWN STOCK SHALL HAVE AN INCREASED WATERING REGIMEN TO HELP PREVENT MOISTURE LOSS. CONTAINERS TO BE REMOVED IN FULL PRIOR TO INSTALLATION. SIDES TO BE LOOSENEED UP SLIGHTLY PRIOR TO INSTALLATION TO ENCOURAGE ROOT GROWTH.
9. NO OPEN TREE PITS OR EXCAVATIONS, OR PLANT MATERIAL SHALL BE LEFT ON SITE OVERNIGHT.
10. ALL TREES 70mm CALIPER OR LESS SHALL BE STAKED. STAKES TO BE REMOVED AT THE CLOSE OF THE SECOND GROWING SEASON OR UPON THE EXPIRATION OF THE WARRANTY PERIOD.
11. SAUCER TO BE SOAKED WITH WATER AND MULCHED IMMEDIATELY FOLLOWING PLANTING.
12. CONTRACTOR TO TEST EXISTING AND EXCAVATED SOIL TO DETERMINE IF IT IS AN ACCEPTABLE GROWING MEDIUM, OR IF AMENDMENT IS REQUIRED PRIOR TO BACKFILLING. UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR. REFER TO SPECIFICATIONS 32 93 10 FOR FURTHER INFORMATION ON TESTING REQUIREMENTS.
13. ALL TREES REQUIRE A MINIMUM OF 30 CUBIC METRES OF PLANTING SOIL.
14. SEE SPECIFICATIONS 32 93 10 FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.



PROJECT

Tecumseh Urban Forestry
Planting Details

SCALE

NTS

TITLE

TREE ON SLOPE 5% (20:1) TO 50% (2:1)

FIGURE NO.

008

DATE

FEBRUARY 2026

Appendix C

Monitoring & Maintenance Standards for Naturalization Plantings

Maintenance & Monitoring Guidelines for Naturalization Plantings

Introduction

Maintenance and monitoring are critical components of the tree establishment and stewardship period post-planting. To ensure that naturalization plantings have the best chance at success, these monitoring and maintenance guidelines have been developed to establish a framework and indicators to measure the success and health of the Town's natural vegetation assets. These guidelines apply to both naturalization plantings and areas (e.g. "no mow areas") and are intended to be implemented in a manner that reflects the specific needs of each site. These guidelines recommend implementing a five (5)-year establishment and stewardship period for naturalization projects, during which monitoring and maintenance activities will occur.

Monitoring

Naturalization site monitoring consists of three steps completed over five (5) years from the time of planting:

Step 1 (immediately post-planting): Baseline data collection

Step 2 (Year Two): Tree survival, invasive plant assessment, and site maintenance recommendations

Step 3 (Year Five): Tree survival, invasive plant assessment, and site maintenance recommendations

Additional (longer-term) monitoring may be required at the sole discretion of the Town of Tecumseh, particularly if infill planting or replanting are determined to be required during the Year Five assessment.

Step 1: Baseline Data Collection

To effectively collect data on survival rates, it is necessary to collect baseline data immediately following planting. Establish and evaluate randomly located circular sample plots of 50 m² (4 m radius) covering a minimum of 10-15% of the total area planted to sufficiently capture a representative sample of all naturalization plantings installed. Plots

should not overlap each other. These plots will be used for monitoring the plantings at years 2 and 5. For smaller planting areas, sampling protocols may need to be adjusted to reduce plot size, increase sampling coverage, or sample all trees. The following equation can be used to calculate the number of plots required per site, where the plot size is 50 m².

of plots required per site:

$$= \frac{\text{total area planted (m}^2\text{)} \times \text{percentage of area to be monitored}}{\text{plot size (m}^2\text{)}}$$

Detailed instructions

Scheduling	Gather baseline data immediately after planting or within up to one month of planting
Preparation for field work	1. Gather planting plans and maps 2. Collect required field equipment 3. Calculate the total planting area in m². 4. Calculate the number of sample plots needed per site 5. Systematically distribute plots to capture a representative sample of planting area at the required plot density.
Setting up and assessing the plots	1. Identify the center point of the first plot by hammering a wooden stake into the ground. Spray paint the top 30 cm of the stake with high-visibility paint and mark the stake with the name of the plot. Plot names should follow the naming convention: Planting Year (last 2 numbers)/Site Initials (2 letters)/Plot #. 2. Using a handheld GPS unit, record the location of the center point. Ensure the plot name in the GPS is consistent with the name on the stake and in the data sheet. 3. Measure 4 m radius from the center of the plot. 4. Count and record the number of live planted trees and/or shrubs, including species, planted within the 50 m² plot. Only trees and shrubs that have 100% of their stem inside the plot are counted. 5. Photo document the plot, standing 8 m from the center point, facing north. Include the center stake, entire plot, and horizon in the photo. 6. Repeat steps 1-5 until the required number of plots for the site have been assessed.
Post field work	• Upload photos to a central folder. • Input data from data sheets into a reporting template and scan all field notes. • Upload GPS points collected from the center points to the relevant location.

Step 2 and 3: Tree Survival, Invasive Plant Assessment, and Site Maintenance Recommendations

The following assessments are conducted the same way for Years 2 and 5.

Tree survival assessment

Tree survival assessment will determine if infill planting, replanting, or other site maintenance is required.

Using the original monitoring plots and baseline data, determine survival rates by comparing the number of currently living planted trees and shrubs to the original number of plants installed in the plots. The numbers of dead or missing plants are also counted, and general conditions of plants are noted. The following formulas can be used to determine the plot survival rate, the site survival rate, plot density, and site density.

Plot survival rate

$$= (\# \text{ of living planted trees in plot} \div \# \text{ of trees planted in plot}) \times 100$$

$$\text{Site survival rate} = \text{sum of plot survival rates} \div \# \text{ of plots assessed}$$

$$\text{Plot density} = \# \text{ of living planted trees in plot} \div \text{plot size}$$

$$\text{Site density} = \text{sum of plot densities} \div \# \text{ of plots assessed}$$

Invasive Plant Species

Plots will be assessed for the presence and severity of non-native invasive plant species. Invasive plants adjacent to the planting area will also be noted.

Refer to the Society for Ecological Restoration Ontario (SERO) Invasive Exotic Plant Species Ranking for Southern Ontario (2025 or latest version) guide for a complete list of invasive plant species to be included in site assessments.

Site Maintenance Recommendations

Maintenance recommendations are to be considered at the site level. The Site Maintenance Recommendations Data Sheet includes application of mulch, invasive plant removal, replanting, and infill plantings as maintenance options. There is also space on the data sheet to include other recommendations as appropriate. Including photos and GPS points is advised so that the specific locations requiring remediation can be easily identified.

In general, adding infill plantings is required if the survival rate is found to be below 75% after Year 2 and 50% after Year 5. A complete replanting of the site may be required if the survival rate is 20% or less. The Town of Tecumseh may require infill planting or complete replanting on sites not meeting these criteria if deemed necessary at its sole discretion.

Detailed Instructions

Baseline data (Step 1) should be reviewed prior to and kept available on-hand during Step 2 and Step 3 site assessments.

Scheduling	Two (2) years and five (5) years after planting.
Preparation for field work	1. Gather planting plans and maps 2. Gather Step 1 baseline data 3. Collect required field equipment
Assessing the plots	1. Locate the center of plot 1 using the photo references and coordinates from the baseline data. 2. If the center stake is missing from the plot, replace the stake with a new one. Paint and mark the stake (see Step 1). 3. Measure 4 m radius from the center of the plot 4. Count and record the number of live trees and/ or shrubs planted within the 50 m² plot. 5. Observe and record any site disturbances. 6. Note the presence and severity of invasive plants. Record this data on the Invasive Plant Species Data Sheet. Note invasive plants adjacent to the plots and to the site, that may be a threat to the planting site. 7. Photo document the plot from the same point that the baseline data photo was taken from. The photo should have been taken standing 8 m from the center point, facing north, and included the center stake, entire plot, and horizon in the photo. 8. Repeat steps 1-7 until the required number of plots for the site have been assessed. 9. Remove the stakes from the plots after a site's Year Five (5) assessment, unless infill planting or replanting and follow-up assessment are required. 10. Based on the site-level observations, record maintenance recommendations for mulching, infill planting, replanting, invasive species management, or other requirements on the Site Maintenance Recommendations Data Sheet
Post field work	• Upload photos to a central folder • Input data from data sheets into a reporting template and scan all field notes • Analyze data and report on survival assessments, invasive species, and recommendations for maintenance.

Maintenance Activities

Each naturalization planting should have a site-specific five-year maintenance plan. At a minimum, maintenance shall include:

- Watering regime for at least the first two (2) years post-planting;
- Mulch application and re-application;
- Weed removal and management (including invasive species) for the five (5)-year period; and
- Replacement or infill plantings to replace unsuccessful plantings, as required.

Other maintenance activities that should be considered on a site-by-site basis may include the installation of herbivore protection (such as deer fencing and trunk guards) and the application of mycorrhizal inoculants.

Watering

As a general guideline, water new tree, shrub, and herbaceous plantings twice weekly from May to October, and at least once in April for the first two years following planting and when the planting location receives less than 25 mm of rain per seven-day period.

Watering frequency should be adjusted as needed to account for actual rainfall and drought. For example, watering more frequently during extended periods with no rain and average daytime high temperatures exceeding 25 degrees Celsius.

In the third year following planting, it is recommended that plants are watered once per month, if required, during extended periods with no rain and an average daytime high temperature exceeding 25 degrees Celsius.

Where planting areas are exposed to road and sidewalk de-icing salt, plan to saturate the planting area with water at least once between April 1 and May 1, after soil has thawed to the extent that water is freely draining through the planting areas. This will dilute and leech salts away from tree roots.

Document and report drainage problems, such as ponding or run-off, to the Manager of Parks and Horticulture. Drainage and soil moisture can be maintained using a mulch layer, which helps improve soil structure and prevents surface compaction, and by light cultivation of top layer of soil.

Mulch Application & Re-application

Place fine-textured organic wood chip or mixed wood chip/leaf mulch at the base of every planted tree to a depth of 50 mm (2"). Do not place mulch directly against the stem of trees or shrubs, as this can lead to infections, rot, adventitious roots, and insect damage. The extent of the area to be mulched is dependent upon the size of the tree. It is recognized that the broader the area that is mulched, the more effective it will be at reducing competition and retaining soil moisture. At minimum, cover the extent of the root ball with mulch. Where possible, mulch is to be applied to the entire planting bed to prevent weed establishment.

Although replacement of mulch may be necessary, it is advised that trees and shrubs not be over-mulched as this can restrict oxygen and water availability to the roots, leading to root rot or girdling roots. Over-mulching can also limit nitrogen availability and affect soil pH. Determine requirements for mulch replacement/top-up based on soil moisture, weed and invasive species establishment, and tree survival and health assessments.

Weeding and Invasive Species Management

Develop a project-specific weeding and invasive species management plan based on site conditions and employ appropriate methods. It is generally recommended that weeding is undertaken monthly during the growing season until plantings are well established.

Manage invasive plant species and tree pests and diseases using an Integrated Pest Management approach as described in the Town of Tecumseh Urban Forest and Naturalization Management Plan (UFNMP). Refer to the Ontario Invasive Plant Council (OIPC) Best Management Guides for species-specific management techniques. All pesticides/herbicides shall be applied by a licensed exterminator with full adherence to applicable Provincial and Federal regulations.

REFERENCES

Society for Ecological Restoration Ontario (SERO). 2025. Invasive Exotic Plant Species Ranking for Southern Ontario. Available online at:
<https://chapter.ser.org/ontario/files/2025/06/SERO-Invasive-Exotic-Plant-Species-Ranking-for-S-Ontario-2025.pdf>

Restoration Monitoring Data Sheet

Site name: _____ Assessor: _____
 Assessment Date: _____ Recorder: _____
 Year Planted: _____
 Season Planted: _____ Total # of Trees Planted: _____
 Size of Area Planted (m²): _____ Infill Site? (Y/N) _____ If yes, # of times: _____
 Planted in Partnership with: _____
 Nearest Major Intersection: _____
 Site Access Instructions: _____

GPS Plot Name	Polygon Name or Location Description (given on planting plan)	GPS point		# of planted trees in plot (dot tally)		Stock type (seedling/potted)	Photo Reference Number Include description if needed
		Easting	Northing	Total (Alive and Dead)	Dead		

Site Hazards				
(provide details regarding severity of issue, exact locations for hazards observed in the comments section below)				
Steep Slope		Poison Ivy		Other
Road Traffic		Fire Ants		
Water Body		Standing Dead Trees		

General Notes or Observations: _____

Tree Planting Survival Assessment Data Sheet

Refer to baseline data for plot locations and further data to support the information collected here.

Assessor: _____

Assessment Date: _____

Recorder: _____

Site name: _____

Year Planted: _____

of Trees Planted: _____

Has infill occurred? (Y / N) Details: _____

GPS Plot Name	Polygon Name or Location Description (given on planting plan)	# of Trees Planted as per baseline data (A)	Dot Tally		# of Missing Trees A-(B+C)	Survivability Rate B/A*100 **Density B plot	General Tree Condition			Notes
			# of Live Trees (B)	# of Dead Trees (C)			Good	Fair	Poor	
Total										

Good = little to no browse or damage, strong leaf/needle and stem health

Fair = some browse or damage, few missing or dead leaves/needles, burnt leaves, OK condition

Poor = heavy browse or damage, little to no leaves/needles, nearly dead

Disturbance Observed	Y/N	Opinion-based explanation of why general tree condition is poor or if there is a high percentage of dead or missing trees:
Wildlife Damage		
Weather-Related Damage		
Human Disturbance		

Invasive Plant Species Data Sheet

Site Name: _____ Date: _____

Invasive Species		Plot #1	Plot #2	Plot #3	Plot #4	Plot #5	Plot #6	Plot #7	Plot #8
	Density	None (N/A)							
		Slight (S)							
		Moderate (M)							
		Heavy (H)							
	Distribution	None (N/A)							
		Scattered (SC)							
		Patchy (P)							
		Uniform (U)							
Recommend Removal	(Y/N)								
	Density	None (N/A)							
		Slight (S)							
		Moderate (M)							
		Heavy (H)							
	Distribution	None (N/A)							
		Scattered (SC)							
		Patchy (P)							
		Uniform (U)							
Recommend Removal	(Y/N)								
	Density	None (N/A)							
		Slight (S)							
		Moderate (M)							
		Heavy (H)							
	Distribution	None (N/A)							
		Scattered (SC)							
		Patchy (P)							
		Uniform (U)							
Recommend Removal	(Y/N)								
	Density	None (N/A)							
		Slight (S)							
		Moderate (M)							
		Heavy (H)							
	Distribution	None (N/A)							
		Scattered (SC)							
		Patchy (P)							
		Uniform (U)							
Recommend Removal	(Y/N)								

Note significant invasive plants observed *outside* of the selected plots or not included in the list above, but are considered Category 1 or 2 Invasive Plants: (include name, general location, severity, removal recommendations) _____

General Notes or Observations: _____

Site Maintenance Recommendations Data Sheet

Site Name: _____ Date: _____

Polygon Name or Location Description (if referring to entire site or a portion of the site)	Recommendations							Comments/Other Restoration Opportunities Identified (include details)
	Mulch (Y/N)	Invasive Removal (Y/N)	Garbage Cleanup (Y/N)	Watering Required (Y/N)	Remove Tree Guards (Y/N)	Replant* (Y/N) < 20% survival / 2 or less trees per plot	Infill* (Y/N) < 50% survival / 5 or less trees per plot	

Site Hazards Observed				
(provide details regarding severity of issue, exact locations for hazards observed in comments section below)				
Steep Slope		Poison Ivy		Other
Road Traffic		Fire Ants		
Water Body		Standing Dead Trees		

General Notes or Observations: _____

Appendix D

Tree Protection & Preservation Guidelines, Specifications and Standard Design Details

TREE PROTECTION AND PRESERVATION GUIDELINES

Protection of Town-owned trees is regulated pursuant to Town of Tecumseh Public Tree Protection By-law 2026-021. The Town of Tecumseh Community & Recreation Services Department, Parks and Horticulture Section's Tree Protection and Preservation Guidelines are outlined below.

Prior to commencing with any demolition or construction activity within a minimum of 6 metres of a Town-owned tree (or greater if the tree is >100 cm DBH; refer to **Table 1**), a Qualified Tree Professional shall determine the location, species, size and condition of Town-owned trees that could be impacted by the proposed site works and outline proposed tree protection measures in accordance with these Guidelines for all trees scheduled for preservation.

The Town reserves the right to inspect tree protection measures at any time to ensure compliance with these Guidelines and all Town-approved standard details and specifications. Should tree protection measures be found deficient, the Town may require immediate corrective action or implementation of additional tree protection measures at the owner's expense.

DEFINITIONS

Diameter at Breast Height (DBH): the measurement, in centimetres, of the diameter of the Trunk of a Tree from the outside bark at a height of 1.4 metres above existing grade adjoining its base along the centre axis, and where the Tree has multiple stems at a height of 1.4 metres above existing grade, means the square root of the sum of the squares of each stem.

Director: the Person from time to time occupying the office the Director of the Public Works & Engineering Services or the office of the Director of Community & Recreation Services of the Corporation of the Town of Tecumseh, or such successor office as the case may be, or their designate, and includes any individual who has been authorized to temporarily act during that Person's absence or a vacancy in the office.

Good Arboricultural Practices: the proper implementation of maintenance, renewal and removal activities known to be appropriate for individual trees in accordance with American National Standards Institute A300 Tree Care Standards and related Best Management Practices as outlined by the International Society of Arboriculture (ISA).

Injure (including injury, injured, or injuring): any actions which cause or are likely to cause physical, biological or chemical damage to a Tree which has, or is likely to have the effect of inhibiting or terminating its growth or compromising its structural integrity, by neglect or design, including but not limited to one or more of the following:

- I. cutting, debarking, girdling or pruning the roots or the Trunk;
- II. pruning in a manner that is not aligned with Good Arboricultural Practices;
- III. smothering a Tree's roots or interfering with the water supply or air exchange, or changing

-
- the moisture content of the soil surrounding the Tree;
- IV. failing to protect a Tree in accordance with the Town's standards, including works, storage or disposal within the Tree Protection Zone;
 - V. causing mechanical damage to a Tree, including damage caused by construction related activities (including excavation, trenching, horizontal directional drilling, or installation, connection or removal of driveways or utilities);
 - VI. applying harmful or toxic substances on or near the Tree;
 - VII. compacting, regrading or resurfacing within the Tree Protection Zone or Dripline; or
 - VIII. affixing any structure, hardware, or other object to any part of a Tree.

Municipal Property: any land owned by, or leased by, or leased to, or controlled by, or vested in the Town.

Qualified Tree Professional: a professional who has gained recognized certifications, qualifications and expertise in the care and management of trees. Recognized certifications and qualifications include:

- I. a Certified Arborist as certified by the International Society of Arboriculture (ISA);
- II. a Registered Professional Forester (RPF) in good standing with the Ontario Professional Forester's Association (OPFA);
- III. a Registered Consulting Arborist (RCA) as registered with the American Society of Consulting Arborists (ASCA);
- IV. a Skilled Trades Ontario 444A Arborist; and/ or
- V. a person with qualifications as approved by the Director of Community & Recreation Services or their designate.

Town Tree: all Trees on Municipal Property in the Town of Tecumseh.

Tree: a woody, perennial plant, whether alive or dead, healthy or unhealthy, including saplings or seedlings and including the root system, which has reached, could reach or could have reached a height of at least 4.5 metres from the ground at physiological maturity.

Tree Monitoring Report (TMR): a report, prepared by a Qualified Tree Professional, containing an assessment of tree health and structure, in relation to site conditions.

Tree Protection Plan (TPP): a report, prepared by a Qualified Tree Professional, describing and including:

- I. all inventoried Trees clearly noted and numbered;
- II. all Tree Protection Zones;
- III. an indication of whether trees are to be removed or retained;
- IV. all proposed tree protection methods; and

- V. all applicable notes and details, including the Town of Tecumseh's Tree Protection Barriers detail.

Note, see below for further guidance on TPP requirements.

Tree Protection Zone (TPZ): the minimum setback (including above, below and at ground level) required to protect the biological health and maintain the structural integrity of a Town Tree, as determined in accordance with these Guidelines.

Trunk: the part of a Tree from its point of growth away from its roots up to where it branches out to limbs and foliage.

DEFINING THE TREE PROTECTION ZONE

Prior to vehicle traffic or work occurring around a Town Tree, a minimum Tree Protection Zone (TPZ) shall be established for every Town Tree to be protected with the intent of preventing tree injury. The TPZ shall be established as a circular area around the tree. The minimum diameter of the TPZ is based on the tree's DBH and is to be measured outward from the base of the tree's trunk at ground level. The TPZ delineates the area wherein specific tree protection measures shall be specified and implemented to prevent or mitigate injury associated with the proposed site disturbance.

Table 1 provides the required distances for determining the minimum TPZ for a Town Tree. In some cases, disturbance within the TPZ may be unavoidable or the extent of the TPZ may need to be modified due to existing or potential site constraints. In these instances, any adjustments to the extent of the TPZ below the minimum requirements shall require prior approval of the Director. The distances set out in **Table 1** represent the minimum protection distances required to protect the anchor and transport roots of a tree; however, damage to feeder roots can still occur beyond the minimum TPZ. For this reason, the Director may require for any Town Tree the provision of a TPZ larger than the minimum, at the Director's sole discretion.

Table 1: Minimum Tree Protection Zone (TPZ) requirements for Town Trees. TPZ is a circular area with a radius measured outwards from the base of the tree.

Trunk Diameter (DBH, cm)	Minimum Tree Protection Zone (radius, m)
< 10 cm	1.2 m
10 – 29 cm	1.8 m
30 – 40 cm	2.4 m
41 – 50 cm	3.0 m
51 – 60 cm	3.6 m
61 – 70 cm	4.2 m
71 – 80 cm	4.8 m
81 – 90 cm	5.4 m
91 – 100 cm	6.0 m
> 100 cm	6 cm per 1 cm DBH

PROHIBITED ACTIVITIES WITHIN THE TPZ

Except where authorized by the Director, any activity which could, in the opinion of a Qualified Tree Professional or the Director, result in injury or destruction of a Town Tree, is prohibited within a TPZ. These activities include, but are not necessarily limited to:

- Demolition, construction, replacement or alteration of permanent or temporary buildings or structures, parking pads, driveways, sidewalks, walkways, paths, trails, dog runs, pools, retaining walls, patios, decks, terraces, sheds or raised gardens
- Installation of large stones or boulders
- Altering grade by adding or removing soil or fill, excavating, trenching, topsoil or fill scraping, compacting soil or fill, dumping or disturbance of any kind
- Storage of construction materials, equipment, wood, branches, leaves, soil or fill, construction waste or debris of any sort
- Application, discharge or disposal of any substance or chemical that may adversely affect the health of a tree (e.g., concrete slurry, gas, oil, paint, swimming pool discharge, etc.)
- Causing or allowing excessive water or discharge to flow over slopes or through natural areas
- Access, parking or movement of vehicles, equipment or pedestrians
- Cutting, breaking, tearing, crushing, exposing or stripping tree roots, trunk and/ or branches.
- Nailing, screwing or stapling into a tree, including attachment of fences, electrical wires or signs
- Stringing of cables or installing lights on trees
- Soil remediation, removal of contaminated fill
- Excavating for directional or micro-tunnelling and boring entering shafts

Wherever possible, these activities should also be restricted outside the TPZ in areas where tree roots may be located. In optimal growing conditions, tree roots can extend from the trunk to approximately 2-3 times the width of the dripline.

TREE PROTECTION METHODS

Tree Protection Barriers (Hoarding or Fencing)

Tree protection barriers (hoarding or fencing) shall be installed to enclose the minimum required TPZ of any Town Tree that, in the opinion of the Qualified Tree Professional or Director, may potentially be adversely affected by the proposed site disturbance. Tree protection barriers shall be installed prior to the commencement of any site disturbance that may potentially adversely affect Town Trees scheduled for preservation, including but not limited to demolition, grading, excavation, or construction.

Tree protection barriers shall be constructed of 1200 mm (4') high plywood or waferboard hoarding or an equivalent approved by the Parks and Horticulture Section. In areas where road sightlines may be compromised by solid hoarding, 1200 mm (4') high plastic web snow fencing may be permitted. Hoarding or fencing shall be secured with screws to a wood frame constructed of 2" x 4" (nominal) lumber. Frames shall be secured to the ground to prevent relocation and shall be assembled with screws (not nails) to maintain structural integrity. Snow fencing shall be securely stapled to the wood frame.

Additional details and specifications for the construction of TPZ barriers are provided in Appendix A. Any proposed alternative construction methods shall require approval by the Director prior to installation.

Once all tree/site protection measures have been installed, Parks and Horticulture Section urban forestry 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 to the Parks and Horticulture Section for review.

Tree Protection Information Signage

Tree protection information signage shall be installed on all sides of tree protection barriers (hoarding or fencing) that are visible from the work site prior to the commencement of site works. The distance between signs shall not exceed 6 metres (20') on any one side of the tree protection barriers. Signage shall be printed on white corrugated plastic or an equivalent durable material measuring no less than 400 mm (height) x 600 mm (width).

Tree protection signage shall bear the text displayed in **Figure 1**. Where installed within the Town of Tecumseh's road allowance or on other Town property, tree protection information shall bear the Town of Tecumseh logo. Additional information may be required to be displayed on the tree protection information signage subject to the discretion of the Director.

<u>Town of Tecumseh Tree Protection Zone (TPZ)</u> EXCAVATION OR GRADE CHANGE DUMPING STORAGE UNAUTHORIZED ENTRY TREE INJURY OR REMOVAL DISTURBANCE OF ANY KIND ARE <u>STRICTLY PROHIBITED</u> WITHIN THIS TPZ THIS TPZ BARRIER SHALL NOT BE DAMAGED OR MOVED. IMMEDIATELY REPORT ANY ENTRY INTO THIS TPZ TO: <u>{TOWN OF TECUMSEH CONTACT INFORMATION}</u>
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Figure 1 Template for tree protection information signage

Horizontal Root Protection

In situations where the required full minimum tree protection zone (TPZ) cannot be provided and where pedestrian or light vehicular traffic or temporary materials or equipment staging or storage are required within the TPZ, horizontal (on-grade) root protection shall be required to be installed.

Horizontal root protection shall be installed by applying a layer of wood chip mulch and topping with two layers of 3/4" plywood. The plywood must be staggered, overlapped, and screwed together to form a unified surface. Where necessary, edge transitions may be built-up to enable access too the horizontal root protection area; any such transitions shall be constructed outside of the minimum required TPZ.

Alternative horizontal root protection methods may be proposed if required due to site conditions. Any such alternative methods shall require approval by the Director prior to installation.

Root-Sensitive Excavation and Root Pruning

Root-sensitive excavation and root pruning may be required where excavation or trenching are proposed within or at the edge of minimum required TPZ. Root-sensitive excavation should be undertaken prior to any excavation activities to determine the presence and extent of roots, and the amount of root pruning required, and potential impacts upon tree health and stability.

An exploratory trench 200 mm wide along the length of proposed excavation shall be dug by hand tools or using a low water pressure hydro-vac, dry-vac, or pneumatic method (e.g., AirSpade). Roots encountered over 2.5 cm in diameter should be pruned. Roots shall be pruned by a Qualified Tree Professional in accordance with Good Arboricultural Practices.

If the proposed excavation and the required extent of root pruning are determined by the Qualified Tree Professional or Director to threaten the viability, health, or rooting stability of a Town Tree, efforts shall be made to relocate excavation. If excavation cannot be relocated only because of physical limitations of the site, and if the root damage caused by excavation is considered so severe that the tree is highly unlikely to survive, then the tree may require removal subject to permitting and compensation requirements.

Other Tree Protection Measures

Other tree protection measures may be required on a case-specific basis. Such measures may include, but are not limited to:

- Canopy clearance pruning
- Stem protection
- Sediment control
- Pier-and-beam, helical, or other alternative foundations
- Geocell/ geoweb systems
- Tree wells, islands, or terraces (to accommodate significant grade cut or fill)
- Root/ soil aeration systems
- Supplemental drainage or irrigation systems
- Directional tunnelling or boring
- Guying (for structural support)
- Large tree relocations

Implementation of such tree protection measures will require the development of case-specific specifications and details, which shall be outlined in the TPP and shall be subject to review and approval by the Director.

TREE PROTECTION PLAN REQUIREMENTS

Permission from the Town as per By-law 2026-021 is required prior to performing any work that may result in the destruction or injury of a Town Tree. As such, a Tree Protection Plan (TPP) report (Arborist Report) prepared by a Qualified Tree Professional is required and shall include the following:

- Application information: name, address, phone number, and email;
- Information of the Qualified Tree Professional who prepared the TPP: name, certification number, company, phone number, and email;
- An inventory of all Town Trees within 6 metres of the proposed activities and their locations, including the inventory information outlined below:
 - Tree number or tag number;
 - Scientific and botanical name;
 - DBH, in centimetres;
 - Biological health and structure assessment;
 - Minimum TPZ radius based on Town requirements; and
 - Proposed action – protect, injure, remove, or transplant.
- Photographs of all inventoried trees;
- A detailed narrative description of the proposed site works and all proposed tree removals, tree protection measures, and monitoring and inspection requirements.
- A TPP drawing (plan) with the following:
 - Tree locations labelled with numbers corresponding to the tree inventory;
 - The TPZs of all trees plotted;
 - An accurate metric scale;
 - The location of all proposed tree protection methods;
 - All applicable tree protection notes and details including recommended tree protection measures referenced in the aforementioned report;
 - Existing and proposed elevations at the base of trees to be preserved
 - A base plan and/ or site survey;
 - All existing structures, driveways, hard surfaces, and grades;
 - All proposed structures, driveways, hard surfaces, grade changes, staging areas and machine/vehicle access routes;
 - All proposed new underground services and connections;
 - Areas of excavation that will require root pruning;
 - Construction access routes and staging areas per construction management plans;
 - Servicing information as per approved servicing plans (including underground services and connections);
 - Erosion and sediment control measures;

-
- A grading plan and stormwater management plan, if applicable; and
 - If applicable, tree compensation requirements as per By-law 2026-021.

MONITORING AND ENFORCEMENT

During demolition, excavation, construction and/or landscaping, regular monitoring of the area is required to ensure tree protection measures are maintained throughout the duration of construction. Monitoring will be performed by a Qualified Tree Professional and Tree Monitoring Reports (TMR) shall be submitted to the Community & Recreation Services Department, Parks and Horticulture Section, in accordance with the approved TPP report. TMRs shall include:

- The date of assessment;
- The name and qualifications of the Qualified Tree Professional conducting the assessment;
- A description of the site works in proximity to the protected Town Trees that have taken place prior to the assessment, ongoing at the time of the assessment, and that are anticipated to take place before the next assessment;
- An assessment of biological health and structure of all Town Trees included in the tree permit for the project, including noting any decline in tree health and/ or structure that has occurred as a result of the site works;
- Assessment of tree protection measures implemented to mitigate impacts on protected Town Trees;
- Mitigation measures and corrective actions and the timeline for which they are to be implemented for trees that have been impacted by site works or have exhibited declines in health and/ or structure;
- A description of mitigation measures applied prior to the assessment; and
- A summary of general site conditions.

Monitoring biological health and structure of Town Trees affected by demolition, excavation, construction and/or landscaping activities that have taken place within the Tree Protection Zone shall be for a period of two years from the time of those activities, since some forms of damage to trees does not show up sooner. The monitoring period may be extended at the discretion of the Director. The owner will be responsible for damages which appear over the monitoring period.

Where excavation or other encroachment within the minimum TPZ for activities such as, but not limited to, curb cuts, gas, water, sewer, sanitary, or other services is required, the physical presence of a supervising Qualified Tree Professional is mandatory and must be verifiable. Verification of monitoring must be submitted following the conclusion of construction activities as requested by the Community & Recreation Services Department.

PART 1.0 PRODUCTS

1.1 GENERAL REQUIREMENTS

1. Read and be governed by conditions of the Contract.
2. The work included in this Section involves selective pruning of existing trees damaged by construction activities and protection of existing trees to remain within the limit of work area and areas directly adjacent to the limit of work.
3. Site clean-up and restoration of all disturbed or damaged areas to the satisfaction of the Contract Administrator or Town Project Manager.

1.2 QUALIFICATIONS

1. Contractor to carry a Qualified Tree Professional for all arboricultural activities required on site. All site work involving tree pruning or fertilization shall be undertaken by an International Society of Arboriculture (ISA) Certified Arborist. All other works within Tree Protection Zones shall be undertaken by or under the direct supervision of a Qualified Tree Professional. Proof of adequate qualification, certification, or training shall be submitted in bid submission prior to any arboricultural works being undertaken.
2. All arboricultural and tree protection and preservation activities shall be undertaken in accordance with applicable clauses of the ANSI A300-2023 Tree Care Standards (or latest version). Tree pruning works shall conform to Clause 5 – Pruning standards. Fertilization works shall conform to Clause 6 – Soil Management standards. Tree protection works shall conform to Clause 9 – Management of Trees and Shrubs during Site Development and Construction standards. Root pruning works shall conform to Clause 12 – Root Management standards.
3. All arboricultural and tree protection and preservation activities shall be undertaken in accordance with the Town of Tecumseh Tree Protection and Preservation Guidelines (latest edition) and associated specifications and technical standard details. Where ANSI Standards and Town of Tecumseh Guidelines, specifications, and technical standard details conflict, the Town guidelines shall take precedence.

1.3 SITE PROTECTION

1. Vehicular movement, material storage and construction activities shall not be permitted within the Tree Protection Zone (TPZ) of the trees to remain, in order that adverse impacts upon tree health and condition be avoided. The Contractor shall control all personnel, equipment and materials on site so that minimal disturbance is caused to existing natural or constructed features.

2. The Contractor shall ensure that tree protection hoarding and/or fencing is installed as specified in the approved Tree Protection Plan (TPP) for trees scheduled to be preserved.
3. The burning of any waste or vegetation shall not be permitted on the site.
4. It is the responsibility of the Contractor that all personnel be sufficiently instructed so that the work is carried out in a manner consistent with the approved Tree Protection Plan (TPP).

1.4 RESTORATION - GENERAL

1. In general, the entire site including the working limits shall be restored to a state equal to or better than existing conditions.

1.5 SCHEDULING OF WORK

1. A pre-construction meeting to review the approved Tree Protection Plan (TPP) shall take place with the Qualified Tree Professional, the Contractor, the Contract Administrator and the Town. The Contractor's site superintendent shall be in attendance.

PART 2.0 PRODUCTS

2.1 TREE PROTECTION FENCING FOR TREES WITHIN THE CONSTRUCTION HOARDED AREA

- .1 All products and remedial care for protection of the trees as specified are to be as recommended by a Qualified Tree Professional, must comply with references above, with approval of the Contract Administrator or Town Project Manager.
- .2 Contractor is to supply, maintain and install tree protection measures as per the approved Tree Protection Plan (TPP).
- .3 Tree protection barriers shall be constructed of 1200 mm (4') high plywood or waferboard hoarding or an approved equivalent. In areas where road sightlines may be compromised by solid hoarding, 1200 mm (4') high plastic web snow fencing may be permitted. Hoarding or fencing shall be secured with screws to a wood frame constructed of 2" x 4" (nominal) lumber. Frames shall be secured to the ground to prevent relocation and shall be assembled with screws (not nails) to maintain structural integrity. Snow fencing shall be securely stapled to the wood frame

PART 3.0 EXECUTION

3.1 GENERAL

1. Examine site before commencement of work and inform Contract Administrator if site conditions will not permit completion of site work performed by this Section and as indicated on the Contract Drawings.
2. No groundbreaking activities, demolition, or work of any kind should occur until all site protection and tree preservation requirements have been met.
3. All contractors, trades people and suppliers shall be informed of the tree preservation measures and guidelines at a pre-construction meeting or through written correspondence and provide acknowledgement receipt by all staff involved in the project. Contractor to copy the Contract Administrator on the correspondence.
4. Monitoring of the trees directly adjacent to the construction area and within the construction area should be conducted by a Qualified Tree Professional throughout the duration of the project, and reporting results shall be documented in a Tree Monitoring Report in accordance with the approved TPP.
5. Posted tree protection signs shall be located along the construction hoarding where it is directly adjacent to existing trees to remain and on the TPZ fencing of protected trees within the construction work area. The TPZ shall be posted with signs which will include the following information.
6. Within the tree protection zone there will be no:
 - .1 Excavation or grade changes
 - .2 Dumping or storage of any materials
 - .3 Unauthorized entry
 - .4 Tree injury or removal
 - .5 Disturbance of any kind
 - .
 - .6 Activity of any kind without permission of the Qualified Tree Professional
7. Tree protection barrier must remain in good condition and must not be removed or altered without authorization from the Town Project Manager.
8. Efforts should be made to route all underground utilities around the tree protection zones. If this is not possible, they shall be bored or tunneled under the root zone of the trees (minimum 1.6 m depth). Using traditional trenching methods, there will be significant root damage to the trees that are being preserved. Any installation of underground utilities (water, sewage or hydro) should utilize a non-destructive methodology such as directional boring, airspade technology or Hydrovac removal of soil.

3.2 TREE PROTECTION

- .1 Unless otherwise noted in this specification, all tree protection measures are to conform to the approved Tree Protection Plan (TPP), the Town of Tecumseh Public Tree By-law 2026-021, and the Town of Tecumseh Tree Protection and Preservation Guidelines, including associated specifications and technical standard details.
- .2 Trees to be protected will be confirmed by the Contract Administrator.
- .3 The trees within the limit of work area shall be maintained in a healthy growing condition until Substantial Performance has been established.
- .4 Tree protection shall remain in place until all site work has been completed, and may not be removed, relocated, or otherwise altered without the written permission of the Qualified Tree Professional and Contract Administrator or Town Project Manager.
- .5 Any bark injuries are to be immediately treated by the project Arborist. Injured bark is to be immediately trimmed back to the uninjured bark without causing further damage. Additional treatment may include covering with an acceptable wound dressing or covering, or tree removal and replacement, as determined by the Qualified Tree Professional, at the Contractor's sole expense. Any tree removal and replacement shall require prior approval of the Contract Administrator or Town Project Manager.
- .6 Stems or branches 25 mm or larger in diameter at the point of branch attachment that are broken by the Contractor are to be pruned in accordance with ANSI A300 Clause 5 – Pruning standards by a qualified Arborist without delay. Contractor's personnel shall not be permitted to prune any tree stems or branches.
- .7 Roots 25 mm or larger in diameter that are exposed by the Contractor are to be pruned in accordance with ANSI A300 Clause 12 – Root Management standards by a qualified Arborist without delay. Contractor's personnel shall not be permitted to prune any tree roots.
- .8 Pruning of trees to remain, if required, shall be pruned in accordance with Good Arboricultural Practices and by or under the supervision of a Qualified Tree Professional to the satisfaction of the Contract Administrator or Town Project Manager.
- .9 The Arborist shall undertake proper root pruning when and if roots of retained trees are to be exposed, damaged or severed by construction activities. The Arborist shall supervise the excavation of soil where roots are to be cut. All roots are to be cut cleanly at the excavation zone and backfilled with an appropriate soil mix. Exposed roots shall be covered with soil or mulch as soon as possible to prevent further damage and desiccation. Root pruning prior to excavation will help prevent unnecessary damage to tree roots.
- .10 In areas where mulch may remain following construction the trees shall have 100mm minimum of mulch installed over the root system before construction starts, and set back from the trunk by rodent guard. Mulch shall be spread evenly under the canopy to the dripline, to the limits of the protection fence.

- .11 There shall be a source of water provided by the contractor to ensure that the existing trees receive adequate water during the dry periods. It will be the responsibility of the certified Arborist or Qualified Tree Professional to monitor for moisture content in the soil for the duration of the construction.
- .12 During the construction period, the Contractor will not stockpile construction materials, equipment, or excavated material on turf grass areas within the dripline and/ or Tree Protection Zone (TPZ) of trees or re-fuel construction equipment in the vicinity of trees. All refueling shall be undertaken in areas designated for use by the Town's representative. Failure to follow these protection measures will result in a Penalty deducted from final payment.
- .13 All disturbed areas will be stabilized and restored immediately following construction.
- .14 Where excavating, filling, or grading is required within the root zone of any trees that are to be preserved, the work shall be performed by or under the direction of a Qualified Tree Professional with the intent to minimize disturbance to the root zone.
- .15 No topsoil shall be removed in the TPZ of trees to be protected and retained.
- .16 No major roots shall be cut or ripped with construction equipment, but shall be hand dug to expose the root and cut with a clean cut under direction of the Qualified Tree Professional.
- .17 Tree protection shall remain in place until all site work has been completed, and may not be removed, relocated, or otherwise altered without the written permission of the Arborist Qualified Tree Professional and Contract Administrator.
- .18 The trees within the limit of work area shall be watered and fertilized and maintained in a healthy growing condition until Substantial Performance has been established.
- .19 Pruning of trees to remain, if required, shall be pruned in accordance with approved horticultural practices Good Arboricultural Practices and by or under the supervision of the certified Arborist to the satisfaction of the Contract Administrator.
- .20 The Arborist shall undertake proper root pruning when and if roots of retained trees are to be exposed, damaged or severed by construction activities. The Arborist shall supervise the excavation of soil where roots are to be cut. All roots are to be cut cleanly at the excavation zone and backfilled with an appropriate soil mix. Exposed roots shall be covered with soil or mulch as soon as possible to prevent further damage and desiccation. Root pruning prior to excavation will help prevent unnecessary damage to tree roots.
- .21 In areas where mulch may remain following construction the trees shall have 100mm minimum. of mulch installed over the root system before construction starts, and set back from the trunk by rodent guard. Mulch shall be spread evenly under the canopy to the dripline, to the limits of the protection fence.
- .22 There shall be a source of water provided by the contractor to ensure that the existing trees receive adequate water during the dry periods. It will be the responsibility of the certified Arborist to monitor for moisture content in the soil for the duration of the construction.

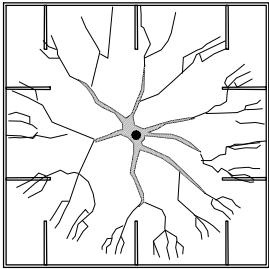
- .23 There shall be no material stored in the dripline of the canopy of the trees to remain, including no grade changes and no parking.
- .24 Ensure all trees are protected from compaction of roots or damage to trunk or limbs prior to receipt of approval for removal or remedial care as recommended by the certified Arborist.
- .25 Obtain necessary permits, reports, and approvals.
- .26 Proceed with execution of specified work, under direction of the Contract Administrator.
- .27 No rigging cables will be wrapped around or installed in trees. Do not burn waste near trees and do not flush concrete trucks or cement mixing machines over root system.

3.3 RESTORATION AND TREE COMPENSATION

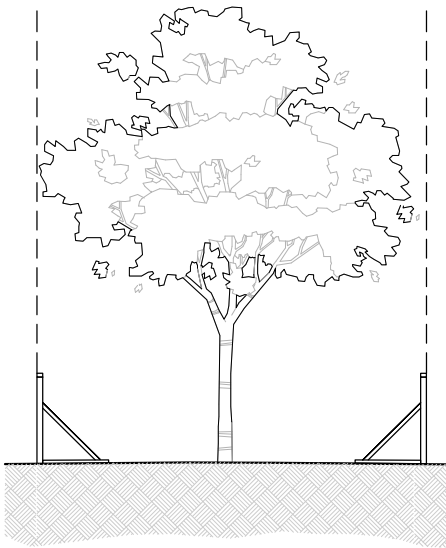
- .1 Areas disturbed during construction shall be restored to their original condition or better. Grassed areas disturbed during construction shall be restored to a satisfactory condition which may include filling to grade, fertilizing, sodding, and mulching. Restoring disturbed areas with seed, is not allowed.
- .2 The Contractor shall protect all trees and tree trunks from damage. Should trees be damaged or have died due to the negligence of the Contractor's employees and/or sub-contractor's, a penalty of replacement cost will be calculated using the Trunk Formula Method (or equivalent), to be performed by the Contract Administrator or Town's Arborist. The contractor may obtain an alternate opinion from a certified ISA Arborist not affiliated or employed by the Town, using the trunk formula method, at no additional cost the Town. The decision of the Arborist will be final and binding. Penalty shall be deducted from final payment.

END OF SECTION

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PLAN
N.T.S.



SECTION
N.T.S.

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. DO NOT SCALE DRAWINGS.
3. TREE PROTECTION BARRIERS MUST BE 1200mm HIGH, WAFFERBOARD HOARDING OR EQUIVALENT APPROVED REPLACEMENT BY TOWN.
4. ALL SUPPORTS AND STAKES SHALL BE OUTSIDE THE TREE PROTECTION ZONE AND SHALL MINIMIZE ROOT DAMAGE.
5. TREE PROTECTION BARRIERS SHALL REMAIN IN PLACE AND IN GOOD CONDITION UNTIL ALL CONSTRUCTION IS COMPLETE AND APPROVED BY THE TOWN.
6. ALL ARBORICULTURE WORK SUCH AS PRUNING OF BRANCHES AND ROOTS, SHALL BE DONE BY A QUALIFIED TREE PROFESSIONAL CERTIFIED WITH THE INTERNAL SOCIETY OF ARBORICULTURE APPROVED BY THE TOWN.
7. TREE PROTECTION BARRIERS FOR TREES SITUATED ON THE TOWN ROAD ALLOWANCE WHERE VISIBILITY MUST BE MAINTAINED CAN BE 1200mm HIGH AND CONSIST OF PLASTIC WEB SNOW FENCING ON A WOOD FRAME MADE OF 50.8mmX101.6mm (2"x4") PINNED TO THE GROUND TO NOT ALLOW MOVEMENT OR RELOCATION.
8. WHERE SOME EXCAVATED MATERIAL OR FILL HAS TO BE TEMPORARILY LOCATED NEAR A TREE PROTECTION BARRIER, PLYWOOD MUST BE USED TO ENSURE NO MATERIAL ENTERS THE TREE PROTECTION ZONE.
9. ALL SUPPORTS AND BRACING SHOULD BE OUTSIDE THE TREE PROTECTION ZONE. ALL SUCH SUPPORTS SHOULD MINIMIZE DAMAGING ROOTS INSIDE THE TREE PROTECTION BARRIER.
10. NO CONSTRUCTION ACTIVITY, GRADE CHANGES, SURFACE TREATMENT OR EXCAVATIONS OF ANY KIND IS PERMITTED WITHIN THE TREE PROTECTION ZONE.
11. ALL EXISTING TREES THAT ARE TO BE PRESERVED SHALL BE FULLY PROTECTED WITH WAFFERBOARD HOARDING OR EQUIVALENT APPROVED BY THE TOWN, PRIOR TO CONSTRUCTION COMMENCING.
12. GROUPS OF TREES AND OTHER EXISTING PLANTINGS TO BE PROTECTED SHALL BE TREATED IN A LIKE MANNER WITH HOARDING AROUND THE ENTIRE CLUMP(S).
13. INSTALL TREE PROTECTION FENCING AS PER THE APPROVED LANDSCAPE PLANS BEFORE CONSTRUCTION BEGINS AND KEEP IN PLACE UNTIL REMOVAL IS APPROVED BY TOWN.
14. AREAS WITHIN THE TREE PROTECTION FENCING SHALL REMAIN UNDISTURBED. STORAGE OF MATERIALS, LITTER OR EQUIPMENT WITHIN OR AGAINST THE TREE PROTECTION FENCING IS PROHIBITED. NO CONTAMINANTS SHALL BE DUMPED OR FLUSHED WHERE FEEDER ROOTS OF TREES EXIST.
15. MAINTAIN EXISTING GRADES AT TREE PROTECTION FENCE FOR ALL PROTECTED AND RETAINED TREES.
16. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.
17. REFER TO TREE PROTECTION POLICY AND PROCEDURES.

MINIMUM TREE PROTECTION ZONE (TPZ) REQUIREMENTS TABLE

TRUNK DIAMETER (DBH, CM)	MINIMUM TREE PROTECTION ZONE (RADIUS, M)
< 10 cm	1.2 m
10 - 29 cm	1.8 m
30 - 40 cm	2.4 m
41 - 50 cm	3.0 m
51 - 60 cm	3.6 m
61 - 70 cm	4.2 m
71 - 80 cm	4.8 m
81 - 90 cm	5.4 m
91 - 100 cm	6.0 m
> 100 cm	6 cm per 1 cm DBH

400mmX600mm SIGN MOUNTED ON ALL SIDES OF BARRIER

TOWN OF TECUMSEH TREE PROTECTION ZONE (TPZ)

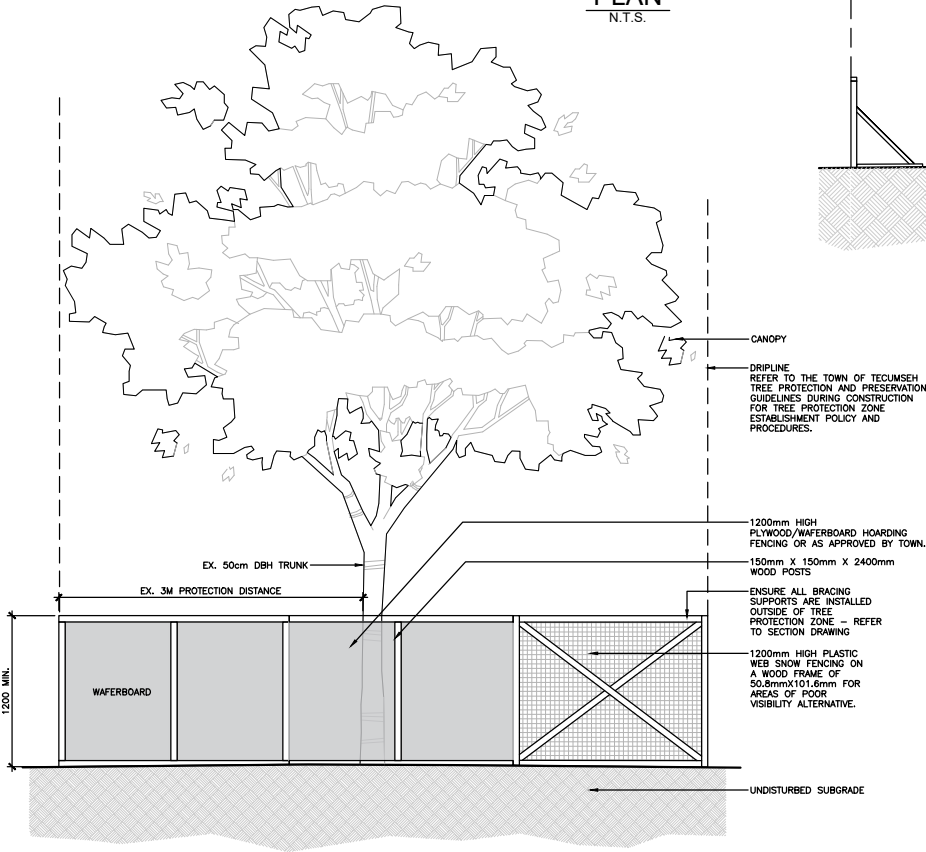
EXCAVATION OR GRADE CHANGE
DUMPING
STORAGE
UNAUTHORIZED ENTRY
TREE INJURY OR REMOVAL
DISTURBANCE OF ANY KIND

ARE STRICTLY PROHIBITED WITHIN THIS TPZ

THIS TPZ BARRIER SHALL NOT BE DAMAGED OR MOVED.

IMMEDIATELY REPORT ANY ENTRY INTO THIS TPZ TO:

CONTACT NAME: _____ TEL NO. _____



PROJECT

Tecumseh Urban Forestry
Planting Details

SCALE

N.T.S.

TITLE

TREE PROTECTION BARRIERS

FIGURE NO.

009

DATE

FEBRUARY 2026