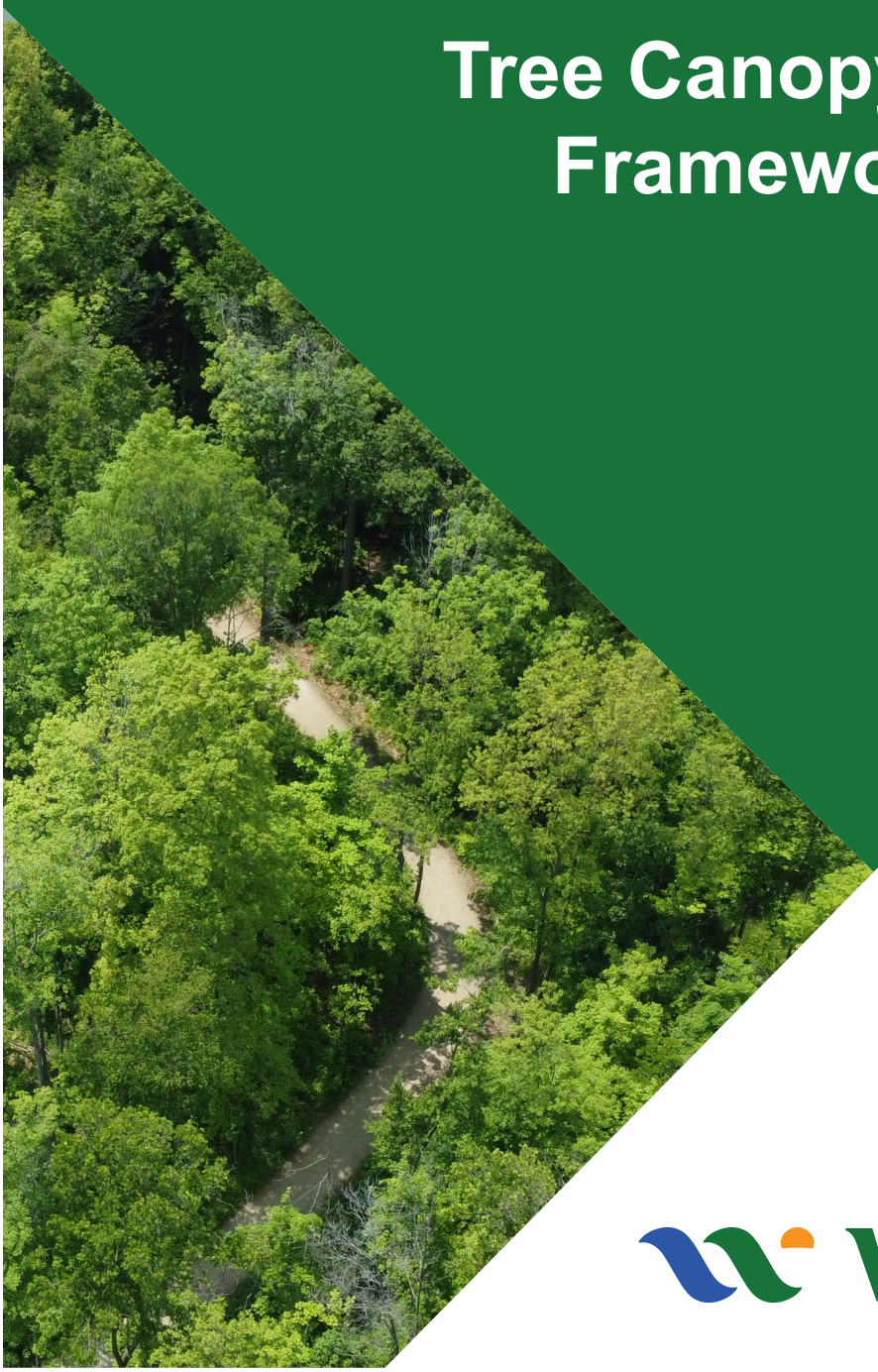
Tree Canopy Policy Framework 2023



TOWNSHIP OF Wilmot

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Executive Summary

Trees provide a well-documented, wide range of economic, environmental, and social benefits. The Ontario Municipal Act requires that all municipalities adopt and maintain policies to protect and enhance the tree canopy and natural vegetation within their communities. Currently, in the Township of Wilmot, the Township-owned portion of the tree canopy is largely managed in a reactive way, responding to time sensitive complaints and emergency situations. The responsibility to manage Township-owned trees is spread across several individuals in different Township departments. Existing tree canopy best management practices described in the council-approved Infrastructure Standards and Specifications Manual are not applied consistently on capital projects and development applications. However, engagement with Township staff and the community demonstrates a desire to manage the tree canopy in a more proactive way, but not in a way that impedes individual rights or is cost prohibitive.

Currently, the tree canopy cover in the Township of Wilmot is 22.14%. By comparison, this is lower than nearby urban communities but higher than surrounding rural areas. External pressures such as climate change, planned development, and tree pests require a proactive approach to managing trees. By 2049, this policy framework aims to achieve a planned increase in the overall tree canopy coverage to 22.60%. This increase is comparable to the size of the New Dundee Rural Settlement Area. To accomplish this overarching goal, specific, pragmatic tree canopy increase targets have been established for urban areas, rural settlement areas, and the countryside. Simply planting more trees is not enough. To maximize benefits and make the most of limited funding resources, it is essential to adopt a proactive management approach throughout the entire life-cycle of trees managed by the Township.

This policy framework describes the recommended actions, including the timeline and cost to implement, resource implications, and measures of success that will directly contribute to achieving the tree canopy target. These include short-term recommendations to be implemented in 1 to 10 years following the endorsement of the tree canopy policy framework:

- Create a Township Senior Urban Forester position
- Establish a service level policy for trees on Township-owned lands
- Establish protocols and perform routine tree maintenance on Township-owned lands
- Refine the Township Infrastructure Standards and Specifications Manual
- Develop a detailed tree inventory for Township-owned lands
- Continue to support existing organization and community-based tree canopy initiatives

As well as long term recommendations to be implemented in approximately 10 to 15 years following the endorsement of the tree canopy policy framework:

- Reassess tree canopy cover in ten years
- Evaluate the need to modifying practices, policies, and procedures related to the tree canopy

These long-term goals are intended to evaluate the impact the short-term goals have had on the overall tree canopy cover. This policy framework also outlines considerations for the future, contingent upon whether the tree canopy increases or decreases. This policy framework provides a structured and forward-looking plan to protect and enhance the tree canopy in the Township of Wilmot, aligning with both legislative requirements and the aspirations of the community. By implementing the recommendations in this framework, the Township can move towards a more sustainable and resilient future.

1.0 Introduction

The Township of Wilmot is required by the Municipal Act to adopt and maintain policies to protect and enhance the Township's tree canopy and natural vegetation. Municipalities throughout North America are increasingly recognizing the economic, social, and environmental benefits the tree canopy contributes to the well-being of the municipality and its residents.

The Township of Wilmot 2020 Strategic Plan update identifies 'Environmental Protection' as one of five core goals to guide decision-making. Protecting and enhancing the Township's tree canopy contributes to the three strategies identified to reach the Environmental Protection core goal, these include agriculture and greenspace, climate adaptation and mitigation, and sustainability. Protecting and enhancing the tree canopy also contributes to the 2020 Strategic Plan goal of improving 'Quality of Life' in the recreation and leisure opportunity strategy through the improvement of parks and open spaces by planting more trees and managing vegetation identified in the Parks Facilities and Recreation Services Master Plan.

Managing the overall tree canopy is a joint effort across all Township departments, Waterloo Region, and the Conservation Authority that manage publicly-owned trees; working together, alongside residents, businesses, and landowners that own the privately-owned trees. **Although the tree canopy on Public and Private-owned lands contributes to the well-being of the entire municipality regardless of ownership; unless stated otherwise, the specific recommendations in this policy framework apply only to Township of Wilmot operations, programs, and polices.**

The objectives of this tree canopy policy framework are to:

- Identify the existing tree canopy present in the Township,
- Establish an attainable tree canopy enhancement target for Township owned lands,
- Evaluate existing Township programs, policies, budget, and staffing resources related to Township-owned portions of the tree canopy,
- Recommend programs and policies to achieve the tree canopy enhancement target for Township-owned lands (woodlots, road allowances, facilities, parks), provide recommendations for budget and staff resources to implement these opportunities, and
- Examine the implications and provide recommendations on further regulating the removal of trees on private property as part of future updates to the tree canopy policy.

1.1 Context

The Township of Wilmot is a lower-tier municipality within the Regional Municipality of Waterloo, in Ontario, Canada, that is approximately 266 square kilometres in size. A community of many communities, the Township's 22,000 residents live, work, and play in a mix of rural settlement areas (including St. Agatha, Petersburg, Mannheim, New Dundee, Philipsburg, Shingletown, Wilmot Centre, Haysville, Luxemburg, Lisbon, Sunfish Lake, and Foxboro Green), two urban areas (New Hamburg and Baden), and large amounts of farmland and green space.

Trees that make up the tree canopy provide a well-documented wide range of economic, environmental and social benefits. Some of the most important benefits of trees are:

- Providing clean air: Trees absorb carbon dioxide and other pollutants from the air and release oxygen, helping to improve air quality.
- Reducing the urban heat island effect: Trees provide shade, which can help reduce temperatures in urban areas and decrease the need for air conditioning.

- Mitigating climate change: Trees store carbon and help to mitigate the effects of climate change by reducing greenhouse gas emissions.
- Improving water quality: Trees help to absorb and filter rainwater, reducing stormwater runoff and improving water quality.
- Supporting biodiversity: Trees provide habitat for wildlife, including birds, insects, and small mammals.
- Enhancing property values: Trees can improve the aesthetic appeal of a neighbourhood or property, increasing property values.
- Promoting physical and mental health: Spending time in nature, including among trees, has been shown to improve physical and mental health by reducing stress and promoting physical activity.

Figure 1 - Aerial view of New Hamburg and Nith River.

Trees are a vital part of a healthy environment and play an important role in supporting the health and well-being throughout the Township. However, there are many pressures threatening the Township's tree canopy today:

- Climate change increasing environmental stress on trees through changes in precipitation, temperature, and intensity of weather events.
- Invasive plant species increasing competition and reducing biodiversity.
- Introduced pests, such as Emerald Ash Borer (EAB) and *Lymantria dispar dispar* (LDD) Moth, and, more recently, the discovery of Oak Wilt (an aggressive vascular disease caused by a fungal organism) in Ontario, all of which weaken or cause large scale loss of trees.
- Consolidation of small agricultural fields into larger fields.
- Increased development density and infrastructure requirements reducing the viable underground and above-ground growing space for trees.

If action is not taken, there is a risk that the Township's tree canopy will decline. A 2012 study found that on average, the tree canopy in urban areas within the United States decreases at a rate of approximately 0.2% per year (Nowak, D.J., and E.J. Greenfield. 2012. "Tree and impervious cover change in U.S. cities." Urban Forestry & Urban Greening, Vol. 11, 2012; pp 21-30). Proactive management of the Townships' tree canopy from a policy, practice, and community engagement perspective is important to protect and enhance this critical asset contributing to the quality of life and environment.

Forestry efforts in municipalities in North America are often focused on short-term goals of planting new trees to enhance the tree canopy. Simply planting more trees is not enough; the focus needs to be on growing trees in the long-term. A coordinated effort across all Township departments, Region of Waterloo, utility providers, community organizations, and landowners is required to plan, monitor, and maintain new and existing trees in the long-term to protect and enhance the overall function and maximize benefits of the tree canopy. Unlike traditional assets such as roads and bridges, large, mature trees contribute the greatest ecosystem benefits relative to cost of maintenance as illustrated in Figure 2, adapted from "Jessica M. Vogt, Planted Tree Re-Inventory Protocol, Bloomington Urban Forestry Research Group at CIPEC, Indiana University." It can take up to 40 years for a newly planted tree to reach maturity and maximize benefits relative to the cost of maintaining a tree.

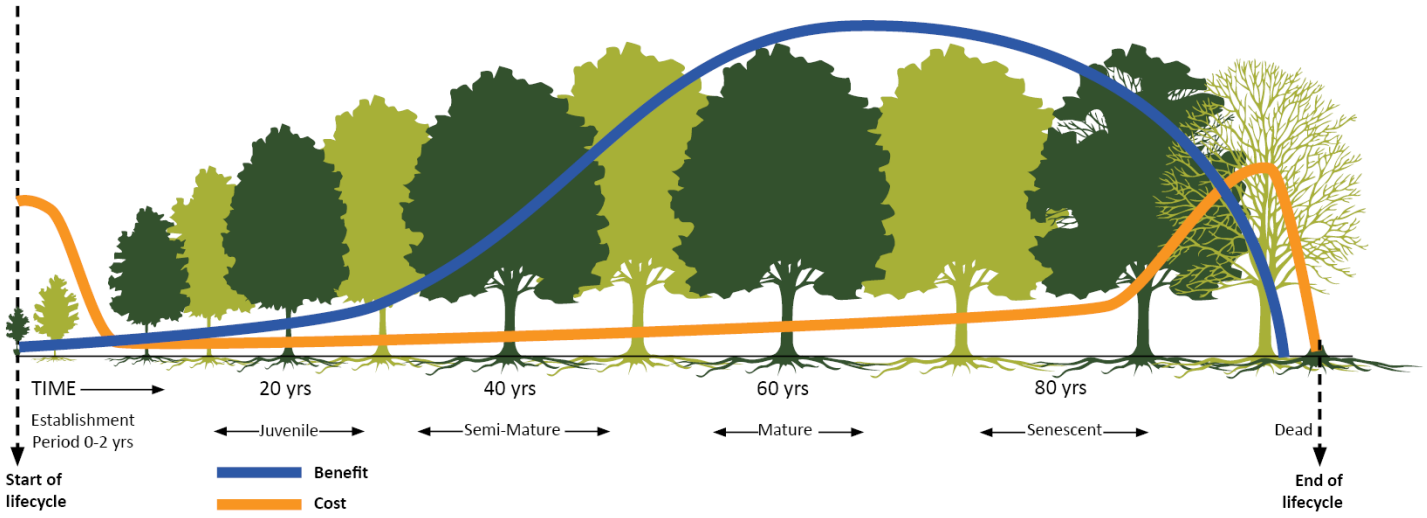


Figure 2 - Benefits provided (blue line) vs. cost (gold line) incurred over a tree's lifetime.

2.0 Tree Canopy Cover

2.1 Background

An objective of this framework is to identify the tree canopy cover present in the Township of Wilmot. The definition of a 'tree' is any species of woody perennial plant, including its root system, which has reached or can reach a height of at least 4.5 metres at physiological maturity. **Tree canopy cover is defined as the surface area of the land covered by the combined leaves, branches, and trunks of all standing trees when viewed from above.** An example of the tree canopy cover at the Township of Wilmot Arboretum is shown in Figure 3. Tree canopy cover assessment provides a two-dimensional metric related to the extent of cover and distribution across a jurisdiction but does not provide information related to tree health, age structure, or species diversity.

Figure 3 - Tree Canopy at the Township of Wilmot Arboretum.

2.2 Methodology

The tree canopy cover assessment method used in this policy framework is known as object-based image analysis (OBIA), which is a type of image processing technique that involves segmenting an image into classified polygons based on their spectral, spatial, geometrical, and contextual characteristics. The method uses multi-band remote spectral imagery to identify different land uses, based on previously defined classes, present in the Township of Wilmot. This process involves analyzing the spectral reflectance properties of different bands of light to differentiate between vegetation and non-vegetation pixels.

Multi-band spectral remote imagery captures images of the Earth in multiple bands of light, ranging from the visible to the near-infrared spectrum. Vegetation strongly absorbs and reflects light in the visible and near-infrared parts of the spectrum, making it possible to identify areas with vegetative cover, including grassed and tree canopy, as well

as agricultural fields, water, buildings, or roads/parking lots. This approach provides a more accurate and efficient method for calculating tree canopy cover compared to traditional methods that rely on manual interpretation of aerial photographs.

The detailed methodology used to assess tree canopy cover and non-canopy area is described as follows:

1. Acquired high resolution cloud free, leaf-on satellite of 30 cm spatial resolution, during the months of June, July and August of 2022.
2. Calculated vegetation density using the ratio of reflectance values in the near infrared (NIR) and red (R) bands.
3. Combined the results of the density analysis with the raw colour bands for one multiband image.
4. Performed segmentation and zonal statistics of the satellite images acquired to create vector objects based on spectral similarity.
5. Categories including natural cover, built form, water, and agriculture were established by placing 100 training sample points within polygons representative of different pixels included in each land cover category.
6. Training samples were joined with the previously generated vector objects, thus assigning a land cover category to each polygon in which a training sample point was placed.
7. The subset of polygons classified with the training samples were used to train a classifier model, which then classified all of the vector objects previously generated throughout the entire Township using spectral properties.
8. Ran iterative supervised classifications until the class definitions are accurate. Perform QC by zooming in on complex sites in the Township and checking the land use classification visually against true and false colour base images as well as the vegetation density analysis. Categories are also tested at this stage for accuracy by selecting random pixels across the image and determining the accuracy percentage.
9. As each class definition became accurate, these pixels were removed from further analysis. (i.e., once water and built form were classified accurately, those pixels were extracted and removed from the classification process, eliminating the risk of false reclassification later.) This created a vegetated and non-vegetated map of the site. Alternatively, any available vector base imagery (such as river and lake outlines) was used to extract pixels by location.
10. When only the natural cover was left, the aerial imagery was extracted based on the extent of the natural cover polygons. Once extracted, steps 4 through 7 were repeated to further classify natural cover using into leafed canopy and open/shrub areas.
11. Once classified, the natural areas were examined for potential mis-classifications and manually manipulated where required to ensure accurate classification of leafed canopy.
12. A final image or series of images showing canopy distribution over the Township is produced and the total canopy surface area was calculated. At this stage, other datasets were used to analyze the canopy cover against other metrics (i.e., public/private land, comparison to existing and proposed canopy targets, etc.).
13. It is estimated that in using this methodology, 85-90% of image pixels have been classified accurately, with the greatest amount of error inherent in differentiating shrub from canopy. This accuracy forecast represents only the snapshot in time captured in the image; there will be slight discrepancies from year to year and throughout the growing season.
14. Metadata were generated for the client's records.

Combined with geographic information system data supplied by the Township and Region, including public and private land parcels, and 2022 aerial photography; potential tree planting locations can also be identified for future tree canopy enhancement. The detailed methodology used to determine potential tree planting areas is described as follows:

1. The natural cover class, including canopy and non-canopy cover, determined using the methodology detailed above was extracted from all other cover classes.
2. The natural cover classes were clipped using the boundaries of the public parcels from the Teranet data set provided by the Township of Wilmot.
3. Within each public parcel the canopy coverage within the natural cover class was refined using manual manipulation, if required. The remaining natural cover area within the public parcels was classified as open/grassed.
4. The existing canopy coverage within the public parcels was then extracted, leaving the open/grassed cover to be identified as potential tree planting areas.
5. Existing sports fields located in Township parks and facilities were manually removed from potential tree planting areas.
6. The total percentage of potential tree planting areas was calculated based on the extracted open/grassed cover within all public parcels.

2.3 Results

The tree canopy cover within the geographic boundary of the Township of Wilmot is 22.14% (5840.50 hectares; Figure 4 and 5) Large format detailed mapping illustrating the tree canopy cover can be found in Appendix A.

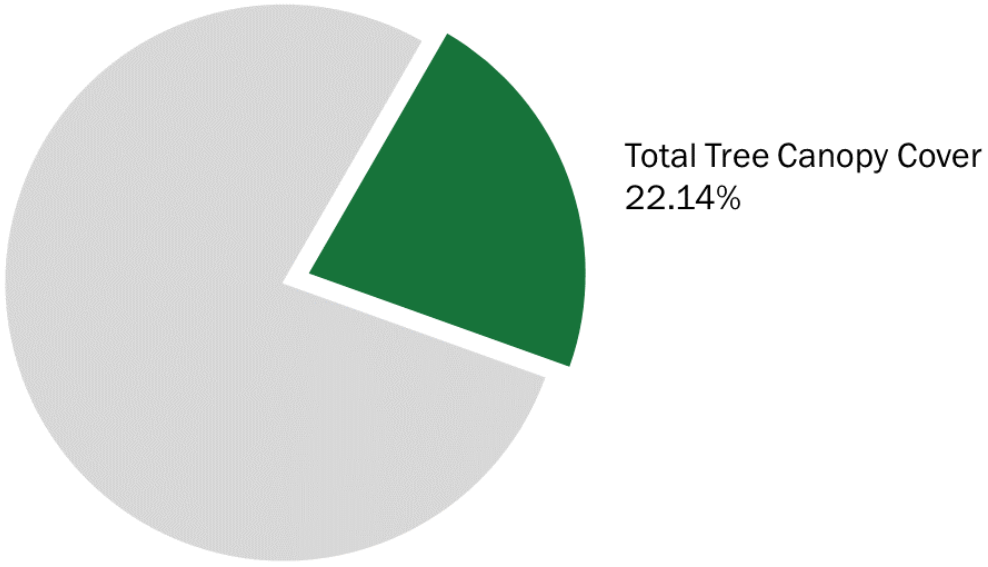


Figure 4 - Total tree canopy cover in the Township of Wilmot.

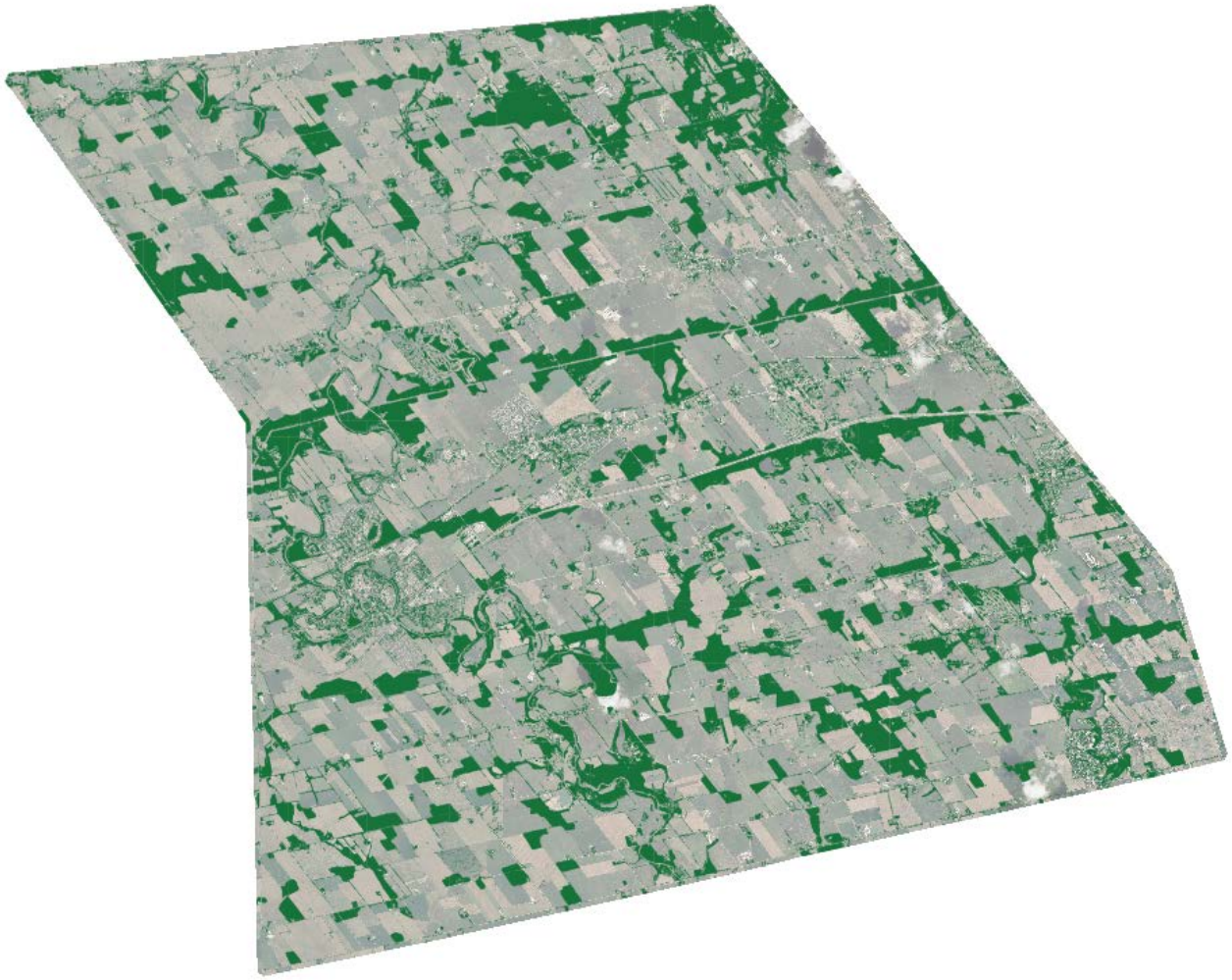


Figure 5 - Tree Canopy Cover mapping within the geographic boundary of the Township of Wilmot. Large format detailed mapping illustrating the tree canopy cover can be found in Appendix A.

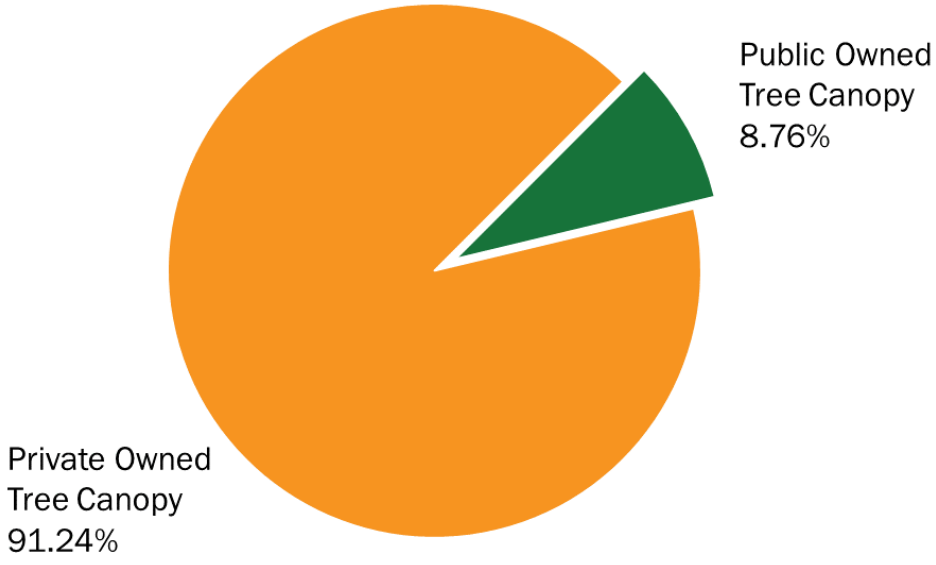


Figure 6 – Private owned tree canopy cover and public owned tree canopy cover comparison.

Approximately 8.76% (511.40 hectares) of the current tree canopy is located on public-owned lands and 91.24% 5329.10 hectares) is located on privately-owned lands (Figure 5). Approximately half (253.63 hectares) of the publicly owned tree canopy is located on Township of Wilmot owned lands. The other public land holders with tree canopy ownership include the Region of Waterloo, Grand River Conservation Authority (GRCA), Province of Ontario, as well as other utility agencies (Figure 7).

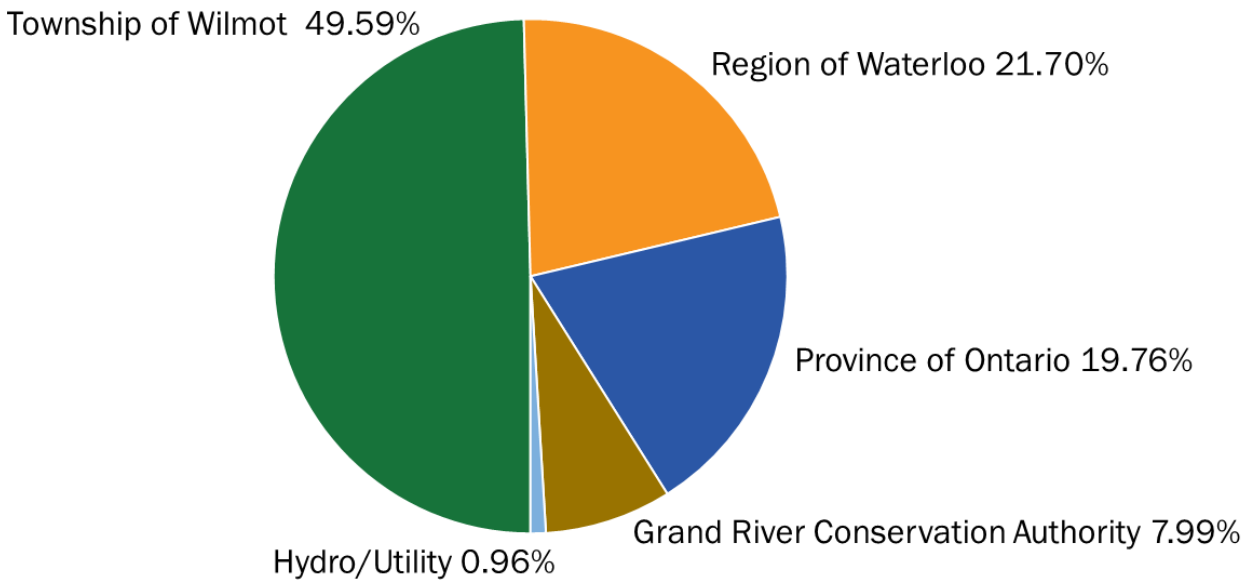


Figure 7 – Public tree canopy ownership by public entities.

The tree canopy assessment also identifies potential tree planting locations on publicly-owned lands, with a specific focus on Township-owned lands, to support future tree canopy enhancement initiatives. These areas encompass public rights of way, parks, and facilities, excluding existing water bodies, buildings, roads/parking lots, and tree canopy areas identified during the assessment, resulting in the selection of only existing grassed vegetated areas. Existing grassed areas were further refined to exclude known sports fields. Thes remaining grassed areas are categorized as 'potential' pending further ground-truthing and background review to validate their suitability as planting sites, this includes identifying:

- Above-ground and below-ground utilities such as telephone, cable, fibre, gas, electricity, water, sanitary (including septic systems), and stormwater infrastructure as well as each utility operator required setbacks/clearances.
- If there are plans for road improvements, new above above-ground, or below-ground utilities.
- Transportation Association of Canada tree planting setbacks required from the edge of roads.
- Easements that may limit tree planting.

Prior to ground-truthing, there are approximately 492.71 hectares of potential planting locations on all public owned lands as illustrated in Figure 7. The Township-owned potential planting locations account for 245.23 hectares of this land, followed by 151.44 hectares of Region of Waterloo land, 78.45 hectares of land owned by the Province of Ontario, 11.69 hectares of land owned by Hydro/Utilities, and 5.90 hectares of potential planting lands owned by the Grand River Conservation Authority.

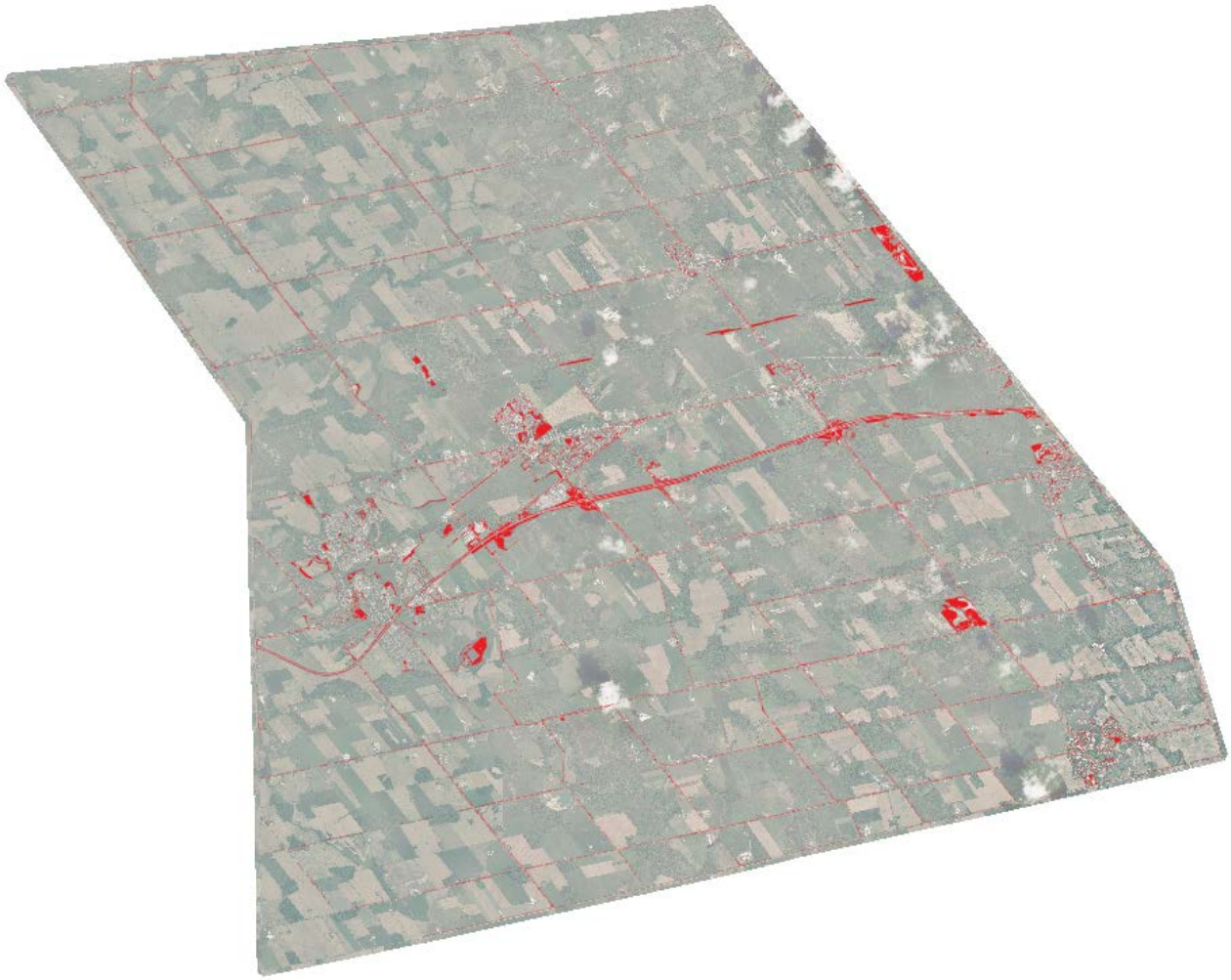


Figure 8 - Potential planting areas on public owned lands.

2.4 Discussion

Compared to the tree canopy cover in adjacent and nearby rural and urban municipalities, as assessed in separate studies, the existing tree canopy coverage of 22.14% in the Township of Wilmot is slightly below average for nearby urban municipalities and above average for nearby rural municipalities. Although conducted at different times and employing various study methodologies compared to the Township of Wilmot's tree canopy assessment as part of this policy framework, the estimated tree canopy cover for adjacent municipalities is shown in Figure 9.

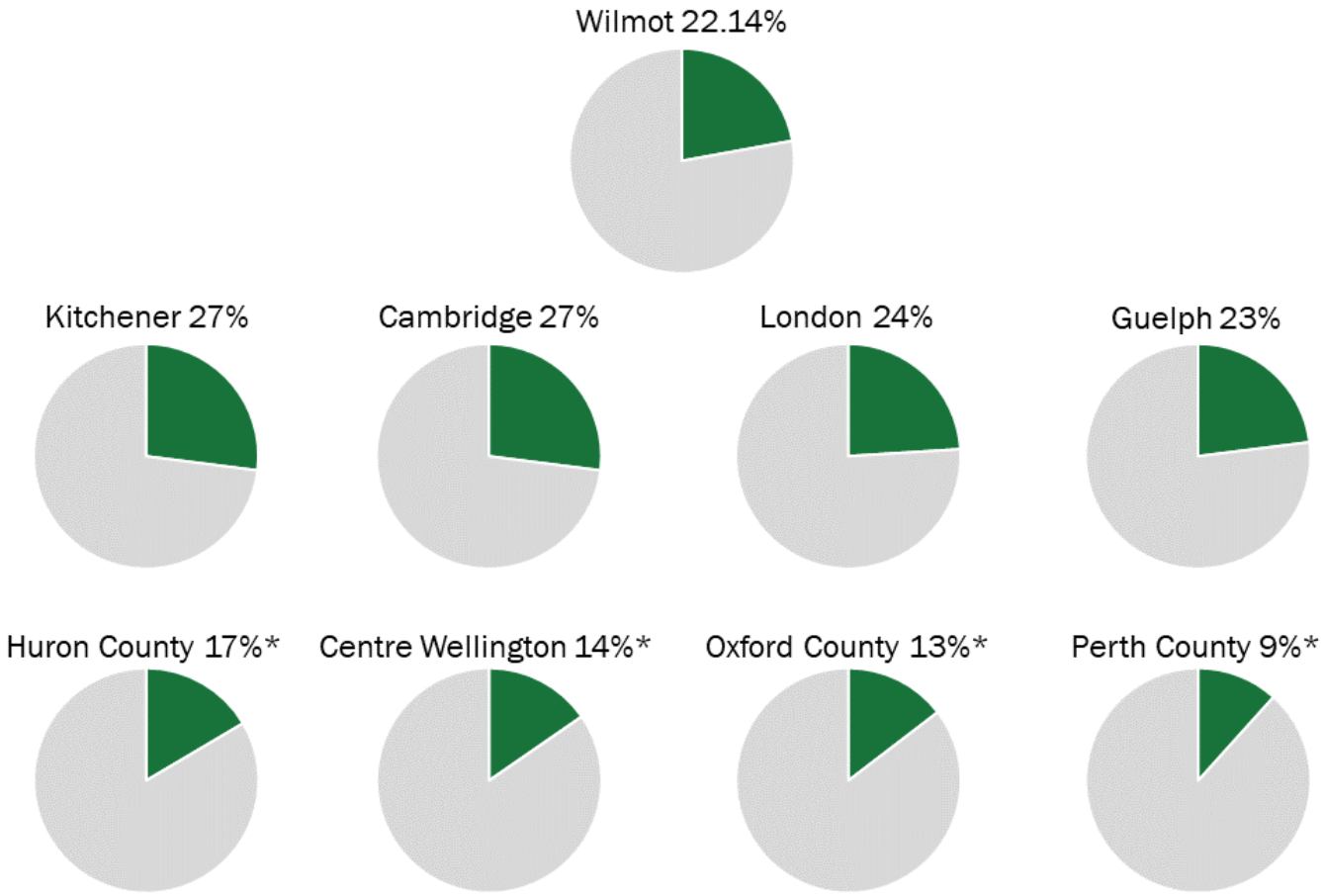


Figure 9 - Tree canopy cover in comparable municipalities assessed as part of separate studies.

* Indicates that the tree canopy cover assessment methodology is estimated using significantly different methodology from this study; only woodlands 1 hectare and greater. This does not include smaller woodlands or individual trees which are included in the Kitchener, Cambridge, London, Guelph, and Wilmot assessments.

In the 1990s through the mid 2010s, municipalities across North America began establishing future tree canopy cover targets, usually expressed as percentages, as part of their urban forest management plans. These targets, typically set for a timeframe of 10 to 30 years, often relied on a 1997 article recommending a 40% tree canopy cover benchmark by the non-profit organization, American Forests. However, in 2017, American Forests announced that it no longer supported the universal 40% tree canopy target goal, suggesting instead that canopy target goals should be based on a more nuanced approach taking into consideration:

- Development densities
- Land use patterns
- Local by-laws
- Climate

In the Township of Wilmot, despite its historical location in a Region of southern Ontario traditionally covered in forests prior to European contact, it is essential to take into account the projected 30% population growth from 2019 to 2031 (Strategic Plan, 2020). Additionally, the area already has a significant portion of land allocated for crop agriculture, which necessitates the absence of tree canopy cover (Region of Waterloo Census Agriculture Bulletin, 2016). From a by-law perspective, the Region of Waterloo Conservation of Trees in Woodlands By-law

regulates groupings of trees within woodlands at least 1 ha in size that meet specific criteria. This further emphasizes the need for careful planning to strike a balance between accommodating population growth and preserving existing agricultural land, while also recognizing the benefits of protecting and enhancing a healthy tree canopy.

In addition to practical considerations, it is important to set a tree canopy coverage target that is attainable and sustainable. Establishing a goal that is excessively ambitious and beyond realistic reach can result in public disappointment, staff frustration, volunteer burnout, and donor/fundraising fatigue. Therefore, it is important to carefully assess the existing resources, capabilities, and limitations before determining the target. A well-thought-out and achievable goal will not only lead to more successful outcomes but also maintain motivation and support from all stakeholders involved in tree canopy protection and enhancement initiatives.

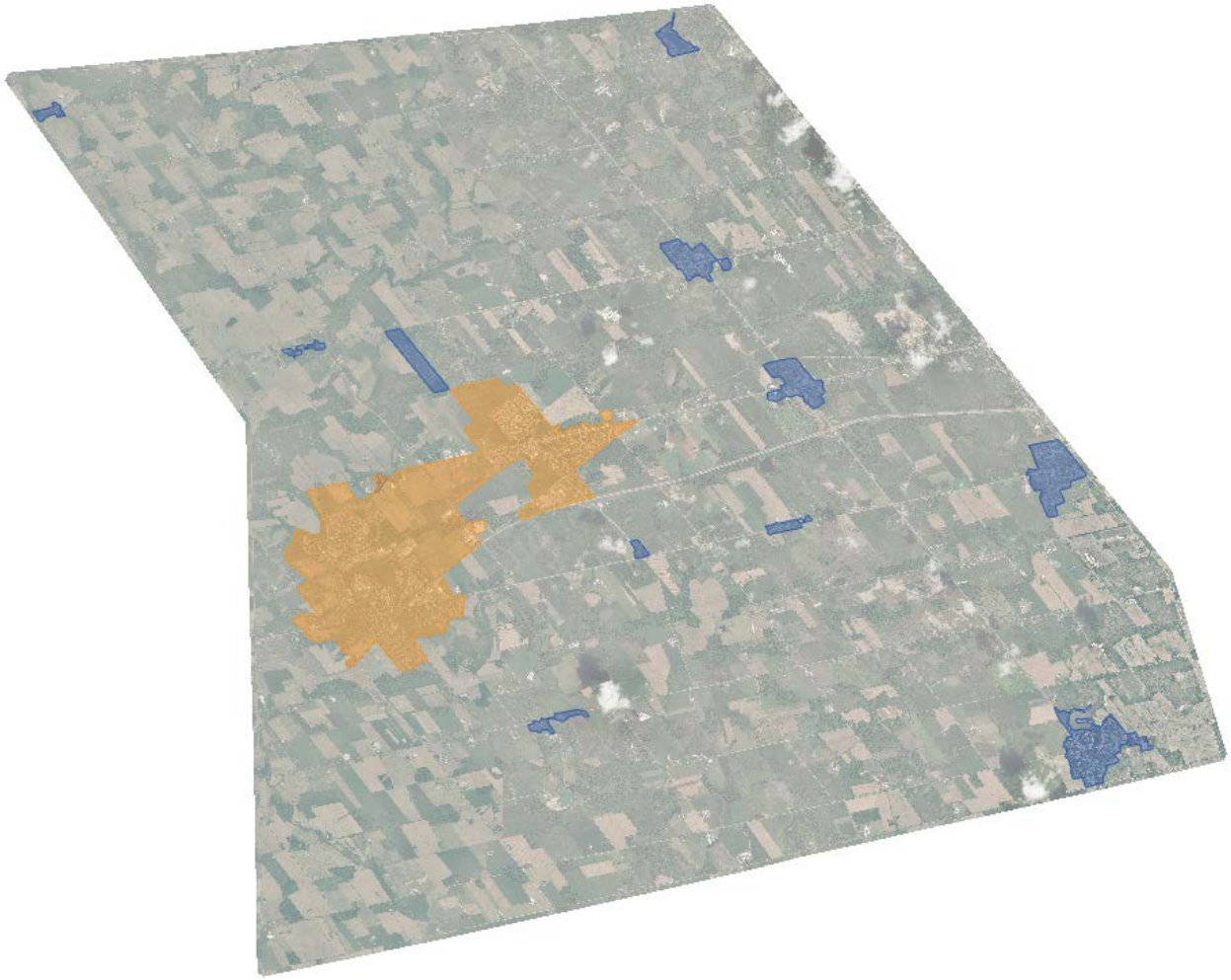


Figure 10 - Township of Wilmot Urban Areas in yellow, Rural Settlement Areas in blue, and the Countryside areas.

In this policy framework, the overarching objective for the tree canopy target of 22.60% (5963.12 hectares) by 2049 (25 years) is broken down into smaller, attainable enhancements aligned with Township Urban Areas, Rural Settlement Areas, and the Countryside, shown in Figure 10. The proposed 122.62-hectare increase, comparable to the size of the New Dundee Rural Settlement Area (Figure 11), takes into consideration the physical limitations of an estimated 253.63 hectares of potential planting areas on Township-owned lands discussed in section 2.3 of this report, the Township's current reactive approach to protecting and enhancing the tree canopy, and the current funding allocated to managing the tree canopy.

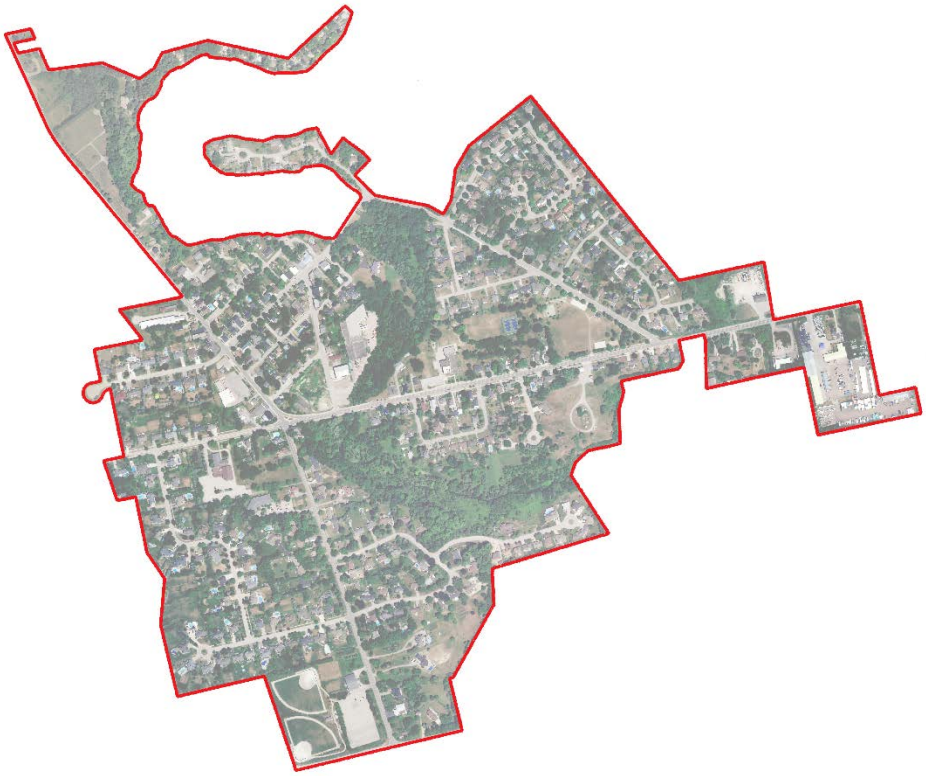


Figure 11 - New Dundee Rural Settlement Area.

Though the overall 22.60% tree canopy cover target may not have the eye-catching headline appeal of municipalities that set goals to double their tree canopy, the recommended target is both ambitious, pragmatic, and requires a demonstrated change in the resources allocated to enhancing, protecting, and maintaining the tree canopy. The recommended actions to be taken by the Township in Section 7 of this report directly contribute to achieving the tree canopy target.

2.4.1 Urban Areas

Urban Areas are comprised of Baden and New Hamburg. The boundary of the Urban Areas is defined by the recently approved Regional Official Plan Amendment Number 6. The current tree canopy coverage in the Urban Areas, including all public and private land, is 415.40 hectares. This area represents 7.11% of the total tree canopy in the Township of Wilmot, as illustrated in Figure 12.

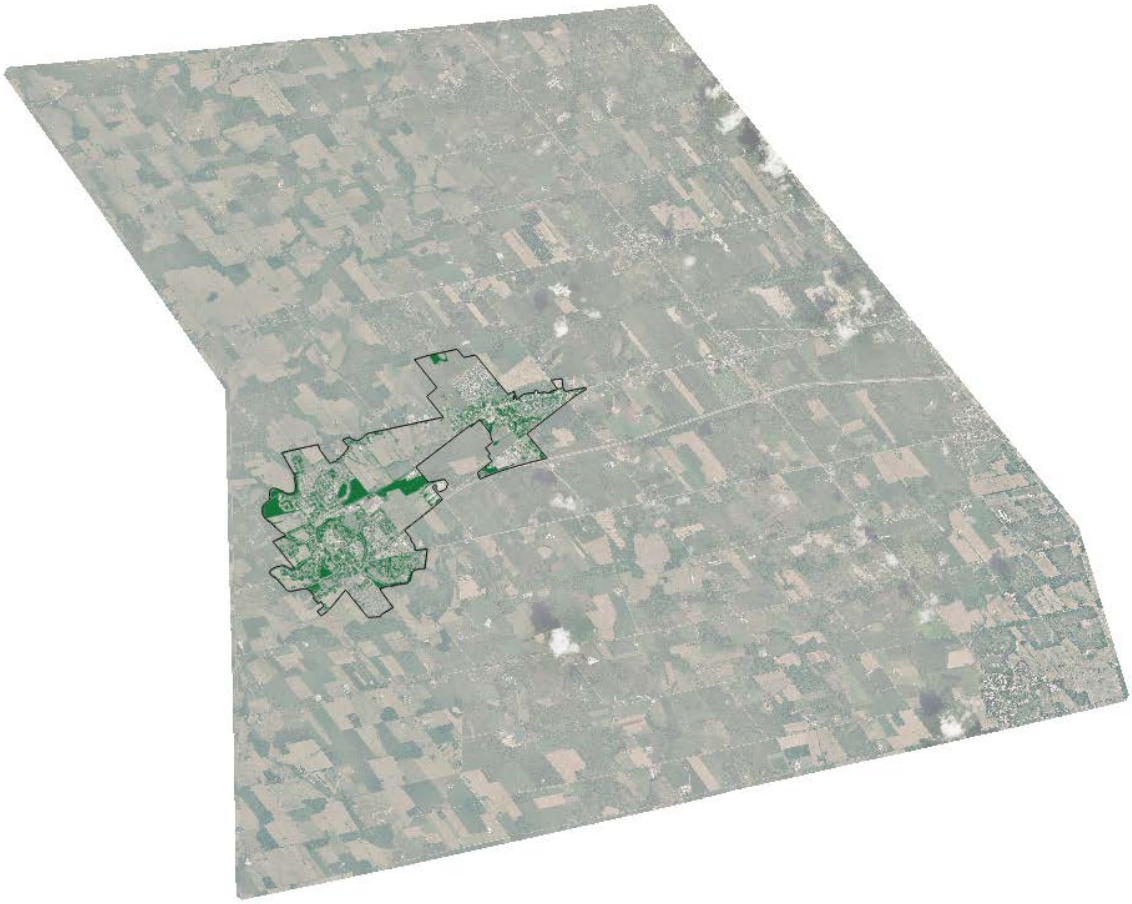


Figure 12 - Tree canopy coverage, in green, located in Urban Areas.

Approximately 84.46 hectares of public owned potential planting areas are present in the Urban Areas, as shown in Figure 13. The Township of Wilmot owns the largest portion of this land at 55.51 hectares. Pending further detailed ground-truthing and background review, it can be estimated that approximately half of these potential areas can be utilized for tree planting. Planting and sustaining half of the potential planting areas within Urban Areas has the potential to increase the tree canopy coverage by 27.76 hectares.

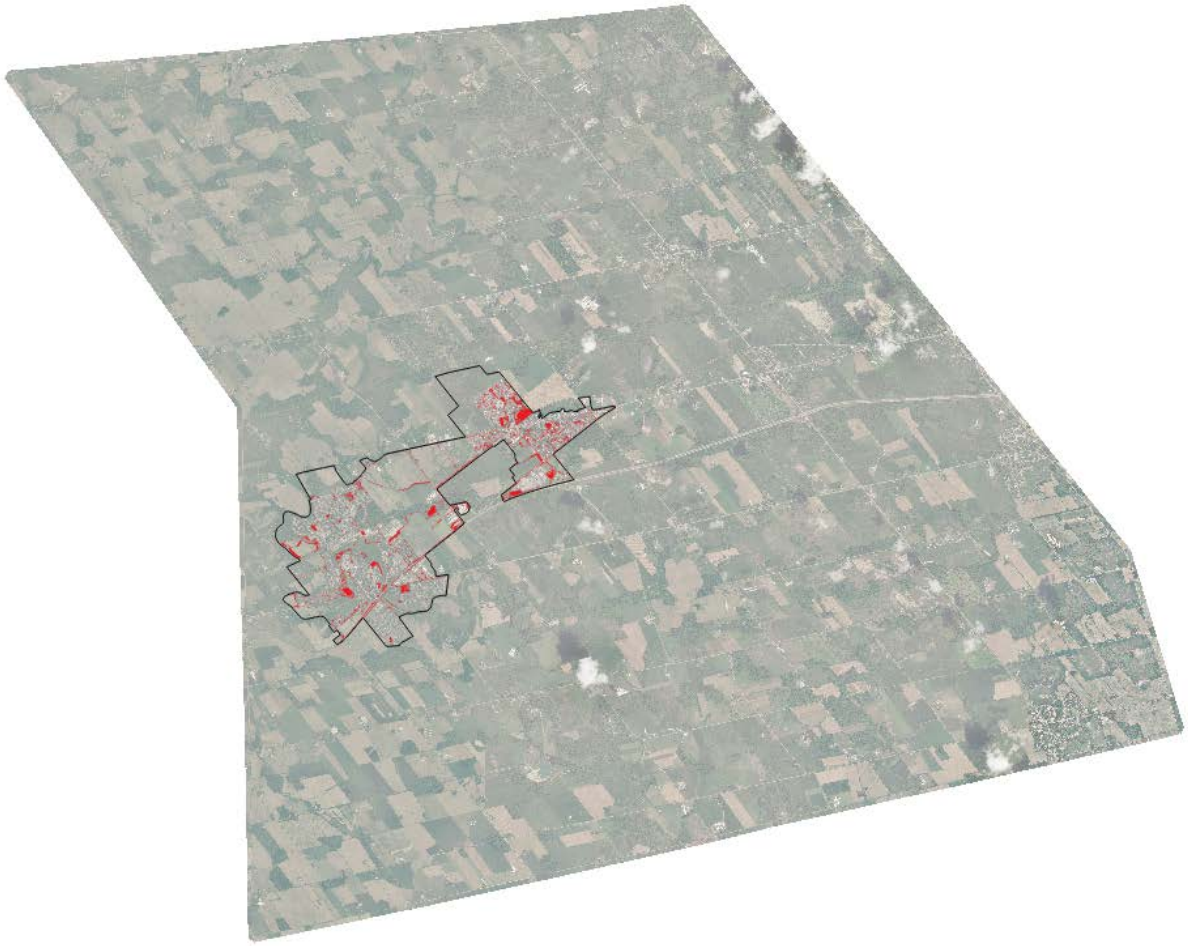


Figure 13 - Potential tree planting areas, shown in red, within Urban Areas

2.4.2 Rural Settlement Areas

Rural Settlement Areas comprise the communities of St. Agatha, Petersburg, Mannheim, New Dundee, Philipsburg, Shingletown, Wilmot Centre, Haysville, Luxemburg, Lisbon, Sunfish Lake and Foxboro Green. The current tree canopy coverage in the Urban Areas, including all public and private land, is 360.38 hectares. This area represents 6.17% of the total tree canopy in the Township of Wilmot, as illustrated in Figure 14.

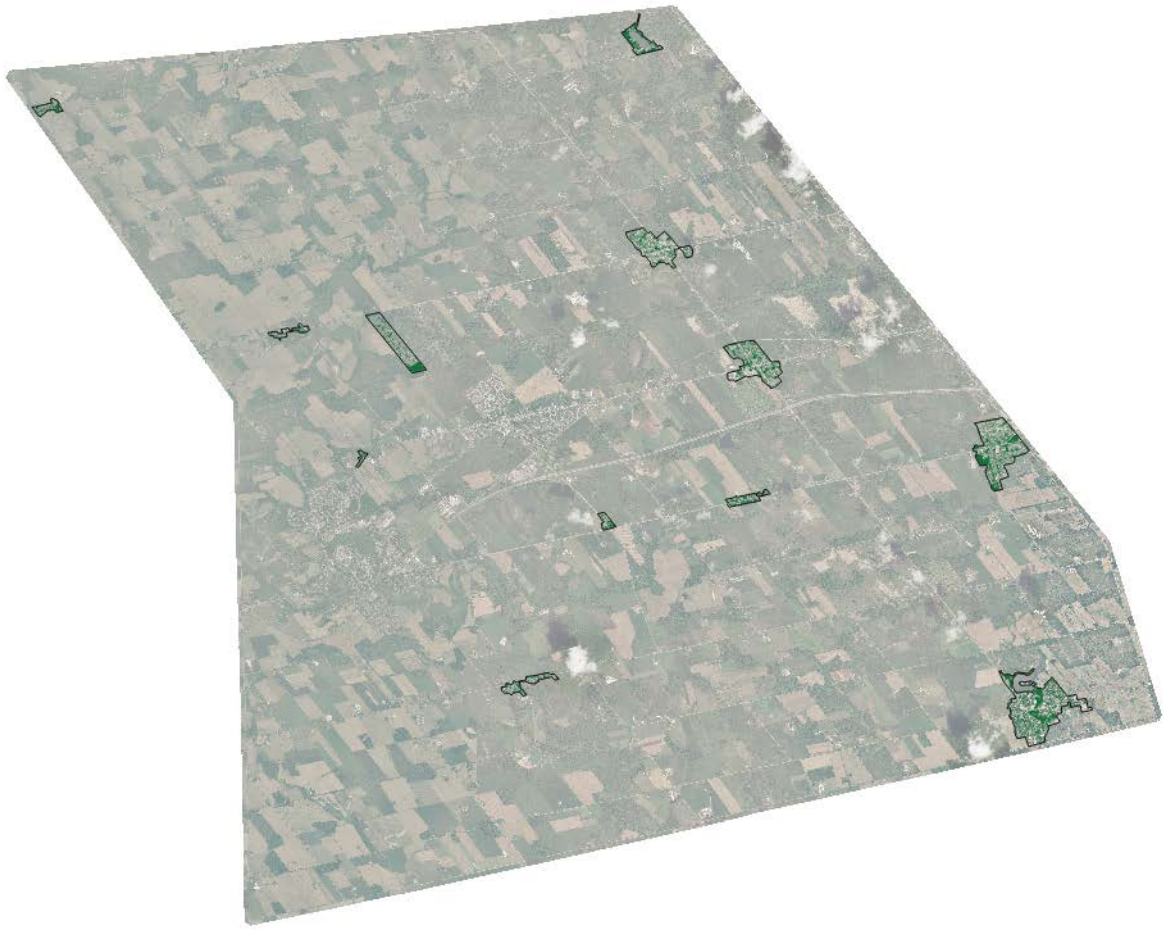


Figure 14 - Tree canopy coverage, in green, located in Rural Settlement Areas.

Approximately 34.02 hectares of public owned potential planting areas are present in the Rural Settlement Areas, as shown in Figure 15. The Township of Wilmot represents the largest portion of this land at 23.38 hectares. Pending further detailed ground-truthing and background review, it can be estimated that approximately half of these potential areas can be utilized for tree planting. Planting and sustaining half of the potential planting areas within Rural Settlement Areas has the potential to increase the tree canopy coverage by 11.69 hectares.

Figure 15 - Potential tree planting areas, shown in red, within Rural Settlement Areas

2.4.3 The Countryside

The Countryside is comprised of the rural areas outside of all designated settlement areas. The current tree canopy coverage in the Countryside, including all public and private land, is 5064.72 hectares. This area represents the largest component of the total tree canopy in the Township of Wilmot at 86.72%, as illustrated in Figure 16.

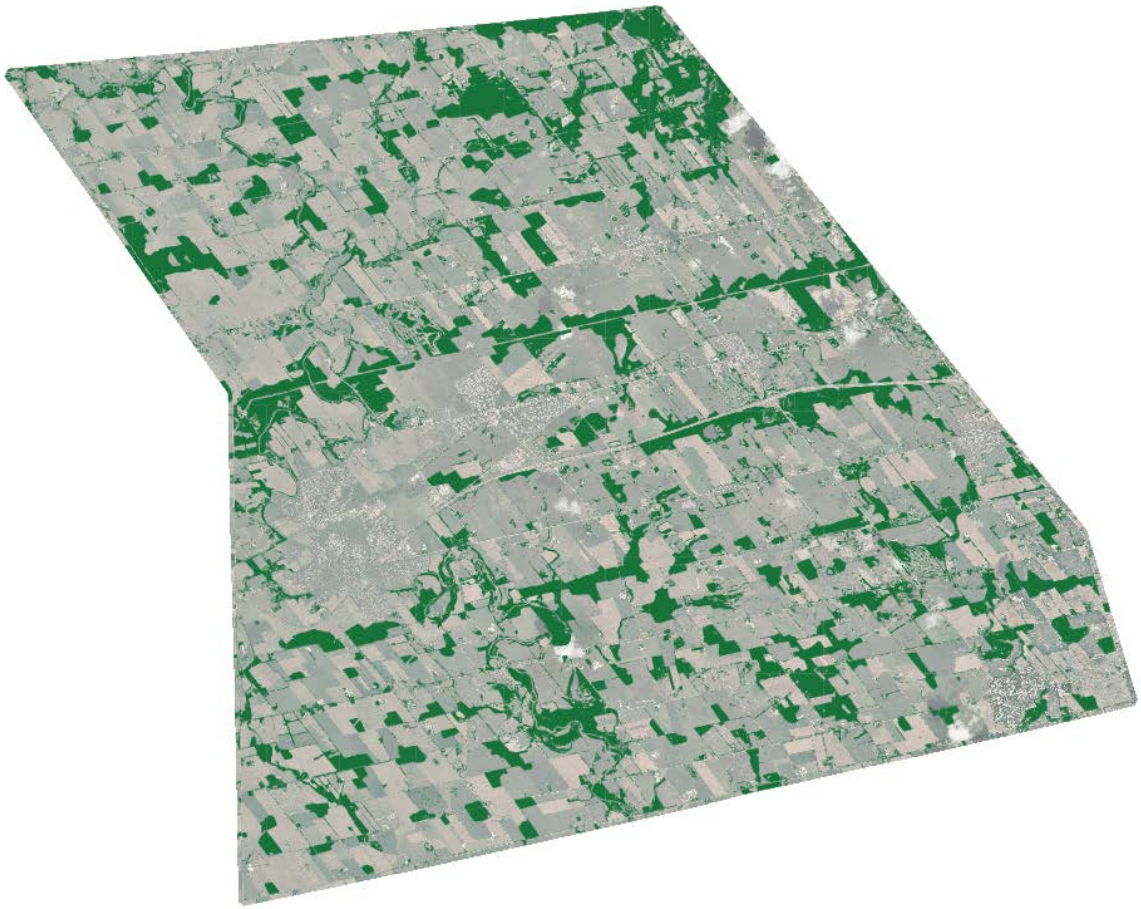


Figure 16 - Tree canopy coverage, in green, located in the Countryside.

Approximately 374.67 hectares of public owned potential planting areas are present in the Countryside, as shown in Figure 17. The Township of Wilmot represents the largest portion of this land at 166.34 hectares. Pending further detailed ground-truthing and background review, it can be estimated that approximately half of these potential areas can be utilized for tree planting. Planting and sustaining half of the potential planting areas within the Countryside has the potential to increase the tree canopy coverage by 83.17 hectares.

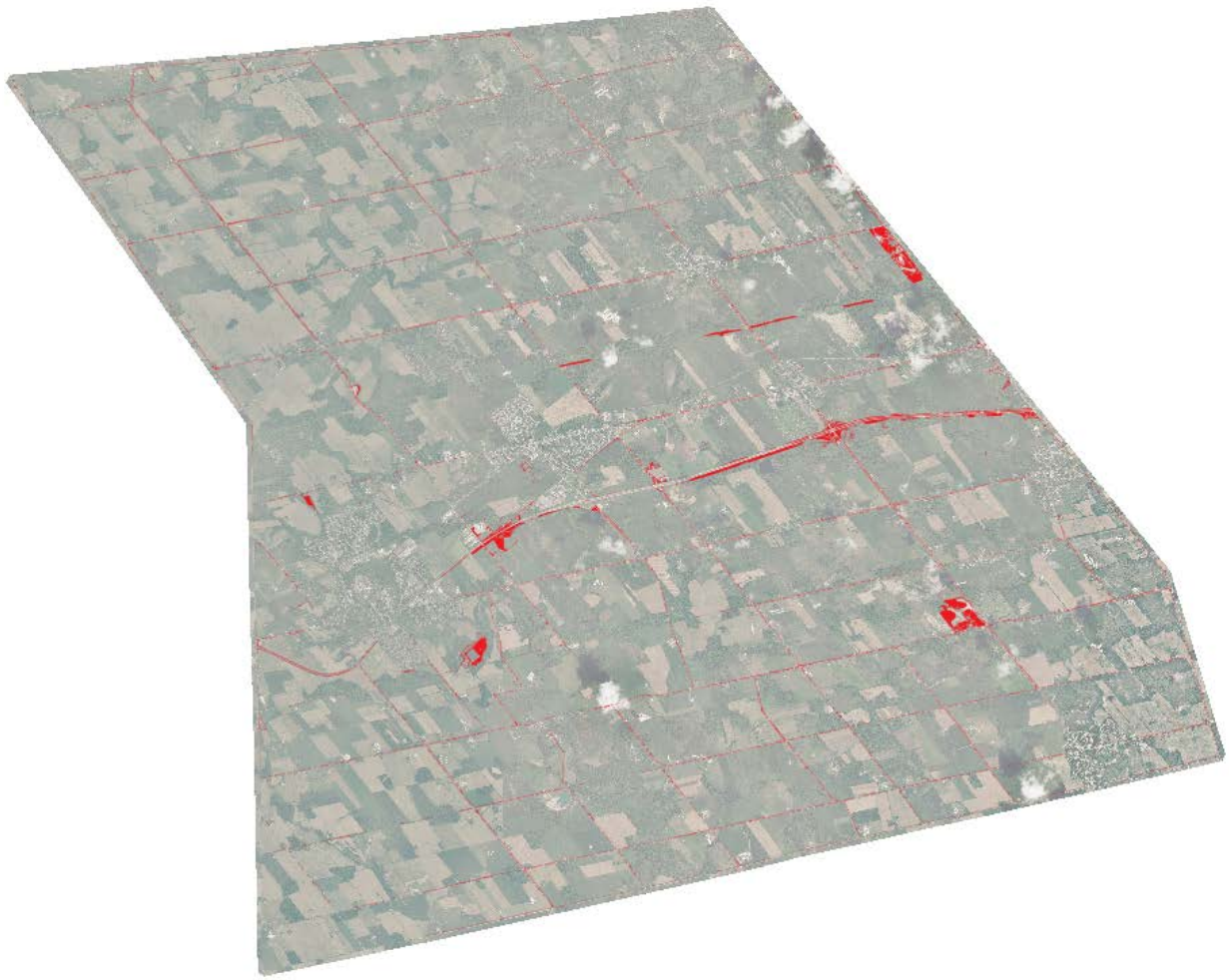


Figure 17 - Potential tree planting areas, shown in red, within the Countryside.

3.0 Existing Provincial Legislation

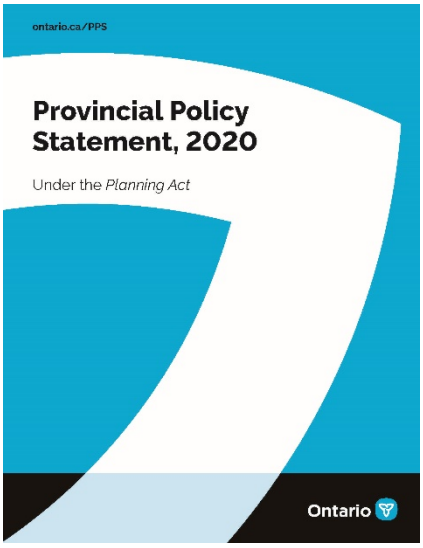
Provincial acts, regulations, and policies provide direction, both directly and indirectly, to the requirement to consider trees, as well as the Township's ability to manage trees that make up the tree canopy (Figure 18).

Figure 18 - Existing Provincial Legislation contributing to Tree Canopy Protection and Enhancement.

3.1 Planning Act, 1990

The purpose of the Planning Act is to promote sustainable economic development while ensuring a healthy natural environment within the bounds of the policy and the means provided by the Act. The Act establishes a framework for municipalities to develop official plans, regulate development, and integrate provincial interest and the provincial land use planning systems in planning decisions. Matters of provincial interest, as they apply to tree canopy management, include the protection of ecological systems, the appropriate location of growth and development, conditions to the approval of plans that require the provision of trees and shrubs, and the requirement that municipal official plans must, at minimum, conform to the Regional Official Plan.

3.2 Provincial Policy Statement, 2020



The Provincial Policy Statement is the companion guidance document for the provincial planning act; it guides and identifies specifics of appropriate land use planning. The provincial policy statement includes guidance around the protection of significant woodlands to ensure that natural features and areas are protected for the long term. Development and site alteration are not permitted in significant woodlands, wetlands, valleylands, wildlife habitat or Provincially Significant Areas of Natural and Scientific Interest (ANSIs), and adjacent lands, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. The Provincial Policy Statement additionally identifies that planning authorities should promote green infrastructure and designs and orientation which maximize energy efficiency and conservation, and the consideration of the mitigative effects of vegetation and green infrastructure. It also encourages settlement areas to maximize vegetation where feasible.

3.3 Growth Plan for the Greater Golden Horseshoe (A Place to Grow), Ontario Regulation 311/06, 2019

The Growth Plan for the Greater Golden Horseshoe (A Place to Grow) guiding principles includes supporting the achievement of complete communities, prioritizing intensification in strategic growth areas, improving integration of land use planning, and providing approaches to managing growth that recognizes the diversity of communities in the Growth Plan. The Growth Plan for the Greater Golden Horseshoe defines green infrastructure as natural and human-made elements that provide ecological and hydrologic functions and processes, including natural heritage features and systems, parklands, and urban forests. The Growth Plan for the Greater Golden Horseshoe identifies that upper and single-tier municipalities will develop policies in their official plans to identify actions that will address climate change, including incorporation of appropriate green infrastructure and low impact development. It also identifies that municipalities are encouraged to establish an open space system within settlement areas, including, but not limited to, opportunities for public parks and communal courtyards. The plan also encourages municipalities to identify and enhance natural heritage features, and where possible, increase linkage functions.

3.4 Municipal Act, 2001

The Municipal Act outlines the responsibilities and accountability of municipalities as created by the province for the purpose of providing good government with respect to the given powers and duties under the Act. A lower-tier municipality may provide any service or thing that the municipality considers necessary or desirable for the public, subject to the rules as outlined in subsection (4) of the Act. This includes but is not limited to the economic, social, and environmental well-being of the municipality, including respecting climate change, services, and responsibilities that the municipality is authorized to provide under subsection (1), and the protection of persons and property, including consumer protection.

The Policies section of the act identifies that:

> Schedule 270 (1), A municipality shall adopt and maintain policies with respect to the following matters: 7. The manner in which the municipality will protect and enhance the tree canopy and natural vegetation in the municipality 2006, c. 32, Sched. A, s. 113; 2017, c. 10, Sched. 1, s. 32.

The Natural Environment section of the Act identifies in Schedule 135 (1) on tree by-laws that:

> Subject to subsection (4), and without limiting sections 9, 10 and 11, a local municipality may prohibit or regulate the destruction or injuring of trees. 2006, c. 32, Sched. A, s. 71 (1).

Subsection (4) restricts a lower municipality from regulating trees in woodlands designated by an upper tier municipality by-law. It must also have regard for good forestry practices as defined under the Forestry Act, 1990. The Municipal Act also identifies that the municipality may outline conditions under a tree by-law, including requiring a permit be obtained to injure or destroy trees, and impose conditions of the permit, including conditions relating to the manner of impact/removal and the qualifications of the person authorized to injure or destroy trees. An upper-tier municipality can delegate all or part of its power to pass a by-law respecting the destruction or injuring of trees to a lower-tier municipality with its agreement, and vice-versa.

The Natural Environment section of the Act further identifies in Schedule 141 that:

> Without limiting sections 9, 10 and 11, a municipality may provide trees to the owners of land adjacent to any highway and may plant the trees on the owners' land with their consent. 2001, c. 25, s. 141; 2006, c. 32, Sched. A, s. 75.

The Specific Municipal Powers, 'highways' section of the Act identifies in Schedule 62 that:

> Entry on land, tree trimming
>
> 62 (1) A municipality may, at any reasonable time, enter upon land lying along any of its highways,
>
> (a) to inspect trees and conduct tests on trees; and
>
> (b) to remove decayed, damaged or dangerous trees or branches of trees if, in the opinion of the municipality, the trees or branches pose a danger to the health or safety of any person using the highway. 2001, c. 25, s. 62 (1).
>
> Immediate danger
>
> (2) An employee or agent of the municipality may remove a decayed, damaged or dangerous tree or branch of a tree immediately and without notice to the owner of the land upon which the tree is located if, in the opinion of the employee or agent, the tree or branch poses an immediate danger to the health or safety of any person using the highway. 2001, c. 25, s. 62 (2); 2006, c. 32, Sched. A, s. 26.
>
> Application to court
>
> 62.1 (1) A municipality may apply to a judge of the Superior Court of Justice for an order requiring the owner of land lying along a highway to remove or alter any vegetation, building or object on the land that may obstruct the vision of pedestrians or drivers of vehicles on the highway, cause the drifting or accumulation of snow or harm the highway if the municipality is unable to enter into an agreement with the owner of the land to alter or remove the vegetation, building or object from the land. 2002, c. 17, Sched. A, s. 10.
>
> Order

(2) Upon application by the municipality under subsection (1), the judge may make an order, subject to the payment of such compensation to the owner or other conditions as the judge may fix,

(a) requiring the owner of the land to remove or alter the vegetation, building or object in respect of which the application is made; or

(b) authorizing the municipality to enter upon the land, upon such notice to the owner as the judge may fix, to remove or alter the vegetation, building or object. 2002, c. 17, Sched. A, s. 10.

3.5 Forestry Act, 1990

The Forestry Act provides a legal definition for woodlands, identifying a woodland based on the number of trees per hectare within certain size ranges. It additionally excludes plantations for the purpose of Christmas trees and cultivated fruit or nut orchards from the definition of a woodland. The Forestry Act also identifies good forestry practices, identifying the proper implementation of harvest, renewal, and maintenance activities as appropriate to the forest and environmental conditions under which they are being applied to minimize negative impacts to the woodland's ecological values. The Forestry Act also provides legal provisions and offences related to boundary trees, and trees on common property.

In terms of public trees, the Forestry Act details how the Minister may make grants available to a municipality for the purposes of acquiring land that is suitable for forestry purposes and which will be managed by an agreement, and the terms associated with these grants. The Forestry Act also provides information on how a municipality may pass by-laws for acquiring land for forestry purposes.

3.6 Ontario Heritage Act, 1990

The Ontario Heritage Act (OHA) includes policies and regulations as it relates to the designation of heritage properties and cultural heritage landscapes in Ontario. Designation under the Ontario Heritage Act applies to real property, and helps to recognize and protect the heritage features on that property. Heritage features may include trees considered to have heritage value. Heritage trees may be designated as part of a single property under Part IV section 29 of the OHA and under Part V of the OHA, as part of a heritage conservation district. Designation is typically completed by municipalities through council approval. A designation bylaw is then registered on the title of the property. Designation of a heritage property under the Ontario Heritage Act gives a municipal council the power to refuse an application for the demolition or removal of a heritage attribute on a heritage property. If the owner of a designated property wishes to demolish or remove a heritage attribute, the owner must obtain written consent from council.

A property with a significant tree may also be listed on the municipal heritage register, affording temporary demolition protection of up to 60 days. Properties listed on the municipal heritage register will be removed from the register after two years if they are not designated within that period.

It is important to recognize that 'a tree' cannot be designated in isolation. Instead, it must be acknowledged that a tree may be part of a property that is designated, and that tree or trees must be identified as a significant heritage attribute within that property.

3.7 Endangered Species Act, 2007

The Endangered Species Act (ESA) applies to any tree species listed as endangered or threatened in the province of Ontario. Any listed tree species is afforded protection of both the tree and its designated habitat as outlined under the ESA. American Chestnut, Butternut, Cucumber Tree, Eastern Flowering Dogwood, and Kentucky Coffee-tree are all afforded protection under the ESA where specimens are naturally occurring.

3.8 Farming and Food Production Protection Act, 1998

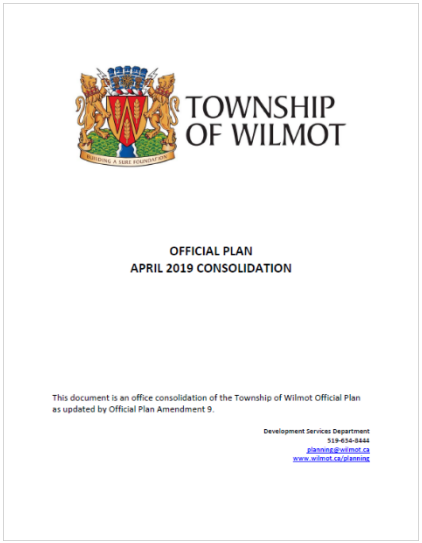
The Farming and Food Production Act identified under section 6(1) states that no municipal by-law applies to restrict a normal farm practice carried on as part of an agricultural operation. Agricultural operation, for the purpose of the Act is defined as “agricultural, aquacultural, horticultural or silvicultural operation” including …“(c) the production of agricultural crops, greenhouse crops, maple syrup, mushrooms, nursery stock, tobacco, tree, and turf grass, and any additional agricultural crops prescribed by the Minister”…and… “(k) any other agricultural activity prescribed by the Minister, conducted on, in or over agricultural land.

4.0 Existing Municipal Plans, Policies, Guidelines & By-laws

4.1 Township of Wilmot

The Township of Wilmot has included consideration for protection and enhancement of trees through several avenues in existing by-laws, policies, and guidelines. This includes the Official Plan, Strategic Plan, Parks, Facilities and Recreation Services Master Plan, and the Township of Wilmot Trails Master Plan. Each are described below in further detail and identifies their objectives and how they relate to the protection of trees in the Township of Wilmot.

4.1.1 Official Plan


TOWNSHIP OF WILMOT

OFFICIAL PLAN
APRIL 2019 CONSOLIDATION

This document is an office consolidation of the Township of Wilmot Official Plan as updated by Official Plan Amendment 9.

Development Services Department
519-634-8444
planning@wilmot.ca
www.wilmot.ca/planning

The Official Plan specifies a number of policies to protect trees and woodlands. The Township can identify Scenic Road Corridors as a cultural heritage resource. Per section 6.7.11:

"The Township may identify Scenic Road Corridors through amendment to this Plan where:

> b) they are adjacent to an area containing unique vegetation or species, including mature tree cover or enclosure;"

As part of being a Scenic Road Corridor, the Township will maintain, preserve, and protect the scenic values that led to this designation when undertaking road improvements.

The Official Plan's Environmental Management Policies (Section 8) include a number of protections for trees and woodland resources. Section 8.1 details the protection of the Greenlands Network, as designated by the Regional Official Plan (Figure 19). Core Environmental Features form part of the Greenlands Network, and include significant woodlands. Supporting Environmental Features are also included in the Greenlands Network, and include locally significant woodlands, and features such as Environmental Linkages and buffers which may be treed areas. The acquisition of elements of the Greenland Network by the Township and other public agencies is to be promoted whenever feasible. Illegal acts which result or have resulted in a reduction of the form or function of an environmental feature in the Greenlands Network, including tree removal, will not be recognised as an existing condition when a proposed development in the Network is being considered, and may require restoration prior to, or as a condition of, approval of any development.

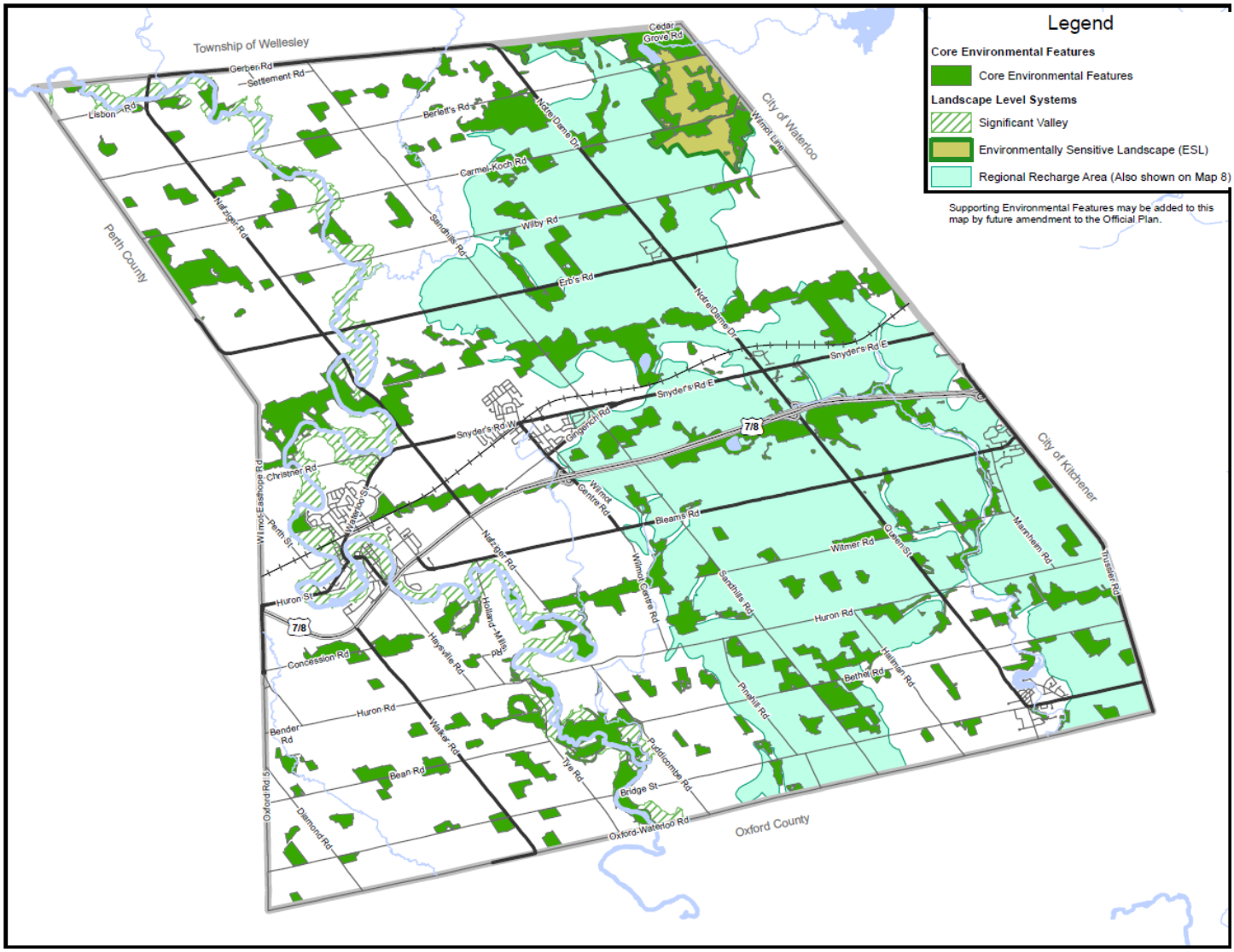


Figure 19 - Township of Wilmot Official Plan Greenlands Network

Section 8.5 details the Township's Environmental Stewardship and Climate Change policies. The use of native trees and shrubs will be encouraged by the Township while non-native species will be discouraged within or contiguous to the Greenlands Network, as well as for plantings alongside Township roads where feasible. Section 8.5.2 details the Township's policies for Managing Woodland Resources as follows:

8.5.2.1 The Township, in collaboration with the Region, will minimize the impact of development on woodlands by proposing alternative locations for proposed land uses and/or through the implementation of appropriate mitigation measures.

8.5.2.2 The Township will consider the importance of woodlands during the development review process, giving consideration to:

a) the potential impact of the proposed land use on the ecological functions, productivity or potential productivity of the woodland for commercial timber production;

b) the impact of the proposed land use on the extent and distribution of woodland cover in the in which the subject land is situated; and

c) opportunities to restore or re-establish productive forest habitats consisting of native species following the completion of the proposed development.

8.5.2.3 The Township will consider the adoption of a Tree Preservation By-law to prohibit or regulate the destruction or injuring of trees in woodlands less than four hectares in area.

It should be noted that at the time of endorsement of the Tree Canopy Policy Framework report in December 2023, the Region of Waterloo Conservation of Trees in Woodlands By-law 08-026 already regulates trees in woodlands one hectare or larger in size. The Municipal Act restricts a lower municipality from regulating trees in woodlands already regulated by an upper tier municipality by-law. It is advised that section 8.5.2.3 of the Township's Official Plan be revised as part of the next Official Plan review process.

4.1.2 Strategic Plan (2020 Update)

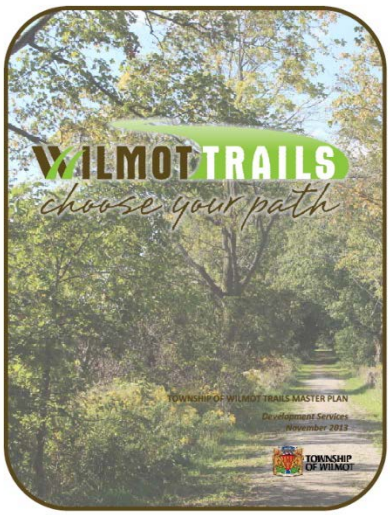
The Strategic Plan lists Environmental Protection as one of its five goals. To help achieve this goal, three strategies of agriculture and greenspace, climate adaptation and mitigation, and sustainability were identified. Maintaining and enhancing the tree canopy indirectly applies to all three identified strategies.

4.1.3 Parks, Facilities and Recreation Services Master Plan

This document highlights the desire for Township residents for increased tree planting to improve parks and open spaces, which would increase tree canopy cover within the Township. The Master Plan also notes that residents have access to Township woodlots as recreational areas, and that the Township may assume these lands for the purposes of protecting natural areas for passive recreation and educational uses. The document notes the existence of major trail routes within established woodlands.

4.1.4 Township of Wilmot Trails Master Plan

This document highlights a number of municipal woodlots that occur in the Township in which recreational trails are found.



4.1.5 By-laws

At this time, a Township of Wilmot by-law specifically focused on regulating trees does not exist. However, several existing Township by-laws indirectly address the management of both Township and privately-owned trees.

4.1.5.1 2007-10 Parks and Facilities

The Township's Management and Regulation of Municipal Parks and Facilities By-law states that no person shall endanger trees in municipal facilities, per section 10 which states that:

> "2. No person shall:
>
> f) Engage in any activity that may cause injury or damage to any person, animal, tree or property; or permit any animal belonging to him or in his custody or control to unlawfully destroy or injure any tree or property;
>
> g) Distribute or expose any kind of commercial circular or advertisements or post, stencil, or otherwise affix any notice or bill or other paper to any facility, including trees, fences and buildings (unless authorized by the Township)"

The By-law also states that no person shall endanger trees in municipal parks, per section 11 which states that:

> "1. No person shall in any park:
>
> f) Engage in any activity that may cause injury or damage to any person, animal, tree or property; or permit any animal belonging to him or in his custody or control to unlawfully destroy or injure any tree or property;
>
> k) Distribute or expose any kind of commercial circular or advertisement or post or otherwise affix any notice to any tree, fence, building or structure;
>
> l) Destroy, damage, remove or alter any roadway, walkway, grassed area, tree, flower, plant, shrub or flower bed without consent of the Township;"

The Parks and Facilities By-law regulates the engagement of trees in some of the most visible spaces in the Township. Consideration should also be given to introducing a new By-law or amending an existing By-law to regulate the removal or injury of trees on Township road rights of way, similar to the Town of Halton Hills (By-law 93-106). Alternatively, municipalities such as the Township of Centre Wellington (By-law 2022-57) and City of Mississauga (By-law 0020 2022) have taken the approach of regulating trees on all municipal lands under a single By-law.

4.1.5.2 2008-54 Property Standards

The Township's Property Standards By-law includes consideration that hedges, planting, trees, and other landscaping that has been required by the Township as a condition of development or re-development must be maintained in a suitable and living condition or shall be replaced with equivalent landscaping so as to carry out its intended function and maintain an attractive appearance.

4.1.5.3 2022-29 Cemeteries

The Township's Cemeteries By-law includes consideration on the planting, maintenance, and damage to new and existing trees and shrubs. As per section 9:

> "9.5 Planting of any trees or shrubs on any Lot in a Cemetery is prohibited. Any unauthorized plantings will be removed without notice by Township staff.
>
> 9.7 If any trees, shrubs, or perennials already situated on any Lot become detrimental to the Lots, drains, roads, walls, or walkway by means of their roots of branches, Township staff may remove such trees or shrubs or parts thereof."

Section 11.5 contains consideration on damage to existing trees:

> "11.5 No person shall, at a Cemetery:
>
> 11.5.3. break any tree, shrub or plant;"

4.1.5.4 2023-17 Firecrackers and Fireworks

The Township's Firecrackers and Fireworks By-law states that no person shall set off fireworks in the Township within 500 feet of any woodland.

4.1.5.5 2002-68 Signs

The Township's Signs By-law states that signs shall not be attached to or painted onto trees.

4.1.5.6 2004-38 Clean Yard

The Township's Clean Yard By-law contains consideration of lot maintenance standards, such that owners shall keep hedges and trees adjacent to public sidewalks and roadways cut and trimmed to allow safe passage. As part of the next review or update of the clean yard by-law, consideration should be given introducing a clause that speaks to the requirement to remove dead, decayed or damaged trees or tree parts which create an unsafe condition. This type of clause is present in similar property standard by-laws in the Township of Perth East (By-law 36-2001), Township of North Perth (By-law 80-2020), Township of Woolwich (By-law 24-2012), and City of Waterloo (By-law 2011-122).

4.1.5.7 1983-38 Zoning

The Township's Zoning By-law contains information on buffer strips in zones where they are required. Section 6.16.5 states that buffer strips shall:

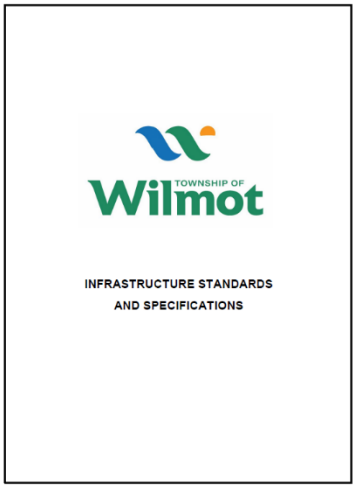
> "be used only for the planting of grass, flowers, shrubs, or trees"

4.1.6 Site Plan Application

The Township of Wilmot Site Plan Application Form includes the need to demonstrate the location of driplines, including location of existing landscaped areas and existing tree cover in the application.

4.1.7 Infrastructure Standards and Specifications Manual (2022)

The Infrastructure Standards and Specifications include design criteria and Best Management Practices specific to the Township to provide a general overview of the Engineering Review, Acceptance and Maintenance Process; however, it is not intended to be a comprehensive document. The intention of this document is to provide general design criteria for the Engineer / Designer for completion of the grading, servicing, storm water management, road design, traffic studies, hydrogeology, erosion control, minimum testing requirements, and landscaping to allow for the Township to provide a more efficient review and acceptance. This document provides trees planting and tree preservation related to both private development and public infrastructure projects. Municipal capital projects shall provide for street tree planting in existing neighbourhoods only through their annual reforestation program (see section 4.1.6.3), while subdivision, site plan, and infill developments shall provide for street tree planting as part of Right of Way requirements.



Section 2 of the document sets out the engineering requirements for subdivisions, which includes a tree survey plan and arborist report, a functional servicing report including a tree clearing and grubbing plan and tree preservation plan, a lot grading plan with defined limits of tree preservation, a sediment and erosion control plan with information on trees to be retained/removed and the location of any proposed tree/root protection measures, an Urban Forest Asset – Tree Planting Plan to provide locations for trees within the public realm, a tree-planting landscaping plan providing clear details on the trees on the lot, and street lighting and electrical distribution drawings, which should be produced with awareness of proposed street tree locations and minimum tree planting requirements. An as-recorded field survey needs to be performed, which must include the location of all tree plantings. Section 3 of the document sets out the engineering requirements for a site plan, including a landscaping plan and a tree inventory and preservation plan. Section 4 details how lot grading design should include consideration of trees to be preserved, and the location of tree protection fencing.

Section 5.10 provides extensive guidance on how to incorporate tree planting and protection into for municipal owned rights-of-way and stormwater management facilities, all landscape plans must be approved by a member of the Ontario Association of Landscape Architects. The Township is responsible for enforcing removal, planting, pruning, and protecting street trees on public land. Street tree planting design submissions must include tree-planting detail, tree location with or without sidewalk, type of tree proposed, and general notes with the soil type and size of tree indicated. The document provides tree selection criteria and tree protection guidelines and requirements

for landscape plans for both private and public projects, as well as guidance on size, species, location, and planting for street trees.

Section 8.14 details the tree planting requirements for stormwater management facilities, including density and location of plantings.

4.2 Regional Municipality of Waterloo

The Region of Waterloo includes several components within their Official Plan, Conservation of Trees By-law, and Sustainable Waterloo Region, that apply within the Township of Wilmot. Each are described below in further detail and identifies their objectives and how they relate to the protection of trees in the Township of Wilmot.

4.2.1 Regional Official Plan

The Region of Waterloo Official Plan promotes the conservation and wise economic use of trees consistent with the ecological and environmental goals, objectives, and policies of the plan.

Section 2.G details General Policies for Urban Development, with section 2.G.3 detailing the responsibility of area municipalities, in collaboration with the Region, the GRCA, and other stakeholders, to implement an Urban Greenlands strategy which:

"(c) promotes green roofs, community gardens and tree planting in urban areas;"

Section 3.E.1 contains policies to improve air quality in Region, including:

"(d) investigate opportunities for increasing forest cover throughout the Region to achieve an overall target of 30 per cent forest cover or more of the Region's total land area;"

Section 6.B describes policies around the Protected Countryside, which includes lands which contain, among other things, a large concentration of woodlands. Section 6.E.9 describes policy relating to severances specifically for the purpose of conserving environmental features or elements of the Greenlands Network such as Woodlands.

Section 7 describes the Greenlands Network and the policies that apply to it. The different components of the Greenlands Network are defined, some of which include wooded habitat, including Environmentally Sensitive Areas, Core Environmental Features, and Supporting Environmental Features. Section 7.I relates policies relating to environmental stewardship including:

"7.I.1 The Region will continue to acquire woodlands and associated natural features such as wetlands, savannas, meadows and prairies as finances permit, or to accept donations of woodland tracts to be managed as Regional Forests."

Policies 7.I.2 - 7.I.7 relate to the management of woodland resources, including encouragement of good stewardship through forest management plans, collaboration with municipalities to minimize development of woodlands, and encouraging municipalities to adopt a tree preservation by-law.

4.2.2 Sustainable Waterloo Region

Sustainable Waterloo Region is a social enterprise non-profit that is dedicated to helping the Region of Waterloo and local business become more sustainable both environmentally and economically. Their programs include a Microforest Planting Program, which encourages organizations across Waterloo Region to donate land (minimum of 500 square feet) on which trees can be planted. Current organizations which have made use of this program are largely public schools in the Region.

4.2.3 Region of Waterloo Conservation of Trees in Woodlands By-law 08-026

The Region of Waterloo Conservation of Trees in Woodlands By-law regulates destruction or injury of trees within areas that meet the definition of a woodland, as defined by the Forestry Act.

- 1,000 trees, of any size, per hectare;
- 750 trees, measuring over five (5) centimetres in diameter at DBH per hectare;
- 500 trees, measuring over twelve (12) centimetres in diameter at DBH, per hectare; or
- 250 trees, measuring over twenty (20) centimetres in diameter at DBH, per hectare.

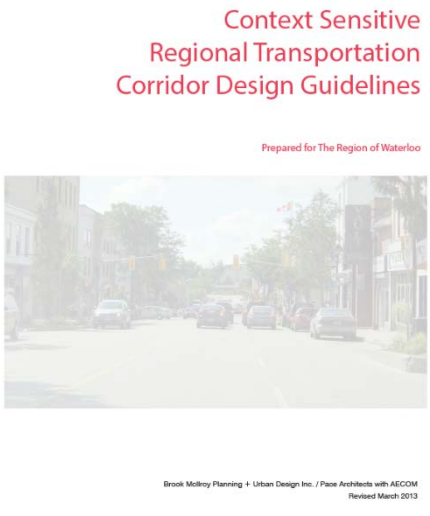
The scope of the Region of Waterloo Conservation of Trees in Woodlands by-law regulates the destruction or injuring of protected tree species on properties containing all or part of a woodland that is at least 1 ha in size, and meets the required tree species type, tree density, and tree size requirements. In accordance with the Municipal Act, the Region of Waterloo Conservation of Trees in Woodlands by-law does not apply to activities undertaken by a municipality or a local board of a municipality (e.g., the Township of Wilmot) and the Township of Wilmot may not prohibit or regulate the destruction of trees already regulated by the Region of Waterloo Conservation of Trees in Woodlands by-law.

4.2.4 General Conditions, Supplemental General Conditions, Standard Specifications, Standard Special Provisions and Drawings

The construction standards for the Region provides information on dealing with trees, shrubs, and vegetation, including clearing and grubbing, protection during construction, and replacement of trees damaged during construction.

4.2.5 Context Sensitive Regional Transportation Corridor Design Guidelines

This document details how to decide on the appropriate road classification when designing new transportation corridors, and then describes the boulevard elements which need to be to included for that street classification. This includes information on appropriate vegetation planting and landscaping that will need to take place, including the planting of and the preservation of existing trees, and how they should be coordinated with service/utility plans to minimise long-term conflicts with tree roots, branches and drip lines.



4.2.6 Region of Waterloo Canadian Roundabouts Design Guide Design Exceptions

This document provides Region-specific design exceptions for the construction of roundabouts, including landscaping and tree planting.

5.0 Existing Education & Incentive Programs

Education and incentive programs are available in many jurisdictions in Ontario. These can vary from guided educational programming, to grants and subsidies, to tree planting, tree giveaways, and creating habitat on private and public lands. Several education and incentive programs currently exist for residents and landowners within the Township of Wilmot. Programs range from Conservation Authority-led educational programs to province-wide tree planting programs.

5.1 Township of Wilmot

5.1.1 Township Boulevard Tree Removal and Replacement Program

The Township of Wilmot previously administered a tree removal and replacement program for urban trees in Township owned boulevards. Residents could report an existing dead tree and request either its removal or replacement using a form available on the Township of Wilmot website. Additionally, residents could also request a new boulevard tree (adopt a tree) using this same online form. Residents were provided with information on native trees species, and were asked to state a preference for tree species when requesting a new tree. The program ran annually, with new requests added to the program on a budget availability, hazard and first come first serve basis second. However, this program format was revised due to challenges with tree survival rates and difficulty with competitive bidding environment for tree installations.

The program was revised into two funded parts. The first portion being a tree give-away for trees to be planted on private property ($10,000 annual funding) and run in the fall. The second portion being hazard removals as needed by Township staff or contracted services depending on the size, and replacement by staff directly ($35,000 annual funding). In large part, success of any tree planting in boulevards is reliant on fronting owners to water and maintain the tree; this has historically been the challenge with boulevard tree planting in urban areas of the Township.

5.1.2 Wilmot Roots

In April 2023, the Township introduced the ‘Wilmot Roots’ free tree giveaway program. The program was funded by the Enova Power Corporation, with the organizational support of the volunteer-based Let’s Tree Wilmot. This program offered one tree per household or two trees per farm for residents, landowners, and business owners to plant trees on privately-owned lands. In the first year of the program, residents were able to order one of five different native species in two-gallon pot stock sizes using an online order form on the Township website. All 370 available trees were sold out. Trees were picked up at the Wilmot Recreation Complex parking lot in Baden.

5.1.3 Let’s Tree Wilmot

Let’s Tree Wilmot is an initiative of the Wilmot Horticultural Society. Its mission is to provide volunteers, education, and expertise to enhance the trees and forest ecosystems in the Township. The most visible actions taken by the organization to date are organizing tree planting events within the Township. In October 2022, the initiative received $163,000 from the federal government as part of the 2 Billion Trees Program. Let’s Tree Wilmot was allocated the funding to plant 2,600 trees on 3.9 ha of public land over the course of two-years, as well as improving public

education on how to best care for trees, and organizational capacity building to improve its operations and services for increased success. For example, the recent purchase of mobile watering equipment to water newly planted trees. The organization is also developing a small-scale nursery using locally-collected seed to contribute to plans for planting larger tracts of land in the future.

5.2 Grand River Conservation Authority

The Township of Wilmot is located completely within the jurisdiction of the GRCA. The conservation authority provides education and incentive programs which can benefit the residents and landowners in the Township of Wilmot and contribute to education and stewardship of trees and tree canopy.

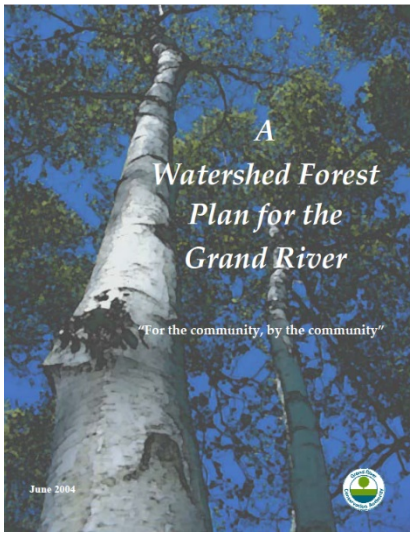
The GRCA offers several opportunities for residents and landowners in the Township of Wilmot who are interested in tree planting. Depending on eligibility requirements, they include the following:

GRCA Private Land Tree Planting Program – GRCA staff help landowners develop planting plans, obtain grants from a variety of sources, and assist with tree planting through contracted tree planters. The program is geared to large-scale tree planting projects, such as farm windbreaks, block plantings, living snow fences, and riparian buffers. For seedling projects, this means a minimum quantity of 1,000 trees, and for tall stock projects (saplings and/or potted stock) a minimum quantity of 50 trees.

Grant Programs - Grants are available through funding programs delivered by the GRCA. Current programs include the Region of Waterloo's Rural Water Quality Program, the Forests Ontario 50 Million Tree Program (supported by the Government of Canada 2 Billion Tree Program), and the Fisheries and Oceans Canada Habitat Stewardship Program for Aquatic Species at Risk.

GRCA Tree Orders – Landowners with more than 1 hectare of land are eligible to order trees from GRCA to support their naturalization projects. Minimum orders of 200 tree seedlings or 20 tall (large) stock trees apply.

GRCA End-of-season Tree Sale - GRCA welcomes the public to purchase surplus stock leftover from GRCA's spring tree planting season. A variety of stock is available at this in-person event held each May.



At the time of the release of this report, the GRCA has planted 203,500 trees in the Township of Wilmot through the Private Land Tree Planting Program since 1998.

In 2004, the GRCA published its Watershed Forest Plan for the Grand River. This document included a description of the history and types of forests found in the watershed, an evaluation of forest health, how local forests can be managed, and engaging the community to preserve the forest through initiatives such as tree planting. These initiatives can help to increase the tree canopy of the Township of Wilmot.

5.3 Government of Canada

The 2-Billion Trees Program will enter into cost sharing agreements tree planting in urban/suburban areas, as well as afforestation and reforestation projects in rural areas. Eligible organizations included local or Regional municipal governments, registered non-for-profit organizations, for-profit organizations, and Indigenous organizations. Eligible projects consist of activities directly related to tree planting, managing trees and forests, and monitoring the health and growth of planted trees. Eligible activities would not cover any such costs where the planting, management and monitoring is legally required following commercial activity or as a condition for impact assessment approval. A comprehensive response to a call for proposals is submitted online, with several application deadlines throughout the calendar year. Applications are reviewed by internal and external expert panels, consultation with the province, and include an in-depth financial and technical assessment to determine capacity. Decisions on applications are issued within six months after the application deadline.

5.4 Forests Ontario

The 50-Million Tree Program targets tree planting initiatives for private landowners and municipalities. The minimum number of trees required for a single project is 500, with a minimum of a half an acre of open land for afforestation and forest restoration projects or 1000 metres of linear space for windrow and riparian buffer plantings. The applicant completes an online form and those eligible for funding will be paired with a local forestry professional to develop a site preparation plan, planting plan, maintenance plan and cost estimate. After the landowner enters into an agreement, funding through the 50-Million Tree Program reduces the cost of tree planting by approximately 50% to 90%.

5.5 Tree Canada

Tree Canada offers three unique grant programs that range for $3,500 to $10,000 for educational institutions, community groups, community housing projects, municipalities, food banks, business improvement associations, non-profit organizations, and indigenous communities. An online application is submitted in the Fall, for planting projects to be installed in the following year. After the grant is awarded, logistical support is provided from the national office and on-the-ground support is provide by a local community advisor.

5.6 TD

The TD Friends of the Environment Foundation Grant is available to registered charities, educational institutions, municipalities and indigenous groups/communities. Eligible projects include schoolyard greening, park revitalization, community gardens, park programming, and citizen science initiatives. Applications are received in winter and summer.

The TD Arbor Day Foundation Grant support green infrastructure development, tree planting, forestry stewardship, and community green space expansion as a way to advance environmental and economic benefits toward a low-carbon economy. Applications from municipalities, or non-profit organizations, schools, and businesses in partnership with a municipality are eligible to receive up to $25,000 in support of local forestry projects in areas of great need within a community.

6.0 Engagement

An engagement plan is a process of involving and collaborating with community members, stakeholders, and organizations in decision-making and problem-solving processes. The goal of engagement for the Tree Policy Framework is to understand existing practices and polices, build trust and foster collaboration among all stakeholders, and encourage participation in potential tree canopy protection and enhancement initiatives for Township owned trees.

Individual stakeholders were identified by the Township Project Manager in collaboration with the project consultant based on current responsibilities to protect and enhance the Township's Tree Canopy. Some stakeholders were selected for individual interviews to better understand current budgets and resource allocations, as well as policy and management practices related to tree canopy protection and enhancement.

Online survey participants were self-selecting, participating in the engagement process voluntarily based on their interest or expertise in the Tree Canopy Policy Framework. Self-selection, through an online survey, is a common approach to engagement, as it allows individuals and groups to participate in a way that is convenient for them and can facilitate an engagement process that is inclusive and representative of diverse perspectives. However, self-selection can also lead to a biased sample, as individuals who choose to participate may not be representative of the broader community or some segments may not have reliable access to the technology to participate. A variety of methods were used to advertise the online survey including:

- Township news feeds.
- Township electronic message boards at Wilmot Recreation Complex and Administration Complex.
- Township social media channels (Twitter, Facebook).
- An article in August 31, 2023 edition of the Wilmot Tavistock Gazette under the "Community" section.

6.1 Individual Interviews

Individual interviews with Township staff, Region staff, Grand River Conservation Authority staff, Enova Power Corporation, and Let's Tree Wilmot were conducted during May through June 2023. Discussions based on pre-selected questions were used to focus discussions identifying current practices, resources, and budget allocated to tree canopy management throughout the Township, as well as discussion of potential polices, programs, and other ideas that could protect and enhance the tree canopy cover in the Township. Interview Participants were selected in consultation with the Township Project Manager (Development Services) based on current responsibilities to protect and enhance the Township's Tree Canopy. Question design for focused interviews were prepared through an iterative process by the project consultant and Township Project Manager. Questions were then emailed to participants in May 2023 approximately 12-15 business days prior to the interview to allow for preparation. Some participants responded to questions by email. Interviews were approximately 30 to 60 minutes long, held remotely using a video conferencing application that recorded and generated a live transcript. The recording and transcripts were issued to the interview participant for review prior to incorporating the findings into this report.

6.1.1 Township Staff Interviews

6.1.1.1 Community Services

The protection and enhancement of Township owned portions of the tree canopy span several departments. Community Services (Parks & Facilities) manages trees in twenty-four parks, Wilmot Arboretum, Wilmot Recreation Complex, New Hamburg Fairgrounds, four Community Centres, Riverside Cemetery, Eight Pioneer Cemeteries, a portion of Baden Hills, Walkers Woods, Schmidt Woods, and approximately 58 kilometres of trails located on

Township owned lands, as well on Region-owned lands through agreements. The Supervisor of Parks and Facilities and Manager of Parks and Facilities participated in an interview on May 30, 2023.

6.1.1.2 Infrastructure Services

The Township provides infrastructure services through three divisions in Public Works & Engineering

- Roads Operations and Maintenance (Transportation Services)
- Water/Wastewater Operations and Maintenance (Environmental Services)
- Engineering Services

These groups are responsible for a range of activities, including the operation, maintenance and capital planning of water distribution systems, wastewater conveyance systems, stormwater management systems, roads, sidewalks, bridges and culverts. The Engineering division also provides services for review, comment, and inspection of private development projects and road corridor management.

Infrastructure services staff are responsible for maintaining approximately 250 kilometres of rural and urban roads, as well as sanitary, stormwater, and water infrastructure, including trees planting within road rights of way. A portion of the trees located within and adjacent to rights of way are pruned by Enova when in proximity to overhead power lines. The Manager of Engineering participated in an interview on June 1, 2023.

6.1.1.3 Development Services

Development Services staff is comprised of two main divisions. The Planning division is responsible for development and planning activities. Planning processes development applications and ensures conformity of permit applications with the Township Official Plan and Zoning By-law. The Building division is responsible for building and construction activities. Building reviews, issues, and inspects all building permits to ensure that all structures are safe, accessible, and comply with the Ontario Building Code. The Manager of Planning and Economic Development participated in an interview on June 1, 2023.

6.1.1.4 Corporate Services

Township staff in the Corporate Services department manage the asset management program which aims to improve and sustain asset management practices. Overall, the goal of the asset management program is to help the Township maintain its assets at appropriate levels of service by applying the right intervention, to the right asset, at the right time. The Asset Management Coordinator responded to emailed questions on June 6, 2023.

6.1.2 Regional Municipality Staff Interviews

The protection and enhancement of Regional municipality owned portions of the tree canopy include the Baden Hills Regional Forest, Baden Hills (formerly Gibney Regional Forest), Petersburg Regional Forest, Townline Regional Forest, a portion of Walker Woods as well as Regional Road rights of way (Gerber Road, Erb's Road, Snyder's Road East/West, Gingerich Road, Bleams Road, Huron Street, Huron Street, Waterloo Street, Nafziger Road, Notre Dame Drive, Queen Street, Walker Road, and Trussler Road). The Senior Planner of Stewardship Planning at the Region of Waterloo participated in an interview on May 31, 2023.

6.1.3 Other Agency and Organization Interviews

6.1.3.1 Grand River Conservation Authority

Within the Township of Wilmot, the Grand River Conservation Authority (GRCA) directly manages land holdings and facilities such as dams, manages several water quality and tree planting programs to support resident-led improvements, and planning and development responsibilities under the Provincial Conservation Authorities Act to regulate development in and near rivers, streams, floodplains, wetlands, and steep slopes. The Grand River

Conservation Authority Supervisor of Natural Heritage, Superintendent of Arboriculture, and Resource Planner participated in an interview on May 31, 2023

6.1.3.2 Enova Power Corporation (Formerly Kitchener-Wilmot Hydro Inc. and Waterloo North Hydro Inc.)

Enova Power Corporation formed in 2022 through a merger of Kitchener-Wilmot Hydro Inc. and Waterloo North Hydro Inc., and is an energy company with assets in municipal electricity distribution, electricity services, and renewable energy. Enova Power manages the tree trimming on Regional and Township Roads in the Township of Wilmot for trees that are in proximity to overhead power lines. The Vice President of Operations responded to emailed questions on June 22, 2023.

6.1.3.3 Let's Tree Wilmot Interview

Let's Tree Wilmot is an initiative of the Wilmot Horticultural Society. Its mission is to provide volunteers, education, and expertise to enhance the trees and forest ecosystems in the Township. The Chair of Let's Tree Wilmot participated in an interview on June 26, 2023.

6.2 Online Community Engagement

Survey question design for online community engagement were hosted through the Township's website. The following questions were posted on the Township's website from August 28, 2023 to September 11, 2023.

1. Managing trees in the Township involves a range of activities aimed at planning and budgeting for the health, safety, and sustainability of trees. This encompasses planning, programs, policies, and asset management that work together to effectively care for and maintain trees. In your opinion, how important is it to manage trees in the Township of Wilmot?

2. Right now, the Township of Wilmot does not have a dedicated staff member who manages Township-owned trees. Several staff members in different departments currently manage trees as a small part of their jobs. Do you think it is a good idea to create a new permanent staff position that would focus only on managing trees?

3. Right now, the Township of Wilmot does not have an inventory of all Township-owned trees. If the Township did have a tree inventory, it could make more effective financial and operational decisions to manage trees. Do you think it is a good idea for the Township to spend money on creating a tree inventory of all Township-owned trees?

4. Have you ever planted trees on property you own or live on in the Township of Wilmot?

5. Have you ever participated in a community tree planting event organized by Let's Tree Wilmot, Grand River Conservation Authority, Region of Waterloo, or Township of Wilmot?

6. Have you ever removed trees on property you own or live on in the Township of Wilmot?

7. Did you know that a Region of Waterloo by-law regulates trees on private property when in woodlands 1 hectare (about 2.5 acres) and larger in size?

8. Do you think the removal or pruning of individual trees of a certain size on private property should be regulated by a Township tree by-law?

9. Please share any other thoughts or comments you have on managing trees in the Township of Wilmot.

The survey participants were afforded the option to choose from a range of pre-defined multiple-choice responses, followed by an opportunity elaborate on responses by freely input their own responses via typing in a textbox.

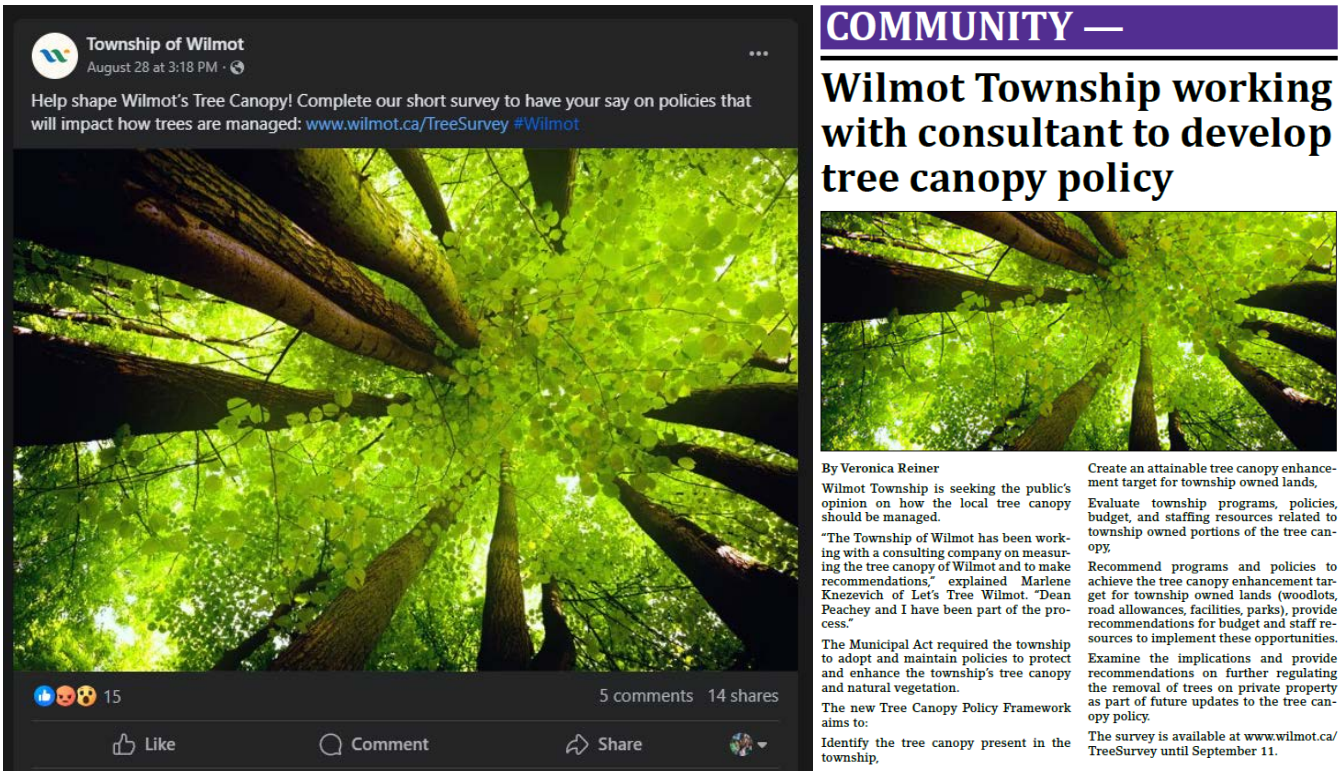


Figure 20 - Social media post and Wilmot- Tavistock Gazette advertising the tree canopy policy framework survey.

6.3 Engagement Results

6.3.1 Individual Interviews

The key themes that emerged from the individual interviews include:

- Planned proactive tree maintenance by Infrastructure Services and Community Services departments at the Township is frequently disrupted by the need to respond to time-sensitive emergency situations and service requests. A Township-wide pruning program or plan is currently not in place. Township staff expressed a strong desire to transition from a reactive to a proactive tree management approach. The recent hiring of a part-time Junior Arborist in the summer of 2023 is viewed as a positive step toward achieving this improvement.

- Time sensitive and emergency tree maintenance on Township owned or managed lands is performed by local contractors on an as needed basis. Work orders are currently tracked by email.

- Trees often receive minimal or no establishment maintenance after initial planting.

- The Township has entered into maintenance agreements to manage recreation opportunities on lands owned by other public agencies (Grand River Conservation Authority and Region of Waterloo).

- An inventory of individual Township tree assets in parks, facilities, woodlots, and rights of way is not available, except for the Wilmot Arboretum. However, it is believed that the integration of tree assets into the Township's existing asset management software could be accomplished with minimal cost and effort by utilizing some data from development as-built information or citizen-based science. Professional inventory specific data would require a larger investment.

- Potential tree planting locations and new tree plantings in parks, facilities, and rights of way lack comprehensive planning and proper tracking. Currently, the responsibility for establishment maintenance relies on individuals with organizational knowledge, leading to potential gaps and inconsistencies in the process when a staff member leaves.

- The Township Infrastructure Standards and Specifications Manual (2022) that outlines proposed tree planting and protection best management practices before, during, and after construction is not being fully implemented on capital projects, development and planning applications, or incorporating new tree assets in the Township asset management system. This is due to a combination of factors such as insufficient staff resources, a lack of subject matter expertise among existing staff, and an inadequate consideration of resource and financial implications when the manual was implemented. During multiple interviews, the idea of implementing a revised "right-sized" Infrastructure Standards and Specifications Manual was considered promising. The existing Township Council approved document does not require further approvals by Council when updates are completed.

- The residents, landowners, and business owners in the Township of Wilmot have a crucial role in the long-term stewardship of the tree canopy. Notably, many private woodlot owners have demonstrated a genuine interest in responsible harvesting practices for generations.

- Volunteers at Let's Tree Wilmot have played an instrumental role by funding and establishing citizen-based tree planting and maintenance capacity through successful federal grants. Additionally, their partnerships with the Region and Township have led to increased tree planting projects, establishment maintenance, and the promotion of best management practices through in-person and online education.

- Enova Power Corporation provides funding to the Township for tree planting initiatives due to tree canopy reductions caused by overhead power line pruning. This pruning, performed by in-house Enova Power Corporation crews throughout their entire service area, occurs on a six -year pruning cycle.

6.3.2 Online Community Engagement

The online community engagement included 175 complete responses to all questions and 57 partial responses to questions, for a total of 252 participants. Refer to Appendix B for comprehensive online survey results. There was a demonstrated desire to manage the tree canopy in a more proactive way, but not in a way that impedes individual landowner rights or costs too much money. The responses to the question “In your opinion, how important is it to manage tree in the Township of Wilmot?” were overwhelmingly positive (Figure 21). It is important to note that nearly all participants, regardless of the broad opinions shared as part of other questions that range from “We need healthy trees in this changing climate” to “We don't need to spend money on this”, thought that managing trees was “very important” or “somewhat important”. None of the participants selected the “not very important” or ‘not important at all” options.

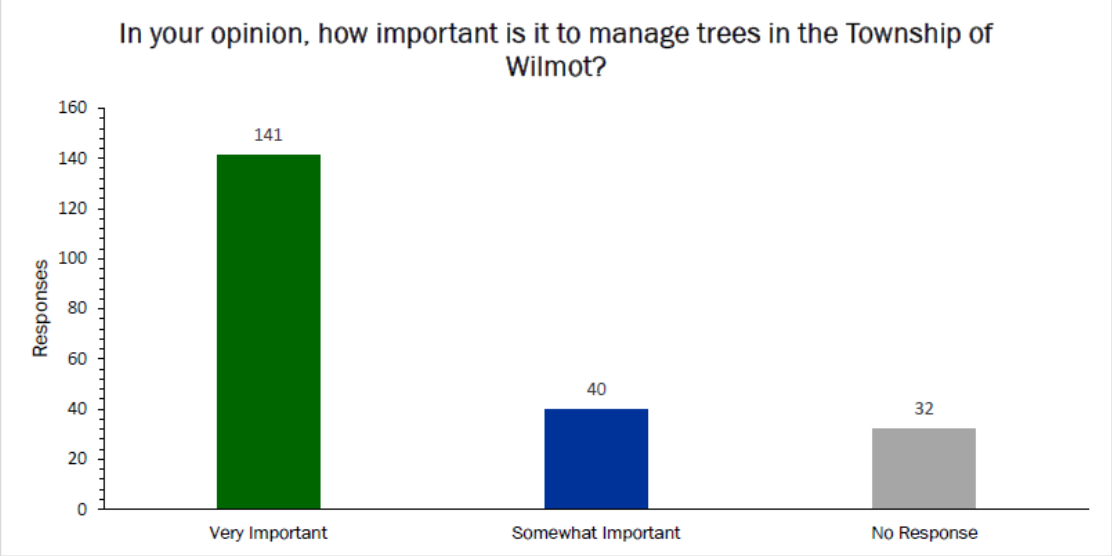


Figure 21 - Online Community Engagement Results Question 1 - In your opinion, how important is it to manage tree in the Township of Wilmot?

Three questions were directed to specific short-term and long-term recommendations discussed in section 7.0 of this report. In response to the question "Do you think it is a good idea to create a new permanent staff position that would focus only on managing trees?", participants were generally positive (Figure 22) with written comments ranging from "It's a vital job that deserves more attention and time than being done on the corner of an already busy person's desk" to "I think there is only so much money to go around and working smarter in existing positions could hopefully make room for tree management.". Many responses also spoke to a concern that there was not enough work for a full-time position. However, the five core responsibilities described in section 7.1.1 of this report identify a full-time Township Senior Urban Forester position.

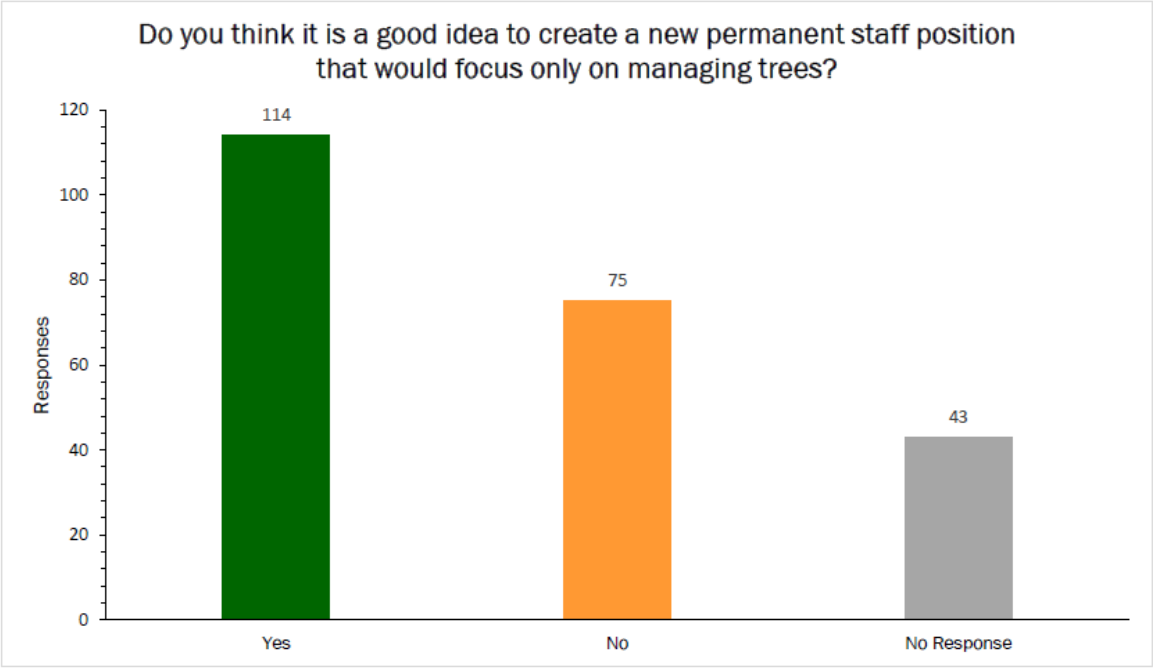


Figure 22 - Online Community Engagement Results Question 2 - Do you think it is a good idea to create a new permanent staff position that would focus only on managing trees?

In response to the question “Do you think it is a good idea for the Township to spend money on creating a tree inventory of all Township-owned trees?”, participants were also generally positive (Figure 23), with written comments ranging from “It is a starting point so you know what is happening with the trees in Wilmot, where more trees are needed, the health of trees, the variety of trees and more. Then planning and budgeting for the health, safety, and sustainability of trees is based on fact and not conjectures” to “Doesn't even make sense. Can never maintain an accurate inventory. Waste of time and money.” Section 7.1.5 describes how a tree inventory with organized and accessible data allows the Township to make informed day-to day decisions about individual tree management and planning. At a practical level, this allows for timely interventions such as tree removal or pruning to manage risk. The inventory also affords the Township to efficiently allocate budget, equipment, and labour resources to maximize the benefits of Township-owned trees within the overall canopy.

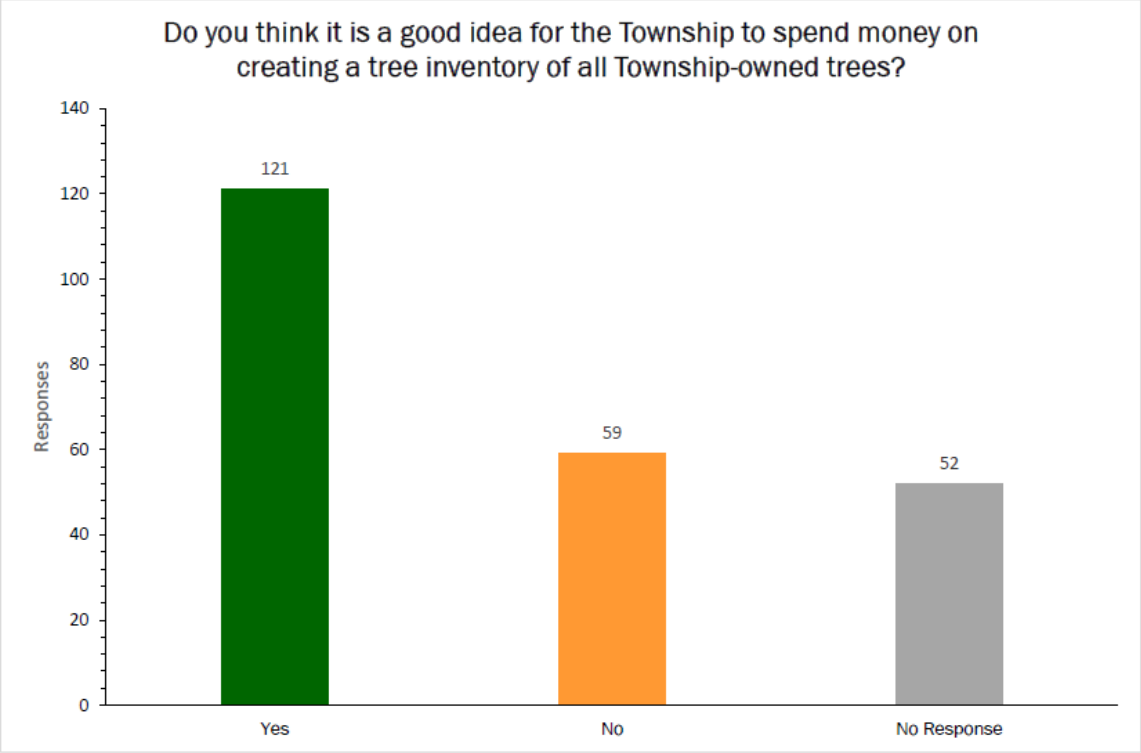


Figure 23 - Online Community Engagement Results Question 3 - Do you think it is a good idea for the Township to spend money on creating a tree inventory of all Township-owned trees?

In response to the question “Do you think the removal or pruning of individual trees of a certain size on private property should be regulated by a Township tree by-law?” participants were generally negative (Figure 24).with written comments ranging from “because the Township has no demonstrated expertise in tree management - look at the trees in parks and boulevards and you'll see that the Township needs to take care of its own trees first before worrying about what private property owners are doing” to “The role trees play in our world is so obvious - we MUST start paying attention to their importance NOW. We MUST prevent healthy tress from randomly being cut down by home owners - PLEASE get on this asap.”

Section 7.2.2 in this framework policy discusses considerations for establishing a tree by-law regulating individual trees on private land. Further engagement with the residents, landowners, and business owners should be undertaken to establish how to best balance landowner rights, tree canopy protection and enhancement, and cost to both landowners and Township. The feedback obtained through this future engagement is crucial for accurately defining the specifics of the by-law to balance between the landowner rights and enjoyment of private property, while addressing the need to protect trees for the benefit of the entire community.

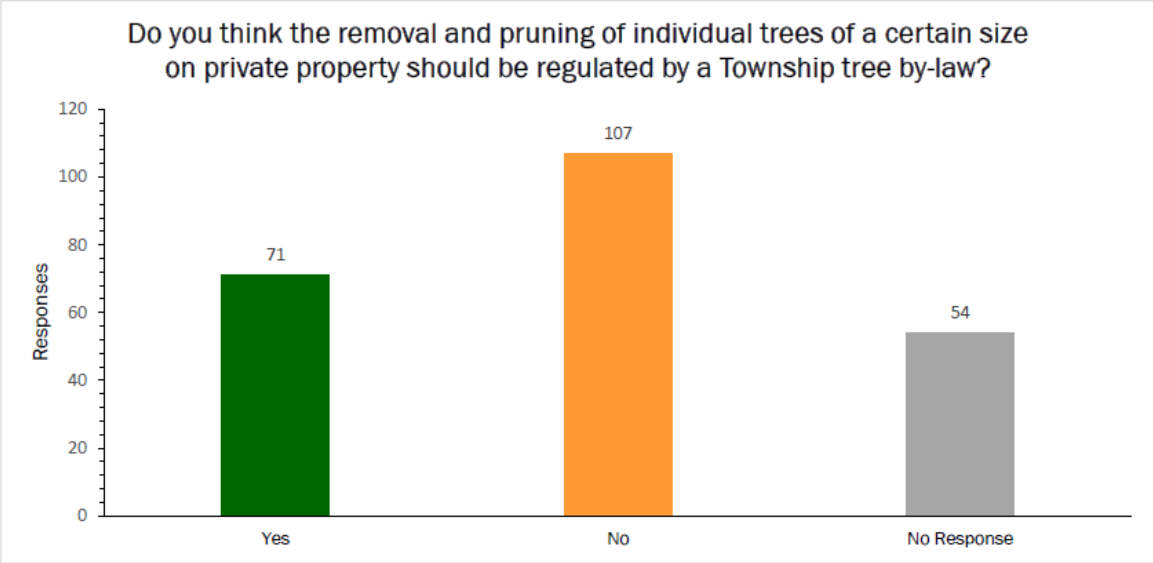


Figure 24 - Online Community Engagement Results Question 8 - Do you think the removal or pruning of individual trees of a certain size on private property should be regulated by a Township tree by-law?

7.0 Policy Framework

The recommended actions in this policy framework are guided by three principles:

- **Transition from reactive to proactive tree canopy management:** This principle emphasizes the importance of shifting from a reactive approach to a proactive one when managing tree canopies. In a reactive management approach, actions are taken only in response to issues or emergencies, such as tree failures or pest outbreaks. However, a proactive approach involves planning and implementing measures to prevent potential problems and improve overall tree health and resilience in the long-term.

- **Maximize use of limited resources:** This principle emphasizes the efficient and effective allocation of limited resources, such as funding, materials, labour, and time, to achieve the best possible outcomes in tree-related initiatives. With the increasing demand for various projects and activities that involve trees (e.g., afforestation, reforestation, urban forestry, conservation efforts), it is essential to make the most out of available resources. Recent changes in provincial legislation have impacted municipal budgets. All the proposed short-term and long-term recommendations necessitate a reallocation or allocation of new budget and staff resources to effectively implement these opportunities.

- **Right Tree, Right Place, Right Care:** Choosing the right tree species involves considering factors such as its size, growth rate, lifespan, and adaptability to the local climate and soil conditions. Some trees may be better suited for urban environments, while others thrive in forested areas.

  Planting trees in the right location means considering factors like sunlight exposure, soil type, drainage, and proximity to buildings, power lines, and other infrastructure. Trees that are planted in the wrong location often require extensive long-term maintenance to maintain operational clearances from infrastructure and buildings. Unfortunately, these same trees will often not reach their full potential due to root and canopy limitations.

  Providing proper care to the trees after planting is essential for their healthy growth and survival. This includes regular watering, mulching, pruning, and protection from pests and diseases. Trees that receive the right care are more likely to establish themselves well and provide their intended benefits in the long-term.

7.1 Short-Term (1-10 years)

7.1.1 Create a Township Senior Urban Forester position

The collective responsibility for protecting and enhancing trees spans across all types of land uses, involving private owned lands, public agencies, and various departments within these agencies. However, it is important to note that within the Township, a single designated person or entity responsible for managing the trees has not been established. While the recent addition of a part-time junior arborist has shown some success, the sustainable, long-term management of the tree canopy necessitates the expertise of a seasoned senior forester possessing Certified Arborist and Tree Risk Assessment Qualification from the International Society for Arboriculture and/or as a Registered Professional Forester credentials. The long-term success of the tree canopy hinges on the presence of an established professional who can serve as a unifying voice across all Township departments. This individual will play

a pivotal role in coordinating efforts and developing a cohesive approach towards tree management and conservation. The key responsibilities of the Senior Urban Forester position are:

- Facilitate and champion the achievement of the Township's tree goal(s) by developing /coordinating tree canopy management, policies, programs across all internal departments and collaborating public agencies,
- Protect public safety, manage the Township's risk and liability by completing routine tree risk assessments,
- Review tree protection plans/implementation on capital projects and development applications for compliance with approved best management practices and protocols in the Township Infrastructure Standards and Specifications Manual,
- Liaise with stakeholders and the community to gather their input and support. Encourage public participation when planning, and,
- Manage day-to-day proactive maintenance tasks and address service calls related to tree care completed by external contractors.

The minimum qualifications and experience of the Senior Urban Forster positions are:

- Degree or diploma in Forestry, Arboriculture, Environmental Studies or an associated field,
- 7 or more years demonstrated experience in the development and delivery of forestry projects in a municipal or similar setting, and
- International Society of Arboriculture (ISA) certified arborist in good standing and possess an ISA Tree Risk Assessment Qualification (TRAQ) certification.

Alignment with Tree Canopy Policy Framework Principles:

Transition from reactive to proactive tree canopy management: Introducing the Senior Urban Forester role enables the town to shift from a reactive to a proactive approach in tree canopy management. By centralizing expertise, the Senior Urban Forester can strategically plan and implement tree selection, placement, and maintenance, optimizing long-term benefits for the community. This transition allows for the proactive identification of potential issues, improved preservation practices, and the integration of optimal tree care measures, ultimately enhancing the Township's overall tree canopy health and vitality.

Maximize use of limited resources: Through focused oversight, efficient planning, and informed decision-making, the Senior Urban Forester can optimize the allocation for tree canopy management to the areas most in need. The focused position allows the Senior Urban Forester liaise with community, organizational, and government stakeholders to maximize efforts.

Right tree, right place, with the right care: The Senior Urban Forester role brings expertise to the Township to guide proper tree selection, placement, and care for long-term community benefit. This involves reviewing tree protection and enhancement in capital projects and private development applications, confirming adherence to best management practices, while also overseeing day-to-day tree planting and maintenance activities.

Timeline:

It is strongly recommended to consider this as the initial action within the tree canopy policy framework in year one after the endorsement of the tree canopy policy framework. With a dedicated staff member focusing on trees and the tree canopy, the opportunity arises to refine the remaining recommendations in this framework, taking into

account potential collaboration with the community, external organizations, and stakeholders at all levels, as well as the assessment of available Township resources and budgetary considerations.

Resource Implications:

One (1) new full-time permanent staff position (with access to vehicle), Start-up Cost $80,000 ($75,000 for vehicle, ~$5,000 technology/equipment), Annual Cost $111,500 to $131,500 (~$85,000 to $105,000 salary, $1,500, technology/equipment, ~$25,000 employee benefits)

Measure of Success: A Senior Urban Forester is employed at the Township within six months to 1 year after endorsement of the tree canopy policy framework.

7.1.2 Establish a service level policy for trees on Township-owned lands

The purpose of a tree canopy service level policy is to outline key components that drive effective management. This includes defining authorities, allocating budgets, establishing operating procedures, and setting policy review timelines.

Figure 25- A tree limb fallen across a road.

Each aspect advances the Township towards proactive tree management. The key components of a service policy are

1. Identify authority and responsibilities:
    - Policy statement framing the scope of the policy.
    - Establish a standard of care statement.
    - Identify the parties responsible for implementing and enforcing the policy, including Township staff, tree management professionals and relevant stakeholders/collaborators.
    - Outline the roles and duties of each responsible party.

- Define authority to manage trees on Township-owned and managed lands.
- Define authority to manage trees on lands adjacent to public use in accordance with section 62 of the Municipal Act.

2. Identify budget and resource allocations:
    - Allocate funds for hiring or training qualified arborists and tree care specialists.
    - Allocate resources for ongoing training and professional development.
    - Reserve funds for urgent/emergency tree issues.
    - Dedicated budget for equipment and technology.
    - Dedicated budget for tree planting and routine maintenance initiatives.
    - Dedicated budget for creating and updating a tree inventory of all trees on Township-owned and managed lands.
    - Consider collaborative efforts with other levels of government, public agencies, or private entities to share resources, expertise, and funding for tree-related initiatives.

3. Establish operating procedures and protocols:
    - Public reporting system for tree-related concerns and response procedures.
    - Emergency response procedures addressing tree-related emergencies, such as storm damage.
    - Establish a risk assessment system (recommend using industry best management practices).
    - Procedures for conducting regular tree risk assessments, specifying the frequency.
    - System for informing the public about tree-related risks, potential closures, and the actions being taken to mitigate risks.
    - Proactive routine maintenance and tree establishment procedures.
    - System for documenting and managing work orders.
    - Evaluation system to validate tree removal vs. other mitigation measures to preserve.
    - System for monitoring compliance and enforcement procedures.
    - Procedures for integrating and updating tree inventory data into the Township's existing asset management system.

4. Identify policy review timelines:
    - Specify the frequency of policy review to ensure it remains up-to-date and effective.
    - Describe the process for revising the policy based on changing priorities, new technology and information, community needs, and environmental factors.

Alignment with Tree Canopy Policy Framework Principles:

Transition from reactive to proactive tree canopy management: Implementing a tree canopy service level policy facilitates the transition from reactive to proactive management in the township by defining responsibilities, allocating budgets, and establishing procedures.

Maximize use of limited resources: The service level policy identifies existing potential collaboration among stakeholders, allocates resources for trained personnel and emergency responses, and promotes efficient risk assessments and public communication. Regular policy reviews also contribute to the township's progression towards proactive tree canopy management.

Right tree, right place, with the right care: The service level policy achieves the principle of "right tree, right place, right care" by delineating responsibilities, allocating necessary resources, and implementing effective operational

protocols. Through clear definitions of authorities and roles, the policy prescribes that tree decisions align with designated locations and purposes. Budget allocations for trained personnel, equipment, and emergency responses facilitate proper care. Operating procedures, such as risk assessments and public reporting systems, facilitate informed decision-making, enhancing tree placement and ongoing maintenance. Regular policy reviews allow for adjustments in line with evolving best practices and community needs.

Timeline: As the second step in implementing the tree canopy policy framework, it is recommended to prioritize this action after the Senior Urban Forester is hired in year one after the endorsement of the tree canopy policy framework. By establishing the service level policy, the Senior Urban Forester will have the opportunity to thoroughly comprehend the nuances of current policies and procedures while effectively engaging with all stakeholders to address their needs. This approach ensures a well-informed and collaborative foundation for subsequent implementation steps.

Resource Implications: Approximately four to six months of dedicated time should be allocated for the Senior Urban Forester, to formulate and oversee the policy's development, coordination, and initial stages of implementation. Additional time allocation for management in other Township departments should be considered for potential adjustments to existing processes with Community Services, Infrastructure Services and Corporate Services departments. Furthermore, time and effort will be invested in engaging stakeholders and conducting thorough assessments to align the policy with the Township's specific needs and objectives.

Following its establishment, the service level policy will necessitate, at a minimum, an annual review by the Senior Urban Forester for the first five years to adjust newly implemented programs and policies. Reviews can be adjusted with longer intervals as programs and policies mature. The purpose of these reviews is to confirm that the annual budget and resource allocations align with the Township's specific needs and objectives.

Measure of Success: A service level policy is established within six months after the Senior Urban Forester is employed by the Township approximately, one to two years after endorsement of the tree canopy policy framework.

7.1.3 Establish protocols and perform routine tree maintenance on Township-owned lands

Establishing a proactive approach to managing tress that form the tree canopy is critical for the long-term health of the existing tree canopy and the success of tree canopy enhancement initiatives. As discussed in section 1.1 of this report, a mature tree approximately 40-80 years old provides greater ecosystem services than a juvenile tree approximately 20 years old. A recent study on urban tree mortality found that the typical street tree mean life expectancy is 19-28 years, and the annual mortality rate is 3.5-5.1%, with as many as 50% of all planted trees dying before reaching maturity. (Lara A. Roman and Frederick N. Scatena, “Street tree survival rates: Meta-analysis of previous studies and application to a field survey in Philadelphia, PA, USA,” Urban Forestry & Urban Greening 10, no. 4 (2011): 269-274.) In a separate study, it was observed that adequate establishment maintenance in the first five years after planting is one of the best ways to reduce mortality. (Roman, LA, Battles, JH and Bride, JR. Determinants of establishment survival for residential trees in Sacramento County, CA. Landscape and Urban Planning 129: 22-31.). To optimize the use of limited resources and shift from reactive to proactive tree canopy management, proper maintenance for trees is essential.

Routine tree maintenance can be broadly classified into two main categories, delineated by the tree's age. The first, known as ‘tree establishment maintenance’, encompasses the crucial initial years from planting and extends to around three to five years thereafter. The second, termed ‘mature tree maintenance’, encompasses all the subsequent years of a tree's lifespan.

Tree Establishment Maintenance Program: The first step in creating the tree establishment program is to add tree pruning and watering establishment protocols to the revised Township Infrastructure Standards and Specifications Manual. These protocols should use the American National Standard (ANSI) 300 standards, endorsed by the International Society of Arboriculture to develop Township specific specifications, and should include at minimum:

- Watering the tree regularly during its establishment period, adjusting frequency based on weather conditions and soil moisture levels to encourage proper root growth and drought resistance.
- Conducting corrective pruning to address any immediate structural or form issues that may have developed during planting, such as dead, diseased, or broken branches. Prior to end of the establishment period, prune to correct long term structural integrity, such as rubbing or poorly attached branches, pruning to develop a central leader and a properly spaced scaffold branch structure. Not more than 25% of the tree crown should be removed within an annual growing season.
- Maintaining a layer of mulch around the base of the tree to conserve soil moisture, control weeds, and regulate temperature (Figure 26).
- Adjusting any temporary staking or guying materials that were used during planting as the tree establishes stability. At the completion of the establishment period, remove the temporary staking and guying materials.
- Adjusting tree trunk protection measures to protect from rodent and string trimmer damage and removing the protection measures prior to girdling.
- Inspecting the tree for signs of stress, pests, or diseases, mitigate using an integrated pest management approach to address these issues.

New trees planted on Township lands through community organization-led initiatives are to be added to asset management system to quantify needs and track maintenance activities for three to five years after planting.

Figure 26 - Redistributing and adding mulch to a tree saucer.

New trees planted as part of Township capital projects and in private developments are to be maintained as part of the construction contracts, which are to follow protocols to the revised Township Infrastructure Standards and

Specifications Manual. Before designating a tree planted as part of a private development for inclusion in the Mature Tree Inspection and Pruning Program, it is imperative to conduct a comprehensive final inspection. This examination is to identify and rectify any obvious issues that can be readily addressed before committing the tree to a maintenance cycle that spans up to a decade between inspections.

Mature Tree Maintenance Program: Many municipalities inspect and prune individual municipal owned trees in a scheduled, cyclical manner (Figure 27). This is termed "grid", "block" or "cyclical" pruning that involves dividing the municipality into areas that can be maintained within a known timeframe. The main benefits to the scheduled inspection and pruning maintenance program include:

- Regular pruning helps to remove dead, diseased, or damaged branches, promoting overall tree health.
- Removing weak or hazardous branches, the risk of tree failure and potential damage to property or injury to people can be mitigated.
- Well-pruned trees tend to be better equipped to withstand strong winds and storms, potentially reducing the likelihood of tree damage during extreme weather events.
- Regular, scheduled pruning can be more cost-effective than reacting to emergency tree-related situations. Preventative pruning can mitigate the need for costly emergency tree removals and repairs.

Industry best management practices recommend a 5-year cycle, however a Lakehead University study found that pruning cycles in Ontario can vary from 3-to-12 years, with an average of 7.7 years. With no existing data on the quantity, health or structural condition of Township-owned trees in Wilmot, this policy framework recommends that all Township owned trees be inspected and pruned on a 5-to-10-year timeframe. Following the first full cycle of assessment and pruning of all Township owned trees, budgets and timeframes can be optimized to meet actual needs as evaluated by the Senior Urban Forester. Based on the anticipated capital investment required to establish a well-equipped in-house Township pruning crew, it is recommended to retain a contractor or contractors to complete the first full cycle.

Figure 27 - Mature tree pruning.

Protocols for inspections and maintenance should be created using American National Standard (ANSI) 300 standards, endorsed by the International Society of Arboriculture to develop Township specific specifications, and should include at minimum an evaluation and action plan that takes into consideration:

- Risk Assessment, complete for each tree, a Level 1: limited visual assessment following A300 Best Management Practices – Tree Risk Assessment protocol, where identified, complete level 2: basic and level 3: advanced assessments.
- Overall tree health, checking for signs of disease, pests, fungal growth, stress, dead or dying branches and any signs of decay.
- Structural integrity, assessing the tree's architecture for branching patterns, attachment angles, codominant stems, cracks or cavities.
- Species specific considerations as well as individual tree specific previous pruning and maintenance performed.
- Root health and soil conditions, confirm that the root flare is visible and check for signs of root damage or girdling roots, consider the soil conditions around the tree including compaction and drainage.
- Aesthetics and long-term planning, assessing the tree's overall appearance as well as the growth potential and how it may impact views and structures in the future.
- Develop an action plan that addresses immediate deficiencies as well as the health, safety, and longevity of trees through pruning, support systems, root pruning, integrated pest management, and soil management.

Alignment with Tree Canopy Policy Framework Principles:

Transition from reactive to proactive tree canopy management: Establishing maintenance protocols and performing routine tree maintenance is fundamental to the principle of proactive management.

Maximize use of limited resources: Regularly inspecting and maintaining the municipality's tree assets not only improves overall tree health and structure but also extends the lifespan of existing trees, and reduces costs associated with premature removals, unscheduled emergency tree work, and replanting trees. Establishing two broad categories of inspection and maintenance procedures recognizes the physiological needs of an establishing tree versus a mature tree.

Right tree, right place, with the right care: Establishing and performing routine tree maintenance is fundamental to providing the right care throughout the life cycle of a tree. Regular monitoring helps identify issues early, supporting the tree's aesthetic and ecological functions.

Timeline: This step represents the third action and is advised for complete implementation within two years after the endorsement of the tree canopy policy framework. This suggested timeframe is designed with the understanding that it necessitates the oversight of maintenance tasks by the Senior Urban Forester, in accordance with the service level policy protocols set up during the initial year of the Senior Urban Forester's employment. The timeline also takes into account the necessary duration for drafting a new contract for tender and fulfilling administrative requirements within the procurement process. In the meantime, the ongoing emergency tree work and establishment watering must continue as per existing protocols in individual Township Departments.

Resource Implications:

Tree Establishment Maintenance Program: At the time of this report, volunteer led-planting initiatives are maintained by volunteers through recently acquired Let's Tree Wilmot watering equipment. In the interim, the Township should continue to support this initiative through Township-supplied water. As the Tree Establishment

Maintenance Program is implemented within the next two years, the Township should establish capacity to complete watering with seasonal staff, overseen by the Senior Urban Forester. A minimum of two summer (6-month contract) labourers (with background in arboriculture or forestry) with access to a shared vehicle, hand tools, and technology to track maintenance activities, Start-up Cost $80,000 ($75,000 for vehicle, ~$5,000 technology/equipment) and Annual Cost $43,000 (2 x ~$20,000 salary, $~1,500, technology/equipment maintenance)

The Township could support a citizen-based volunteer program to supplement the work completed by the two Township labourers. The Township of Centre Wellington and the Elora Environment Centre Neighbourwoods group have established a citizen pruning group to prune juvenile trees less than 3 metres tall. If the Township of Wilmot were to pursue this arrangement with local volunteers, further collaboration with Township legal staff is required to appropriately manage risk and liability. It is recommended that any pruning of juvenile trees completed by citizen-pruners is under the observation of an ISA Certified Arborist, either volunteer or the Senior Urban Forester.

Mature Tree Maintenance Program: Retain an external contractor (ISA Certified Arborist Supervised at minimum) to implement the mature tree pruning program, Senior Urban Forester to oversee contract. Annual Cost ~$75,000. This is an average budgetary cost to carry, however the introduction of a new pest/disease such as Oak Wilt to the Township's tree canopy or extreme weather events such as an ice storm may require additional expenditures to address immediate issues.

Measure of Success: All newly planted trees on Township-owned and managed lands are tracked and maintained as part of the establishment maintenance program within two years after endorsement of the tree canopy policy framework. All mature trees on Township-owned and managed lands are inspected and readily visible deficiencies are addressed within ten years after endorsement of the tree canopy policy framework.

7.1.4 Refine the Township Infrastructure Standards and Specifications Manual

The first version of the Infrastructure Standards and Specifications Manual (April 25, 2022) is a comprehensive reference guide to assist with capital projects, municipal consent, municipal drains, and land development applications. As an established, Township Council-approved document, the manual represents the best opportunity to protect the existing tree canopy on private-owned lands without introducing additional regulations and document best management practices to be applied across the Township. The manual includes design criteria and best management practices specific to the Township by outlining policies, procedures and standards governing the engineering / infrastructure review, inspection and acceptance process.

As part of the next scheduled update to the manual, it is recommended to update section 5.10 Landscape Requirements:

- Include the specific requirements to complete tree protection and landscape plans on municipal capital projects.
- Remove language stating that trees related standards and specifications are "to be applied at the Township's discretion".
- Revise tree planting location guidelines to align with the minimum standards established by the Electrical Safety Authority 'Planting Under or Around Powerlines & Electrical Equipment' Guideline.
- Revise tree planting location guidelines to eliminate planting trees in a boundary tree condition, consider planting trees on private-owned lands where space is limited in the Township right of way.
- Develop a new tree establishment maintenance section that describes the required structural pruning, watering, and other maintenance requirements from the time of planting to end of warranty (typically 24

months) to be completed by the general contractor and their subcontractors for capital projects and by the applicant and their contractors for private development.
- Establish a comprehensive approved street tree planting list including both native and non-native (non-invasive) tree species.
- Revise tree planting and pruning standards to align with the American National Standard (ANSI) A300 Part 1 - Pruning, Part - 5 Site Planning, Site Development, Part 6 - Planting and Transplanting).
- Establish minimum standards, protocols, and formatting for transferring as-built street tree data to Corporate Services and the Asset Management Coordinator.

Refer to Appendix C for detailed recommended edits to the Infrastructure Standards and Specifications Manual.

Alignment with Tree Canopy Policy Framework Principles:

Transition from reactive to proactive tree canopy management: The Infrastructure Standards and Specifications Manual currently forms the technical basis of planning for tree preservation and tree planting. An updated 'right sized' landscape section will continue to function in the same manner. Township staff must be given the ability to apply the best management practices on planning applications and capital projects.

Maximize use of limited resources: As an existing council approved document that does not require further council approval when updated, revisions can be completed in an efficient manner by Township staff.

Right tree, right place, with the right care: The Infrastructure Standards and Specifications Manual forms the technical basis of planning for tree preservation and tree planting on planning applications and capital projects. As a publicly available document, the technical details can also be implemented on community-based planting initiatives.

Timeline: The timeline to complete this recommendation is based on the next scheduled Infrastructure Standards and Specifications Manual update, which considers far more than only tree and tree canopy related items. Based on individual interviews with Township staff, it is understood that the manual could be updated within the 2024 calendar year. The technical information required to update the tree related components of the Manual is supplied as part of this Tree Canopy Policy Framework study and will be immediately available after the endorsement of the tree canopy policy framework.

Resource Implications: Recommended updates to the Infrastructure Standards and Specifications Manual are included as part of this Tree Canopy Policy Framework document, including a mark-up of the existing document to align with current best management practices and street tree planting species list. Formal revisions are to be implemented by current Township staff in Community Services, Corporate Services, Development Services, and Infrastructure Services, which will require time allocated to review and coordinate, as part of the next scheduled revision cycle.

To address the current issue of the manual not being applied on a regular basis, an in-person workshop or an asynchronous webinar recording should be developed to explain how the manual is to be implemented. As it relates to trees and the tree canopy, the Senior Urban Forester should be responsible for reviewing planning applications and capital project designs to confirm compliance with the manual as part of their regular and on-going tasks.

To implement the tree specific components of the manual on capital projects, project consulting teams should be expanded to include an ISA Certified Arborist and an OALA Landscape Architect to prepare the required technical documents. The cost to including these consultants on a project team will vary depending on the project scale and scope of work. As a general guideline, the cost to prepare a tree preservation plan and streetscape plan designs for approval, as well as providing general review services during construction and warranty review on a typical 1-

kilometre-long road reconstruction project will include approximately $5,000 to $10,000 in additional consulting fees.

Measure of Success: Updated tree protection and enhancement protocols are being applied on all capital projects and are being applied on all planning applications within two to three years after endorsement of the tree canopy policy framework. During a transition phase, it's essential to account for scenarios like when a site plan application pertains to a smaller parcel of land, even if tree protection and enhancement protocols weren't initially integrated into a previous draft plan approval, their incorporation should be carefully addressed, where possible.

7.1.5 Develop a detailed tree inventory for Township-owned lands

The tree canopy assessment prepared as part of this Policy Framework looks at all trees in the Township, both public and private. The tree canopy assessment provides a macro level view using satellite data to guide strategies. It is an excellent tool for identifying available planting space, setting tree canopy goals, tracking large scale trends, and measuring the effectiveness of policies and programs in the long-term.

A detailed inventory of Township-owned trees provides a micro level view of the individual trees that make up the tree canopy that relies on individuals on the ground to assess each individual tree by collecting data. This data includes tree species, size, health condition, location, and maintenance needs. Having organized and accessible data allows the Township to make informed day-to-day decisions about individual tree management and planning. At a practical level, this allows for timely interventions such as tree removal or pruning to manage risk. Understanding this detailed information affords the Township to efficiently allocate budget, equipment, and labour resources to maximize the benefits of Township-owned trees within the overall canopy.

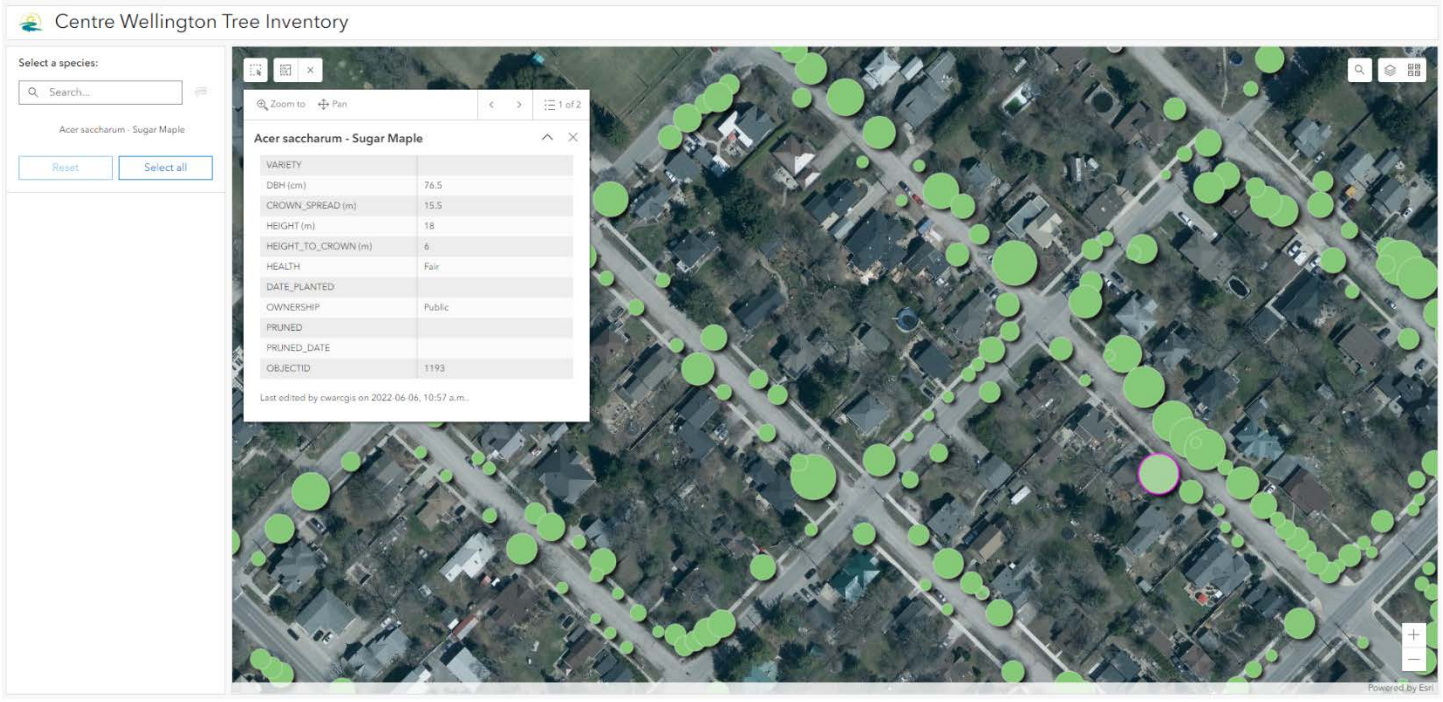


Figure 28 - Example of a detailed tree inventory map and data. Source Township of Centre Wellington Tree Inventory accessed August 24, 2023.

The individual tree data from the detailed inventory can also be combined with the tree canopy data to better evaluate environmental benefits provided by trees, such as carbon sequestration, air quality improvement, and temperature regulation. This information can be used to quantify the economic value of trees and further support

initiatives focused on protecting and enhancing the tree canopy. Recommended data to be collected in a tree inventory includes:

- Unique identification number
- Municipal address
- Park/Facility/Woodlot name
- Coordinates (latitude/longitude)
- Species (Common Name, Botanical Name)
- DBH (diameter at breast height in centimetres)
- Height (in metres)
- Canopy Spread (in metres)
- Overall (excellent, good, fair, poor, dead)
- Damage
- Date tree planted (if known)
- Tree age (estimated in age classes less than 5 years, 5 to 10 years, 11 to 20 years, 21 to 50 years, 50 to 100 years, 101 to 200 years)
- Ownership (Based on Teranet parcels or if defined as a shared tree)
- Overhead utilities (presence of utilities (e.g., hydro, telephone, cable) located in or within 5 metres of the tree)
- Visual clearance (whether visibility of any other infrastructure, e.g., signs, lights, sight lines for driving near intersections, is blocked by the tree.)
- General observations/comments
- Photographs (at minimum one showing an overview of tree habit from base of trunk to top of canopy, and any other photographs to document defects/deficiencies)
- Maintenance Record (date work completed, contractor name, supervising arborist name, itemized description of the work completed)
- Data collected on/modified by (the date and full name of the person who collected or updated the tree data)

To populate the detailed tree inventory of Township-owned trees, data can be obtained through on-site evaluations conducted by Township staff, private consultants, or citizen volunteers. In each of these scenarios, trained personnel will assess Township-owned properties, parks, and public spaces to gather direct information about individual trees. Several local southern Ontario and multinational based private consulting firms offer municipal tree inventory services. The cost associated with a detailed tree inventory varies based on the number of data categories collected and total number of trees. To manage budgets in the short term, it is recommended that priority be placed on inventorying trees in the following order:

1. Township-owned and managed parks, cemeteries, and facilities.
    - In woodlands, the tree inventory can be focused on areas near publicly accessible trails for active maintenance and risk management purposes.
2. Urban Area rights of ways defined in the Official Plan.
3. Rural Settlement Area rights of ways defined in the Official Plan.
4. The Countryside Area rights of ways defined in the Official Plan.

Trained volunteers can be a cost-effective way to complete an inventory while still generating significant tree data. A successful example of the volunteer approach is the partnership between the Elora Environment Centre and Township of Centre Wellington. Since 2009, volunteers have inventoried more than 11,000 Township-owned trees

in the urban centres of Elora and Fergus using the Neighbourwoods protocol to assess 31 individual data characteristics for each tree. Summer students funded by the federal government Canada Summer Works program lead trained volunteers who contribute approximately two hours per week for eight weeks in June and July. In 2020, the Neighbourwoods assessment tools were merged with the Township's to assist both Township staff and community member better understand trees and how to care for them. The tree inventory data is currently available for all to view on a public web-based mapping application linked to the Township's website.

Furthermore, tree inventory data can be sourced from as-built records obtained during capital infrastructure projects and private developments. The Township Infrastructure Standards and Specifications Manual outlines the procedures and protocols to prepare and transfer this data to Township staff.

By utilizing multiple sources and following established guidelines, the Township can develop a thorough and accurate tree inventory, laying the groundwork for effective tree management and informed decision-making.

Alignment with Tree Canopy Policy Framework Principles:

Transition from reactive to proactive tree canopy management: An inventory of Township-owned trees aids the Senior Urban Forester in their strategic planning, such as the development of maintenance plans and management plans, as well as to help educate residents about their urban forest.

Maximize use of limited resources: Understanding the actual maintenance needs of the Township-owned trees affords the opportunity to optimize budget allocation and streamline short and long-term maintenance planning.

Right tree, right place, with the right care: Tree inventory is a valuable tool that enhances the success of urban tree planting initiatives by providing data-driven insights to inform decision-making. For example, the inventory can track the prevalence of pests affecting different tree species or where trees have historically struggled to thrive or have a high mortality rate. This information enables the Township to make informed decisions about tree planting to avoid introducing susceptible species or avoid planting in unsuitable locations and instead focus on areas where the environmental conditions are more favourable for tree growth.

Timeline: Planning for the tree inventory in coordination between the Senior Urban Forester and the Asset Coordinator in Corporate Services should begin in year one after the endorsement of the tree canopy policy framework, so as-built tree information from planning applications can be entered into the Township's existing asset management system. Following the implementation of the system, citizen-based inventory data can be entered after a training program administered by the Senior Urban Forester is developed and delivered in year one or two after the endorsement of the tree canopy policy framework. Where budget allocation allows, it is recommended that in years three through ten, the Township retain a consultant to collect and update tree data.

Resource Implications: In year one or two after the endorsement of the tree canopy policy framework, dedicated time should be allocated for coordination between the Senior Urban Forester and Asset Management Coordinator to establish procedures and protocols to populate tree inventory data in the Township's existing asset management applications.

In year one or two, the Senior Urban Forester should allocate time to develop procedures and protocols for citizen-based tree inventory data collection. Confirmation of the scope of the ISA Certified Arborist involvement during citizen-based data collection will determine if this resource needs to be physically present during the inventory, or if is only required in a reviewing capacity. The Senior Urban Forester could act as the ISA Certified Arborist resource, or alternatively, this could be fulfilled by another member of the Township's staff or volunteer with the required certifications.

The optimal approach for acquiring and maintaining tree data with high efficiency and accuracy involves engaging a dedicated private consultant. The cost to retain the consultant will vary based on the specified number of trees to be inventoried and quantity of data category types during the contract period. For budgeting purposes, assuming a cost of $5.00 per tree inventoried will yield approximately 5000 trees with an annual budget of $25,000.

The ongoing responsibility of overseeing tree inventory data maintenance should be assigned to the Senior Urban Forester as part of their regular duties.

Measure of Success: Procedures for entering tree data into the Township's asset management system are completed by the end of year one or two after endorsement of the tree canopy policy framework. All trees on Township-owned and managed lands are recorded in the Township's asset management system within ten years after endorsement of the tree canopy policy framework.

7.1.6 Continue to support existing organization and community-based tree canopy initiatives

The community organization Let's Tree Wilmot has played an invaluable role in kickstarting the capacity for tree canopy enhancement and stewardship in the Township. Their efforts have been truly remarkable, making a significant impact on the community and fostering a culture of tree preservation and care. The Township should also continue to support federal, provincial, regional, and conservation authority led tree planting and stewardship initiatives.

Figure 29 - Let's Tree Wilmot planting event in spring 2023.

Supporting these programs enables the transfer of detailed information from community knowledge-holders to Township staff to better comprehend community needs. One of the Senior Urban Forester's regular and ongoing roles is to establish working relationships with community organizations and other governmental agencies to better understand the existing programs accessible to the Township and its local businesses, residents and landowners. These programs include:

- Wilmot Roots funded by Enova Power Corporation
- Let's Tree Wilmot tree planting events, tree watering initiatives, and education programs
- TD Friends of the Environment
- Grand River Conservation Authority tree planting and grant programs
- Forests Ontario
- Trees Canada

The Senior Urban Forester should also seek out new partnerships with existing organizations as well as new future organizations such as:

- REEP Green Solutions
- Sustainable Waterloo Region

As trees are planted in Township-owned potential planting areas and land becomes limited, there may be an opportunity to support plantings in other long-term arrangements with local businesses, residents and landowners. In addition to the established organizations, the Senior Urban Forester should seek out those people in the community that are considered leaders because of their activities or their positions in the community, as well as those people that are recognized as leaders because they are trusted for their proven integrity, courage, and/or care for others.

Alignment with Tree Canopy Policy Framework Principles:

Transition from reactive to proactive tree canopy management: An engaged community is a supportive community, wherein individuals actively participate, collaborate, and invest their time, resources, and energy for the collective well-being. When a community is engaged, its members demonstrate a sense of ownership and commitment to shared goals, initiatives, and values.

Maximize use of limited resources: Coordinating efforts from funding sources not accessible to the Township for a common goal of protecting and enhancing the tree canopy, maximizes the use of limited resources.

Right tree, right place, with the right care: While the technical tree work of the Township and development applications is guided by standards, guidelines, and procedures outlined in service level policies and the infrastructure standards and specifications manual, conveying the insights encapsulated within these technical documents to the broader community can prove to be challenging. Promoting these concepts on a cultural level, without being overly assertive, involves endorsing initiatives from the community and other organizations that present analogous information in formats that are easier to comprehend. Examples include crafting social media posts and creating instructional videos about tree planting and ongoing maintenance.

Timeline: In the context of the Senior Urban Forester's ongoing responsibilities, it is recommended that they initiate communication with local community organizations that contribute to the protection and enhancement of the tree canopy on day one. The first step involves identifying the existing roles fulfilled by these local organizations. Following this assessment, the Senior Urban Forester should actively seek opportunities to enhance capacity and secure funding by engaging with new regional, provincial, and federal organizations

Resource Implications: One of the Senior Urban Forester's regular and ongoing roles is to liaise with community organizations and other governmental agencies to establish personal relationships and to better understand the existing programs accessible to the Township and its businesses, residents and landowners.

Measure of Success: There is a wealth of knowledge with Township staff, Region of Waterloo and Grand River Conservation Authority staff, residents, local businesses, and landowners. As part of the Senior Urban Forester's

role, it is important to document the assets within the community to better understand the alliances that can protect enhance the tree canopy. To mitigate this informal knowledge loss when a Township staff member leaves the organization, it is important to formally document informal networks, relationships, and communication channels so this type of knowledge can be transferred to others within the Township. The first measure of success is a well-documented knowledge base. The second measure of success is formally identifying the people, places, and organizations within the community to determine how the Township can best support tree canopy protection and enhancement initiatives.

7.2 Long-Term (10-15 years)

7.2.1 Reassess tree canopy cover in ten years

The majority of the short-term recommendations in the tree canopy policy framework are focused on establishing and implementing baseline proactive best practices, policies, and procedures to protect and enhance the tree canopy. After applying these measures for approximately ten years, it is recommended to assess their effectiveness by reevaluating the tree canopy cover ten to fifteen years after endorsement of the tree canopy policy framework. The tree canopy assessment should be completed using the same object-based image analysis methodology as the original assessment described in Section 2.2 of this report or a comparable methodology that will produce the same result based on advances in technology. Different methodologies will yield different results in the tree canopy interpretation, consistency is critical as the results of the reassessment of the tree canopy will inform the effectiveness of the practices, policies, and procedures in place, and the potential recommendations for the next ten to fifteen years.

Apart from determining the tree canopy coverage a decade from now, it's crucial to examine changes in tree canopy over the past ten years. This includes identifying areas where the tree canopy has either decreased or increased compared to the initial assessment using imagery from 2022. This additional analysis is important as it enhances the interpretation of findings, guiding future actions for the Township.

Timeline: The reassessment should be completed approximately ten to fifteen years after endorsement of the tree canopy policy framework.

Resource Implications: The tree canopy reassessment task could be completed in-house with GIS staff in approximately 300 hours (including Quality Assurance tasks), and approximately $10,000 (in 2023 dollars) to purchase the high-resolution satellite imagery. The Senior Urban Forester will also need to allocate time to oversee the tree canopy reassessment.

Alternatively, a consultant can be retained to acquire the high-resolution satellite imagery and complete the tree canopy reassessment for approximately $50,000 (in 2023 dollars).

Measure of Success: An increase in overall tree canopy coverage toward or exceeding the 22.60% goal.

7.2.2 Evaluate the need to modify practices, policies, and procedures related to the tree canopy.

If the tree canopy reassessment determines that the overall tree canopy has increased in area, the proactive best practices, policies, and procedures established and implemented as part of the short-term recommendations may be adequate to sustain the tree canopy. If the increase exceeds the 22.60% tree canopy cover goal, the Township could consider modifying the existing practices, policies, and procedures, or set a target to increase the tree canopy

beyond 22.60% based on projected growth from the 2022 spatial data used in the baseline canopy cover assessment.

If it is determined that the overall tree canopy remains static or has decreased in area, additional measures should be considered to further protect and enhance the tree canopy. These additional measures can be broadly grouped into three categories:

- Education-based management tools that provide information to encourage a voluntary change in behaviours to protect and enhance trees.
- Incentive-based management tools that reward behaviours that protect and enhance trees. Rewards can be financial or non-financial.
- Regulation-based management tools that involve developing a system of rules to enforce behaviours that protect and enhance trees.

Further analysis on specific areas where the tree canopy has decreased may provide insight into potential adjustments to existing Township practices, policies, and procedures, as well as new programs. For example, if the majority of the tree canopy losses are related to planning applications, there may be a benefit in strengthening development guidelines and policies. If the tree canopy losses are mainly located in agricultural areas, there may be benefit in establishing Township-administered education and incentive-based programs focused on these lands. If the tree canopy losses are largely located in existing settlement areas where individuals are removing trees, there may be benefit in establishing a Township-administered tree by-law regulating individual trees on private land.

Considerations for establishing a tree by-law regulating individual trees on private land:

When preparing an effective private tree by-law, there are four key principles to consider:

- The by-law should provide a balance between the use and enjoyment of private property, while addressing the need to protect trees.
- The by-law should not impose an unreasonable financial burden on property owners or on the Township in administering the by-law.
- The by-law should be easily understood and capable of effective enforcement.
- The by-law should recognize that trees on private lands are an important component of the Township's overall tree canopy, providing benefits to the entire community.

Prior to considering establishing a tree by-law regulating individual trees on private land, extensive engagement with the residents, landowners, and business owners should be undertaken to establish how to best balance landowner rights, tree canopy protection and enhancement, and cost to both landowners and Township. The feedback obtained through this engagement is crucial for accurately defining the specifics of the by-law. It also helps in informing Township Council about overall sentiments and specific issues.

Most recently adopted by-laws regulating individual trees on private lands in Ontario generally follow the 2013 framework recommended by the Ontario Woodlot Association Lower Tier Municipality Tree By-Law Advisory Group. The advisory group members were comprised of lower, single and upper municipalities, woodlot and professional foresters' associations, and Ministry of Natural Resources and Forestry. It is recommended that any by-law regulating trees on private lands in the Township of Wilmot be implemented follow this framework. Administratively, using the same tree by-law framework as many other municipalities (such as Burlington, Oakville, Cambridge, Guelph) have used since 2013, will allow for consistency between municipalities. There are statutory components of any tree by-law defined in the Municipal Act; for example, where other provincial acts take precedent over municipal

tree by-laws, and authority to enforce offences and penalties. A Township of Wilmot by-law should focus on the specific attributes of the by-law that best represent the community's views and values, these include the:

- Size of tree(s) regulated
- Township specific exemptions
- Permit application process and fees structure
- Documents required as part of a complete application
- Compensation calculation requirements and cash in lieu of compensation planting formula
- Security deposit requirements
- Fine values

Careful consideration also needs to be given to the resource implications of a Township-administered individual tree by-law on private lands. Given the workload established as part of the short-term recommendations, the Senior Urban Forester will not have the capacity to also administer a tree by-law. At minimum one additional Township staff will be required. Depending on the anticipated volume of applications and time required to process each application (which can vary based on the details of specific attributes included in the by-law), a new Township staff member may be required to focus on processing and closing applications. Staff assigned to the technical review of a private tree by-law should be skilled and informed on the subject matter such as an ISA Certified Arborist, American Society of Consulting Arborist, or Registered Professional Forester. Enforcement of the by-law requires a Provincial Offences Officer with subject matter expertise.

8.0 Conclusion

The tree canopy coverage in the Township of Wilmot currently stands at 22.14%, as detailed in Section 2.0 of the report. Furthermore, the policy framework establishes an attainable tree canopy enhancement target of 22.60% by 2049 (in 25 years), based on setting individual practical targets for each of the Urban Areas, Settlement Areas, and the Countryside. The represents and increase of 122.62 hectares of tree canopy area, comparable to the size of the New Dundee Rural Settlement Area. Sections 3.0, 4.0, and 5.0 of the report discuss existing Township programs, policies, and resources related to Township-owned portions of the tree canopy, as well as external legislation, programs, and policies to protect and enhance the tree canopy.

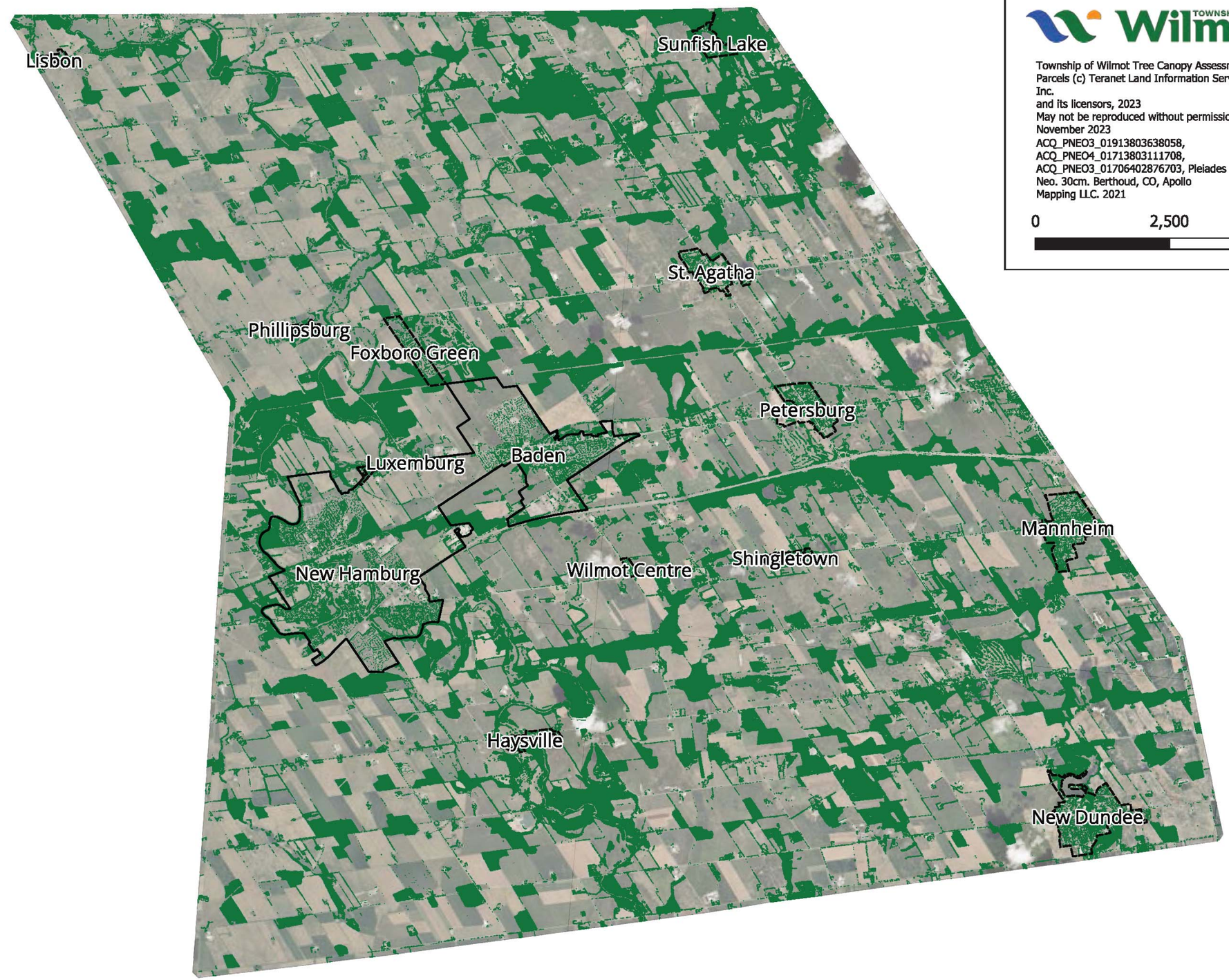
Section 6.0 of the report provides insights from individual interviews with Township of Wilmot staff, Region of Waterloo staff, Grand River Conservation Authority staff, Enova Power Corporation staff, and Let's Tree Wilmot members. The general consensus is that any programs and policies must be 'right-sized' and transition from the current reactive management approach to a more proactive approach. In addition to individual interviews, an online survey was conducted within the community to gauge general attitudes related to tree and tree canopy management. Opinions on potential actions the Township could take to become more proactive in managing the tree canopy were also sought.

Section 7.0 of the report recommends proactive programs and policies to achieve the tree canopy target. Each of the five recommended short-term and two long-term actions are described in detail, highlighting the key resource and budget implications, as well as timelines for implementation.

The tree canopy policy framework presents a well-structured and forward-thinking strategy aimed at protecting and enhancing the tree canopy within the Township of Wilmot. It aligns with both legislative requirements and the aspirations of the community. By implementing the recommendations outlined in the framework, the Township can progress towards a more sustainable and resilient future.

Figure 30 - Street trees on Jacob Street, New Hamburg

Appendix A – Tree Canopy Cover Mapping and Potential Planting Areas on Public Lands



TOWNSHIP OF Wilmot

Township of Wilmot Tree Canopy Assessment
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Tree Canopy

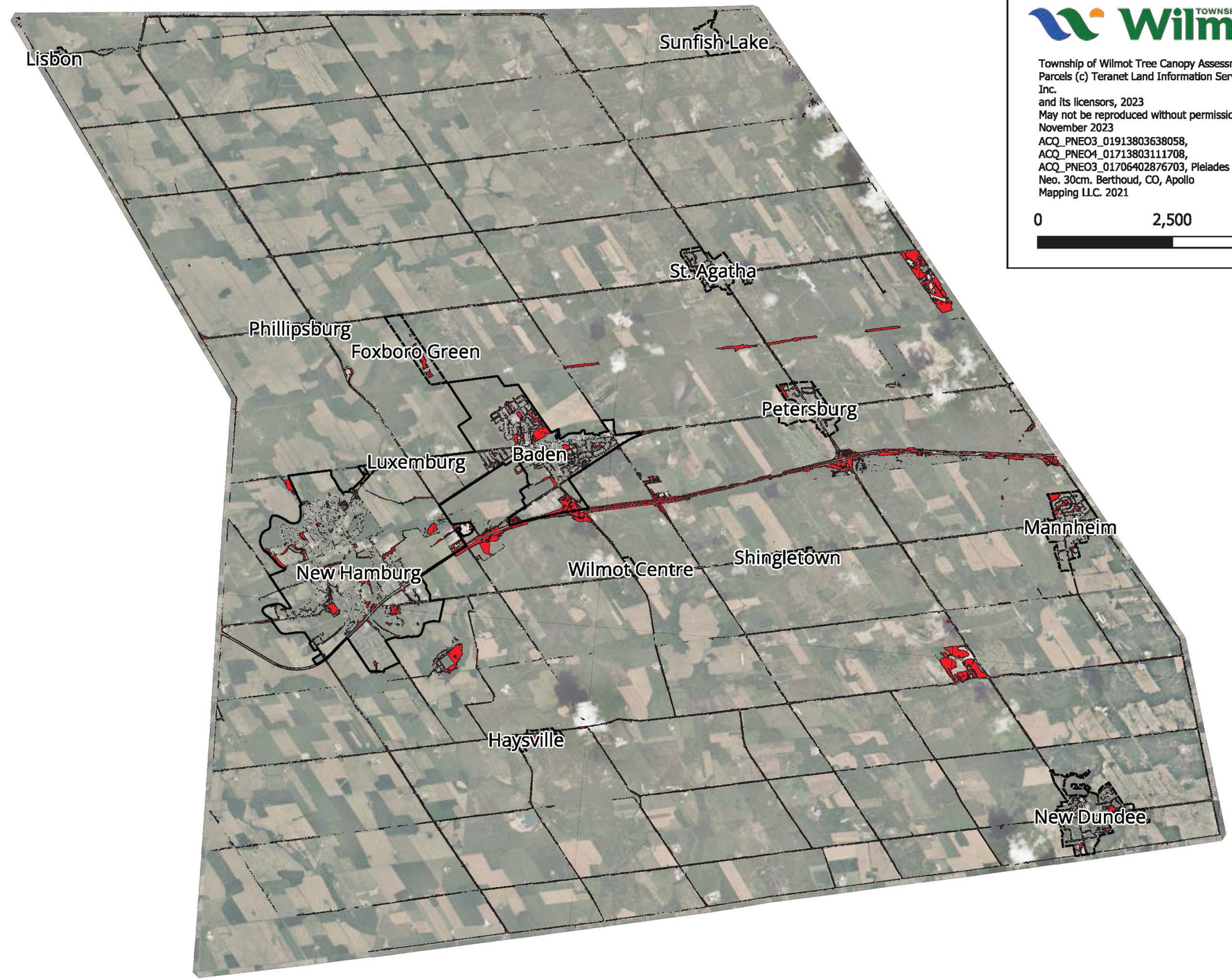
Rural Settlement

Urban Settlement

Tree Canopy

Tree Canopy

0 2,500 5,000 m



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Potential Planting Areas

- Rural Settlement
- Urban Settlement
- Potential Planting Areas

0 2,500 5,000 m

Appendix B – Online Survey Engagement Results

Survey questions for online community engagement were hosted through the Township's website. The following introduction statement and questions were posted on the Township's website from August 28, 2023 to September 11, 2023. The survey participants were afforded the option to choose from a range of pre-defined multiple-choice responses, followed by an opportunity elaborate on responses by freely input their own responses via typing in a textbox.

INTRODUCTION STATEMENT AND QUESTIONS

The Township of Wilmot is required by the Municipal Act to adopt and maintain policies to protect and enhance the Township's tree canopy and natural vegetation. Municipalities across southern Ontario are increasingly recognizing the economic, social, and environmental benefits the tree canopy contributes to the well-being of the municipality and its residents. The Township has hired a consultant to develop a Tree Canopy Policy Framework that will:

- Identify the existing tree canopy present in the Township,
- Establish an attainable tree canopy enhancement target for Township owned lands,
- Evaluate existing Township programs, policies, budget, and staffing resources related to Township owned portions of the tree canopy,
- Recommend programs and policies to achieve the tree canopy enhancement target for Township owned lands (woodlots, road allowances, facilities, parks), provide recommendations for budget and staff resources to implement these opportunities.
- Examine the implications and provide recommendations on further regulating the removal of trees on private property as part of future updates to the tree canopy policy.

Township staff and the consultant are currently working on this framework and NEED your input on how to best manage trees.

1. Managing trees in the Township involves a range of activities aimed at planning and budgeting for the health, safety, and sustainability of trees. This encompasses planning, programs, policies, and asset management that work together to effectively care for and maintain trees. In your opinion, how important is it to manage trees in the Township of Wilmot? [checkboxes]
    a. Very important
    b. Somewhat important
    c. Not very important
    d. Not at all important
    e. I'm not sure.
    f. If you would like, please explain your opinion on the importance of managing trees in the Township of Wilmot. [textbox for all checkboxes]

2. Right now, the Township of Wilmot does NOT have a dedicated staff member who manages Township-owned trees. Several staff members in different departments currently manage trees as a small part of their jobs. Do you think it IS a good idea to create a new permanent staff position that would focus only on managing trees? [Yes, no checkbox]
    a. [Sub question if, yes] Why do you think it is a good idea to create a new staff position that would focus only on managing trees? [textbox]
    b. [Sub question if, no] Why do you think it is not a good idea to create a new staff position that would focus only on managing trees? [textbox]

3. Right now, the Township of Wilmot does not have an inventory of all Township-owned trees. If the Township did have a tree inventory, it could make more effective financial and operational decisions to manage trees. Do you think it is a good idea for the Township to spend money on creating a tree inventory of all Township-owned trees? [Yes, No checkbox]
    a. [Sub question if, yes] Why do you think good idea for the Township to spend money on creating a baseline tree inventory of all Township-owned trees? [textbox]
    b. [Sub question if, no] Why do you think it is not a good idea for the Township to spend money on creating a baseline tree inventory of all Township-owned trees [textbox]

4. Have you ever planted trees on property you own or live on in the Township of Wilmot? [Yes, No]
    a. [Sub question if, yes] Did you use any of these programs to support the tree planting? (Check any statements that apply)
        i. Grand River Conservation Authority Private Land Tree Planting Program
        ii. Grand River Conservation Authority Tree Sale/Tree Orders
        iii. Region of Waterloo Rural Water Quality Program
        iv. Wilmot Roots Free Tree Giveaway Program
        v. No, I purchased from a garden center and planted the tree(s) myself
        vi. No, I grew and planted the tree(s) myself
        vii. Other [textbox]
    b. [Sub question if, no] Why have you not planted trees (Check any statements that apply)
        i. I think trees are too expensive
        ii. I don't have enough space
        iii. I think trees take too much time and effort to maintain
        iv. I don't know what kind of to plant or where to plant
        v. Other reasons [textbox]
        vi.
5. Have you ever participated in a community a tree planting event organized by Let's Tree Wilmot, Grand River Conservation Authority, Region of Waterloo, or Township of Wilmot? [Yes, no checkbox]
    a. [Sub question if, yes] Do you recall which group organized the event and you heard about the tree planting event? [textbox]
    b. [Sub question if, no] Would you be interested in participating in a tree planting event? [textbox]

6. Have you ever removed trees on property you own or live on in the Township of Wilmot? [Yes, No]
    a. [Sub question if, yes] Why did you remove the trees? (Check any statements that apply)
        i. I didn't like the tree(s)
        ii. I wanted to make an improvement to my property (for example a deck, driveway, pool, new building or building/addition)
        iii. I harvested the tree(s) for income
        iv. I harvested the tree(s) for fuel
        v. The tree(s) became too big.
        vi. The tree(s) was too close to a building or utility wires.
        vii. The tree(s) was dead/diseased
        viii. The tree(s) was an invasive species
        ix. The tree(s) suffered from storm damage
        x. The tree removal(s) was part of a Forest Management Plan (prepared by a Registered Professional Forester)
        xi. The tree removal(s) was part of Normal Farming Practice (determined by the Farming and Food Production Protection Act)
        xii. The tree removal(s) was part of a development (site plan or plan of subdivision under the Planning Act)

xiii. Other reasons [textbox]

7. Did you know that a Region of Waterloo by-law regulates trees on private property when in woodlands of one hectare (about 2.5 acres) and larger in size? [Yes, No checkbox]

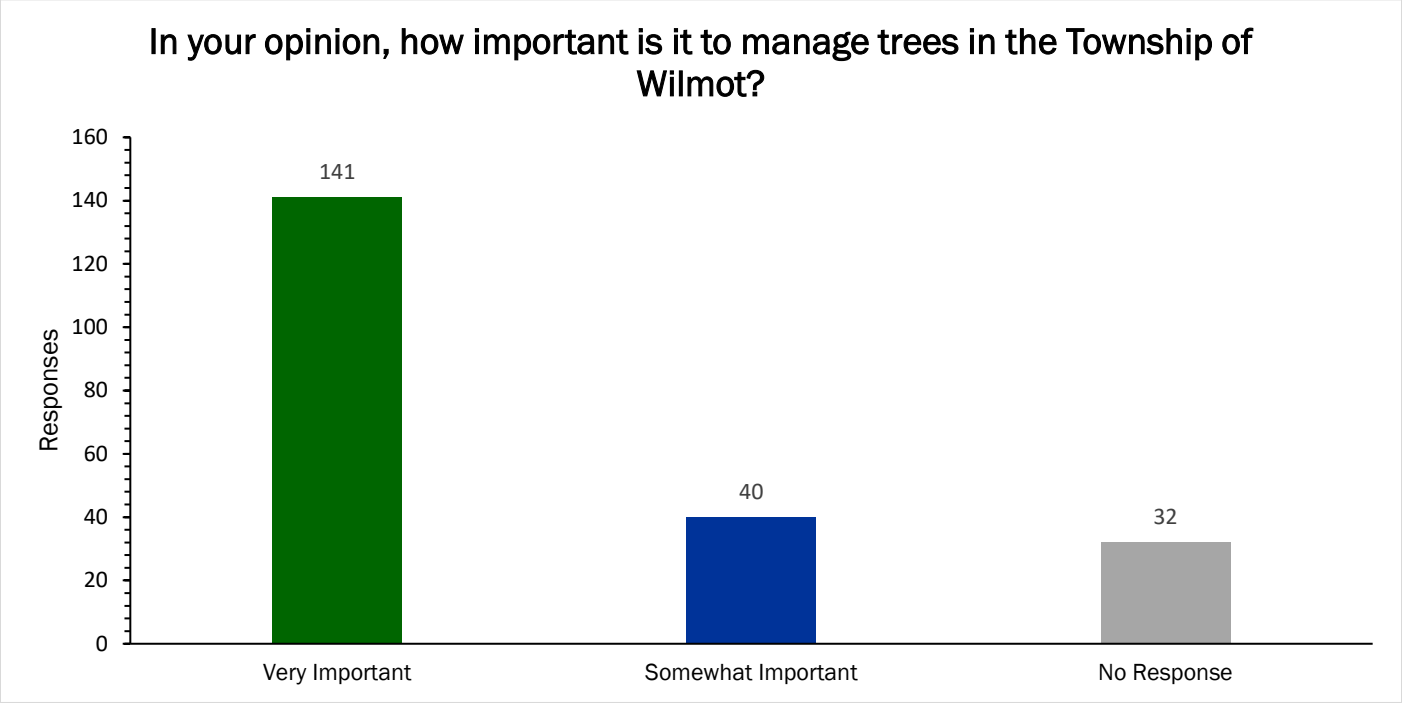
8. Do you think the removal and pruning of individual trees of a certain size on private property should be regulated by a Township tree by-law? [Yes, No checkbox]
    a. [Sub question if, yes] Why do you think the removal and pruning individual trees of a certain size on private property should be regulated by a Township tree by-law? [textbox]
    b. [Sub question if, no] Why do you think the removal and pruning individual trees of a certain size on private property should not be regulated by a Township tree by-law? [textbox]

9. Please share any other thoughts or comments you have on managing trees in the Township of Wilmot. [textbox]

RESULTS

The online community engagement included 175 complete responses to all questions and 57 partial responses to questions for a total of 252 participants.

INDIVIDUAL QUESTIONS



*Zero (0) participants selected the “Not very important” ”Not at all important” or “I’m not sure” options

If you would like, please explain your opinion on the importance of managing trees in the Township of Wilmot.

Common Themes:

- Biodiversity, wildlife, ecosystem health
- Health and safety
- Climate change, CO_2 uptake/clean air

Written Reponses:

1. A lot of the trees have died and need to be replaced.
2. A mature tree absorbs approximately 25kg of CO2 per year - ecotree.green
3. A more important priority is to manage and remediate the gravel and sand pits. An ICB is required.
4. After seeing how the trees were trimmed along Haysville Road, was horrific, we need someone who knows how to properly care for our trees.
5. Among many other things, trees are important for climate change adaptation (I.e., cooling effects of trees), as well as for mental health in terms of providing connection to nature.
6. As an active member of Let's Tree Wilmot, I fully support initiatives to protect and enhance trees. As a member of Tree Trust Waterloo Region, I applaud the protection of legacy trees in Wilmot. There have been many instances recently of mature trees being unnecessarily removed, to the detriment of the community and environment.
7. Benefits to air quality, beauty, homes for birds& wildlife - to provide this & other benefits trees need to be trimmed, mulched, watered & cared for by someone. New trees need to be planted to replace others

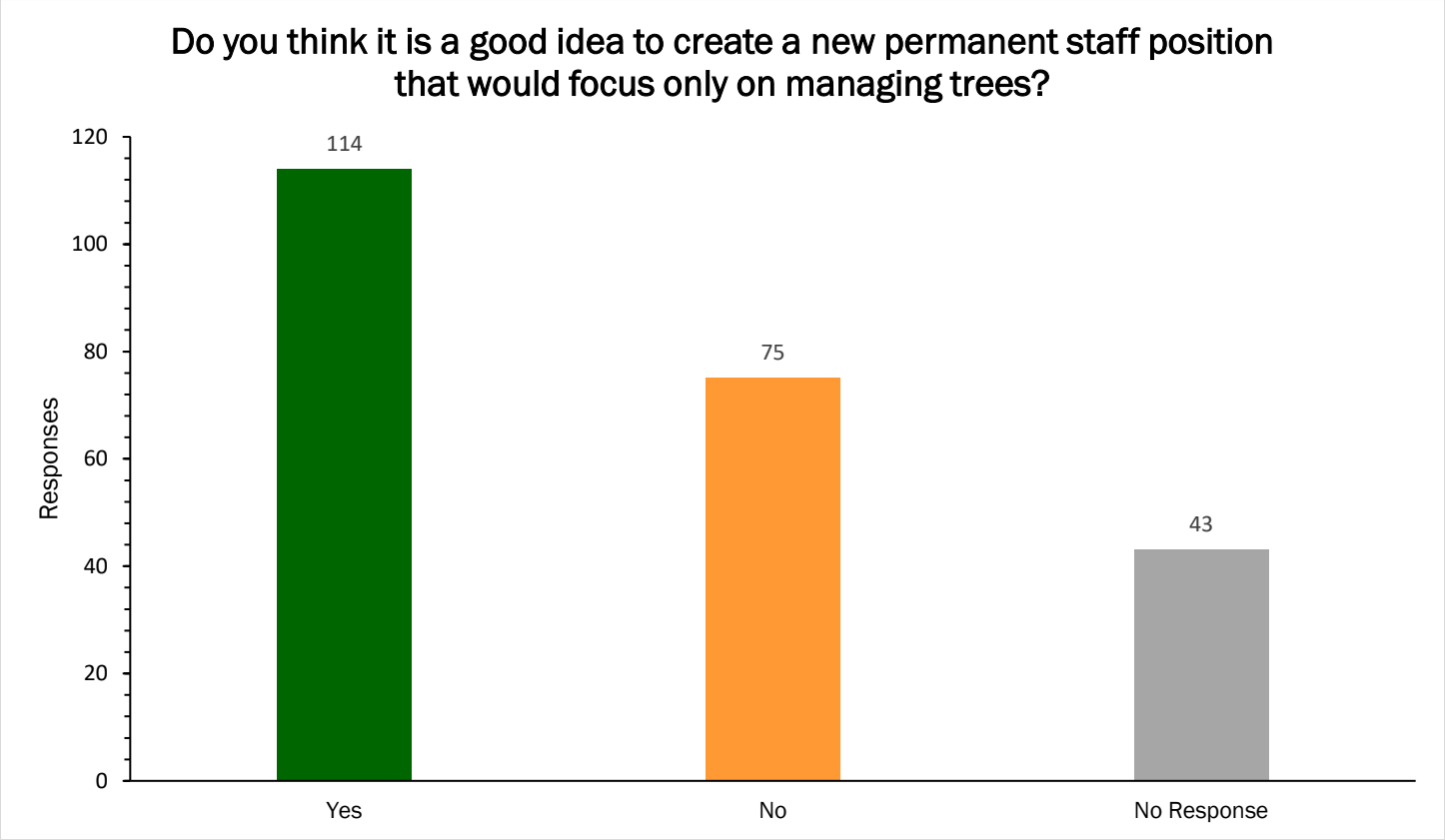
8. Central to mitigating our carbon emissions, cooling the air, cleaning the air, and maintaining biodiversity in our township.
9. Cut down the dead ones. They're dangerous.
10. Do not allow clear cut lot size of trees for development, manage what you have on public and development lands
11. Environmental benefit, more natural spaces are nice. The need for safety, eg after a storm clean up and ensureing we have plentiful of non invasive tree types.
12. "-ground temperature moderation
    - groundwater retention
    - carbon capture
    - wildlife corridor"
13. Have seen many trees that branches are dangerously close to hydro wires as some to bingo g that you almost miss stop signs.
14. Health and safety of people and trees
15. I do not believe the township should have the right to manage private property trees. Homeowners can manage that themselves. Go ahead and manage public lands!
16. I have come to appreciate the change in the temperature around our home with trees offering shade in the warm seasons. Also the carbon benefits tree give to us.
17. I think the heath of the trees are very important.
18. I think they should be managed like they always have
19. I think trees play an important role in decreasing temperatures during the summer months and shoud be used aa natural coverage at parks, playgrounds and sidewalks.
20. Im all for planting more trees but im against prohibiting owners from cutting down trees on their own land they planted etc
21. Important to maintain trees on public property
22. In light of the air quality issues re the prevalence of gravel pits in our area, it is essential that we have the maximum ideal tree canopy to improve our air quality!
23. In my opinion, trees are very good for the township - for residents and businesses. They provide a long list of benefits including shade, clean air, temperature control, privacy, aesthetics, and wildlife habitats. This all being said, I think it is good for the township to promote planting and upkeep of trees - but the term 'management' conveys a sense of regulation and restrictions on how private property owners care for their own trees. I would be interested on what this position involves and what the jurisdiction includes.
24. In public spaces and land the township is responsible for plant more trees, or regulate those spaces. Private property is not your concern to "manage".
25. It is easy to kill a tree, or damage a tree, and it takes decades to grow a mature tree.
26. "it is vary important to manage Township owned assets and support private interests but not necessarily to regulate private interests so overall its somewhat important.
27. The Township has done an extremely poor job at managing the health of its corporate assets and until it can demonstrate success it shouldn't purport to tell private land owners what to do with theirs - street trees are abysmally managed with a lack of focused and concerted effort."
28. It seemed an awful lot if trees were removed for Wilmot Street reconstruction. I know some new ones have been planted. The park on Wilmot is very bare
29. Lands are eroding especially along water routes, the trees provide natural cooling centres, and they put oxygen into our atmosphere
30. Maintaining for disease and insects. As well as sidewalks. There are a lot of trees impeding sidewalks which is challenging for wheelchair and scooter users.
31. maintaining our trees is quite important but it needs to be up to the people and not regulated by a governing body.
32. "management of trees keeps trees healthy, so that in heavy rain, snow, ice, wind they are not destroyed as easily.

33. new Boulevard trees should be cared for in the first few years. We had one die."
34. Money and time needed elsewhere in the township
35. More trees the better for environment, well being...
36. Needed to mitigate climate change
37. "Not only the health reasons but it's welcoming and encouraging to new comers
38. People want to live in a vivacious community
39. Driving down Peel street into new hamburg is simply beautiful spring summer fall"
40. Not sure if this is township or GRCA but noticing that there have been whole trees stuck at the dam in new Hamburg. Would be nice if someone from the township could remove them.
41. Our trees should be healthy, agreed. I do not think the Township has the right to tell me whether or not trees on my private property have to come down.
42. People are managing the trees on their property, just fine.
43. People manage the trees on their own property.
44. "Plentiful tree canopies provides shade, shelter and food sources to the animals and birds that we must protect
45. It also provides our earth and the humans living in it an important way to cool our environment"
46. The city needs to ensure trees are healthy and safe for the community.
47. The following questions are lacking information that would make a good decision. The costing (or at least an approximate) is needed to answer those questions. So, I will answer "yes" just to be able to continue the survey. However, that "yes" is very questionable.
48. There are currently too many dangerous Township trees.
49. There are many current and future trails and sites with many trees growing. Trails, ball fields, cemeteries, etc. We need trees, but trees also need to be maintained for health of the trees and safety of folks living under them.
50. There are many treea in the Township that are mistreated and uncared for. Trees provide our Township with cleaner air, beauty and they invite more wildlife into our community to enjoy.
51. They offer shade, oxygen and many other benefits to our community and management helps ensure their health and survival.
52. They recently cut down ALL of the trees along Snyder's Rd in Baden to make room for the road improvements. We need to try to keep trees rather than cut huge numbers of them down. We also need to be planting to make up for this recent huge loss as well as planting on a regular basis to make up for trees that gradually die / need to be removed for other reasons, etc.
53. They should be planted to provide as much shade as they can. They also should no be planted under power lines.
54. Trees are a natural element of Mother Nature and are a very important part of our environment.
55. Trees are a vital part of navigating climate change. They help the environment, people and animals in so many ways. Yet many trees are suffering due to lack of care and knowledge about trees. Therefore, there should be someone in charge of trees who has the knowledge and expertise to help protect and manage the trees in Wilmot.
56. Trees are an important layer of our ecosystems, providing shelter for wildlife, providing shade over buildings that helps to reduce the need for air conditioning, are part of the carbon cycle i.e sequester carbon etc.
57. Trees are important for the environment, for health and wellness of citizens, animals and plant life.
58. Trees are incredibly important for sequestering carbon and improving the resilience of the landscape in dealing with texteme climate events. They're also beautiful! They can provide food and shelter for many forms of wildlife, including food for human consumption.
59. Trees are life. They provide shade, habitation for wildlife and air for all of us.
60. Trees are SO important! They make the township beautiful and more enjoyable for residents and visitors to see/experience (big curb appeal!) Trees help with residents overall comfort when using public spaces and/or the desire to use them at all (I will avoid fully exposed parks/areas and specifically seek out ones with tree coverage so we can have some shade and sun/heat relief). Trees help maintain our water table (pretty

important when our township is surrounded by agriculture, a designated flood plain and extensive river ways). Speaking of living rural - trees are a great wind break during storms, which is helpful when we get some big winds that blow off the large farm fields.

61. Trees are such an important aspect of park space. If not properly managed/maintained as trees die off park land deteriorates. In the past there didn't seem to be any replanting of tees to replace trees that potentially need to be removed in the future
62. trees are vital to the overall livability in our community and as such they needed to be managed in a way that is proportional to the value they add.
63. Trees belong in a forest. Away from houses and Hydro lines. For curb appeal all trees need to be trimmed properly and huge trees need to be removed. They wreck sidewalks and lawns with over grown roots. Possible law suits if someone trips on sidewalks or crushes a home from trees on Boulevards.
64. Trees function as the earth's lungs. In the same way that we care for human lungs, it is essential to care for the earth's lungs.
65. Trees have so many benefits. They act as carbon sinks and produce oxygen, provide shade for cooling. Native trees especially are good for pollinators and birds. It's good for humans' mental health to be in nature and to see trees.
66. Trees have such an important role in sustaining environments therefore managing trees helps the nature connected to trees.
67. Trees provide clean air, a habitat for many animals, a learning opportunity for kids, and a meditative, relaxing environment for many.
68. Trees provide many benefits in various roles depending where they are living: cooling, shading, blocking wind, mitigating erosion, providing homes for hundreds of life forms, beauty, carbon absorption, oxygen release, maintaining water table, softening impact of heavy rainfall on rivers and streams, recreation.
69. Trees provide many benefits to humans from mental health, general health, environmental health, shading, cleaning the air, etc. etc. They provide homes for wildlife to sustain our ecosystem.
70. Trees provide shelter, (wind breaks)shade (natural cooling effects) absorb sound and pollutants and provide oxygen. They're also beautiful
71. Trees provide so many benefits to the health and well being of humans and all elements of the ecosystem.
72. Trees serve so many to humans and others. The chemical reaction to the air, home to wildlife, the shade has a great cooling effect.The pleasure just to look at the and the ofsevr the seasonal changes. An example of where trees are needed is the down town area of New Hamburg.At this time it just looks hot and dry.
73. Trees should be managed by private citizens not the township.
74. Trees symbolize the health and well being of a community. Mature healthy trees increase the value of homes making their plots desirable. Healthy plants in any area I still a sense that life including our own can thrive there.
75. Trees we look adter today benefit our future generations
76. "Trees will be of utmost importance in the coming century as the earth boils. We must do widespread planting, wherever possible, and let whatever land is not used directly for food production to rewild. Any lawns should be allowed to grow, or at least meet some quota for biodiversity in our given ecosystem. Mowing ought to be outlawed. People can gather in parks that are already cleared, and all other land, including ""private"" land must be allowed to gro. Not only to allow trees to grow again, but because insect populations are plummeting globally and they vitally need habitat.
77. There is much available land, agriculturally speaking, that needs to be reimagined and allowed to heal. In other words, it is of absolute necessity that we rapidly transform our ecologically destructive, monoculture-based agriculture to Permaculture, which is in essence a more long term way of thinking in terms of land use (a.k.a. Permanent Agriculture...). In other words, ecosystem design. This is an approach to land that prioritizes biodiversity above all else, and aims to create ecosystems that are food and medicine producing with less input. Mainly focussing on perennial food producing plants.
78. The hope is these are cared for intergenerationally through collective tending. Actually, there are examples of people tending food forests for thousands of years.

79. I feel strongly that each farmer must line their fields with dense tree plantings…at the very least, preferably of edible species as these roads will be main modes of transportation for hungry people leaving cities as times of food shortages are more frequent. Ideally fields are divided into smaller quadrants…like 100 acres into four tree-bordered quadrants of 25, which would allow farmers to keep doing field agriculture while adjusting for, well, other life to live. In other words, permaculture-based biodiverse hedgerows and tree plantings ought to be a top priority if we want to try and ensure a more stable food system in times of coming drought."
80. Trees, trails and outdoor access is vital to mental and general health of the population.
81. We don't need to spend money on this.
82. We need healthy trees in this changing climate.
83. We need trees to breathe! They are essential to our ecosystem and our human health and wellness. Trees provide shade and shelter for so many organisms. More needs to be done to protect our trees and increase tree planting.
84. We should plant trees in any area that is not allocated to any specific agriculture, meadows, or related to future industrial applications
85. "Well, there's the obvious, oxygen.
86. Not to mention towns are being swallowed by developers. We need to protect our township and appreciate our homes."
87. When they are managed properly the the tree will thrive and have a longer lifespan. When trees branches are hanging low people trim them incorrectly or pull the branches causing tree harm.
88. With climate change having such an impact on our world we need to take positive actions to support the health of our planet.
89. Without management there will not be the focus necessary to maintain a healthy tree population in Wilmot.



Why do you think it is a good idea to create a new permanent staff member to focus only on managing trees?

Common Themes:

- Increased skill level associated with a dedicated position
- Other departments/staff members do not have enough time
- Easy to fall through the cracks
- General importance of trees to health, environment and culture
- Accountability
- Streamlining/Efficiency

Written Reponses:

1. A permanent staff member will be able to execute whatever policy is decided.
2. Absolutely. There have already been part time positions involved in tree care. The Township cannot and should not be looking to volunteers for proper tree maintenance.
3. Arboriculture is a dedicated field of study and work tasking someone with knowledge background and skills for the overall outcome associated with township trees is a good idea.
4. As stated above, trees are a vital part of navigating climate change. "Several staff members in different departments currently manage trees as a small part of their jobs" does not sound like they collaborate and take into account what the others are doing and if it is "a small part of their jobs" they may not have the expertise or time to fully take care of all the Township-owned trees.
5. At best, an knowledge person to oveesee, protect what we have and move in the right direction.
6. Because I see the health of township trees suffering, and it is easy for this to fall between the cracks if it is across several departments. If no one specifically is responsible, it is easy to say "I'm not".

7. Because of the importance and because of the wide scope of work it would include. Managing trees does not simply mean planting and watering trees. A separate person who can review all decisions made by council and staff to ensure tree and the ecosystems around trees are considered would be a good first step to protecting our local environment.
8. Because our lives depend on them, they are beautiful and deserve our full respect as entities unto themselves, and we certainly need to have a culture of tending to them.
9. Because trees are important and the next question would be covered by this employee to determine how much money needs to be spent to maintain the inventory.
10. Better management of our current tree health and numbers, providing education to the community about tree health, better managing and replacing diseased and dying trees and pruning.
11. Creating a healthy environment in the region is good for the people who live and visit. It will have a positive impact (even if indirect) on the social and economic systems within the township.
12. Ensures that expertise is gained and used appropriately.
13. Every development seems to lead to the loss of trees. Even the back yard of the Waterlot used to be a shady haven. It's now a paved wasteland. Some oversight of our tiny forest resource should be mandated.
14. Fertilize, Keep watered, disease prevention..Removing dead trees, and replacing them. Also tree trimming.
15. Have someone accountable for them.
16. I believe that there should be a dedicated person focused on tree maintenance and further growth of the treed areas in the Township.
17. I don't know if we would need a long-term permanent staff member, but maybe just for a year or two? At least to start? I think serious time needs to be dedicated to ensuring that our community's outdoor spaces have lots of trees. Also, that the spaces that have almost exclusively big, old trees have new ones planted every once in awhile to make sure there will still be trees left standing when the oldest ones need to be removed.
18. I feel like there are so many factors to be considered to help maintain the health of the trees. If there was a knowledgeable person to monitor the trees and their health and provide feedback and care tios to anyone with toqnship trees near their homes the trees would grow quicker and live longer.
19. I think there a lot of questions/concerns that residents may have about their tree that a staff without any knowledge of trees may not be able to answer.
20. If only manage trees there is a focus. Achieve a new position by increasing efficiency by 5% of existing staff. As society we have drifted to less hours and less work per hour.
21. If that is the focus of the position all manner of tree care and overall plan for growth would happen
22. i'm not convinced it needs to be a full time position but perhaps a seasonal position to begin with until it can be demonstrated there is a need for a year round dedicated staff member.
23. investment in the future. So many are missing or in terrible shape now.
24. It is difficult to adequately care for the trees without dedicated staff time.
25. It would be nice if it was a contract position that serves a purpose and then done
26. It's a full time job...that will grow bigger
27. It's a vital job that deserves more attention and time than being done on the corner of an already busy person's desk.
28. I've tried contacting the township about tree replacements and overall concerns and I never hear back from anyone. It would be nice to have a specific person to contact and follow up with instead of the current system of just submitting a generic online form. Someone with a background/experience in forestry would be an asset for tree canopy conservation and department management.
29. lots of old trees die off at the river banks contributing to Erosion. Would be a great to replant more along the rivers stopping erosion.
30. Maintenance and oversite to managing trees is an important role and ahould be managed by a staff member geared towards risk management, protection and future planning
31. More focus on tree health and safety.

32. My street for example is a great one. Brenneman drive. Had someone walked the street and looked at the boulevards you'd have seen the damage to the trees, had you been specialized in the well-being of trees you'd know that many of them could have been saved with watering. That the seasonal dryness winter brought this spring starved the trees causing them to split and crack. Even today they're so dry their bark splits. 20 Brenneman has a tree with a crack straight through it. Strong winds will take it down. But a drive by by a staff member who has no knowledge of trees is insufficient. We're going to lose nearly all the trees on the street.
33. need costing to make a proper decision as to Yes or No
34. No - saving trees and preventing more housing developers
35. Noted above. Trees are essential. Commit to protecting our environment and ecosystem.
36. Our ash tree on township property is dying, they likely are not aware. I don't know who we contact as eventually it needs to come down before it does damage.
37. "Part of the challenge of maintaining healthy forests is the knowledge and expertise of it. I live adjacent to a forest in new hamburg that has seen an increase in swamping conditions as well as the need to cull out diseased trees (eg. Ash trees).
38. We (neighbours that share this space) do not have the knowledge required to ensure the longevity and health of our precious forest . A forest and resource management expert could create a plan for us to implement"
39. Proper tree management is critical to our sustainability as a township. Proper care and pruning needs to be managed to prevent any major catastrophes during big storms. Just look at the hundreds of century-old trees in Chatham that were recently wiped out during a major summer storm.
40. Right now there doesn't seem to be any consistent management of trees. Newly planted trees are not pruned & watered regularly. Shameful to see so many trees that have been planted in the last 5 years or so have died along side streets & on boulevards. Such a waste of money. Too many Residents simply have no clue how to look after the trees on their boulevard as well as some staff & the trees become wild looking. Just planting them is not good enough.
41. Same as above
42. So many planted then no one takes care of them so most die
43. Some of the trees in town need to be professionally pruned by a qualified person. If we establish a position ,then that person will review the trees take action and not be a town ship employee saying it not my job and drive by
44. Someone could take charge and get a handle on the trees that are in the township now, keep track of trees that have diseases to be treated or removed and encourage homeowners and the township to plant tress that are suitable for this part of the world.
45. The current staff of the two departments that would deal with trees are busy with their respective projects and duties. Arboriculture is a very specialized trade that requires many facets of training and knowledge. There should be a Certified Arborist as well as a dedicated apprentice to work with the Arborist.
46. The easiest way to bring attention and importance to this issue is to have one staff member responsible for it. It increases accountability around the issue as well.
47. The focus would be more accurate
48. The Twp could then hire a knowledgeable individual with specialized knowledge of trees. It seems the road crew has little knowledge of tree growth habit and requirements. The trimming job done on Haysville Rd in summer 2023 was awful, leaving large gaping wounds on tree trunks that will cause these trees a lot of stress going forward. A tree specialist would be an important resource for other Twp staff.
49. There are so many trees that are misplaced in community. A person needs to go door to door to find out damage control. Also find another plant yo replace huge trees. Don't think trees need yo be on boulevards especially ehen we ad home owners need to cut grass fhivel snow and pile on boulevard.
50. There needs to be one key person. When astronauts went to the moon, only one person in mission control spoke to them (per shift). That provides consistency. When there's more than one, then no one is in charge.
51. They would be familiar with the trees and know what they are doing.

52. This will streamline the various concerns, requests and demands the residents have about trees. It will also recognize the importance that trees play in our township.
53. To be successful the tree program will need dedicated resources.
54. to coordinate the efforts and ensure that person is up-to-date on the latest knowledge of forestry management.
55. To ensure proper tree health and planning of tree plantings to ensure mature tree canopies
56. "To have a qualified arborist to maintain such an important asset ... knowing what species to plant and how to maintain the existing trees
57. Adds value to Wilmot township"
58. To protect our investment
59. Too many trees have come down in recent years and Let's Tree Wilmot seems to be the only organization focused on increasing the canopy. While I do see seedlings planted along the boulevard, there seems to be no real plan for care once they're in the ground.
60. Trees are vital to our well being, they help clean the air, provide places of shade and also help with noise reduction.
61. We need someone who knows what they are doing. It is essential for us to manage our trees to protect them for threats like the weather, fire and insects.
62. With global warming, we need to replenish the atmosphere, I believe that a person dedicated to the trees we will find that a more significant impact can be made

Why don't you think it is a good idea to create a new permanent staff member to focus only on managing trees?

Common Themes:

- 14 respondents concerned with taxation and general cost
- 17 explicitly think there is not enough work for a full-time position
- Other respondents believe that the current management plan and division of labour works well

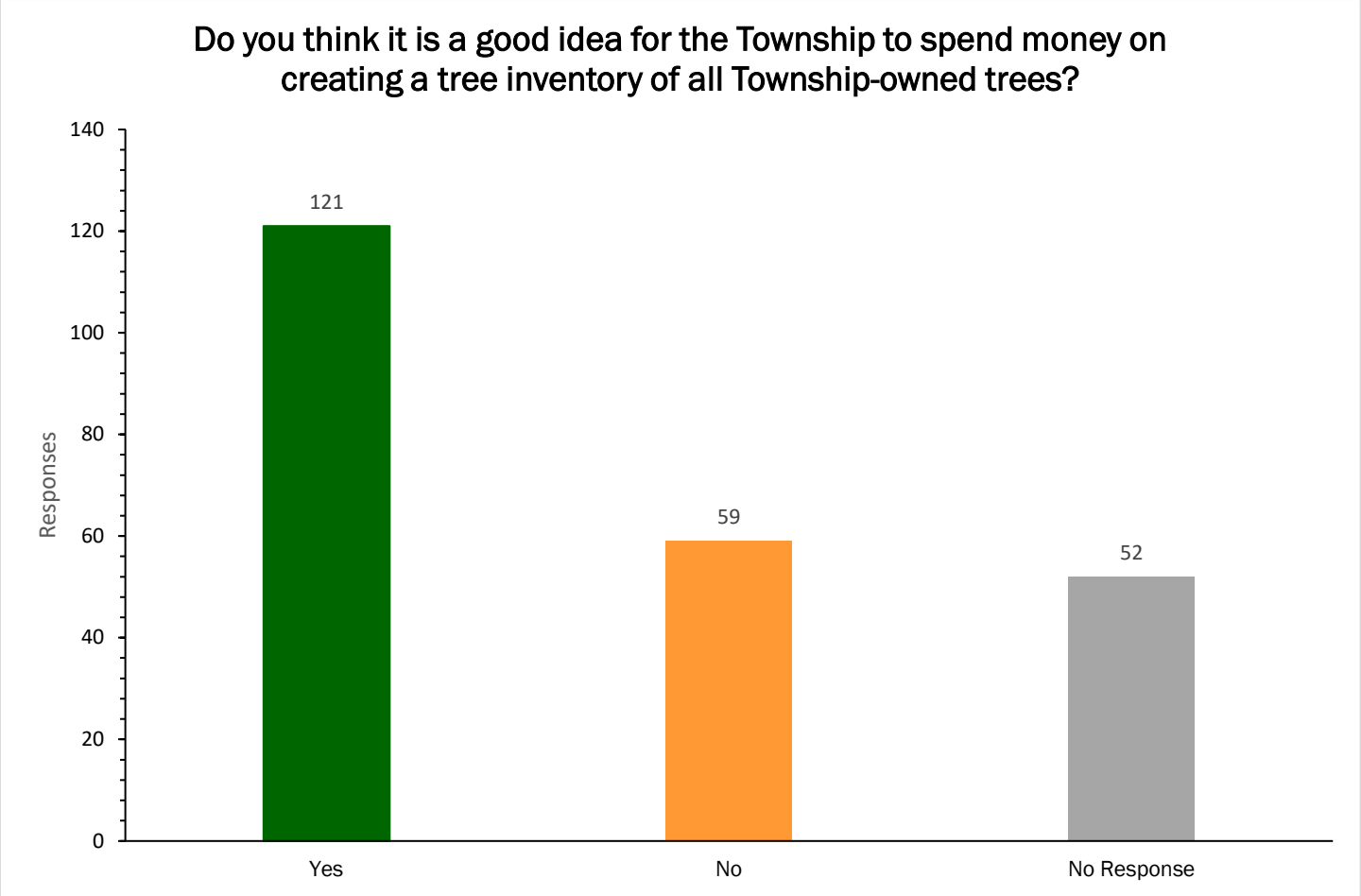
Written Reponses:

1. Already too many employees goofing off. Too expensive to hire more
2. Cost. Several staff members are already doing it apparently.
3. Do not believe there will be sufficient work for a fulltime position. Obtaining the inventory will take a while however after that, will there be enough work for a fulltime position?
4. Do we have that many trees that it would require a 40 hour a week employee? Would this employee plant new trees? Last I looked it took four people to remove my tree and three people to plant my new tree. At the moment I understand we contract out for new trees, so is this a cheaper option than hiring a new permanent employee and then probably contract out still for the removal and planting of new trees. I can't see the one employee doing all that work.
5. Engage the services of an arborist to consult as needed. They can slso oversee work. We do not need a full time tree person.
6. Fiscally irresponsible to have a dedicated staff. Tree management should be combined with other parjs and planning functions.
7. I am assuming that this position does not actually do the work of pruning or felling problem trees but rather makes recommendations for what should be done with said tree(s). I do not think that this job requires a full time permanent position. However, if the position is to employ a person to make recommendations and complete the work that sounds more reasonable to me, but I am still not sure that would warrant a full-time position.
8. I am sorry but I am skeptical about saying we should create a new permanent position in any government because I believe government is not efficient and spend taxpayer moneys too easily. The township should

look at there current employees and I am sure there could be efficiencies found. I believe the township has just hired a number of new positions and I seem to see the sign at the Castle asking for more. Although I think trees are important I want our money spent wisely.

9. I feel like maybe this isn't a full time job on its own.
10. I feel this is not the time to make this a permanent job With Everything going up We can't afford to have higher Taxes If times were better it would be better but not now
11. I our tax rates have gone up already. I don't know if this position would make sense knowing there are other things the township needs Tm right now.
12. I think maybe you should consider paying your current employees competitive wages so they don't keep leaving the township for other municipalities before you hire new tree watchers. Also, when you ask this question you should probably explain to people what the salary would be and how the other people who are currently doing that job would otherwise be using that paid time.
13. I think there is only so much money to go around and working smarter in existing positions could hopefully make room for tree management .
14. I wonder if this role needs one full time and perm staff member, or best to have tree canopy be a part of another staffer's portfolio? Also, budget is a concern ... are there better things to be spending money on?
15. In a perfect world yes but right now we cannot afford it
16. Is there enough work in this position for one person? What are the shortfalls of the current staff oversight?
17. It could be very costly and I don't know how big the job is. They would also need to understand other services. Someone should oversee the trees but I don't know if that is the only thing they do.
18. It does not seem to warrant a fulltime position, year round.
19. It is hard to pick yes or no not knowing in full what this potion would cover. I do not think managing trees alone requires a permanent full time position.
20. Money better spent on other environmental needs of the township. The tree inventory should be part of existing jobs.
21. No money should be spent on tnis. People in this community are managing the trees on their own properties.
22. Not necessary. Roads depart can see where the dead ones are.
23. Not sure that this is an ongoing full time position
24. Only create it if you feel you need specialty training or equipment to do a better job. I see townships add staff when realistically the existing staff can absolutely manage additional tasks. (I see people drive around town and there's zero hustle. So if it's a time thing then def not).
25. our taxes are already too high
26. Our taxes are too high now. The increase this past year was ridiculous!
27. Probably a common guideline and framework for solutions/operations between different agencies would be enough. And much cheaper.
28. Stop trying to regulate and control private property.
29. That doesn't seem like a fulltime job to me - busy in the summer managing trimming & whatnot, but what do they do all winter?
30. The landscaping department and engineering should be able to handle such an issue.
31. The man I talked to about a really old tree on our Blvd took great care to check it out and stabilize it
32. The plan is working now - is it really a full time year round job?
33. The trees only need limited maintenance which is already dealt with by professionals.
34. There could be other tasks for that person once trees are trimmed and then maintained.
35. This can be jointly managed by parks and public works without the additional salary of another full time staff person.
36. This township is renowned for wasting money. Maybe better to have more bodies involved in the care of the trees, instead of one person. Perhaps by staff working together ideas can be discussed instead of one person arbitrarily making decisions that may or may not be very good.
37. Township should find the time within it's existing staff.

38. We have been successful the last 20 yearts without someone, why start. Area isnt increasing. Hire consultant if need one.
39. Why waste money when we can manage the trees ourselves.
40. you want another tax on us? hell no



Why do you think it is a good idea for the Township to spend money on creating a baseline tree inventory of all Township-owned trees?

Common Themes:

- Increasing population necessitates an inventory of the current trees
- Inventory will help plan for the future growth of the township
- Positive outlook on an inventory but concerned about taxes/costs
- Track disease and invasive pest species
- Improved management efficiency

Written Reponses:

1. An inventory shows not only what you have, but it gives a marker to where you would like to be in the future. As it stands currently, the Township seems indifferent.
2. As the township becomes more populated, trees help counteract the environmental effects of urban development. Balance is necessary.
3. Because if not spending money on trees yhen could spend money on fixing problems. Also we should be able yo cut down huge trees ourselves if township doesn't know if it's theirs or not.
4. Cant fix or improve what you dont know.
5. City expansion is inevitable, and keeping inventory will allow us to keep track of the species still around, and when did we get most trees cut down.

6. Depending on how much it costs
7. Establishing a baseline is vital to measure progress or failure.
8. Got to know what you have to know where to work on improvement. But, as long as it is cost effective to inventory, it's a challenging economy right now and there is need to keep tax increases low
9. Hard to know how to manage something if you don't know what you have!
10. Health of trees, care maintenance, replacement and growing our canopy
11. How else do you monitor their health? If the township actually saw what poor shape some of their trees are in, they would be far more careful to protect and care for these trees. What you do not know or see, you do not know or see.
12. "I think this is an amazing opportunity to take stock of what trees are where and to subsequently plan planting around trees the species that are known to work well alongside them to attract species to the soon-to-be mini oasis.
13. However what may be the most effective is for each individual to dedicate a couple hours a day/week collecting tree seeds and growing seedlings of local native trees."
14. I would expand that to all properties. Replacing existing forest ecology with tree planting is not a good option. It can take hundreds of years to rebuild that complex system. I might therefore expand the scope of trees to forests.
15. Identification of dying ash trees would be useful in planning for replacements with appropriate natives. Native species that are appropriate as canopy trees are becoming more locally available, and should be used as often as possible as they can be important larval host plants for the 400 plus Lepidoptera species (moths and butterflies) native to Ontario that are in turn necessary for the survival of our native birds and other species. In addition it would be wise to stop planting Ivory Silk lilac, Callery Pear, Norway maple that are now known to be invasive. A good ecologically informed plan could be put in place.
16. If there is a disease or invasive insect problem, an inventory could be a way to track the impact and tree loss, and even report the impact to the MNRF. It would also be a way to ensure there is a variety of tree population in any given area (diversity builds strength within the canopy and makes it less susceptible to disease deforestation).
17. If this is a necessary step in making good financial and environmental decisions, then it should be completed.
18. If we know what kind of trees and how many then we will have the appropriate information to make the right decisions.
19. If you don't know what you have, and what you don't, you don't know what to plant.
20. Inventory is critical information.
21. Inventory would help ensure trees are cared for and it would help manage risk and identification of disease, help manage budget for capital funding for replacement tress and future planning for more trees
22. It is a starting point so you know what is happening with the trees in Wilmot, where more trees are needed, the health of trees, the variety of trees and more. Then planning and budgeting for the health, safety, and sustainability of trees is based on fact and not conjectures.
23. It makes sense
24. It might be good to know what species of trees the township has because if there's a new pest/disease that is going to kill certain species, it might be easier for the township to get funding from other forms of government to deal with the removals and to plant other species of trees.
25. It will be good to have information that will enable the Township to make the best possible decisions for managing the environment.
26. It would be good to monitor the health of species under duress - remember elms, now ash, and now oak wilt is in Ontario. An inventory could advise measures to protect trees, and plan for replacements. We also have many outstanding trees, hundreds of years old. We even have the largest of one species in Canada.
27. It's an important resource. Need to know what trees we have and how many trees will need to be replaced as more pests come to Wilmot township such as oak wilt.

28. It's hard to assess and manage tree stands if you don't know what you have (species, age classes, incidence of invasives)
29. Just like a business, it's good to know your inventory. This forms the basis of your data - need to know how many trees are township owned so you can start allocating (or not) budget and resources to this area.
30. makes good financial sense. Trees are the health of our future. We should know what species of trees are in wilmot
31. need costing to make a proper decision as to yes or no
32. "Need to know in order to understand what!s lacking and then plant the gaps, weed out the dead wood .
33. Proactively manage for pest, disease, fire, urban sprawl"
34. Not ALL trees, but a scientific quality assessment of the forests and trees, with a goal of location, understanding where some historiccal trees (are there any left?), health and the reforestation of areas.
35. Once the Township knows which treea belong to them then they will be able to better maintain the health of the trees.
36. "Presently the WRDSB is doing this
37. If managed and treated properly they last longer
38. Trees are an expensive asset"
39. Required as part of a tree management plan
40. See answer above.
41. So that there is a baseline to measure improvement against.
42. So they can be properly maintained, could end up more cost effective than replacing
43. So they take care of what they have and no repeat the same areas or work
44. The inventory would help decide what, and how many trees to plant. The amount of money to be spent should be modest. Use of volunteers should used.
45. The inventory would help the Township keep track of, and care for their trees. Perhaps volunteers could play a role in this inventory establishment, if costs are limited.
46. Then we would know which trees are native or not which would help in making decisions about tree-planting choices. We would know where gaps are in our canopy and could set goals.
47. There has to be a starting point in order to measure changes
48. These questions are misleading. The Township can still create a tree inventory without actually spending township money on a tree inventory. They can work with community groups as well as apply for money to do this. There most likely is people that would donate towards this activity as well.
49. They are natural capital and natural assets to the Township. Therefore we should have an inventory of the trees and it is also important to know what trees are in the Townships inventory in order to manage them properly
50. They have wasted my tax dollars on other stuff.
51. This is planning for the future by putting your money where your mouth is. Trees usually don't have a dollar figure attached to them, but they really should.
52. This will allow for maintenance of current trees and help decide where to plant more trees.
53. To have an idea where plantings should take place
54. To keep an eye on what trees need trimming and where new ones could be planted
55. To keep track of all the trees.
56. Township needs to know what it needs to look after & keep track of it. I'm tired of seeing so many neglected/dead trees along our streets & no one seems to want to step up & fix it.
57. Township owned trees should be inventoried and a replacement cost budgeted.
58. Trees could be checked to make sure any trees or branches might be liable to fall if a windstorm should happen.
59. We have to be able to measure the current status and plan for increasing the total tree coverage in our area
60. We have to know what we have, the health of what we have and the appropriateness of what we have to our geographical area and biodiversity.
61. Why not?? Let's be accurate in the assessment so times for management can be ascertained.

62. Why wouldn't you want an audit of your assets?
63. With dutch elm disease and the ash bore, probably need to know what other possible diseases are affecting the trees in the area.
64. Would understand current status and steps to take to reach goals
65. Yes & No - perhaps that would be accomplished by mostly volunteers within the community.
66. Yes before dead ones cause more damage
67. yes but only if there is a plan to actually do something with the data, track the growth, identify the causes of death (weed eater use in parks and boulevards etc) to make informed decisions on planting trees in the future rather than simply repeating past mistakes over and over which is the current strategy it seems
68. Yes!!
69. Yes. you can not measure, assess and track with out this information.
70. You can't manage something if you don't know what you have. I live at Stonecroft and we have a baseline tree inventory of all of our trees. We keep it up to date yearly with removals and additions and anything else that happens.
71. You can't manage what you don't measure.
72. You have to have an accurate assessment of the situation before you make crucial decisions on the matter!
73. You need to know what you have to manage it. No additional funds required. Use affectively what you have.

Why do you not think it is a good idea for the Township to spend money on creating a baseline tree inventory of all Township-owned trees?

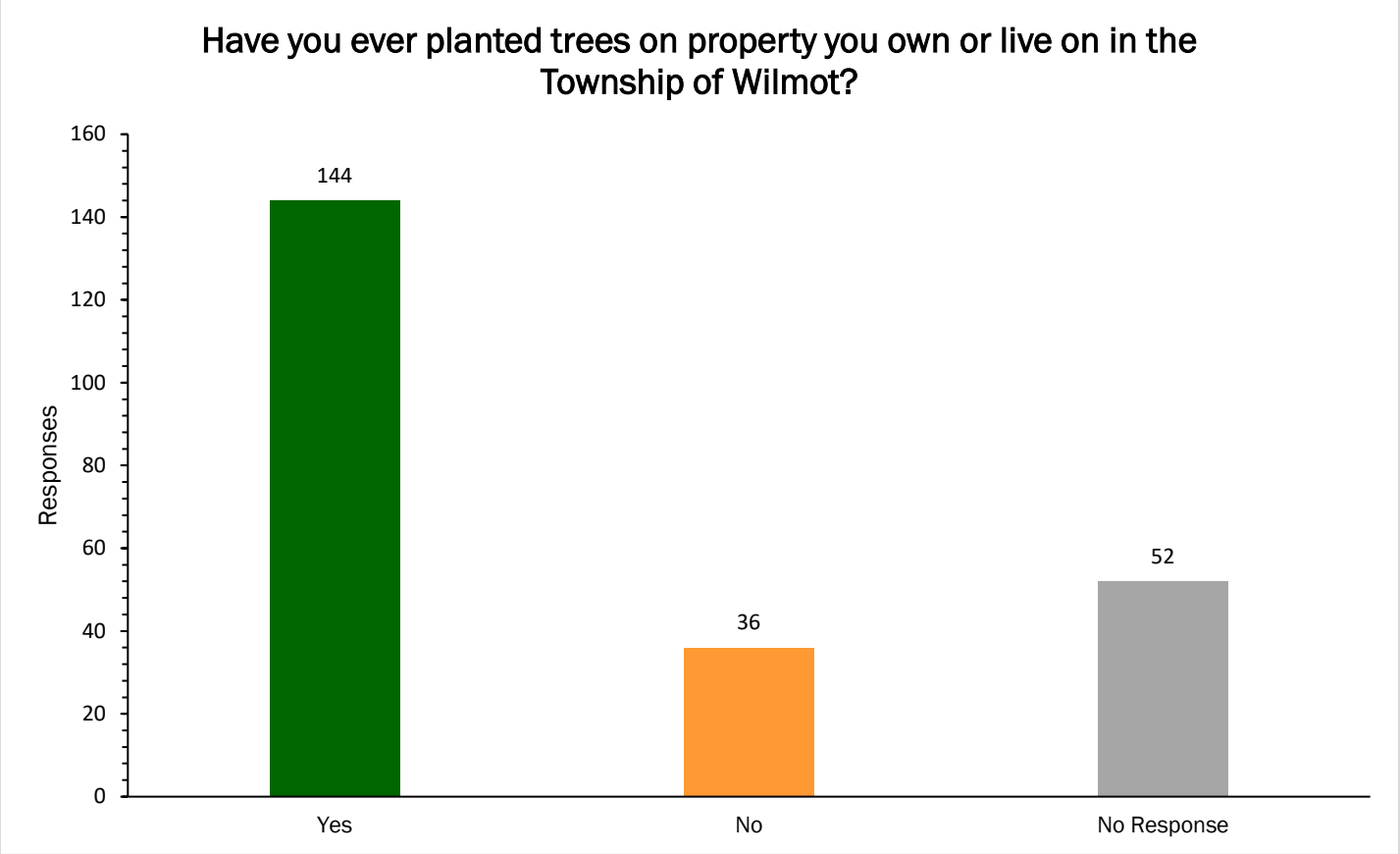
Common Themes:

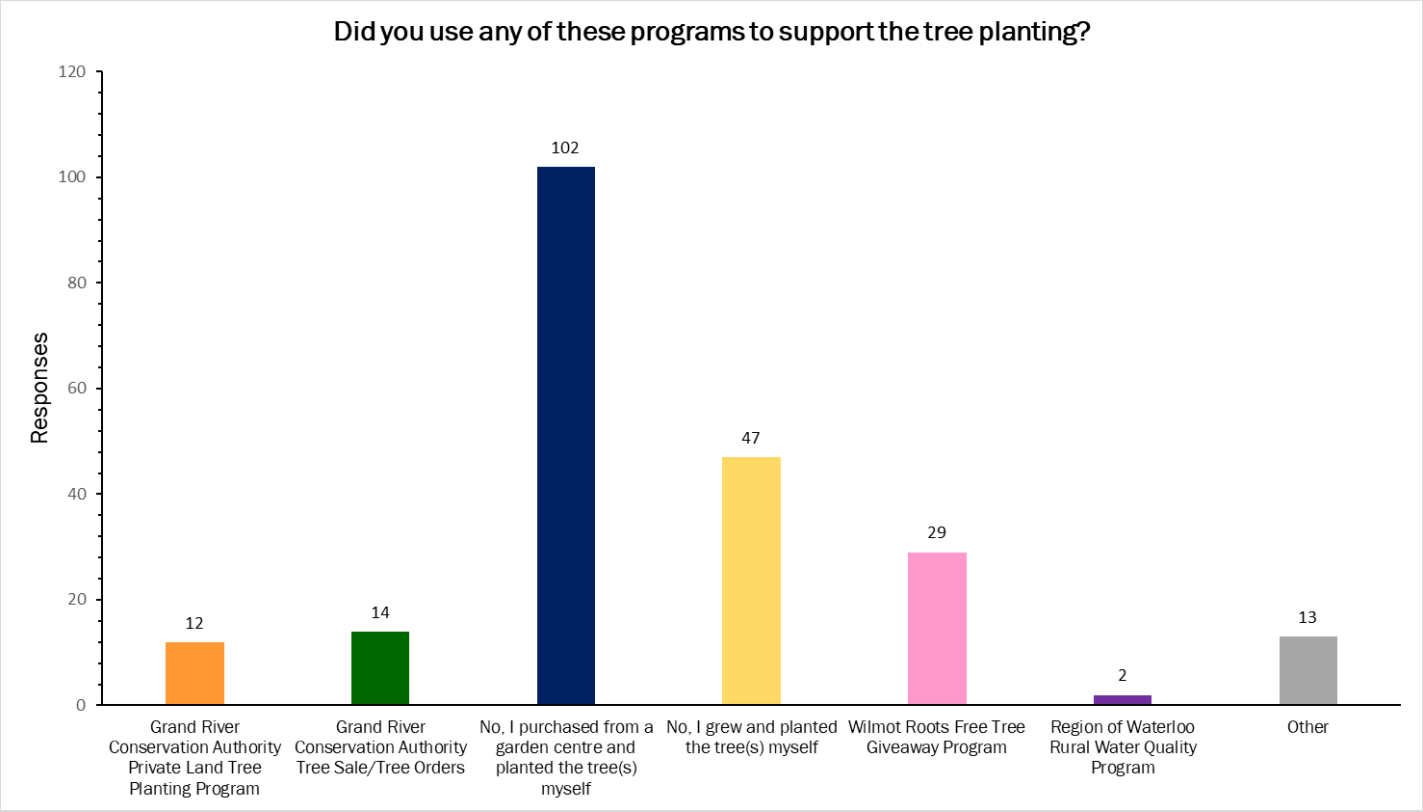
- Cost/tax concerns
- Does not believe reliable inventories are possible
- Does believe in some level of inventory (map, tracking dead/dying trees, etc.) but does not believe an outright inventory is valuable.

Written Reponses:

1. Actually, I think that removing the dead ash trees before they become more dangerous is more important than creating an inventory of a changing population of trees. I have no idea how much time would be allotted to this though - it would have some value.
2. As you mentioned there are staff who part of their job is this area then they can each create a tree inventory in an area of the township.
3. Because it going to fall back on the Home Owners to Pay for it Thing have gone up so bad that we will be lucky to keep our own home
4. Creation takes care of itself without us messing with it. if the township is to spend money it should do so on creating opportunities for our people, protecting our heritage and culture, and trying to give our youth a future.
5. Doesn't even make sense. Can never maintain an accurate inventory. Waste of time and money
6. Dont understand tax payer value in this.
7. How about repair the roads around town before we spend time and money an creating a position to create a list of trees. Absolutely out of step with residents priortites.
8. I don't think enough information has been provided to fully understand exactly how managing trees would be more effective within the financial and operational aspect.
9. I feel the Township should be focusing on the care and maintenance of their current trees and newly planted trees. The inventorying of their forests and boulevard trees should come later.
10. I think that could be incoorporated into the staff member, when hired, as part of their job description
11. I thinks most is good. But not paying for it. Again, I think there are plenty of bodies in the township that can take this on.
12. I'm not sure we need an inventory but at least a location map for maintenance.

13. More important things to spend money on
14. Not effective use of tax money. I fail to see what would be gained from spending money on this inventory. I would argue that most of the trees in Wilmot are not township owned and therefore the inventory is not reflective of the natural existing trees so it doesn't do much to help with maintaining diversification etc. If there are some specific trees of note that the township would like to keep tabs on I see no problem with that,
15. Not sure there is value in this. Replace trees when they are cut down.
16. our taxes are already too high
17. See above comments
18. See above. Managing trees it of vital importance but these questions, without more context, are utterly useless.
19. "Seems like an enormous responsibility
20. If this is doable, then yes, but what a big task."
21. Seems like an unnecessary collection of information.
22. Seems like this could be done without much expense using existing staff.
23. Taxes are already too high. I've already explained that it's unnecessary.
24. The last town council wasted enough of our money, the current township should be focused on saving resources and only spending when it directly benegits the people.
25. The township cannot manage its current budget without increasing taxes, why add more.
26. There are other places that the money should go.
27. This is a waste of money. Bigger priorities in the township
28. This is a waste of money. People manage their own properties. This is spending money pointlessly. I also feel like if a dead tree needs to be removed it will be a money grab by the township because you will have to apply for a license to cut it down. Just stop trying to be like Toronto.
29. Too much tax increase already
30. use the money you already have
31. Waste of money. Too expensive. Tell everybody who drives around in a Township truck to open their eyes.
32. Waste of time and money!!
33. We need to be concerned about all trees not just 'owned by township'

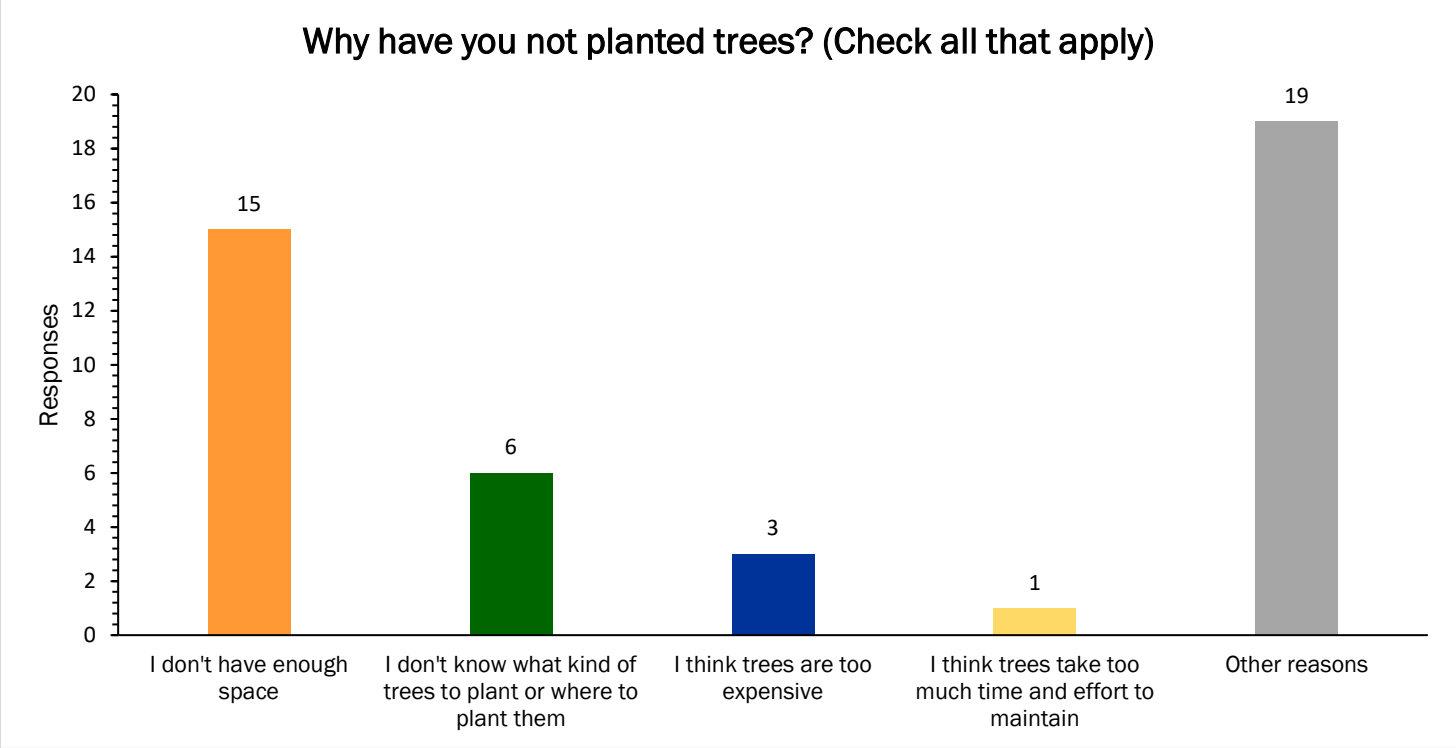

Have you ever planted trees on property you own or live on in the Township of Wilmot?
Responses
160
140
120
100
80
60
40
20
0
144
36
52
Yes
No
No Response


Did you use any of these programs to support the tree planting?
Responses
120
100
80
60
40
20
0
12
14
102
47
29
2
13
Grand River Conservation Authority Private Land Tree Planting Program
Grand River Conservation Authority Tree Sale/Tree Orders
No, I purchased from a garden centre and planted the tree(s) myself
No, I grew and planted the tree(s) myself
Wilmot Roots Free Tree Giveaway Program
Region of Waterloo Rural Water Quality Program
Other

Appendix B – Online Survey Engagement Results
What other programs to support tree planting have you used?

Written Reponses:

1. City of Cambridge Public Works Dept. had a Public Event this Spring gave trees away:) Contacting Cambridge City for arborist to inspect front Norway Maple that's dying and get on list for a preferred tree. Planting free elm sapling soon.
2. From the MCC thrift store
3. Had i been aware of the tree programs mentioned above, I would have used them instead.
4. I purchased 3 trees from Meadow Acres & had them plant the trees.
5. I used the Township of Puslinch tree giveaway program. I planted about 1,000 trees in total
6. Mike Schout wetlands dedication
7. Purchased from nursery and had nursery staff plant.
8. Transplanted trees from another location.



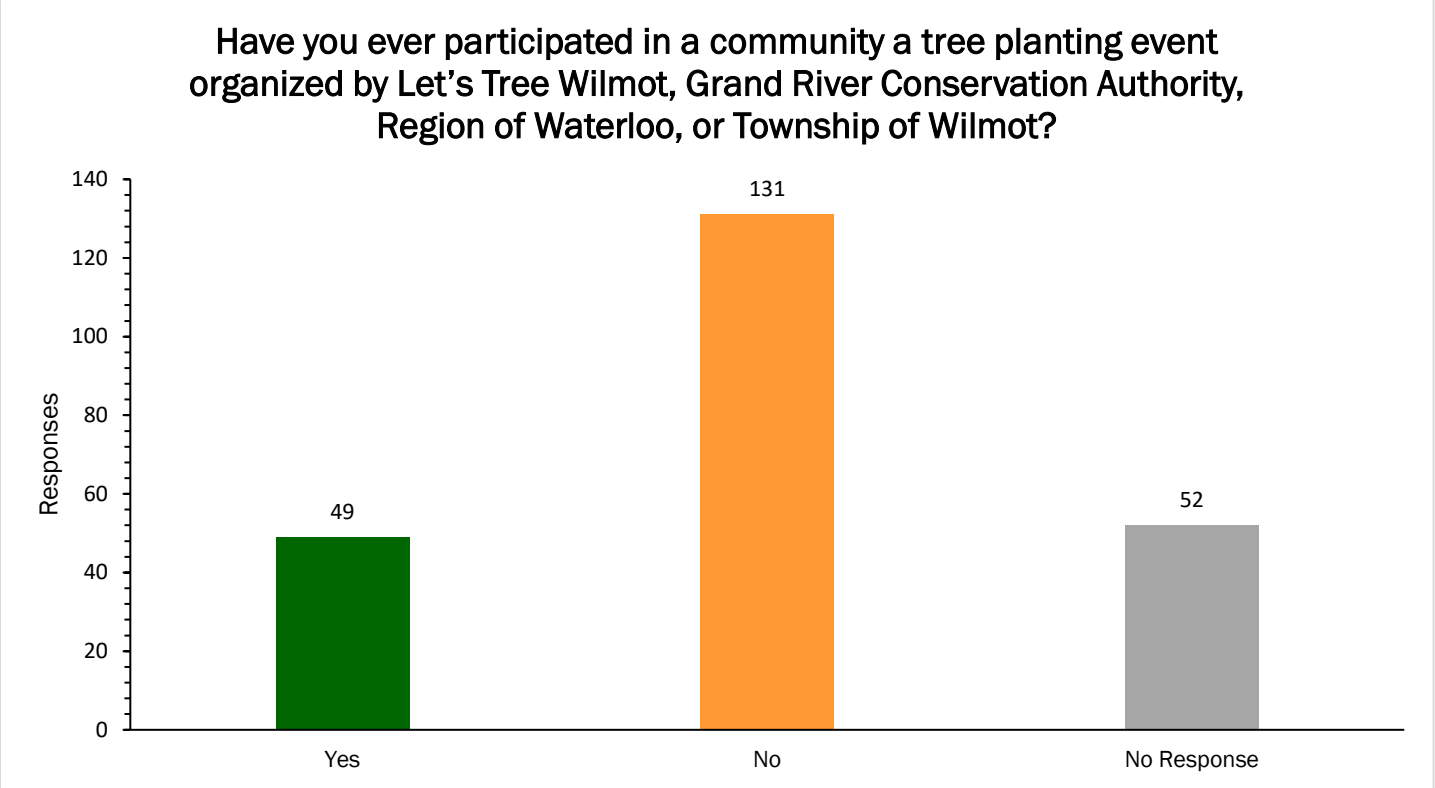
What other reasons would you like to share?

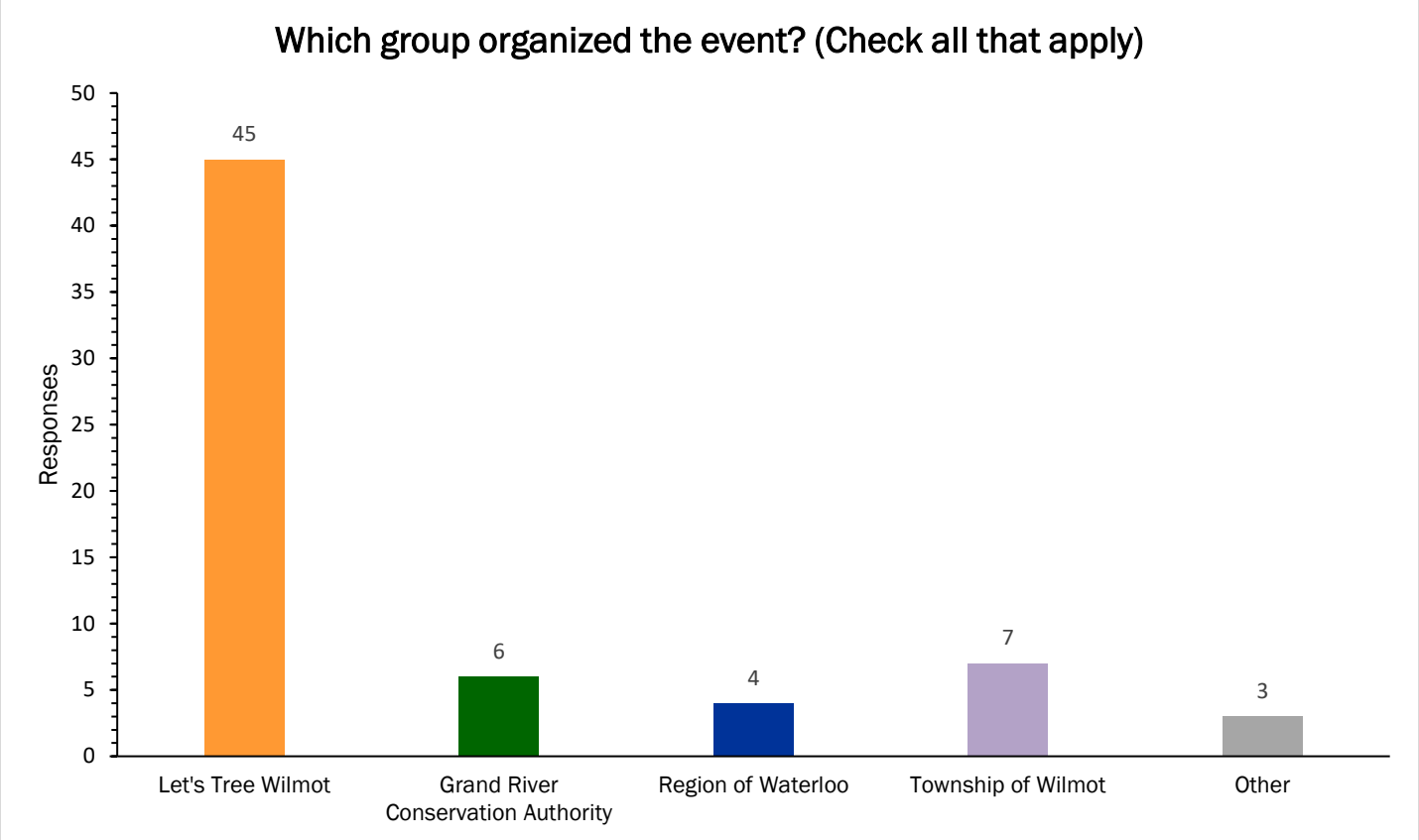
Common Themes:

- 7 respondents rent, don't own or live in a condo
- 3 respondents considering, planning or are open to planting trees
- 1 respondent planted trees elsewhere
- 1 respondent dislikes trees in towns

Written Reponses:

1. 1. i can't afford property here and 2. i can't imagine i'd be allowed to plant a tree on my own property anyway
2. Already have big trees. But I'm considering planting more.
3. I do not own property in Wilmot Township.
4. I don't own land in Wilmot Twp.
5. I live in a condo community
6. I rent where I live but we just got a new tree on our boulevard and my husband and I have taken on the care of it.
7. Morningside owns my property
8. Never been given any info about the town boulevard trees. Found out from a neighbour. If it was readily shared or put in tax or water mailers more people may do it. They just need to know about it.
9. Not necessary, already have some
10. Renter
11. The township did the work.
12. There are already trees on or bordering the property.
13. Trees belong in Forest not on small properties causing damage.
14. We plan on planting a tree next summer.
15. Well I have planted in Fergus, many trees and such, but I am unsure if that is in the township...


Have you ever participated in a community a tree planting event organized by Let's Tree Wilmot, Grand River Conservation Authority, Region of Waterloo, or Township of Wilmot?
Responses
140
120
100
80
60
40
20
0
49
131
52
Yes
No
No Response

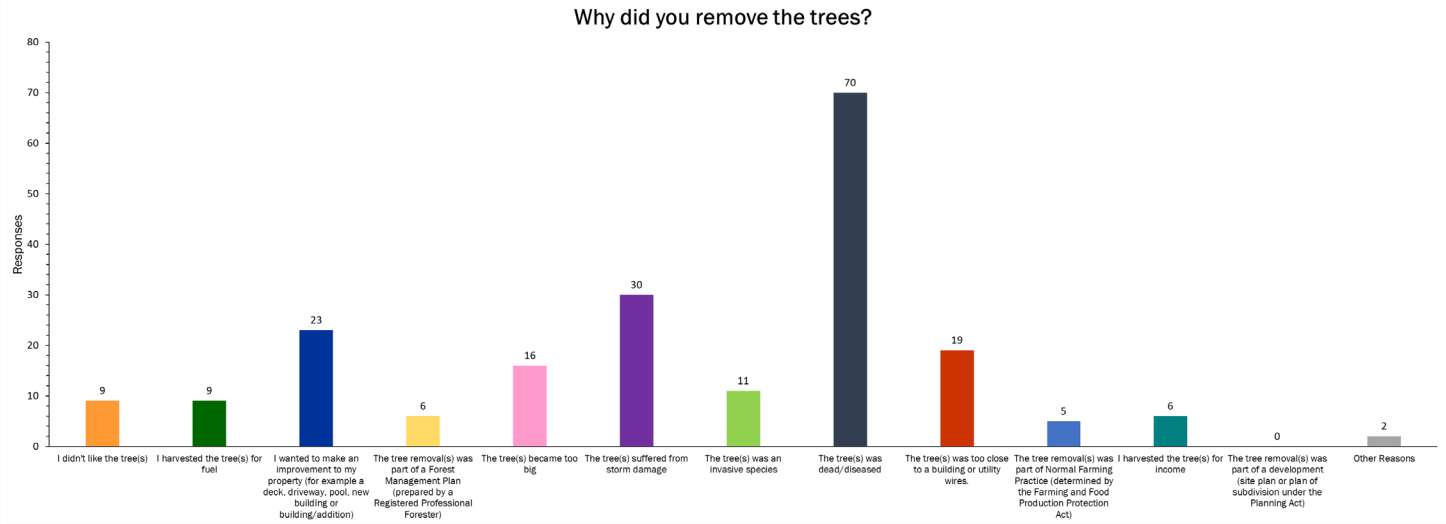

Which group organized the event? (Check all that apply)
Responses
50
45
40
35
30
25
20
15
10
5
0
45
6
4
7
3
Let's Tree Wilmot
Grand River Conservation Authority
Region of Waterloo
Township of Wilmot
Other

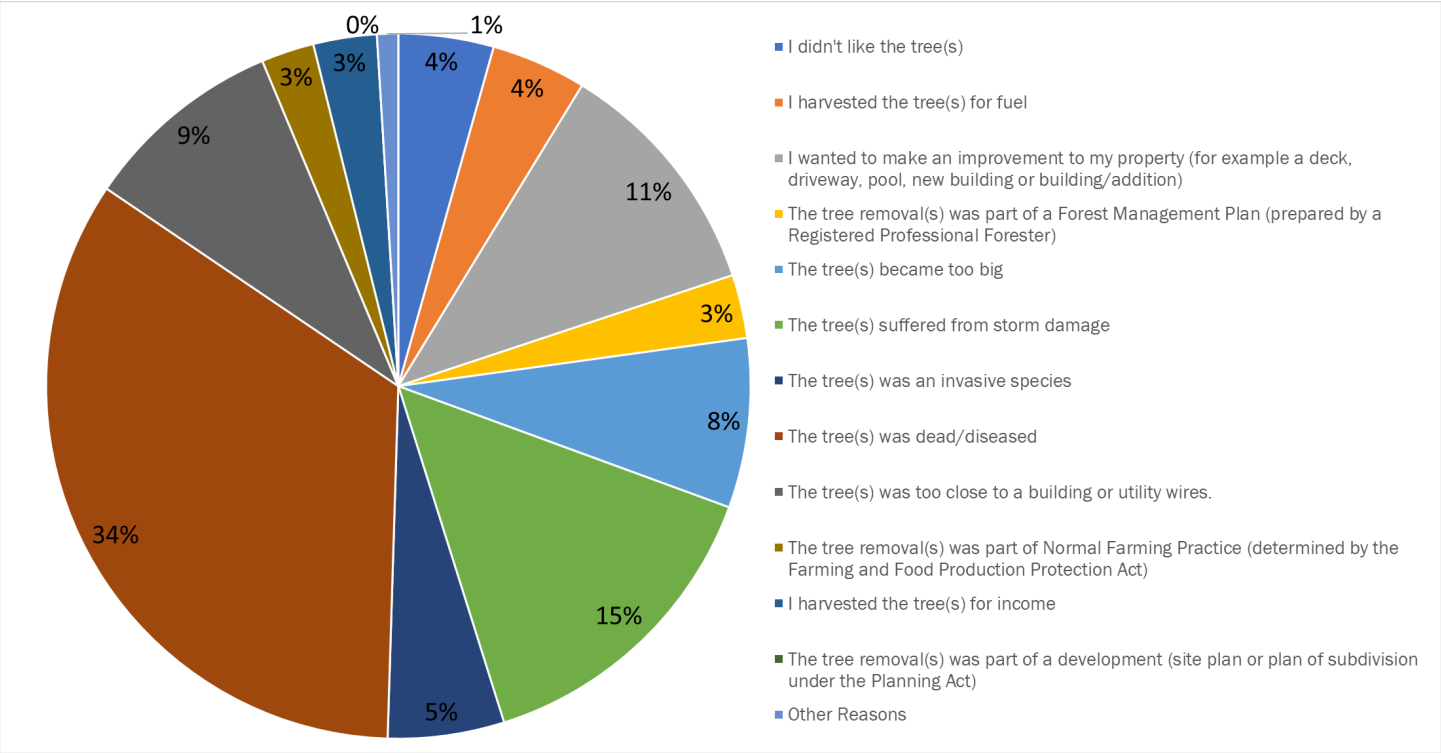
Please provide the name(s) of the other organization or group.

1. It was in collaboration with the Church on Hamilton Rd.. We planted a fruit forest.

Would you be interested in participating in a tree planting event?

Why did you remove the trees? Check all that apply.

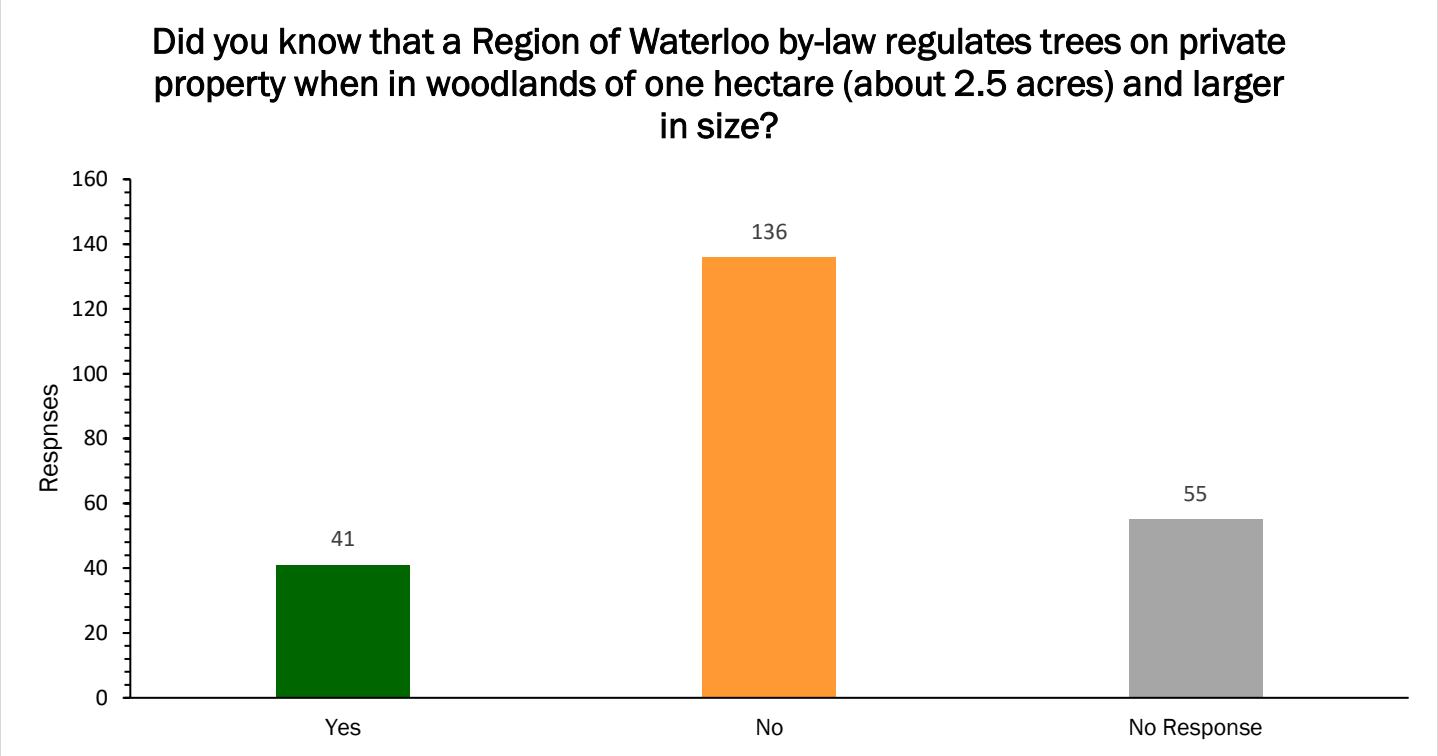


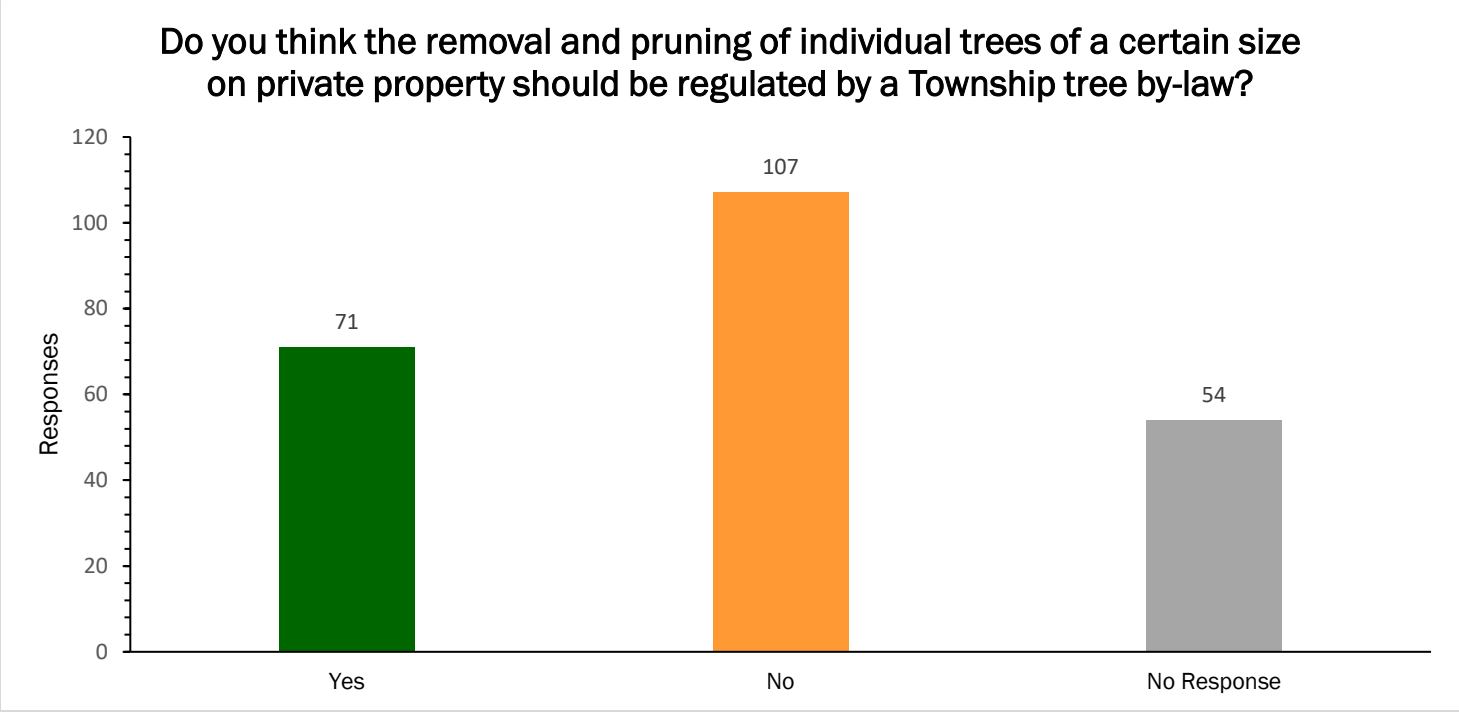


Please share other reasons why you removed trees.

Written Reponses:

1. Apple and walnut because it lessened my workload
2. Tree was crowded and had become misshapen and unsightly. (Post-survey, included within I didn't like the tree(s)).


Did you know that a Region of Waterloo by-law regulates trees on private property when in woodlands of one hectare (about 2.5 acres) and larger in size?
Respnses
160
140
120
100
80
60
40
20
0
41
136
55
Yes
No
No Response



Why do you think the removal and pruning individual trees of a certain size on private property should be regulated by a Township tree by-law?

Common Themes:

- Concerns about health and safety (i.e., private homeowners not caring for their trees and creating hazards)
- Concerned about homeowners indiscriminately removing healthy trees
- Believes in regulations regarding removal but is apprehensive about pruning
- Believes in protecting the current tree canopy of Wilmot

Written Reponses:

1. A neighbor cut down very mature trees in his back yard and it changed the air flow in neighboring yards. We have seen significant damage to our trees during winter storms as a result of these actions.
2. also a good regulation for developers
3. An arborist's professional input might save an otherwise badly pruned tree from having to be removed entirely.
4. As previously stated, our forest cover is tiny. Even smaller collections of trees can create valuable understory references
5. As stated previously, trees must be protected because of their value. Legacy trees have existed long before the individual who may "own" them because they have title to the land on which they grow. Trees serve the good of humanity.
6. Because it would ensure that we maintain a certain number of trees in Wilmot Township
7. Because neighbor's either can't afford or don't care if trees fall on other people's building. Maybe eas there when they bought house already. I rake leaves every year from neighbors and townships trees. Not happy !!!
8. Because trees provide benefits I described to all of us. I see people remove trees for no reason. If they do remove a tree for a specific reason, they should have to re=plant 1-2 trees to replace. In my area of core Baden, many trees have been lost by old houses being torn down and replaced by rental properties. I understand the need for more intensive housing, but developers should have to save and/or re-plant trees.

Some do, most do not. I also see home owners simply cut down trees they don't like, and not necessarily replace. And it takes 20 years, at least, to see the benefits of the new trees.

9. Because we all depend on interconnected ecosystems and the main issue is our desire for territory that fractured the whole garden of eden in the first place. However I feel empathy is the only way out of territorial urges so I hope the private property people understand how vital this is.
10. Gotta let them grow appropriatekt. Trimming too close can kill a tree
11. I do not think the township should interfere in individual home properties other than large ones that might be developed. We have to pay more attention to our environment and trees are important to that.
12. I don't think trees should be allowed to be cut down on private property UNLESS they are dead/dying or if the private property owner replants trees in other places to make up for it
13. I feel that large stands of trees should be saved and not removed for profit or sprawl. However, I do think that a homeowner has the right to decide what level of comfort they have with trees on their property. A certified Arborist would be beneficial to assist and educate homeowners with their trees. Trees are very important to our environment and landscape.
14. "I hesitated to say yes to this question, particularly as it relates to pruning. However, I also know of a number of people that have had large healthy trees removed, simply because they wanted a 'clear' view of the back of property.
15. One persons decision of the moment does not take into account the history of the tree/ the food and shelter it provided to our animal neighbours and its impact on the neighbourhood.
16.
17. 'Regulation' seems like too much, but education and advice may be the answer"
18. I think there is a balance to be found between forcing a homeowner to pause & consider whether the tree needs to be removed, and just letting the owner do whatever they want. As long as it's not a horrible process to have it approved, I think it's a reasonable request of an owner to consider more than just their own opinion in managing their trees.
19. If healthy, I think heritage trees, trees of special interest, and trees over 50 years old should be restricted from wanton removal or aggressive and damaging pruning.
20. If your thinking of the health and long term growth of the trees, this policy would be beneficial.
21. I'm not sure what the rules are, but I would hope that there would be some rules to protect me from a neighbour's tree that poses a safety risk to my house and/or my family.
22. In a way I think so especially if they are old substantial trees or if the tree is diseased then I think the township has a responsiblity to have them removed to prevent any spread of the disease to other healthy trees
23. It only makes sense to save large or older trees.
24. Lends towards good management
25. My concern is the uninformed individuals could and do remove trees unnecessarily. I had a neighbhour cut down a tree on his property and killed a street tree in front of his house becaue he didn't want the leaves falling in the Fall!
26. Not sure.
27. Preservation of particular 'mother' trees, genetic diversity of native trees, and the benefits of a tree canopy are important for our local ecosystems.
28. Safety. There were five dead trees for years near where i live. One finally fell down in a windstorm. Thankfully no one was injured or killed.
29. Safety: the proper removal/pruning of large trees should be regulated when there is risk of injury or damage to those other than the property owner.
30. Some folks don't seem to care or be knowledgeable of how removing a tree impacts their neighbours and the local ecosystem
31. Some of the trees in Wilmot are quite large and old. They could come down in a bad storm. take out power lines and possibly do a lt of damage. they need to be monitored closely.

32. Some residents don't know how to care for trees, or simply have no desire to. They also sometimes don't have the ability to whether it be from mobility, age, sickness, etc. When this occurs, trees can become overgrown, a safety risk during storms, or stunted growth simply because they weren't pruned properly. If residents have questions or concerns about property trees (like boulevard trees) it would be nice to be able to get a consultation about the health of the tree or address whether to remove it or not.
33. The role trees play in our world is so obvious - we MUST start paying attention to their importance NOW. We MUST prevent healthy tress from randomly being cut down by home owners - PLEASE get on this asap.
34. There is a tree in the yard if a house at Wilmot and Bleams that should be trimmed. It very hard to see cars coming up Bleams, both driving and walking. (It's the corner house that had the garage fire)
35. They should be pruned/ removed in town because the lots are so small.
36. This question is not written correctly and will get skewed answers. You say "removal and pruning". Many people may agree that there should be a free by-law for removal but not as many will agree you need a by-law for pruning. By using the term and you will reduce the amount of "yes" answers to this question and therefore skew your results.
37. To ensure it is done safely and assess impact to neighbouring properties.
38. To prevent clear cutting and irresponsible removal of trees.
39. Too many people cut down perfectly good trees only because they don't like then any more.
40. Trees are a valuable asset for all people not only of the land owner. Some people remove trees for various unimportant reasons causing destruction to the environment
41. Trees are critical for the greater ecological good.
42. Trees are important to the overall health of our community. Not everyone appreciates the need to keep tree canopy. But this is also a fine line of private property verses community concerns. That's a hard one
43. We need to preserve those mature trees that support biodiversity snd are healthy.
44. Well if recommendations are made by an expert arborist then i would expect that it would be in the interest of safety and welfare of the land owner and the tree.
45. What if the tree overhangs on the neighbor's property. A by-law would enforce regular maintenance as we have with our lawn care.
46. When they cover sidewalks and power lines
47. YES. Neighbour has indiscriminately cut down 2 mature trees and not replaced them:(

Why do you think the removal and pruning individual trees of a certain size on private property should not be regulated by a Township tree by-law?

Common Themes:

- 34 respondents explicitly concerned about private property rights
- Many other respondents concerned about regulations and bylaws in general
- Some respondents believe the township should focus on public trees first before addressing privately-owned lands

Written Reponses:

1. As we pay taxes and own the property, doing what we want with trees should never be regulated.
2. Because I own the land so I should decide what happens on it.
3. Because it is private property. On boulevards, of course, as that is township/regional property.
4. Because it is private property. Homeowners can decide what is best and don't need government to tell us what to do.
5. Because itbis private property .
6. Because it's on private property.
7. Because it's private property

8. Because it's the homeowner private property, their choice what to do
9. because the Township has no demonstrated expertise in tree management - look at the trees in parks and boulevards and you'll see that the Township needs to take care of its own trees first before worrying about what private property owners are doing.
10. Because they are on private property and not the townships concern.
11. Because you said it right there. It's private property. You have no business there. The home owner takes the responsibility. If I buy a tree and spend 800 or more and you come cut a chunk out of it you better believe You'll hear about it.
12. Farmers have education resources regarding trees. They need to prune and cut trees when they start to interfere with agriculture production without another "red tape" layer. Regulation around clear cutting may be required. Same rules for farmers and developers must apply. I find urban people are less knowledgeable about tree management.
13. Home owners grow trees for different reasons - shade, privacy, fruit bearing, shape, texture and colour. Only if the trees became a problem to neighbours, or to township land should the township be regulated.
14. I could see removal being regulated maybe but regulating pruning is just silly.
15. I don't have a strong opinion on this question.
16. I scanned the Perth bylaw. It looked expensive for property owners and intrusive. Property owners shouldn't be obligated to maintain trees.
17. I think it would really depend on the situation. I'm sure it will upset some people in regards to the township removing trees on private property
18. I think people are smart enough to make their own decisions in regards to what is on their property.
19. I think that encroaches on what the private property rights of home owners and as such a very compelling case would need to be made for why that is appropriate in all circumstances to require a by-law.
20. I understand the thought behind this, but I think there's better way to go about trying to get people to keep trees on their property. I feel like this is a big city way to deal with this issue. I think the best way to approach this is to educate people on why having mature trees on their properties matter. Or/and giving people incentives to keep their trees. Please don't have another by-law. This is so not a small town way to deal with concerns.
21. I would hope the property owners would be able to maintain the tree on their property. The township needs to improve in looking after the trees in boulevards in town before they tell property owners what to do.
22. If it's already regulated by the Region, what's the added value of a township regulation?
23. If the trees are not impacting township property, utilities or right of way, then do not see why the township should regulate trees on private property.
24. If you have paid for your property you should be able to do with it wad you please, although I am a big advocate of protecting our forests. We cut wood in our bush but never cut down living trees and are very careful driving through the bush as to not drive over the new saplings in order to protect them for future growth.
25. If you own property you should be able to prune and trim your own tree. If proven other wise by law should be called to follow through with your "good neighbor" by law to enforce the up keep and if not should be fined
26. I'm not a fan of over-regulation of private property. If the township would like to offer recommendations or best practices, those would be well received.
27. "In a wood lot - yes
28. In a backyard - no
29. I would not want someone else telling me how to prune & look after the trees I bought & planted & care for. We're proud of the trees in our yard and keep them in excellent condition.
30. There are enough trees within the Township on township property that need work or removal that I personally do not feel the township has the manpower to regulated private property (lawns)."
31. It is not up to the township to make decisions on privately owned properties. It is up to the discretion of the land owner to decide what is done on their property.
32. it would add red tape

33. It's an infringement on basic private property rights. But I'll clarify, pruning is one thing, removal is another. pruning a tree which is reaching over a public area is fine, but when it comes to removing trees on private land that's a no. One day I want to plant a regenerative farm with various food-producing trees and if the township thinks it's okay to come in and remove trees they arbitrarily decide should be removed I'll have an issue with that.
34. it's none of your damn business what i do on my property, stop micromanaging the people's lives
35. Its private property educate. Encourage conservacy is most likely to be a benefit.
36. Its PRIVATE property!
37. It's private property. Not township business. Already enough bylaws about what a home owner can and cannot do.
38. Logging of trees is already managed.
39. Lots of time pruning is a choice. Having it regulated might stop people from planting in the first place.
40. More government interference
41. No
42. None ya business what I do with my own property
43. Not enough info provided to answer this question
44. Not your business to manage private property. Don't create a problem that doesn't exist. You guys should manage only township lands and keep your noses out of private property.
45. "Private property is private. It's immoral for the state/any local or larger governing body to regulate what we do on our private property.
46. That's what marxists do."
47. Property owners generally know what is best re: individual trees. Too much bureaucracy to turn such basic decisions over to some regulatory group.
48. Recommendations, not regulations
49. Should be based on each individual case
50. Should be owners responsibility and not suffer extra costs from orders from township
51. The owner of the tree should pay for the pruning of the tree.
52. The owner should be responsible for all maintenance on own property
53. The town ship has enough to attend to never mind sticking their nose in to private business
54. The Township should only remove trees on private property, if they are a hazard or diseased...size does not matter if they are healthy.
55. They are on private property.
56. This goes too far, I am strongly against this.
57. This is a made up problem, fix the roads before we even begin worrying about the trees please.
58. This would become too prescriptive. Stay in your lane.
59. Tough one, on one hand two neighbors in the past few years have removed a well established, healthy tree (pool for one, and just because for the other), which negatively affects the landscape in my opinion. It would be nice to have over sight on established tree removal to protect when necessary, but, honestly this feels like an over reach of government authority to regulate how we garden on personal property.
60. Township already bullies us enough
61. Township needs to focus on the work in front of them. Not create intrusive bylaws
62. Township should assist its citizens on maintaining their safety. I don't want to wake up with the mayor cutting trees off my front yard.
63. Township time and resources would be better spent in larger anning activities.
64. Trees can overgrown a property or crowd each other. They often need to be pruned to maintain health. Or the tree may have become a hazard to the buildings on the site. This should not be tied up in red tape. Perhaps could/should be constraints on removing more than a certain number (for example five or more).
65. Trees on private property should be appreciated when they are there. Township should mind its own trees and business.

66. We already fall under the Region's by-law. I do not think that the township of Wilmot needs more oversight than that.
67. We don't need more regulations put in place for home owners. We pay enough taxes, we don't need to be unnecessary fined. Some trees need to come down before any "permission" can be given.
68. We have enough silly bylaws in this township without adding more
69. We have enough trouble keeping up with the necessary removal of dead/damaged trees. Another layer of time-consuming complication, given that we know what we need to do and just need to find the time to do it, is not an enticing prospect.
70. We need to respect Personal property. There could be a legit reason to wanting a tree removed (safety, construction) so it's necessary.
71. We pay taxes and own our property which includes trees.
72. You cannot look after your own dangerous trees without getting into private property.

Please share any other thoughts or comments you have on managing trees in the Township of Wilmot.

Common Themes:

- General concern for tree health in Wilmot
- Feeling of urgency in regards to dead and dying trees
- Belief that Wilmot could be doing a better job at managing its trees and is falling behind other regions/townships
- Concerns about health and safety
- Concerns about taxes/costs
- Concerns about government regulations and bylaws
- Thankful for the opportunity to give feedback

Written Reponses:

1. Bylaw doesn't enforce existing laws very well now...
2. Create a fruit forest for citizens to pick from
3. Cut down all of your dangerous trees starting with the obvious ones. There are 100's of those to do.
4. Feel the Township has failed with its earlier attempts to beautify the towns & public spaces because of a lack of consistent, knowledgeable management. Room for a lot more improvement in after Care of trees planted.
5. FYI, the reason I have not participated in a tree planting event is that I have physical limitations. Please help us save our trees.
6. God created all the beautiful trees, and all the fruits, He created us and gave us His law (the ten commandments) we are unable to live up to His law so He sent His son Jesus to take the punishment we deserve and to die on a cross, paying the penalty for our sins. If we put our faith in Jesus the messiah we will be saved and enter paradise for eternity with Him where there will be many trees including the tree of life. Or we can continue to live in sin and enter hell for eternity.
7. I can see if people in town have dead trees on their property then they should be removed and ? Replanted
8. I feel that we must be able to paint a picture of what fully developed Permaculture-based ecosystems would look like, so that people can collectively stand behind a vision of large-scale land restoration. They can be justified in terms of productive capacity and other values. We could be an example of permaculture-based agriculture to the world, exemplifying how to respectfully move away from our stomachs greed to restoring and creating landscapes we would be proud gor future generations to inherit.
9. I sometimes have to walk on the road where it is unsafe because some people do not trim their trees that cover their sidewalks
10. I think the Township could find a way to raise money for more trees in Wilmot (especially if you told the residents exactly where trees would be going) and would be able to find volunteers to help keep the cost of tree planting pretty low.
11. I think the township of Wilmot should focus in rfe
12. I think the township should manage the trees on boulevards before they get too caught up in trees on property. There are trees on boulevards that are dead or have branches too low for walking on sidewalks. Boulevards are technically township property. The trees on the boulevard in Waterloo street need to be replaced, not a welcoming sight at all.
13. I think this is not the right time to do this
14. I think this survey has misleading questions as well as questions that are very close ended. The survey seems more biased towards a certain direction. It is good that this survey is being done but I would not find the results as valid as one might have hoped if certain decisions will be made as a result of the survey.

15. I want nature to thrive and trees to flourish naturally in our town, but i don't want the township or any government body to regulate what i can do with my trees.
16. If the goal is to create useless regulations to create problems and promote jobs (property taxes) I'll always be against it. The city helps a lot by not interfering.
17. If the position is held by an expert familiar with the lical
18. Impossible to maintain tree inventory. And costly
19. It is an opportunity to show leadership and show our investment in protecting crucial parts of our environment that produce the air quality to sustain our lives on the planet. It is making a statement about who we are as a township.
20. it would be low hanging fruit to educate the community with regards to what they can do with newly planted street trees in their neighborhoods. I am thinking about stake removal and water obligations etc.
21. Keep it simple without too much red tape!
22. More trees the better...need to be managed. Way too many dead ashes still standing. Darn shame...a lotta work to clean that up.
23. My husband is a very concerned and dedicated gardener and has been in each home we have owned. Plantings and vegetation on our small property is very important
24. Not sure if rumour or not, but disappointed in boulevard trees not being replaced anymore. Maybe this decision could be "managed" to be reversed.
25. Park space in Wilmot is in need of repopulation of trees - specifically the arboretum norm hill and Scott Park
26. Penalize the contractors whose workers slash the bark of young trees - the Rec Centre has lots of victims, Waterloo Street is a disaster area, and the recent plantings on Haamilton Rd don't look well.
27. Perhaps dedicate a bit more funding to organizations like Let's Tree Wilmot instead of hiring a full-time position. I know that there are a select few individuals who take the time to water newly planted trees and actively try to teach the impacts we have on young trees like weed-whacker damage (which there is a lot of). Maybe pay them for their efforts? (I am not affiliated with them, I just think some people should be rewarded for ongoing, behind-the-scenes hard work)
28. Please aggressively replant dead or dying trees.
29. Please have watering trucks save the trees that are starving.
30. Please replace trees as they are removed. Keep a close watch on old trees in Scott park and remove dead branches. Replace trees in the Arboretum as they die. Maintain the Arboretum and promote it as a gem in New Hamburg.
31. Put more trees on township property and manage those.
32. Reset your priorities to focus on things that have actual impact on residents.
33. start with getting the Township's house in order and in particular a management plan for the signficant woodlots owned by the Township. dont get sidetracked by private property (outside of development applications) until the Township can demonstrate expertise in tree management
34. Stop over reaching and trying to control private citizens.
35. Stop trying to make issues when there are already plenty of relevant issues to be resolved.
36. Super appreciative of LTW and Marlene K.
37. Thank you for caring so much about our community
38. Thank you for the opportunity for feedback
39. Thank you for the opportunity to participate in this survey.
40. Thank you for the survey...
41. Thank you.
42. Thanks for taking the effort to survey residents.
43. The trees in town are growing wild or xcut down.. If replaced it is with a little stick os a tree that noone fake care and it just withers on the vine. I thinh that if you arereplacing a mature tree the minimum should be a 2" trunked tree so it hase a chance to get established
44. There are dead and dangerous trees along many roadways within this township. I have personally asked for certain ones to be removed and was told they would be. They were even marked for removal. That was many

years ago. They are still there. Someone isn't doing their job. We don't need to hire more of the same. Bureaucracy is already overbearing. Lower our tax burden.

45. This is an important topic and the Township of Wilmot should be proud of their work in maintaining our streetscapes
46. This is another money grab and an interference in people's property rights
47. This needs to be addressed now. Long overdue. Accidents waiting to happen on Peel st over hydro lines.
48. Township of Wilmot would need to develop a plan of getting a minimum of 25 - 30%tree canopy coverage over the next few years. It is the most important task in order to mitigate the climate change
49. Trees are an important investment in the health of our environment.
50. Trees are an incredibly important part of our ecosystem and we should allocate resources to ensure we have a vibrant and healthy tree population.
51. Trees are extremely important for many many reasons and the trees on public land are assets that belong to all Wilmot citizens and should be managed and cared for like any other Township asset is
52. Volunteers can do a lot of this. I volunteer at Stonecroft and would be willing to help the township but not with planting. t
53. Waste of money
54. We appreciate the tree that we got this past spring. I was late with tree ordering so another tree (and I later understood it could have been 2 on a farm) so the extra tree was particularly appreciated.
55. We in Wilmot - (Waterloo Region) are already behind other municipalities who have established guidelines/regulations - we need to get with it!
56. We need more fruit trees in parks
57. Well if they are sick or dead replace
58. Wilmot volunteers are working hard to plant trees in the township We have many, many hard working volunteers. Because of age & health, unfortunately I am not one of them.
59. Would I lke to participate in the Let's Tree Wilmot, of course but unfortunately my health and age have different ideas.
60. yet another reason why i'm getting out of WilNot township asap, trying to spend my money on another position just to regulate my life a little more.

Appendix C – Recommended Edits to the Infrastructure Standards and Specifications Manual

5.10 Landscape Requirements

Introduction

All landscape plans for Municipally owned right-of-way and SWMFs must be approved by a member of the Ontario Association of Landscape Architects (OALA).

All concept tree-planting plans for a subdivision:

1. Must be approved (stamped) by a qualified Ontario Registered Professional Forester or a member of the Ontario Association of Landscape Architects (R.P.F. or L.A.). Each submission will be stamped, signed and dated including once reviewed and/or accepted by Public Works and Engineering.
2. Are to be shown on a standard plan in the subdivision drawing set, which shows lot dimensions (particularly frontages), and proposed driveway locations as prepared by the Consultant.
3. The drawing is to provide clear details and shows the species of tree on each lot, boulevard, SWMF etc.
    - The working detail identifying the actual planting locations and all surface features (hydrants, lights, etc.) must be reviewed between the Township Public Works and Engineering staff, consultant inspector, landscape contractor and Subdivider's/Developer's Landscape Architect before tree installation occurs.
    - The actual tree locations must be adjusted, or added as the built environment dictates according to the specifications in these guidelines.

- The drawings must include tree-planting details, tree location with sidewalk or without sidewalk, and general notes with the soil type indicated and a legend indicating tree species on each lot, boulevard, SWMF etc.

4. After installation of the trees a final “as constructed” plan shall be provided in hard copy, geo-referenced ESRI shapefile and/or georeferenced AutoCAD which shall include the database details on the plantings.

Street Tree Planting Design Submissions

Street planting design submissions must include, at a minimum, the following:

1. Show north arrow generally pointing to the top of the page
2. Check for proper orientation and legibility of information
3. Proper street names
4. Key map
5. Title Block
   - Drawing number
   - Drawing title
   - Place for Township review stamp
   - Date
   - Revisions
   - Place for the Consultant’s approval/professional liability stamp
   - Signature over stamp
   - Scale
6. Show all services (Bell, Cable, Gas, hydro, Sewer, Water, Easements, etc)
7. Show all servicing poles, boxes etc.
8. Show all Traffic control at intersections (stop signs, lights, yield etc.)
9. Show distance to from driveways, hydrants, lights, etc.
10. The drawing must include the following:
    a. Tree-planting detail
    b. Tree location with sidewalk or without sidewalk
    c. Type of tree proposed
    d. Planting list including code, common name, botanical name, size, shape quantity, typical dimensions at maturity
    e. General notes with the soil type and size of tree indicated and a legend indicating tree species on each lot, boulevard, SWMF etc.

Tree Protection Plans

A Tree Protection Plan is required for infill, site plan, subdivision applications, and municipal capital projects ~~at the determination of the Township~~. Such plans shall include but are not limited to the following:

- Accurate plotting and identification of all trees on the plan;

- Crown spread, measured in metres on a drawing indicating the appropriate scale, showing extent of tree foliage covering the lot;
- Reviewed and Accepted Grading plan. This requires collaboration of the applicant's engineering and arboricultural consultants;
- Reviewed and accepted servicing plan indicating water, sewer/storm, hydro, gas, bell, cable and any other impacted utility. This requires collaboration of the applicant's engineering and arboricultural consultants;
- Tree protection zone (TPZ) limits;
- In accordance with the Tree Protection Barrier requirements;
- Appropriate signatures in accordance with the Tree Protection Plan; and
- The name and contact information for the arborist responsible for monitoring the implementation of the plan.
- The Township may request additional information in the tree protection plan at the discretion of the Director of Public Works and Engineering.

Street Trees

The Township will promulgate and enforce removal, planting, pruning and protection of trees upon the right-of-way of any street, alley or other public space in the Township.

The specifications below are to serve as the minimum standard for planting of all Street Trees. They will apply regardless of whether the actual work is preformed contractually, by Public Works and Engineering staff, or by private individuals. As with many standards applied on a large scale, there will be exceptions. To avoid unnecessary problems or damage to the Township's urban forest, the Department of Public Works and Engineering must review the exceptions.

Tree Selection Criteria:

Carefully select the species which possess the characteristics which most closely meet the environmental conditions of each site (e.g., Do not select salt sensitive species for high traffic areas).

Other concerns that should be considered include as a minimum:

- Stress - considers the tolerance to conditions such as compacted soil, diseases, drought, insects, and road salt spray.
- Time – consider which species can be transplanted / moved at specific times in the year.
- Native – consider trees indigenous to this region for use as in areas found in close proximity to green spaces
- Fruit – consider the size and season and abundance of fruit produced by some species making them less desirable in specific locations.

- Disease – consider the potential for widespread mortality and costly removal and replacement programs generating public and political concerns with trees such as Norway Maple, American Elm, Ash trees. Avoid mass plantings of a single species.

Tree Size

The Township places a priority on the planting of Large Stature Trees (LST) and Medium Stature Trees (MST) in accordance with the **Error! Reference source not found.** below and the required soil volume to maximize community benefits while minimizing long-term life cycle costs.

Table 0-2 Mature Tree Size

	Diameter at maturity	**Standard spacing**
Large Stature Trees (LST)	≥ 60 cm	~~10~~ 10-15 m
Medium Stature Trees (MST)	≥ 40 cm	8-10 m
Small Stature Trees (SST)	≤ 20 cm	5-8~~7~~ m

Note: Tree stature refers to the mature size of the tree, and not species of trees, recognizing that trees adapt to the site conditions they are growing in (e.g. dwarf cedar trees growing on Niagara escarpment). To maximize community benefits, these standards place a priority on the planting of large and medium stature trees with the required soil volume.

Tree Location

In general, the use of best management practices when locating and planting trees is vital since there is variation in boulevard and site conditions.

Tree planting is to be undertaken in development projects after each lot has been developed and the final grading and sodding completed. For Capital projects, tree planting is to be undertaken after all other surface works have been completed thereby reducing tree stress and mortality.

The overall goal is to plant one tree per lot or one every 8 to 15 metres where practical and where growing space is available. Since large trees contribute more to the environment than small ones, the largest tree at maturity that fits the location is to be planted. The following are criteria will be required at a minimum.

All trees are to be planted on Township property ~~or on the property line~~. Where a tree cannot be planted on Township property ~~at these locations~~, the tree can be planted on the private property in the front of the lot a minimum of 60cm from the property boundary. Avoid planting directly on the property boundary, as this may lead to future issues regarding tree ownership

and maintenance responsibilities.

Lot Width Considerations:

- Where lot width is:
  - Equal to or less than 9 metres, plant one tree per lot selecting a small shade or ornamental tree, depending on spatial constraints from the accepted / approved Street Trees.
  - Between 9 metres and up to 15 metres, plant one tree per lot selecting a large or small shade to ornamental tree, depending on spatial constraints, from the accepted / approved Street Trees.
  - Lot is greater than 15 metres, plant one tree per lot selecting a large or small shade to ornamental tree, depending on spatial constraints, from the accepted / approved Street Trees list.

Curb to Property Line Considerations:

- Where no sidewalks exist or where sidewalk construction is not planned, plant trees 1 meter outside the private property boundary on municipal property.
- Where a boulevard between curb and sidewalk exists, that is greater than 2 metres, plant large to small trees in the centre of the boulevard - assuming no overhead/underground utility or other obstructions.
- Where a boulevard between curb and sidewalk exists that is 1.2 metres to 2 metres plant, ornamental or small shade trees shall be planted in the centre of the boulevard, assuming no obstructions.
- Trees are not to be planted within boulevards, which are less than 1.2 metres wide. In this case – the tree shall be planted in municipal property, between the property line and the sidewalk or on ~~the property line~~ private property.
- Trees must be aligned along the street in uniform pattern (spacing, setbacks) along the entire street to provide a linear pattern. Exceptions to this may be for utility conflicts and intersection requirements (i.e. sight distance) under the review and acceptance of the Director of Public Works and Engineering.
- On streets where the majority of the lots are 11 metres in width or less, the trees shall be placed on ~~the property line~~ private property.

General Requirements/ Consideration:

- Plant only ornamental tree varieties under overhead utility wires~~.~~ In accordance with the Electrical Safety Authority 'Planting Under or Around Powerlines & Electrical Equipment' Guideline
- No tree is to be planted within the required visibility triangle as per Township Zoning Bylaws.
- In all subdivisions, street trees shall be planted either in the boulevard, or ~~if not possible on the property line or~~ on front yards of the property. In all cases attempting to maintain linear uniform pattern shall be the goal. ~~If either of these locations cannot sustain a healthy tree environment, the front of the property will be considered;~~
- Trees shall not be planted on cul-de-sac islands.
- For new sidewalks, to encase a tree, a minimum of 2.5 square metres of porous area is to be left surrounding the tree;

- Trees should not be planted in a direct line with the drainage swale between lots or directly above underground utilities.
- Trees shall be selected to generally - 4.5 meters [15 feet] when planted within 4.5 meters of overhead power lines and 7.5 meters [25 feet] when within 7.5 meters of overhead power lines in accordance with the Electrical Safety Authority 'Planting Under or Around Powerlines & Electrical Equipment" Guideline~~reach a height of 7 metres where power lines exist~~, and a height of 12 metres or greater where there are no power lines, sewers, and water mains;
- Trees shall be resistant to road salt damage if within the 4 metres of the travelled/paved road allowance;
- Not be prone to easy damage by weather conditions;
- Be resistant to common tree diseases (i.e., elm disease, emerald ash borer);
- Shall not be a fruit tree (fruit from tree will fall on roads and sidewalks);
- Certain trees with undesirable characteristics such as fruit, low branches, unpleasant odors, excessively thick foliage, susceptible to disease, or large root systems are prohibited. Willow, Poplar and Cottonwood trees are not permitted. In commercial areas or in those areas in which sidewalks are required or required to extend from the curb to the property line, street trees shall be planted in the sidewalk area in a 1.2 square metre area minimum, adjacent to the curb.

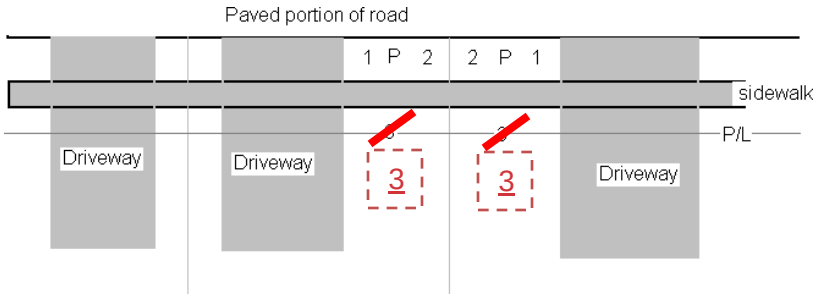
Dealing with Conflicts:

When a conflict exists in the placement of street trees, the following two elements must be considered at a minimum:

- The relocation or alternative placement of the proposed tree, and
- The implications of changes along the entire street.

To evaluate the long term impact of the conflict and if the original design requirement can be met with minimal risk, the following is proposed.

Figure 0-2



The preferred location (P) is the first location, if conflicts look to move the tree closer to the driveway (to maximize separation or equal spacing of trees) and then to closer to property line. If the tree cannot be located in the boulevard (P, 1, or 2) the tree should be moved on the other side of the sidewalk and placed on ~~the lot line~~ private property (3).

If there are a number of conflicts on the street along one side or another, all of the trees should be moved to ~~the property line~~ private property ~~-~~(position 3) to maintain a uniform planting pattern.

Utility Conflict Considerations:

- Where utility items such as pedestals, boxes, street light poles etc are located in the area which conflicts with the overall street tree placement in uniformity with other street trees. To address the conflict, consider the following, at a minimum:
    - Locate all street trees to maintain the linear uniform pattern
    - Create a consistent uniform pattern along the entire street.

Rural tree Locations

1. Standard urban tree planting requirements shall also apply in any rural planting situations.
2. Where a ditch exists the tree must be located on the road allowance, the tree shall be located on the side of the ditch furthest away from the road. No tree shall be planted in the low point of the ditch.
3. No tree is to be planted closer than 2 meters to a driveway, sidewalk going into a property, underground vault, storm or sanitary sewer.

Tree Species and Timing

Only trees noted in the Township's approved planting list are permitted as street trees or Municipal planting.

Generally, native trees are preferred and where possible make up the majority of the proposed tree plantings.

The Township may permit other trees as recommended by a Landscape Architect on a case-by-case basis. Trees with large and/or messy fruit, thorns, seed pods etc. are generally not permitted, exceptions for limited design statements may be permitted by the Township.

Coniferous trees needle-bearing trees are not permitted in a road allowance as a street tree.

All street trees are to be deciduous or broad-leaved trees appropriate for the Hardiness Zone in which Township is located.

Trees with similar shape (e.g., oval, upright) as other surrounding street trees are to be selected to provide a closed canopy effect.

Trees are to be planted as each stage / phase of development continues, and at a maximum, 1 year after the date on the final lot grading certificate.

Trees of the same species can be clustered in groupings no more than 5 trees per grouping.

The Public Works and Engineering Department shall be consulted early regarding the species list and layout. Final list of species and layout shall be completed in collaboration with the

~~Landascape~~ Landscape Architect and the Director of Public Works and Engineering.

Tree Planting

1. All plantings shall be in accordance with the Canadian Standards for Nursery Stock (current Standards) as prepared by the Canadian Nursery Trades Association.
2. Workmanship is to meet standards of ANSI A300 (Part 6) Planting and Transplanting (Current Edition)~~Ontario Landscape Contractors Association~~.
3. Shall include all labour, material and related services necessary to furnish and install all plantings indicated on the Accepted Issued for Construction Drawings or Final Contract specifications. The work includes, but is not limited to the following:
   - **Timing:** Planting to take place during the spring (May 1st or June 30th) and fall (September 1st to October 31st). Planting should consider weather temperature to avoid frost damage and shock to trees. Trees shall not be planted during July or August. Do not plant in excessively wet, snow covered, or frozen soils.
   - **Layout/Setbacks:** Trees are to be planted in such a manner that will not be in conflict with Township or Utility infrastructure or obstruct sightlines/visibility triangles of driveways or intersections. The following setbacks apply for tree placement and installation
     - Major Underground Utilities: 2.0 m
     - Light Standard: 4.0 m
     - Utility Pole: 4.0 m
     - Fire Hydrants: as per NFPA
     - Water Valves: 2.0 m
     - Transformers: 1.5 m to 3.0 m from door openings
     - Driveway Access or Curb Cut: 1.5-2.0 m
     - Bus Stops: 2.0 m
     - Storm/Sanitary Catch Basin: 1.5 m
     - Intersection stop sign: 12.0 m measured from the curb line
     - Sidewalk and other impervious surface: 1.0 m
     - Centreline of any underground servicing connections: 1.5-2.0 m
     - Locate trees outside of the Visibility Triangle Area (Refer to Section 5 for information regarding Visibility Triangles)

     The proponent responsible for the installation of trees will lay out locations of all trees by use of wooden stakes and/or paint, as appropriate based on site condition. Locations laid out on site shall conform to locations proposed in the approved plans. All utility locates, including but not limited to public and private underground electric or telephone lines, gas lines, waterlines, or any other utilities, shall be secured prior to initial layout
   - **Furnishing:** providing the plant material, including delivery to site. Making a concerted effort to minimize the time between the plants being dug in the nursery and the actual time of planting. Protect plants from damage, extreme temperatures, direct sun, desiccation during transportation and storage. Plant rootballs shall be kept in a moist condition.
   - **Planting Soil:** where possible, use existing indigenous soils, except where soils are contaminated or otherwise compromised. Test existing indigenous soils prior use by an OMAFRA Accredited Soil Testing Laboratory in Ontario to determine the quality of the

soils and recommendations for amendment to support the continued growth of plants. Where imported soils must be used, provide testing report to demonstrate soil quality. In tight buffer locations and planting islands with insufficient available soil volumes where trees are encouraged to be installed, consider using structural soils ~~(i.e Triple Mix)~~, structural cells, and/or trench planting methods to achieve the minimum target soil volumes.

- **Soil Volumes:** The soil volume available for root growth is directly related to tree size. Table 4 below details the soil volume requirements for individual trees and trees planted in groups. Establish smaller-stature trees if minimum allowable soil volume is unavailable for the expected or desired tree size at maturity.

	Minimum soil volume for one tree (cubic meters)	**Minimum soil volume per tree sharing soil volume (cubic meters)**
Large Stature Trees (LST)	30	15
Medium Stature Trees (MST)	24	12
Small Stature Trees (SST)	15	7.5

- **Planting Holes:** Circular pits with sloping sides shall be excavated at least 1.5 times the diameter of the soil ball. A soil auger or tree spade shall not be used. The glazed and compacted walls of the planting pit shall be scarified by a shovel or rake to enable improved root penetration into the parent soil.
-
- **Installation:** installing of the plants listed on the plant list. ~~Planting to take place while material is dormant during the spring (May 1st or June 30th) and fall (September 1st to October 31st). Planting should consider weather temperature to avoid frost damage and shock to trees. Trees shall not be planted during the summer months.~~ Trees shall be installed plumb and centred in the planting hole. The root collar must be exposed prior to backfilling, and must be at or no more than 50 mm above final grade. If the root flare is not visible, excess should be removed from around the trunk by hand or using a hand trowel. Planting holes shall be backfilled with excavated or imported planting soil. Soil shall be tamped in the hole in 150 mm lifts. A 100 mm high ring of soil shall be formed around the perimeter of the planting hole. No soil shall be backfilled to within 100 mm of the root collar or around the trunk
- ~~**Mulching:** mulching all trees to a depth of 10 cm. contained in a 10 cm. deep edge keeping the mulch away from the trunk.~~
- **Staking:** staking all trees (in accordance with Township of Wilmot standard drawings), one metal fence stake, or two 2x2 wooden stakes or equivalent are to be used to support the tree for the first two years of growth. Stakes are to be installed beside the root ball so as to reduce potential damage to the roots. Stakes inserted beside the root ball, shall be installed into the sub-grade and tied to the tree using a non-fungicide treated binder twine or approved alternative. Stakes shall be in the direction of

prevailing wind to provide best support. Stakes and ties must be removed prior to the Letter of credit for the subdivision being released or end of warranty for capital projects.

- **Mulching:** mulching all trees to a depth of 10 cm. contained in a 10 cm. deep edge - keeping the mulch away from the trunk. Under no circumstances shall mulch be piled up around the trunk in a 'volcano' shape
-
- **Watering:**
  - Thoroughly watering all trees at the time of planting with water that is suitable for irrigation and free from ingredients harmful to plant life.
  - A water bag (Oasis/Gator bag or approved equivalent) shall be installed, and the ~~Subdivider/Developer~~Owner is to ensure the bag is filled appropriately to provide a constant water source.
- **Information:** The ~~Subdivider/Developer~~Owner is to inform the homeowners of the planting routines and provide information on proper tree care (instruction for watering, monitoring and who to contact) following final acceptance.
- ~~**Planting Holes:** creating a minimum 1.2 metre square planting area or 1.5 times the width of the root (whichever is greater) with a 10 cm. deep edge to minimize grass competition.~~
- ~~**Planting Soil:** using 100% indigenous topsoil to avoid creating container type growing conditions. In tight buffer locations and planting islands where trees are encouraged to be installed, consider using structural soils (i.e Triple Mix), structural cells, and/or trench planting methods to achieve the minimum target soil volumes.~~
- ~~**Soil Volumes:** The following minimum soil volume targets shall be met:~~
  - ~~$30m^3$ for every one or two large canopy trees in an area~~
  - ~~$17m^3$ for every one or two small canopy trees in an area~~
- **Fertilizer:** is not required, if used; only a slow release fertilizer shall be used to promote root development (i.e., 10-25-10)
- ~~**Tree Root Protection:** taking all necessary measures to ensure that the tree roots are protected from the elements (freezing and drying) by proper heeling-in, muddling and proper packing for transportation.~~
- **Debris Disposal:** Any rejected plants, soil, pruning, binding and/or any other material which has been brought to the project site shall be removed promptly, keeping the area clean at all times. Upon completion of the planting, all excess soil, stones and debris, which have not been previously cleaned up, shall be removed from the site and disposed of. All ground disturbed as a result of the planting operations shall be restored to its original appearance or to the desired new appearance. Street sweeping shall be completed once topsoil, sodding, and tree planting is completed.
- ~~**Setbacks:** Trees are to be planted in such a manner that ensures they will not be in conflict with Township or Utility infrastructure or obstruct sightlines/visibility triangles of driveways or intersections. The following setbacks apply for tree placement and installation~~
  - ~~Major Underground Utilities: 2.0 m~~
  - ~~Light Standard: 4.0 m~~
  - ~~Utility Pole: 4.0 m~~
  - ~~Fire Hydrants: as per NFPA~~
  - ~~Water Valves: 2.0 m~~

- ~~Transformers: 1.5 m to 3.0 m from opening~~
- ~~Driveway Access or Curb Cut: 1.5-2.0 m~~
- ~~Bus Stops: 2.0 m~~
- ~~Storm/Sanitary Catch Basin: 1.5 m~~
- ~~Intersection stop sign: 12.0 m measured from the curb line~~
- ~~Sidewalk and other impervious surface: 1.0 m~~
- ~~Centreline of any underground servicing connections: 1.5-2.0 m~~
- ~~Locate trees outside of the Visibility Triangle Area (Refer to Section 5 for information regarding Visibility Triangles)~~

Planting Requirements

These specifications are to serve as a standard for the planting of all street trees. The Township Public Works and Engineering shall review and accept all tree planting on the public right of way.

Municipal capital projects shall provide for street tree planting in existing neighbourhoods only through their annual reforestation program. As the Township is a mix of urban and rural environments, development may take place in both urban and rural settings.

Subdivision, Site Plan and Infill Developments shall provide for street tree planting as part of the Right of Way requirements. Street Trees shall be located on the public right of way, where possible, and adhere to the design objectives, spacing and location requirements of this document. All tree planting on the public right of ways shall be reviewed and accepted by the Public Works and Engineering Department.

No plants shall be dug or prepared until their location is reviewed by the Public Works and Engineering Department. The locations for the trees shall be staked for discussion and reviewed prior to planting taking place.

At the time of planting:

- The typical minimum acceptable tree size is 60 mm (2 in) measured at 15 cm. above the stem flare. (stem flare is the taken from where the stem of the tree from where the roots flare out which should roughly be the soil line depth. On young trees this is the preferred method of measure.) Planting stock smaller than the minimum tree size of 60mm caliper may be considered for naturalization area restoration purposes.
- Trees must be in good health, with no bark scrapes, broken branches, insect of disease problems, heading back, and excessive root pruning.
- Only trees dug with a tree spade and balled, burlapped or container grown are acceptable.
- All trees must be guaranteed for a minimum of two growing seasons.
- The landscape architect must provide the Public Works and Engineering Department a list with the street address and species of trees planted, and the date when the trees were planted (in an Excel Format and as part of the final “As Constructed” plans).
- Replacement trees are to be to the same standards as noted above and must be planted within 6 months. An extended 2 year warranty shall be applied on replacement trees.

~~Street~~ New t~~T~~ree p~~P~~lantings ~~shall be bare root stock, balled and burlapped, or container and~~ shall only be pruned to promote strong scaffold branching i.e., remove dead, ~~or~~ poorly structured branches, and crossing branches. V branching less than 45 degrees and trees with co-dominate leaders will not be accepted. Trees shall never be clipped back or topped.

The following are the minimum sizes for plant material. Larger sizes may be required to provide a landscape effect.

- Caliper: 60 mm
- Root Ball Diameter: 70 cm

No single species shall make up more than 30% of the total subdivision Street Tree population per street. This is to prevent disease susceptibility and eventual uniform senescence.

Pruning may be required after planting at the discretion of the Public Works and Engineering Department.

Tree Maintenance Requirements During Establishment and Warranty Period
The developer or contractor is expected to adequately and regularly maintain newly-planted trees throughout the warranty and maintenance period, in accordance with the maintenance plan outlined in the planting plans. Each site will have specific maintenance requirements. However, the following guidelines and standards pertain to maintenance during the warranty and maintenance period for all plantings:

- Water to maintain soil moisture conditions for optimum establishment, growth and health of plant material without causing erosion. In a typical loam soil, optimum soil moisture in planting beds at root depth is 65% of field capacity. Guidelines during a typical growing season are as follows:
    - Deep root water newly planted plants once per week for the first three weeks, such that the water penetrates to a minimum depth of 300mm.
    - Deep root or surface water trees and shrubs a minimum of every ten (10) days between May 15 and September 15.
    - Deep root or surface water trees and shrubs a minimum of every twenty-one (21) days between September 15 and freeze up.
    - Water evergreen plants thoroughly in late fall prior to freeze-up to saturate soil around root system.
- Soil moisture to be monitored throughout the growing season:
    - Watering schedule to be increased when plant materials are reaching the permanent wilting point.
    - Watering schedule to be reduced when a sufficient volume of rainfall has penetrated the soil fully as required.
- Replace or respread damaged, missing or disturbed mulch.
- If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Township prior to application.
    - If chemical means are used, comply with current municipal, provincial, and federal legislation and regulations.
- Remove dead or broken branches from plant material using clean sharp horticultural

tools using current arboricultural practices.
- Keep trunk protection and guy wires in proper repair and adjustment.
- Provide adequate protection from winter, wind and rodent damage. Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings, unless otherwise directed by the Public Works and Engineering Department.
- Remove trunk protection, tree supports and level watering saucers at end of warranty period, unless otherwise directed by the Public Works and Engineering Department.

Guidelines for demarcation and tree planting

Where demarcation is required under a development agreement (i.e., plan of subdivision, consent) demarcation using trees in conjunction with monuments is preferred. Trees shall be installed between each monument.

Refer to Section 1.8 for details regarding demarcation monument placing and dimensions.

Tree Preservation

Depending on the nature of the existing site conditions, the Public Works and Engineering Department may require a Tree Preservation Plan as part of the Infill, Site Plan and Plan of Subdivision submission or Township Capital Project.

Tree retention and replacement:

Purpose statement

The purpose of this procedure is to outline the required action to protect trees during construction. This procedure shall represent the standard specifications for tree protection whenever tree protection measures are required by the Public Works and Engineering Department. Higher standards of tree protection may be imposed where warranted at the direction of the Director of Public Works and Engineering having regard to the size, variety, location and health of the tree, and any circumstances surrounding the construction which requires additional tree protection measures.

Scope

This procedure applies to Township trees covered under any municipal process or agreement relating to construction within the Right of Way, SWMF, etc.

General procedure

Township-owned trees ~~(on Property line or within Municipal Right of Way, SWMF etc.) required~~ to be removed as a result of construction activities must receive approval by the Public Works and Engineering Department. If approval is granted for removal of Township owned trees, the applicant will assume all costs/liability involved and shall either:

1. Pay the amenity value of the tree(s) calculated in accordance with the most recent International Society of Arboriculture Guide for Plant Appraisal; or
2. Plant the equivalent number of trees based upon a “no net loss or canopy cover” objective as determined by the Township Public Works and Engineering Department. Where tree relocation is approved, the applicant will assume all relocation and establishment costs.

The Minimum Tree Protection Zone

The Minimum Tree Protection Zone (MTPZ) is the minimum setback required to maintain the structural integrity of the tree’s anchor roots, based on generally accepted arboricultural principles. If trees are protected to the MTPZ then the tree’s anchor root structure is expected to be maintained.

No unauthorized activities may take place within the MTPZ of a tree covered under any municipal permit process or agreement. The following chart shows the MTPZ. Some trees and site conditions may require a greater setback at the Public Works and Engineering Department’s discretion. Impacts within the minimum tree protection zone may be considered by the Township where additional investigations that may include exploratory root sensitive excavations to documentation and demonstrate that the structural integrity of the tree will not be compromised. Root sensitive excavation shall be undertaken by or under the observation of an International Society of Arboriculture Certified Arborist, Ontario Registered Professional Forester, or American Society of Consulting Arborists Registered Consulting Arborist.

Diameter of Trunk (DBH)[2] in centimetres	**MinimumTree Protection Zone[3]** Distance from trunk measured in metres
<10	1.8
10-30	2.4
31-50	3.0
51-60	3.6
61-70	4.2
71-80	4.8
81-90	5.4

91-100	6.0

1. For trees over 100 cm. DBH, add 10 cm. to the TPZ for every centimetre of DBH.
2. Roots can extend from the trunk to 2-3 times the distance of the drip line.
3. Diameter at breast height (DBH) measurement of tree trunk taken at 1.37 metres above ground.
4. Tree Protection Zone distances are to be measured from the outside edge of the tree base towards the drip line and may be limited by an existing paved surface, provided the existing paved surface remains intact throughout the construction work.

Tree protection barriers

Trees within or adjacent to a construction site must be protected during construction by means of a barrier and meet the following specifications:

- Tree protection barriers are to comply with the current version of the Regional Municipality of Waterloo Standard Specification RWSSP 801- Trees and Shrubs
- Tree protection barriers must be erected prior to the commencement of any construction activity that may injure a tree on the site and are to remain in place throughout the entire duration of the Development, Capital, Municipal Consent project. The applicant shall notify the Public Works and Engineering Department in writing prior to commencing any such activities to confirm that the tree protection barriers are in place.
- The tree protection barriers specified herein must remain in a condition satisfactory to the Township until all site activities including landscaping are complete.
- Authorization from the Public Works and Engineering Department be obtained prior to the removal of tree protection barriers.
- If some fill or excavated material must be temporarily located near the tree protection barrier, a wooden barrier or geotextile barrier to Regional Municipality of Waterloo Standard Specification RWSSP 805 - Erosion and Sediment Control must be used to ensure no material enters the TPZ.

Tree Protection Zone

- No grade change, storage of materials or equipment is permitted within this area.
- Unauthorized removal of the tree protection barrier or other contraventions may result in with holding funds, actions by the Township to remove the material, etc.

Arborist Report:

An Arborist Report is required: where multiple trees are involved in a Capital Project, Municipal Drain a Municipal Consent, and/or a planning application at the discretion of the Township.

An Arborist Report shall be prepared by an Arborist and must include but is not limited to the following:

- Species referenced to municipal address, ownership and location through an accurate plotting and identification of all trees on the plan;
- Diameter at breast height (DBH), measured in centimeters at 1.37 metres above ground level;
- Crown spread (Drip Line), measured in metres;
- Tree health/disease;
- Soil compaction inside the TPZ using methods approved by the Township;

- Tree risk assessment for trees deemed hazardous as assessed by the arborist with Tree Risk Assessment Qualification, must be provided in accordance with "Best management Practices, Tree Risk Assessment, International Society of Arboriculture" as revised from time to time, including a photographic record of each tree as required by the Township; and
- For each tree identified as being preserved and each tree recommended for removal, the valuation as determined by the most recent International Society of Arboriculture's Guide for Plant Appraisal.

The Township may request additional information in an arborist report for Capital projects, Municipal drain, Municipal Consents, and planning applications at the discretion of the Township Public Works and Engineering Department.

Securities for tree protection:

Where tree protection measures are required as a condition of any approval / acceptance or permit for Capital, Development and Municipal Consent Projects, the Public Works and Engineering Department will require securities to secure the protection of trees. The required securities, based on valuation as determined by the most recent International Society of Arboriculture's Guide for Plant Appraisal or as determined by the Public Works and Engineering Department shall be held by the Township for a period specified by the Township (minimum 1yr). Early release of securities may occur provided the Director of Public Works and Engineering is satisfied that the tree has not been damaged. Applicants requesting for the early release/reduction of securities or final release shall submit for acceptance an Audit from an arborist certifying that the tree is in a state of vigorous health and has not been injured or destroyed as a result of the construction activities.

Tree Protection Audits

Tree Protection Audits prepared by an arborist are required for all trees present or adjacent to a construction site when activity, or the potential for activity, takes place within the MTPZ. A schedule of audits by an arborist will be specified at the discretion of the Public Works and Engineering Department and shall consist of a minimum of three written site inspection reports. These tree protection audits shall include the following:

- Tree Impact Evaluation:
  - Disturbances which occurred within MTPZ
  - Excavation distance from the trunk and depth of excavations (e.g. grade changes, underground utilities, pavement section, footings, foundations, etc.)
  - A soil compaction comparison to pre construction condition
  - Distance and diameter of any severed structural roots (greater than 25mm in diameter) to the trunk
- Mitigation process and costs:
  - Pruning, irrigation, fertilization, and mulching requirements
- Tree Hazard mitigation, if applicable
- Tree replanting program, if applicable
- Soil amendments (e.g. soil aeration, soil removal and replacement, etc.)

- Recommendations for removal of severely damaged or hazardous trees
- Provide photographic records where appropriate
- Compliance with this procedure
- Failure to comply with this procedure may result in one or more of the following:
    - An Order to Comply
    - Loss of security in whole or in part
    - Prosecution under an applicable by-law
    - Additional remedial costs as determined by the Township

Sodding

Turf grass nursery sod, specially sown and cultivated in nursery field in all compliance with the specifications of the latest issue of the Nursery Sod Growers Association of Ontario for (A) Number One Kentucky Bluegrass-Fescue Sod shall be used.

Sodding shall be as per TWSS 803 and the following but not limited to:

During dry weather is acceptable only if sufficient and continuous watering is assured. Delivery is to be scheduled in order to keep storage on the job site to a minimum without causing delays. Sod shall be delivered, unloaded and stored on pallets. Sod shall be delivered to site

within 24 hours of being cut and laid within 36 hours of being cut. Small, irregular or broken pieces of sod shall not be delivered.

During dry weather, protect sod from drying and water sod as necessary to ensure its vitality and prevent dropping of soil in handling. Sod which dries out will be rejected. Sod laying shall be scheduled with topsoil operations. Do not begin to install sod without inspection and acceptance of subgrade and topsoil preparation. Topsoil must be free of stones, debris and weeds and fine graded to grade indicated on plan prior to start of sodding operation. See Section **Error! Reference source not found.** For more details.

All slopes at 3:1 require pegging. Slopes greater than 3:1 will not be accepted. Lay sod even with adjoining landscape areas. The rows shall have staggered joints. Sod joints shall be cut into existing grassed areas when applicable. A smooth transition shall be applied for maintenance purposes. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections. Provide close contact between sod and soil by means of a light roller. Heavy rolling to correct irregularities in grade is not permitted. Water sod immediately after laying to obtain moisture penetration into top 150 mm of topsoil.

Sodded areas may be accepted provided that sod is established and free of bare or dead spots and weeds. It is the Subdivider/Developer/Contractor's responsibility to maintain the sodded areas in good condition until Final Acceptance of the Capital, Municipal Consent, Development project. Provide adequate protection of sodded areas against erosion and other damage. Remove protection after sod has become established. Maintenance includes but is not limited to weeding, fertilizing as required by soil tests, cutting as required to maintain sod at a maximum height of 60 mm and watering.

Natural Area Restoration

For restoration or enhancement of natural areas, a report completed by a qualified Landscape Architect should outline the feature and plant species found within and propose any enhancement or restoration with the use native species adjacent to natural areas, or appropriate cultivars. Native species should be those found in the feature or found in other such features across the Region.

Boulevard / Round-a-bout / Cul-de-sacs

The following are standards for the landscaping of boulevard, round-a-bouts, islands etc. The Township Public Works and Engineering Department shall accept all soil conditions and planting on the public right of way.

Subdivision Developments shall provide for boulevard / island landscaping in addition to tree planting, as part of the development process. 50% of the capital construction costs is to be provided to the Township for maintenance of the landscape features.

Boulevard

In addition to the sidewalk, a landscaped strip shall be provided between the curb and the property line. The boulevard shall be installed as per the following:

- Edges will be tapered, and adjacent sod will be installed flush to the finished surface of walkway so as not to trap water on the pathway surface.
- Topsoil shall be installed at a depth of 450mm or deeper up to 1000mm to meet soil volumes for proposed street trees.
- Shall be a minimum of 1.5 metres in width

Round-a-bout/ Traffic Circles/ Cul-de-sac Islands

Where required, roundabouts, traffic circles and cul-de-sac islands strip shall be provided to the satisfaction of the Public Works and Engineering Department and as per the following:

- Topsoil shall be a minimum of 450 mm in depth
- Where plantings are required, they shall be installed as per the planting criteria.
- Generally, appropriate and easy to maintain plantings shall be provided in the center of traffic islands and roundabouts.

Snow Storage

- At traffic circles and cul-de-sac islands, a grassed area or concrete strip of 1.5 to 2 metres shall be provided around the edge of the island for snow storage. Round-a-bouts require a concrete strip of a minimum of 3 metres around the edge for snow storage.
- Where overflow parking or bio-retention areas are provided, these areas may be used for snow storage.
- Hard surfaced areas used for snow storage are encouraged to retain snowmelt on-site.
- Ensure overland flow routes and stormwater inlets and outlets are clear of debris and snow piling.

5.11 Street lighting

Within the Township of Wilmot, streetlighting design is completed by Kitchener-Wilmot Hydro (KW Hydro), with the exception of Ornamental Streetlighting Design. Street lighting is to be designed by a qualified electrical consulting engineer and in accordance with all applicable regulating authorities, meet ESA and ANSI/IES RP-8-18 as amended.

The specifications for standard streetlighting equipment for the Township of Wilmot include:

- Cobra-head luminaire, Leotek Electronics, GreenCobra part numbers: GCJ0-15HMV-WW-2R-GY-700-PCR7-CR, GCJ1-20H-MV-WW-2R-GY-580-PCR7-CR or approved equivalent;
- Round, concrete StressCrete part number: E32.5-BPR-G-MOO S/F 120, or approved equivalent.
- Street poles shall include future connections for the 5G network infrastructure / capabilities

Section 12 - Appendix

- Water Meter Policy
- Grading letter
- Schedule D
- Suvey Monument Record Sheet
- Municipal Consent Manual
- Recommended Tree Species List

			ESA Zones			Planting Locations					
Botanical Name	Common Name	Approximate Mature Height/Spread	Low Zone[4]	Medium Zone[5]	Tall Zone[6]	Rural Roads	Urban/Settlement Roads	Parks	Natural Areas[7]	Ornamental Areas	Min. Soil Volume (m3)[8]
Native or Native Cultivar Species[1]											
ABIES BALSAMEA	BALSAM FIR	18/6m			●			●	●		24
ACER X FREEMANII CELZAM	CELEBRATION MAPLE	15/8m			●	●	●	●		●	30
ACER X FREEMANII JEFFERSRED	AUTUMN BLAZE MAPLE	16/13m			●	●	●	●		●	30
ACER X FREEMANII SIENNA	SIENNA MAPLE	16/10m			●	●	●	●		●	30
ACER RUBRUM	RED MAPLE	16/15m			●	●		●	●		30
ACER RUBRUM ARMSTRONG	ARMSTRONG MAPLE	14/5m			●		●	●		●	24
ACER RUBRUM FRANKSRED	RED SUNSET MAPLE	14/12m			●		●	●		●	30
ACER RUBRUM MORGAN	MORGAN RED MAPLE	15/12m			●		●	●		●	30
ACER SACCHARINUM	SILVER MAPLE	18/15m			●	●			●		30
ACER SACCHARUM COLUMNARE	COLUMNAR SUGAR MAPLE	12/3m			●		●			●	24
ACER SACCHARUM ENDOWMENT	ENDOWMENT SUGAR MAPLE	17/5m			●		●			●	24
ACER SACCHARUM GREEN MOUNTAIN	GREEN MOUNTAIN MAPLE	18/15m			●	●		●			30
ACER SACCHARUM SSP NIGRUM	BLACK MAPLE	15/8m			●	●	●	●	●		30
ACER SACCHARUM SSP SACCHARUM	SUGAR MAPLE	25/15m			●	●		●	●		30
ACER SACCHARUM TEMPLES UPRIGHT	TEMPLES UPRIGHT MAPLE	15/3m			●		●			●	30
AESCULUS GLABRA	OHIO BUCKEYE	7.5/7m		●				●			24
AMELANCHIER ARBOREA	DOWNY SERVICEBERRY	7.5/7.5m		●				●	●	●	24
AMELANCHIER LAEVIS	ALLEGHENY SERVICEBERRY	4.5/4m	●					●	●	●	15
AMELANCHIER LAEVIS R J HILTON	R J HILTON SERVICEBERRY	4/3m	●					●		●	15
ASIMINA TRILOBA[3]	PAWPAW	7.5/5m		●				●		●	24
BETULA PAPYRIFERA	PAPER BIRCH	15/10m			●			●	●	●	24
CARPINUS CAROLINIANA	BLUE BEECH	7.5/7.5m		●		●		●	●	●	24
CARYA CORDIFORMIS	BITTERNUT HICKORY	15/14m			●			●	●		30
CARYA OVATA	SHAGBARK HICKORY	20/15m			●			●	●		30
CELTIS OCCIDENTALIS	HACKBERRY	20/18m			●	●	●	●			24
CERCIS CANADENSIS	EASTERN REDBUD	7.5/7m		●			●				24
CORNUS ALTERNIFOLIA	ALTERNATE-LEAF DOGWOOD	4/7m	●						●	●	15
FAGUS GRANDIFOLIA	AMERICAN BEECH	20/16m			●			●	●		30
GLEDITSIA TRIACANTHOS SKYCOLE	SKYLINE HONEY LOCUST	12/9m			●		●	●			30
GLEDITSIA TRIACANTHOS SUNBURST	SUNBURST HONEY LOCUST	10/10m			●					●	30
GYMNOCLADUS DIOICA	KENTUCKY COFFEE-TREE	17/13m			●	●	●				30
JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	7/3m		●							15
LARIX LARICINA	TAMARACK	18/6m			●			●	●		24
LIRIODENDRON TULIPIFERA	TULIP TREE	25/15m			●	●		●			30
MAGNOLIA ACCUMINATA[3]	CUCUMBER TREE	20/15m			●			●		●	24
OSTRYA VIRGINIANA	IRONWOOD	10/7m			●		●	●	●	●	24
PICEA GLAUCA	WHITE SPRUCE	20/8m			●			●	●	●	30
PINUS STROBUS	EASTERN WHITE PINE	20/10m			●			●	●		30
POPULUS TREMULOIDES	TREMBLING ASPEN	10/5m			●			●	●		24
PRUNUS SEROTINA	BLACK CHERRY	18/8m			●			●	●		30
PRUNUS VIRGINIANA	CHOKECHERRY	6/5m		●				●	●		15

			ESA Zones			Planting Locations					
Botanical Name	Common Name	Approximate Mature Height/Spread	Low Zone[4]	Medium Zone[5]	Tall Zone[6]	Rural Roads	Urban/Settlement Roads	Parks	Natural Areas [7]	Ornamental Areas	Min. Soil Volume (m3)[8]
PLATANUS OCCIDENTALIS	SYCAMORE	27/20m			●	●		●			30
PTELEA TRIFOLIATA[3]	COMMON HOPTREE	4.5/4.5m	●						●	●	15
QUERCUS ALBA	WHITE OAK	18/18m			●	●		●	●		30
QUERCUS BICOLOR	SWAMP WHITE OAK	15/15m			●		●	●			30
QUERCUS MACROCARPA	BUR OAK	18/13m			●	●	●	●	●		30
QUERCUS MUEHLENBERGII	CHINQUAPIN OAK	15/12m			●		●	●			30
QUERCUS RUBRA	RED OAK	16/15m			●	●		●	●		30
QUERCUS SHUMARDII	SHUMARD OAK	12/10m			●	●	●	●			30
THUJA OCCIDENTALIS	EASTERN WHITE CEDAR	10/3m			●			●	●		15
TILIA AMERICANA	BASSWOOD	20/13m			●	●		●	●		30
TILIA AMERICANA REDMOND	REDMOND LINDEN	15/9m			●	●	●	●			30
TSUGA CANADENSIS	EASTERN HEMLOCK	18/8m			●			●	●		30
ULMUS AMERICANA NEW HARMONY	NEW HARMONY ELM	20/21m			●	●	●	●			30
ULMUS AMERICANA PRINCETON	PRINCETON ELM	18/10m			●	●	●	●			30
ULMUS AMERICANA VALLEY FORGE	VALLEY FORGE ELM	18/15m			●	●	●	●			30
		Subtotal (Native species only)	4	7	45	22	23	46	27	21	

			ESA Zones			Planting Locations					
Botanical Name	Common Name	Approximate Mature Height/Spread	Low Zone[4]	Medium Zone[5]	Tall Zone[6]	Rural Roads	Urban/Settlement Roads	Parks	Natural Areas[7]	Ornamental Areas	Min. Soil Volume (m3)[8]
Non-native Species [2]											
ABIES CONCOLOR	WHITE FIR	15/5m			●			●		●	30
ACER GINNALA	AMUR MAPLE	4.5/4.5m	●				●			●	15
ACER TATARICUM	TATARIAN MAPLE	7.5/5m		●			●			●	15
AESCULUS CARNEA BRIOTII	RUBY-RED HORSE CHESTNUT	10/10m			●					●	24
AESCULUS HIPPOCASTANUM BAUMANNII	BAUMANN HORSE CHESTNUT	18/15m			●			●			30
CATALPA SPECIOSA	NORTHERN CATALPA	16/12m			●			●			30
CERCIDIPHYLLUM JAPONICUM	KATSURA TREE	15/7m			●		●			●	24
CHAMAECYPARIS NOOTKATENSIS	NOOTKA FALSE CYPRESS	10/6m			●		●			●	24
CHAMAECYPARIS NOOTKATENSIS PENDULA	WEEPING NOOTKA FALSE CYPRESS	9/5m			●		●			●	24
CORNUS FLORIDA 'RUBRA'	PINK FLOWERING DOGWOOD	4.5/4.5m	●							●	15
CORNUS KOUSA	JAPANESE DOGWOOD (TREE FORM)	4.5/3.5m	●							●	15
CORYLUS COLURNA	TURKISH HAZEL	12/6m			●		●			●	24
CRATAEGUS PHAENOPYRUM	WASHINGTON HAWTHORN	7.5/7.5		●			●			●	15
FAGUS SYLVATICA	EUROPEAN BEECH	15/12m			●			●		●	30
FAGUS SYLVATICA ATROPUNICEA	PURPLE BEECH	21/15m			●			●		●	30
FAGUS SYLVATICA FASTIGIATA	PYRAMIDAL BEECH	11/4m			●			●		●	30
FAGUS SYLVATICA PENDULA	WEEPING BEECH	10/8m			●			●		●	30
GINKGO BILOBA (MALE TREES ONLY)	MAIDENHAIR TREE	17/11m			●						30
GINKGO BILOBA MAGYAR	MAGYAR MAIDENHAIR TREE	16/6m			●		●			●	24
LARIX DECIDUA	EUROPEAN LARCH	18/6m			●			●		●	24
MAGNOLIA STELLATA	STAR MAGNOLIA (TREE FORM)	3/4m	●					●		●	15
MAGNOLIA X SOULANGEANA	SAUCER MAGNOLIA	4.5/3m	●					●		●	15
MALUS ADIRONDACK	ADIRONDACK CRAB APPLE	3.5/2m	●				●	●		●	15
MALUS CALLAWAY	CALLAWAY CRAB APPLE	3/3m	●				●	●		●	15
MALUS HARGOZAM	HARVEST GOLD CRAB APPLE	4.5/4m	●				●	●		●	15
MALUS PRAIRIEFIRE	PRAIRIE FIRE CRAB APPLE	4.5/4.5m	●				●	●		●	15
MALUS ROBINSON	ROBINSON CRAB APPLE	7.5/7.5m	●				●	●		●	15
MALUS SUTYZAM	SUGARTYME CRAB APPLE	4.5/4m	●				●	●		●	15
MALUS CENTURION	CENTURION CRAB APPLE	6/4.5m		●			●	●		●	15
METASEQUOIA GLYPTOSTROBOIDES	DAWN REDWOOD	20/7m			●			●		●	30
PICEA ABIES	NORWAY SPRUCE	20/8m			●			●		●	30
PICEA OMORIKA	SERBIAN SPRUCE	18/6m			●			●		●	30
PICEA PUNGENS	COLORADO SPRUCE	15/4m			●			●			30
PICEA PUNGENS GLAUCA	COLORADO BLUE SPRUCE	15/4m			●			●		●	30
PICEA PUNGENS HOOPSII	HOOPS COLORADO SPRUCE	10/4m			●			●		●	24
PICEA PUNGENS KOSTER	KOSTER COLORADO SPRUCE	15/4m			●			●		●	30
PINUS NIGRA	AUSTRIAN PINE	16/12m			●			●		●	30
PLATANUS X ACERIFOLIA BLOODGOOD	BLOODGOOD PLANE TREE	14/10m			●		●	●		●	30
PRUNUS MAACKII	AMUR CHERRY	7.5/6m		●						●	15
PRUNUS SERRULATA KWANZAN	KWANZAN CHERRY	7.5/5m		●						●	15

			ESA Zones			Planting Locations					
Botanical Name	Common Name	Approximate Mature Height/Spread	Low Zone[4]	Medium Zone[5]	Tall Zone[6]	Rural Roads	Urban/Settlement Roads	Parks	Natural Areas[7]	Ornamental Areas	Min. Soil Volume (m3)[8]
PYRUS CALLERYANA BRADFORD	BRADFORD PEAR	13/7m			●		●	●		●	**24**
PYRUS CALLERYANA GLEN'S FORM	CHANTICLEER PEAR	11/4m			●		●	●		●	**15**
PYRUS CALLERYANA REDSPIRE	REDSPIRE PEAR	13/6m			●		●	●		●	**24**
QUERCUS IMBRICARIA	SHINGLE OAK	12/12m			●			●		●	**30**
QUERCUS ROBUR	ENGLISH OAK	18/13m			●		●	●			**30**
QUERCUS ROBUR FASTIGIATA	PYRAMIDAL ENGLISH OAK	15/5m			●		●			●	**24**
SORBUS THURINGIACA FASTIGIATA	OAKLEAF MOUNTAIN-ASH	6/3m		●							**15**
SYRINGA RETICULATA IVORY SILK	IVORY SILK TREE LILAC	7.5/5m		●			●	●		●	**15**
TILIA CORDATA GLENLEVEN	GLENLEVEN LINDEN	14/10m			●		●	●			**30**
TILIA CORDATA GREENSPIRE	GREENSPIRE LINDEN	16/12m			●		●	●			**30**
TILIA CORDATA RONALD	NORLIN LINDEN	13/9m			●		●	●		●	**30**
ULMUS ACCOLADE	ACCOLADE ELM	15/9m			●		●	●			**30**
ULMUS X HOMESTEAD	HOMESTEAD ELM	15/9m			●		●	●			**30**
ULMUS X PIONEER	PIONEER ELM	25/15m			●		●	●			**30**
ZELKOVA SERRATA GREEN VASE	GREEN VASE ZELKOVA	16/13m			●		●	●		●	**30**
		Subtotal (Non-native species)	11	7	37	0	29	39	0	44	
		Total (Native and Non-native)	15	14	82	22	52	85	27	65	

[1] Native Trees - tree species native to southern Ontario OR cultivated varieties of tree species native to southern Ontario. May not be native to Township of Wilmot.

[2] Non-native Trees - tree species not native to southern Ontario OR cultivated varieties of non-native species

[3] Due to shifting hardiness zones caused by climate change, these trees may now be suitable in the Township

[4] Low Zone – is the area under the power lines and extends to 4.5 m (15 ft) on either side. Trees and/or shrubs planted in this zone should have a maximum mature height and spread of 4.5 m (15 ft) - per Electrical Safety Authority guidelines

[5] Medium Zone – extends from the edge of the outer edge of the Low Zone to a distance of 7.6 m (25 ft) on either side of the power line. The maximum mature height and spread of trees planted in this zone should be 7.6 m (25 ft) - per Electrical Safety Authority guidelines

[6] Tall Zone – extends from the outer edge of the Medium Zone extending greater than 7.6 m (25 ft) from the power lines. Any strong and healthy tree may be planted in this zone - per Electrical Safety Authority guidelines

[7] Natural areas may generally use any tree species native to south central Ontario, appropriate for site conditions

[8] Minimum soil volume recommendations for a single tree. For trees planted in groups or continuous soil trenches, approximately half of the required soil volumes may be shared